

Homestead design Kattekærhus



Cathrine Dolleris

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Homestead design Kattekærhus

Background

The aim of this design is to make a viable homestead design for living at Kattekærhus.

I moved into Kattekærhus (lit. Dear Cat House) in June 2014. The idea was to establish a base here, with a livelihood based on a selection of different activities, some of them using the house and the garden. The property Kattekærhus seemed appropriate for a number of reasons: inexpensive, so didn't have to take a mortgage; a fair sized house for private space, guest rooms and a teaching space; Old stables for workshop and storage; close to parents living in the next village; a lot of potential for many different activities, B&B, little shop, café and collective.



The property needs a lot of work and restoration. This was a task I was prepared to take on, considering the price of the place, my large network of eco-builders, access to volunteers through the wwoof and permaculture networks and my well skilled father living nearby.

My wish is to be able to live a semi-self-sufficient life. I want to produce a large part of my food in the garden, but I don't strive for 100%, as this would require too much time, effort and skills that I don't possess. I prefer to use my skills within geography, communication, project management, education and

permaculture to give a balance between physical and mental work. In time, I would like Kattekærhus to become a LAND centre.

This design aims at exploring the patterns of the property, the possibilities of the land, the flow between indoors and outdoors, and giving direction to the development of land use. It does not aim to go into detail with specific elements of the design. I have worked out separate designs for the forest garden and one for rocket mass heater, which give more details. Also the Seaweed mulch design and Universal Tea design centre around Kattekærhus.

How I did the design

Embodiment of ethics

I have chosen permaculture as my lifestyle, the core of my activities and how I perceive the world. This means that I have embraced the ethics fully as my point of departure in all that I do. I don't want to be fanatic and sometimes I do things I know could be a little better, I'm only human! However, when it comes to design my homestead, I have taken great care to embody permaculture ethics and also principles.

As my home, the most important ethic to look at for me is People Care. My long term goals and desired quality of life comes into play here. To be content and happy, to care for myself, these are important goals that give my life and decisions direction. The way I have formulated my goals and quality of life are found on this page and they are my interpretation of the ethics, what the ethics means to me. Working with the ethics were my guideline when choosing this house as my home.

To be more concrete, **People Care** in my house is first and foremost about me, since I live alone as it is now. To thrive, I need people around me, closeness to family and a resourceful community, so it is also important for me to cater for others' needs in my home.

My private people care is about living a lifestyle with a lot of freedom. A big part of this means being mortgage free. I had some savings from my pre-permaculture life and I chose to invest it all in the house to be mortgage free. This means

Long term goal 1:

To incorporate permaculture ethics and principles into all aspects of my life and continually refine them and integrate them into my decision making process.

Long term goal 2:

To be an effective agent in expanding and disseminating education in and knowledge of permaculture as a means to make regeneration of the resources of the Earth possible.

Long term goal 3:

To provide options for increasing happiness and contentment of people and myself within the limits of our biological resources.

Quality of life

I would like provision of my basic needs done in a sustainable way – socially, environmentally and economically. My house and my garden can accommodate my needs and the needs of the community around me when they visit – there's enough space for guests, a friendly atmosphere and educational activities.

The house should be retrofitted to be healthier and less energy consuming. The garden should be a diverse green space that provides food (50%), play space, relaxation and nature connection. Economically, I have no mortgage and I only need to work part time in meaningful jobs promoting a more sustainable and happy lifestyle and permaculture.

now that the house needs a lot of repairs, but I am not forced to have a paid job that I don't like. I can allow myself to focus on working with permaculture and create a meaningful occupation for myself.

The house is much too big for me alone. I'm happy with one room, a small kitchen and bathroom. I prefer to have everything in close proximity, so it's easy to find and so that I am not troubled with worrying about "stuff". However, this house has four bedrooms, a large living room and a lot of space for workshops. And this space I will use in my attempt to fulfil the side of People Care which is mostly about other people; I want to let my visitors enjoy my space, give them enough space, their own guest room, to cater for their own people care needs.

The extra space is also about **Fair Shares**; the living room will be used as a teaching space where knowledge about permaculture and sustainable living can be shared. The guest rooms will be used to accommodate people when they are doing a course here. The workshop space in the old stable will be used for sharing knowledge about tools and more and to keep materials.

The outdoor spaces will be both useful for my own consumption but also for demonstration and learning about permaculture and thus sharing surplus of knowledge. This can be sharing of my own knowledge and experiences, or facilitating sharing of the knowledge of people in the community or visiting permaculture teachers and volunteers. The regeneration of social capital is important to me. In Denmark, as in most places across the Earth, people move from the country side to the cities, steadily depleting the human resources of the rural areas. My move to this house on this island is my offering to add human resources and with my engagement in the community I hope to improve its social capital.

The **Earth Care** ethic is mostly embodied through the choice of organic building materials that will be consistent throughout the house where I will use only organic and/or reused materials. The house functions are designed to focus on resource cycles in energy and nutrients. The garden will provide for around maybe half of my needs of food, fuel and fun, thus reducing my contribution to the whole chain of consumption with its use of fossil fuels and polluting practices. Where it is possible I will regenerate the natural resources on the property. There is however not so much to regenerate, but much to maintain; the topsoil layer is deep retaining much water and providing good habitat for a range of plants, insects, fungi and animals in the garden. Biodiversity seems quite high and special habitats like rotten trees and old piles of branches are protected. However, the previous owner seems to have used especially the boundaries of the property as a garbage dump area and I see it as both Earth Care and People Care to clean up the sins of the past.

Getting down to work

One of the biggest hurdles to overcome in building a permaculture home is starting the actual work. The critical human factor is motivation, overcoming the inertia of taking on a big challenge. A big challenge is easier when it's broken down into smaller and manageable parts. When I select a small task to

complete, I make it easier for myself, and the successful completion of each simple task will bolster confidence, self esteem, and provide the momentum for the next task which follows.

Design is important – but so is action! To my experience even the most carefully designed plan will be changed many times when put into practice. There's no point micro-designing down to the last detail, that just leads to procrastination!

My strategies for getting started are therefore as follows:

1. Design BIG, start small – I roughly know what it is that I ultimately want to build, so I use an all-encompassing design that factors in all important design aspects, then construct it one small piece at a time using an iterative approach that allows for tweaking of decisions made.
2. The scale of the project – I live and make a living here at Kattekærhus, so the design needs to cater for my needs. I expect to use as many permaculture solutions as possible and follow the permaculture ethics and principles to the best of my ability. That means for example setting up a forest garden, working with renewable energy, limiting garbage and pollution, working with nature and community, but I also want to use my competences within communication, organisation and education to support my livelihood.
3. Critical design elements – these include water, wind, sun, orientation of garden, proximity to house, and location of elements according to requirements. Also, functions of different areas, existing structures inside and outside, people and community engagement.
4. Modular design – a highly efficient way to build a large property is to start small, use repeatable units (including guilds) that can be easily replicated. Also the modular design means looking at one area of the property at a time, using input-output analysis or another tool to integrate the area properly into the overall design with beneficial connections and functions.
5. Design element size priority- a critical construction priority is to put in the biggest elements on the design first, then design around them. For example, in the house, the heating system goes in first, then the furniture is arranged around it. Likewise in a stacked food forest design, trees go in first, then all the progressively smaller parts and plants are planted around the trees. The smallest elements, such as ground cover plants are planted last. The rationale of this process is that practical application is much easier when the main structures have been thought through, i.e. building the foundation before the roof.

So, onto making a plan for the design

Observation of the property: I first visited the property 3 years before I bought it, when it was first announced for sale. Since then I have visited regularly at different times of the year and since moving in in June I have observed daily.

The **survey** includes location description, site survey of structures, resources and plants, sector survey, survey of areas and land uses, historical maps and the creation of a base map as well as survey of my own main needs and other's regarding Kattekærhus and the flow of my actions and movements on the property.

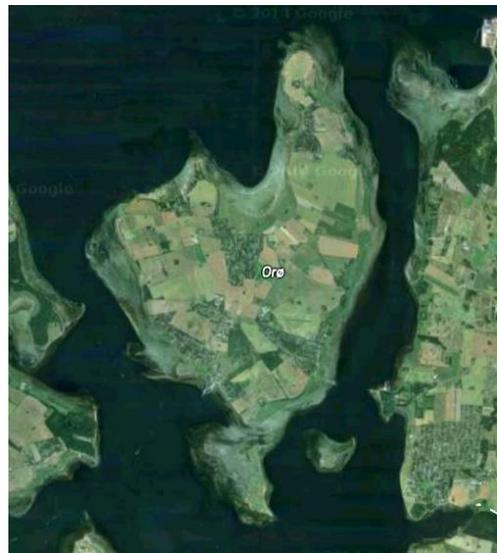
The **analysis** part includes bringing all the observations and surveys together. In the process of making the garden design and interior design, I kept in mind the flow of my actions, the functions of the area and elements involved and my own requirements. This was done through analysis of the potential and functions of the different areas and elements and also considering time and maintenance. This analysis gives the background for an input-output analysis between different elements. Many drawings, scribbles, thoughts and discussions of smaller parts have resulted in the design found here within.

The **design** is mostly about deciding finally where the elements should go to create most beneficial connections and fulfil permaculture ethics and principles in the best possible way.

Finally, I look at how to do the **implementation** and **reflection** on the design.

Survey for Kattekærhus

Kattekærhus is situated in a small village on a small island called Orø with 850 people. Orø is situated in the estuary Isefjord in the county of Holbæk. Copenhagen is 1.5 hours away by car, 2.5 hours away by public transport. The identity around being an islander is strong and the sense of community very present. The island's population grows dramatically in summer when the 5000 summerhouses situated on the island are in use.



Survey of factors on the property

Available Land:

- The property is about 943 m². The back garden area is around 430 m². The back yard is 118 m². The front garden 64 m². The driveway 86 m². A shed takes up 25 m². Area behind the old stables about 20 m². The house and old stables are 200 m².
- The back garden borders a communal abandoned area with trees to the east, thus extending into a zone 5 type area.

Boundaries:

- To the east of the property is an abandoned communal area, which now has full grown trees to about 15 meters high.
- To the south is a paved road.
- To the west a museum including: a barn for events that can hold up to 150 people; old stables, main house, garden area and orchard.

- To the north is a field used for machinery belonging to the big farmer on the island.

Climate:

- Denmark has a temperate climate, characterised by mild winters, with mean temperatures in January and February of 0.0 °C, and cool summers, with a mean temperature in August of 15.7 °C.
- Denmark has an average of 121 days per year with precipitation, on average receiving a total of 712 millimetres per year; autumn is the wettest season and spring the driest.
- Because of Denmark's northern location, there are large seasonal variations in daylight. There are short days during the winter with sunrise coming around 8:45 am and sunset 3:45 pm, as well as long summer days with sunrise at 4:30 am and sunset at 10 pm.
- Because Kattekærhus is on an island in a fjord/estuary it has slightly more even temperatures than the quoted data for Denmark.

Prevailing Winds:

- Strong, mostly from the West. Occasionally cold winds from the North East in winter, spring and autumn.

Soil:

- Loamy with mixture of clay, sand and small stones. Fertile.

Slope:

- There is a very, very slight slope towards east.

Altitude:

- The property is situated 9 meter above sea level.

Base map



Maps showing matrikel 40, Kattekærstrædet 8. The maps from the left to right are from 1808, 1860, 2014 and 2014. The big ash trees obscure the view of the garden on the satellite image. Copyright KMS and GoogleMaps.

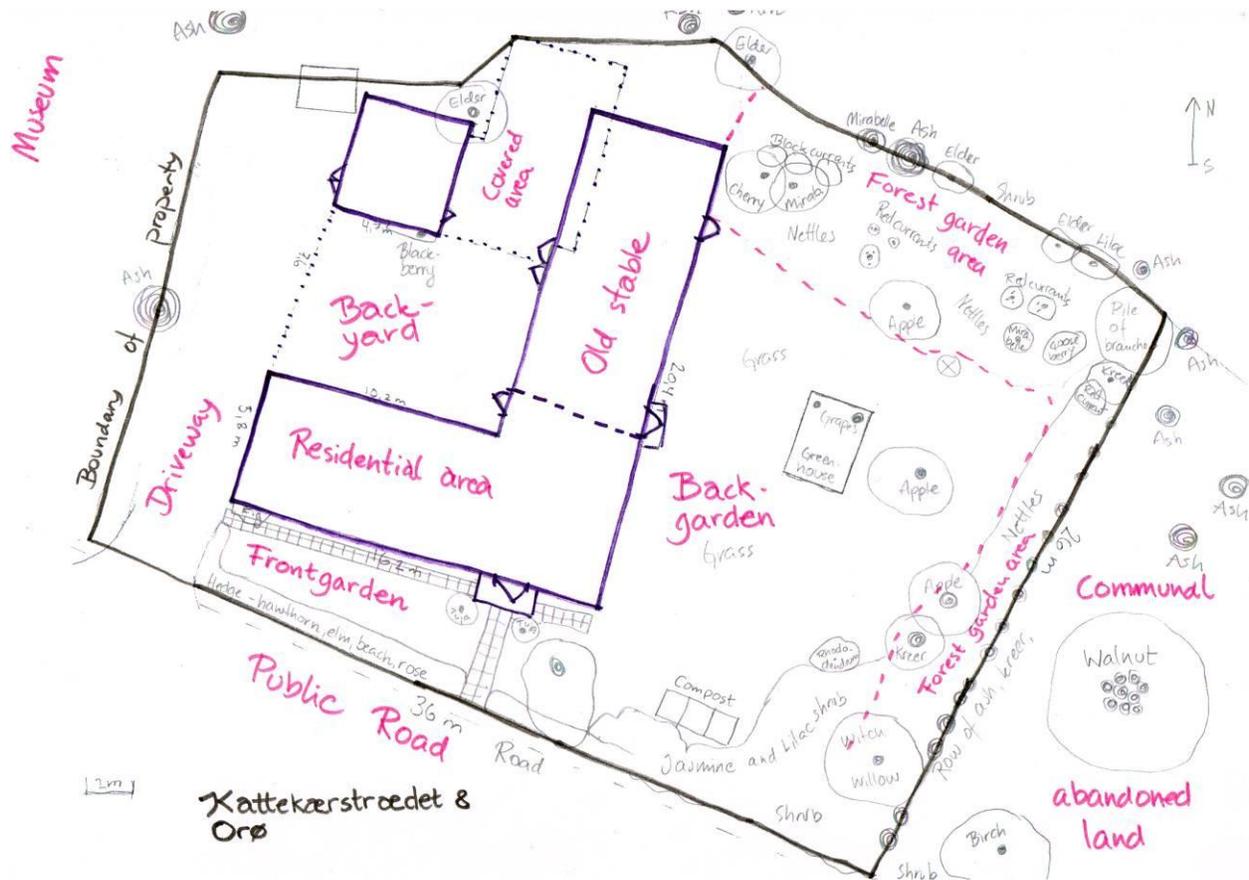
The base map is drawn from maps of the property. The sources are Kort- og Matrikelsstyrelsen's (the cadastral authority of Denmark) database online for the exact plot of land that I have purchased and Google Earth for observation of vegetation. The maps however show different delineation of the property, because of a communal area to the east of the property where a fire pond was once situated, but filled up sometime in the 1950's. I have chosen to go with the delineation which is observed in practice, i.e. where the fences and hedges are placed on the boundaries of the garden.

The map below shows the structures and trees observed on the property. The trees were triangulated onto the map with the use of corners of the house and greenhouse as anchor points.



Left: Deer are occasional guests in the garden. Right: The backyard from the utility room door looking towards the museum.

BASE MAP KATTEKÆRSTRÆDET 8



Base map of Kattekærstrædet 8, Orø, with significant structures, trees and name of main areas. The residential area is about 136 m² in two floors. The whole property is around 1000 m². I made the base map from the official "matrikel kort" that can be found on the government's official website and adjusted it according to the actual land use. April 2014.

Survey of existing land use: plants, structures and resources

Back garden:

- Mostly grass, nettles and shrubs (lilac, jasmine, kreer)
- Greenhouse with grapes
- 4 planted fruit trees
- Soft fruit bushes
- Several volunteering elder, Mirabelle, kreer.
- A witch willow
- Ash is dominating with several gigantic trees around the property as well as little ash trees growing from seed all over the garden.

- A compost system made of pallets with two compartments that I have created.

Existing Structures in the back garden

- Residence and old stable on the west side with 2 exit doors
- Small Green House centrally places in the back garden
- Compost system on the south side (built in June 2014)
- Wood/branches pile in the north eastern corner



Photos: Left: a view of the garden towards the north eastern corner in early June. Notice the enormous ash tree on the northern boundary and tall hedge on the eastern boundary. Right: first two sections of the compost system in place under dense lilac and jasmine shrub towards the road.

Trees and other plants in the hedge and abandoned communal area:

- Walnut
- Birch
- Ash
- Kreer
- Elder
- Ground elder



Photos: To the left the covered area in the backyard, to the right a look at the front garden.

Front garden, facing south:

- A mixed hedge with elm, hawthorn, ash, rose.
- 2 fair sized tuja bushes.
- Grass, some ornamental plants, bluebells
- A fig tree

Backyard:

- Paved with cracks
- A well and pump, not functioning
- A covered area, garage. Dripping when rain (shown on photo).
- A shed, 25 m², with serious oil spill inside.
- A camper, very bad smelling
- An area full of old, rusty stuff behind the old stables.

Driveway:

- Grass, hedges, roses, ornamentals
- A gigantic ash tree
- A clause saying that I'm not allowed to block the entrance to the neighbour.



Photos: To the left a part of the driveway looking at the western facing wall and to the right part of the living room with the original woodburner and the furniture and decoration left in the house from the previous owner.

House and old stable:

The house had all personal things and furniture from the previous owner. It has taken months so far to sort through all these things and there is still a whole loft of 100 m² to assess. Thus, more resources may appear. I have here listed the significant contributions and potential resources.

- Crockery for more than 20 people

- Old pots, pans, some nice cast iron pots
- Furniture
- 9 mattresses and bed linen
- Little things that can be sold on a flea market
- Old windows, doors, bicycles, skis, furniture – all needs fixing
- Old rusty tools, nails, bolts ...
- A wood work bench
- Some firewood
- + lots and lots more ...

Existing resources in abundance

- Stones
- Ash leaves, branches
- Seaweed nearby on the beach
- Car tires
- Old rusty tools
- Nettles and ground elder

To sum up, the resources on the property are plentiful, but not of high value in a monetary sense. However, using permaculture creativity and valuing the resources for their potential to be reused, recycled or repurposed they can be put to good use.

These resources will be part of the design, as far as possible, but before looking into this, I will describe my main needs in the capacity of the main stakeholder.

Survey of main functions, elements and resources available at the property

What I am aiming at with the homestead design:

Functions:

- Supplementary food supply for 1-2 people on a yearly basis, up to 12 people in peak season
- Educational aspect regarding Permaculture and sustainable living
- Supply of fruits, berries, vegetables, medicinal herbs, wood etc.
- Produce for a small shop (herbal tea, jam)
- Adding to the aesthetic beauty and healing quality of the property
- Improving bio-diversity and protecting wildlife and plants by providing habitat
- Engaging the local community through activities in the house and garden
- Enhancing community feeling through creating and maintaining the garden
- Events: Breakfast, lunch and dinner spots in the garden. Fireplace. Grassy area for gathering, play and work

Elements:

- Keep part of shrubs and trees for windbreak, shelter, habitat and undesired views
- Greenhouse on eastern facing wall of the residence south end
- Keep greenhouse with grapes in the centre of the garden
- Animals: 3-4 chicken, 2-3 ducks, 1 cat
- Places for relaxation and social activities – table with chairs, fireplace
- Workshop space for outdoor classes
- Trees: Nuts (hazel, chestnut), grafting of paradise apple to a more productive variety
- Fruit: Gooseberries, currants, different exotic berries, blackberries
- Vegetables: all year round greens, kale, herbs, onions, potatoes, tomatoes etc.

Available time

- 2-3 days per week

Economy available

- My income is at the moment from being LAND coordinator for Denmark, teacher training in permaculture, state support, waitressing at the local restaurant and public relations work. Being mortgage free, means that I only have to pay taxes, pay for what I consume (electricity, water, firewood) and normal living expenses (food, car, clothes, stuff). In months of surplus, this could be invested into the property, but it's quite small money.

Skills available

- I have some skills in green building and house restoration, but not enough to maintain Kattekærhus. I draw upon my network to learn more and expect to have workshops to learn new skills and share this knowledge to others as well.

The needs that the property should be able to cater for are quite substantial. Time, money and skills are limited resources.

Matching needs and resources available

Key questions to ask is then: “How do I develop land use based on the existing skills and resources while aiming to fulfil the needs and the vision in the long term?” and “Are my goals achievable and appropriate for the property?”

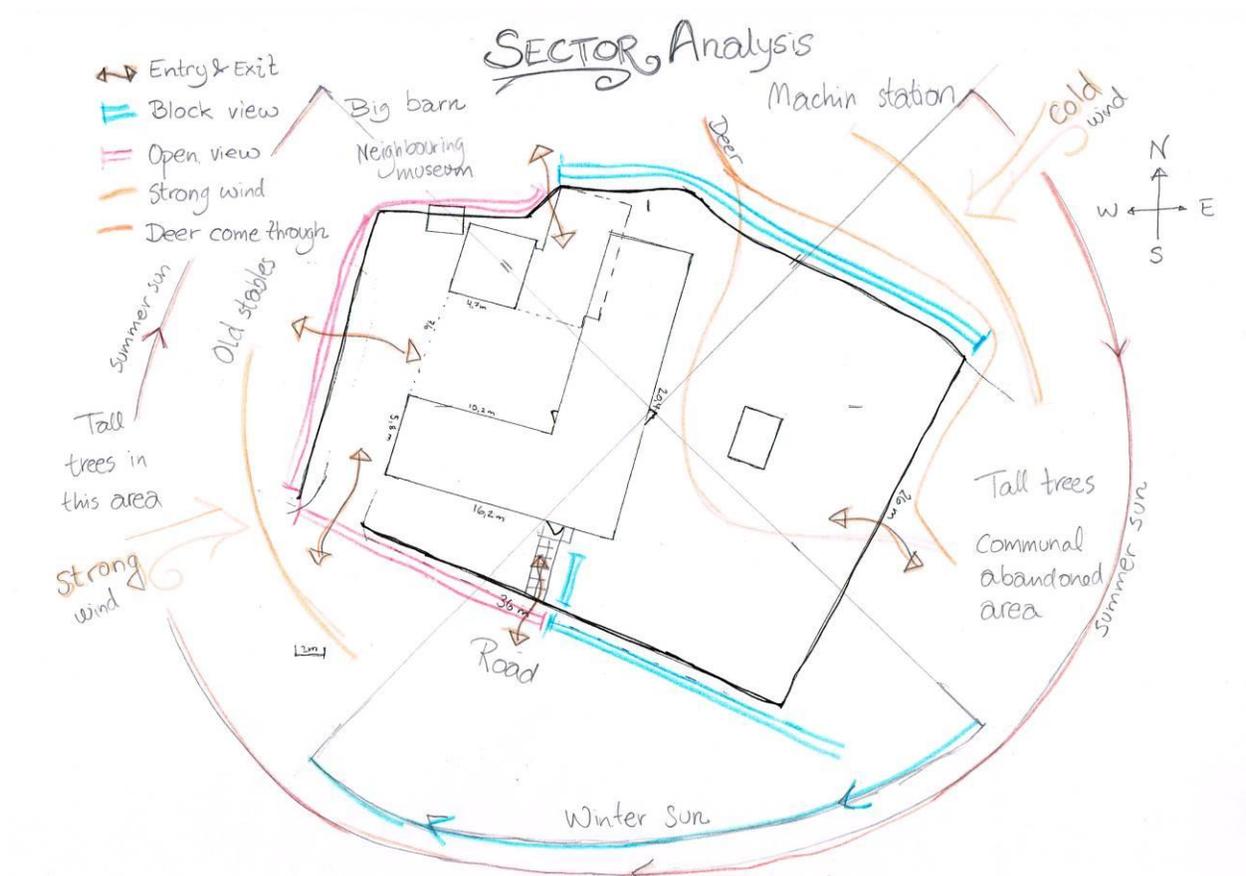
To answer these questions, I will look at the different energies moving through the property and how that affects my goals; I will look at the elements and areas I need to achieve the goal; I will look at the zones in my land use system; and I will look at the inputs and outputs and how they can come to a balance.

Sector survey

I have used sector planning in my design to manage the incoming wild energies moving through our site.

By the strategic placement of elements in the design, I can block, transform, or open up access to these natural energies to optimise the use of energy on the property.

Sunlight, wind, water, unwanted and wanted views, fire, noise and wild animals should be observed. If their energy is coming onto the land unwanted, the energy can be blocked or transformed. If I want more of the energy, it can be unblocked, opened or transformed. Observation of energies is described here and indicated on the drawing below.



Sunlight

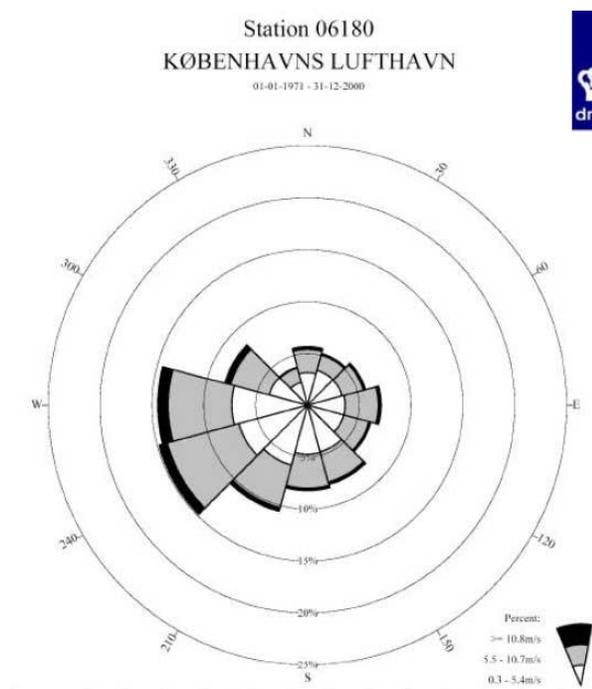
I am roughly at latitude of 56 degrees north, which means that the sun is visible for 17 hours, 37 minutes during the summer solstice and 6 hours, 57 minutes during the winter solstice. At winter solstice, the sun creeps above the horizon at 21 degrees at noon. On the 21st December, the sun will rise 52° east of due south and set 52° west of due south. On the 21st March/21st September, the sun will rise 91° east of due south and set 91° west of due south. On the 21st June, the sun will rise 132° east of due south and set 132° west of due south.

Winter: Tall trees to the east and west block the winter morning and evening sun from entering the garden and the back yard. The south facing part of the forest garden area and the front garden get a little sunlight midday.

Summer: The summer sun stands high on the horizon and in spring while trees are still bare, the sun penetrates well into all areas of the property.

Observation of the patterns of sun in the garden shows that there is a nice spot for morning sun near the door of the old stables. In the afternoon and evening, the last place for sun is at the south eastern corner of the garden, making this attractive as an evening social spot.

Wind



The figure shows a “windrose”. It is data collated about wind for a period of time, here over 30 years, for a particular area, here the airport near Copenhagen, the closest data I could get. The figure clearly shows that mostly wind comes from west and west-south-west. The colour of the “slice” indicates the speed of wind, with white being very gentle wind and black being very strong winds (>10.8 m/s).

Wind is mostly from west. However, especially northeasterlies can be bitterly cold in winter, while western winds are strong.

The garden and house are very well shielded from wind, because the edge of the property and the surrounding old village has full grown trees

up to 30 meters high, acting as windbreaks.

To the north of the property is a machin station with open field bordering the property. An enormous ash and several smaller elder, Mirabelle, kreer and lilacs act as windbreak. Care should be taken not to remove these shrubs and trees.

Water

There is no water running through the property and the land is quite flat. Only water from the roofs can be used in gravity.

With climate change the chance of getting heavy rain is probably increasing, causing problems in densely built areas with limited run off and infiltration to the soil. On my property, care should be taken

in the paved backyard that the water here does not get too much. Observation during the last heavy storms did not show a problem, but making sure excess water from the roofs can run off is an attention point and solutions for this should be part of the design. There is a well, which directs water to the groundwater and a drain to the sewerage.

Otherwise, infiltration into the soil is good in all other areas.

Views

The views are important. I want to design for a private area in the back garden, while the front garden is open and inviting.

I have several plans for the backyard; it could for example be used for a café, selling products and/or flea market. I want this area to be open and inviting, especially towards the museum to the west and its visitors.

Fire

Bushfires and the likes do not exist in Denmark. Nearby thatched roofs could be a concern, but there are none within at least 50 meters. There is no reason to plan especially for fire.

Noise

There is noise coming from the neighbours, but nothing really disturbing that I want to block. The road is small with little traffic and is no problem.

Wild animals

Deer is coming through my garden occasionally eating flowers, vegetables and shrubs. They mostly come in from the north and eastern side because of the extensive hedges and natural areas in the surroundings. Deer might be a problem and can be solved by putting up a deer fence (maybe in combination with a chicken fence, when the time comes). If necessary I will do it.

A few hedgehogs have found a habitat in the big pile of branches in the north eastern corner of the garden. The pile should be protected.

Conclusion

- The main areas for concern are the edges of the back garden to the north and south where views should be blocked and windbreaks protected.
- The front garden and western edge should be kept open and inviting, while hoping the big trees in the surrounding village are healthy. The hedges around the garden to the south and west should be kept neat.
- A solution for excess water in the backyard in extreme situations should be found if necessary.
- Keeping deer out might be necessary.
- Protect pile of branches.

Analysis - Areas and elements

“How do you eat an elephant? One bite at a time!”

The analysis draws on the observations and survey of resources available, survey of my needs and functions regarding the property to match, analysis of flow and functions. The goal is to arrive at appropriate information to be able to make the best choices regarding the design of the property. The process is iterative, i.e. it is necessary to make decisions that are the most appropriate for the time being to be able to move on, but may be changed when other elements/areas/resources are developed.

Design from patterns to details

First, the major **structures** of the whole property and the beneficial connections to these are taken into consideration. Then **paths** are designed on a test basis to make these beneficial connections easy and flowing. Major **areas** such as the forest garden, the social spaces and the new green house have been designated based on the careful survey of factors such as sun, wind, views, functions and accessibility.

An overview of areas

My goal here is to describe the desired functions of the different areas on the property and how the areas can beneficially be connected to understand the role of the different areas and elements in the overall planning.

The house and old stables

The house will have a number of central functions:

- Accommodation for me and others
- Kitchen
- Bathroom
- Teaching space
- Storage of food
- Heating
- Living space for me
- Office space for me
- Storage of resources
- Workshop for metal, wood, plants
- Chicken and ducks might have pens inside in the old stables or outside in the garden.

Use and value renewable resources

The house was **heated** with electric panels, creating a big electricity bill. To avoid the cost and the use of fossil fuel energy to increase earth care etc, an alternative was needed. This ended up being a rocket mass heater (flex oven), because of its many benefits, please refer to the design of the rocket mass heater.

Changing from electricity heated water to another heating source is also an issue. It was explored whether the rocket mass heater could provide the heating for the water for the shower. It turned out to be too complex, because a water holding tank of maybe 600 litres would be too difficult to place and the piping too far. It would mean rebuilding a whole section of the house, which I am not prepared to do. Alternatively, an outdoor shower could be used in the summer with water heated on the roof or on the east facing gable.

Catch and store energy

Better **insulation** is also needed generally. Triple glazing for the windows was applied because the windows is the main cold bridge in the house. Alternative materials for wall insulation are researched such as wool, hemp, seaweed, wood fiber and paper wool. However, this is another design not to be explored here. What is explored here is the idea of creating a warm micro climate on the outside walls to increase the heat storage in the walls. Painting the outside walls black would cause more heat absorption, but is not an aesthetically pleasing idea. Insulating the house from the outside might be doable.

A **lean-to green house** is also an interesting solution for insulation with a number of benefits: increasing solar gain to the house, increasing growing space in early/late season, providing a sheltered sitting area for spring/autumn, providing a space for the solar shower and increase its usability. Three options are available, if solar gain should aid heating of the house: east, south or west facing walls. Firstly I thought of covering the whole south facing wall towards the road, but again, the aesthetics of the village environment did not encompass such an idea. Building on the the western wall will reduce the driveway and be too public. There is a bedroom behind, which does not need particular access or heating.

However, the *east facing wall* is a good option, undisturbed and away from the road and good for the morning shower and coffee table. There is the potential to make a number of beneficial connections to the elements that would be part of the greenhouse. E.g. making a door from the kitchen to the new greenhouse could increase flow and usability, while opening up to an area with moderate temperatures. There is already water collection from the roof and it would be easy to channel some of this water to the greenhouse. The greenhouse could also be connected to the water tap located on the eastern wall to create a solar shower inside. The location of the bathroom on the inside invites putting solar panels on the eastern gable to catch and store sunlight in water. A small rocket stove in the greenhouse could also provide hot water for the shower and occasional heating for the greenhouse and warming of beds in the spring if needed.

The outside areas

The back garden is the central area of the property together with the backyard. They fulfil very different functions.

Integrate rather than segregate

The **backyard** is the most appropriate space for visitors from the museum or the street, due to its openness and welcoming and sheltered nature, the pavement and size. Eventually it can have the

function of a space open to the public, where visitors from the neighbouring museum can come and this is where a café or shop is most possible. At the moment the backyard serves as a working area for the house, like cutting wood, working with metal, painting windows etc. There are a few plants and pots and a well which is presently dysfunctional (and possibly illegal).

Work with nature rather than against

The **back garden** has fertile soil, so this area's function will be centred on food production and is about gardening, growing vegetables and growing a forest garden. It has been cultivated before and a small orchard is still intact. It is also the most private area due to the dense vegetation around it and it feels like a clearing in a forest. This makes it ideal for a private, social activities area.

Understand and use edge effects

The concept of a **forest garden** mimics the ecosystem of a young forest edge. This fits well with the existing vegetation in the back garden. Most dominant is the enormous and beautiful ash tree on the northern boundary. The smaller fruit trees are situated to the south of the ash, creating a sun trap in the garden. The challenge is mostly to add desired plants and functions to the existing vegetation. The flow between the vegetable patches, the fruit trees and the high canopy of the ash trees, creates a profile of maximum light absorption.



Photos: To the left a social area in the sun just outside the door to the back garden. To the right a look at the forest garden area in June with a cherry tree, some black currants at the back and Canadian goldenrod and carnations in the foreground.

Understand and use niches

The other parts of the back garden could be designated cultivation spaces or social areas to meet the needs for social and educational areas. For the **social areas**, the sun is important, as the sun in Denmark is mostly wanted and rarely too much. A convenient sunny spot right outside the door is chosen for **morning** time. For **afternoon and evening**, the sunniest part of the garden is to the south east, which is why I have chosen to plan to create an area with table and chairs here and a fireplace with pizza oven.

Normally, between 2 and 6 people should be able to sit comfortably, but the area should be able to have 12 or 14 people gathered in the two combined spaces with table and fireplace.

Create small-scale intensive systems

The **cultivation areas** should cater for most herbs and greens, fruit, and some vegetables, potatoes, tomatoes, onions and the like. I am not very fussy about my greens and I live happily on a diet with lots of nettles, ramsons and ground elder, which is in abundance here. I like to forage, rather than to cultivate. However, it will be a luxury and a fascinating journey to discover different ways of cultivation and the varieties that can be grown, especially to extend the season of greens with perennials like scorzonera, kale, beets and more which should go mainly in the forest garden. The cultivated areas with bare soil should be kept to a minimum according to “working with nature”, so I generally prefer to use perennials instead of annuals. However, some lettuce and carrots are nice, with beans and peas growing in between for delightful summer days.

Design from patterns to details

A big challenge is the **connection** between the backyard and the back garden. As it is now, it is necessary to go through three small doors in the house to go from one area to the other. It is also possible to go behind the old stables, after cleaning up this area, or through the front garden. However, it is not practical. Also access from the kitchen to the garden is through three doors. Therefore, to ease the flow between areas, a new double door will be put in, in the utility room, creating an easier connection between kitchen, backyard and back garden. A door from the kitchen to the outdoors is also high on the priority list. It would also be great to have a door from the living room/teaching space leading out to the backyard.

Produce no waste

The **compost system** which will take kitchen scraps and garden greens was placed to the south before the design was done, because the area was available and the compost system would block views from the road. The **compost toilet** is most likely to go to the north for the most discreet position in the garden and easy spreading of the humanure and urine after composting.

Integrate rather than segregate

The front garden could have the effect of giving people the impression of “wow, what’s going on here? I must know more about this place!” in a good way. Thus, the front garden is a kind of shop window for Kattekærhus, permaculture and eventually the LAND centre. Therefore, a lot of the great permaculture icons could be put in the front garden, like herb spirals and hügél cultures. Another aspect to consider is that it seems very dark inside the house in summer, because of the angle of the sun. Creating a pond on the south side of the house would cause more light to reflect into the house and creating a better indoor environment.

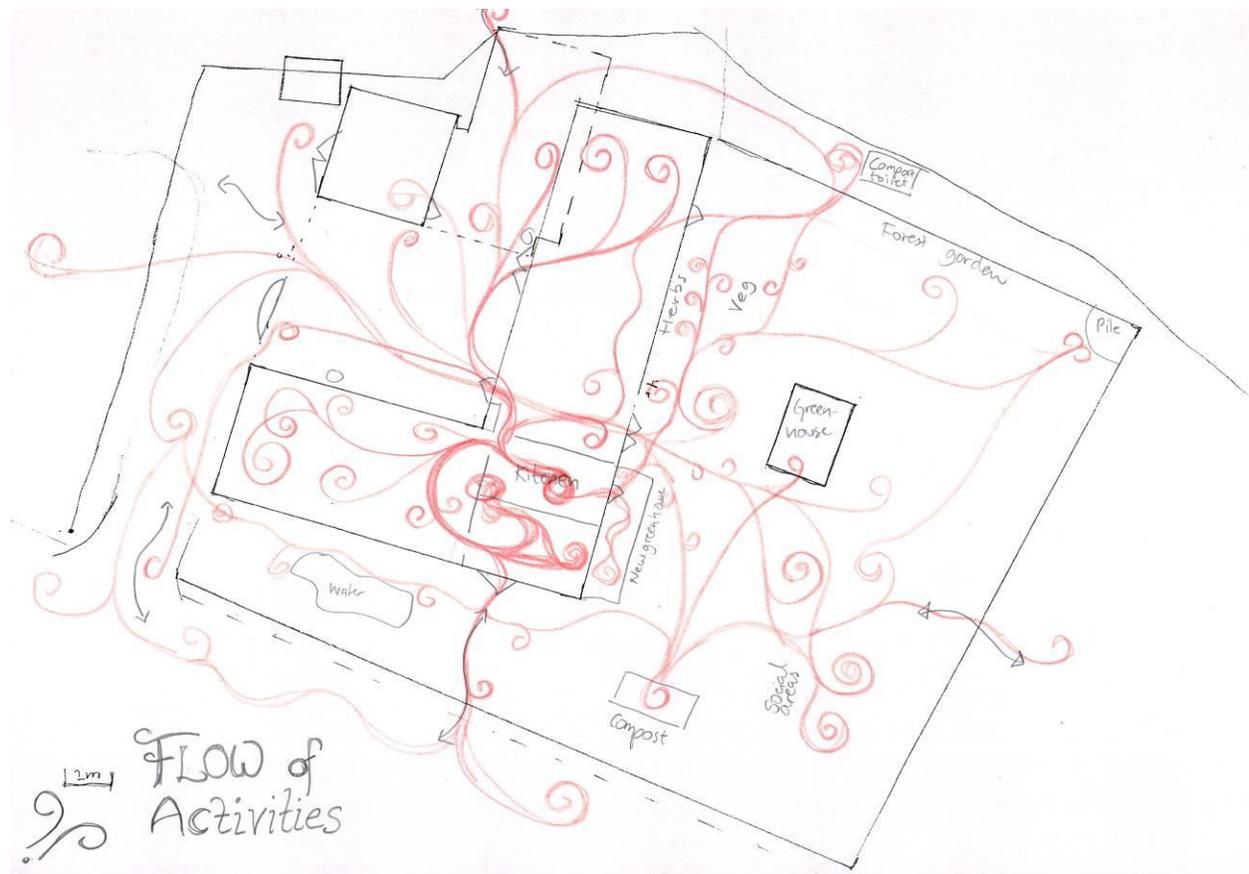
Flow of activities

Design from patterns to details

To map my movements in the house and on the land, I did a flow exercise with the result on the drawing below. I simply imagined my actions through the day and mapped where I would move from one location to the next. Naturally, the most central flows are from my room upstairs, to the bathroom and the kitchen. Then I would draw for example my movement from the kitchen to the washing machine in the utility room to the clothes line outside. And I would imagine the new doors already put in place and how I would use them to enter the garden and the greenhouse.

The flow of activities has informed the planning of zones, because it establishes most used desire lines, most visited areas and connections between the different elements on the property.

The inspiration for this exercise comes from a Belgian architect named Steven Dalwin, who used to map his clients movements around the house this way.



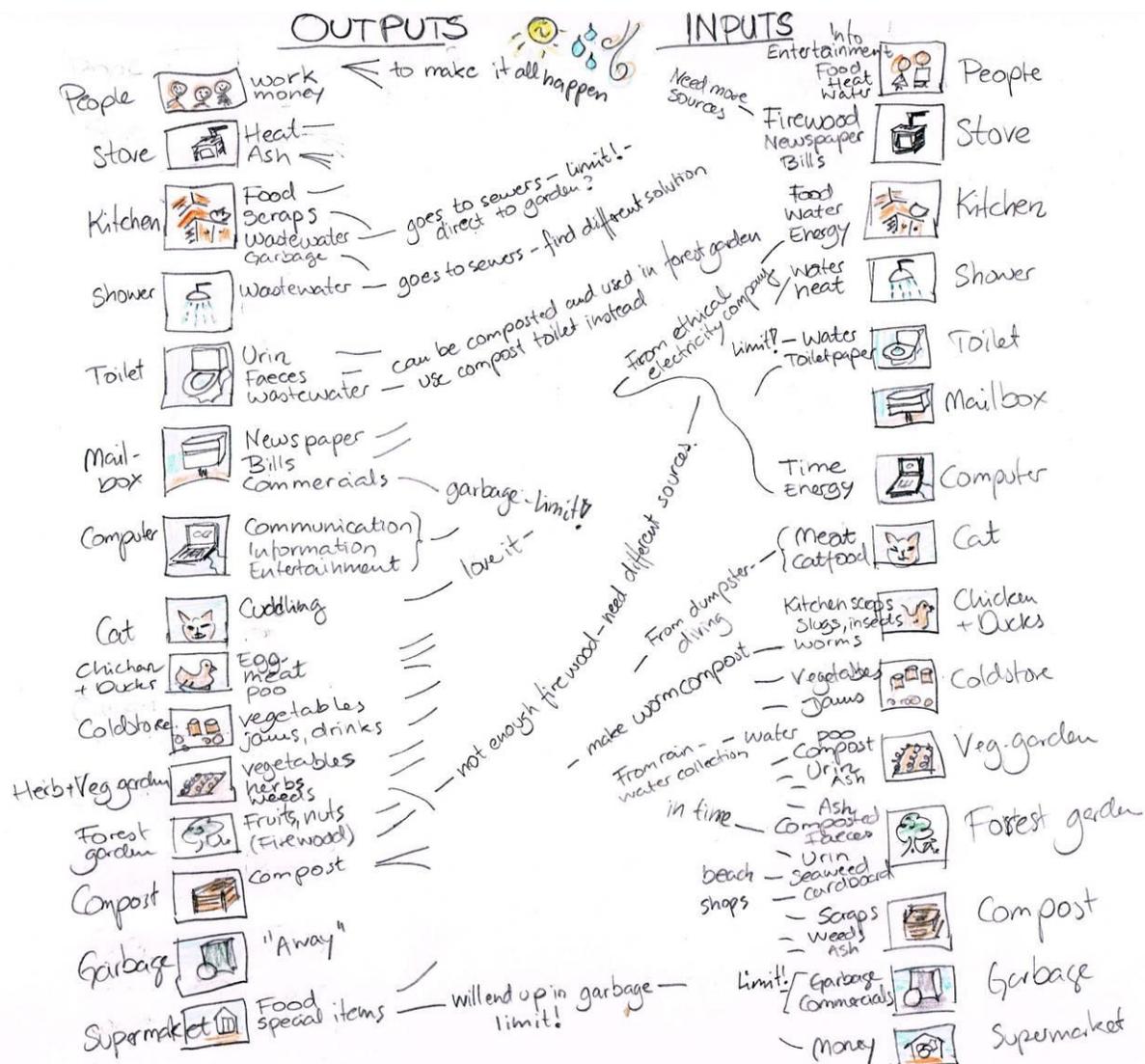
Mapping the flow of activities, starting from the activities I would do during a day or maybe a week. Most activities come from my room on the first floor and from the kitchen and bathroom.

Input-output analysis

Each element performs many functions and Each important function is supported by many elements

Having described the different areas over all functions and connections as well as some of the different elements functions and locations, it is time to have a closer look at the inputs and outputs of the system to see if the inputs and outputs balance or if new elements should be added or changed. The input-output analysis will also identify the flows between the areas and give an overview of the feasibility and energy needed to be put into daily life and events at Kattekærhus.

The input-output analysis used here is inspired by the method used in Permaculture Teacher's Handbook. On the left side the elements are listed and to the right of them their outputs (or products). To the right side, the same elements are listed but with their inputs (needs). Connecting outputs and inputs gives an idea of what is too much in the system, i.e. creates waste, and what is too little, i.e. creates work.



Elements of my land use design, showing their outputs and inputs. Where something has been written next to an output or an input means that it needs a tweak to be more integrated in the system.

The lessons learned from the input-output analysis are:

- Wastewater – I need to limit it or direct it towards the garden. Setting up an outdoor shower in the greenhouse, could provide the greenhouse with water during the summer. Washing and preparing vegetables outside would also limit wastewater. Reducing the amount of water used, will also help, i.e. using rainwater where possible. Use compost toilet instead of flush toilet.
- Commercials – put up sign for no commercials!
- Firewood – need to harvest more firewood. Some will come from cutting branches off the big trees around the house that are getting into the roof or are sick. Some will come from the hedge that needs thinning. However, in the long term, a good supply of firewood, preferably from the island, should be identified.
- Supermarket – items here cost money, so limit as much as possible. Items are usually wrapped in plastic or are made from non-recyclable resources, so avoid getting these items as they will end up in the garbage.
- Energy – some energy is needed for computer, lights etc. Until I get own solarpanels, windmill or other green energy, I can reduce my footprint by investing in an ethical energy company that will reinvest money into green energy.
- Cat – food for the cat can come from supermarket skips where good quality, overdue meat is often found. Otherwise I have to buy cat food in the supermarket.
- Chicken food – worms are good for chicken food – a wormery could be worth setting up.
- Humanure – when a compost toilet is set up, the faeces will have to be composted for two years and then put in the forest garden.
- Seaweed – for mulching is easy to get from the beach.
- Cardboard – for mulching in the different parts of the garden is easy to get from shops.
- Garbage – should be limited in general.

There are lots of other elements that can be considered, especially when thinking about teaching permaculture and sustainability, however, I will limit this analysis and look at those details in a different sub-design when it becomes relevant.

Zone planning – an overview of the property

The **zones** refer to the frequency of use and attention. Zones 1-4 are managed and zone 5 is unmanaged. The zones here described are based on the survey of the present and desired land use patterns, the mapping of the flow of activities and the resulting analysis of areas and elements.

Zone 1 (visit daily) is mainly outside the door, around the most used paths and the backyard. This will be the space for the most used herbs and the most beautiful and scented flowers. Parts of the vegetable garden which needs special attention is also in zone 1. This can vary over the season, but all areas of

zone 2 can become zone 1 if needed. This just means walking a slightly different way between the areas of the garden.

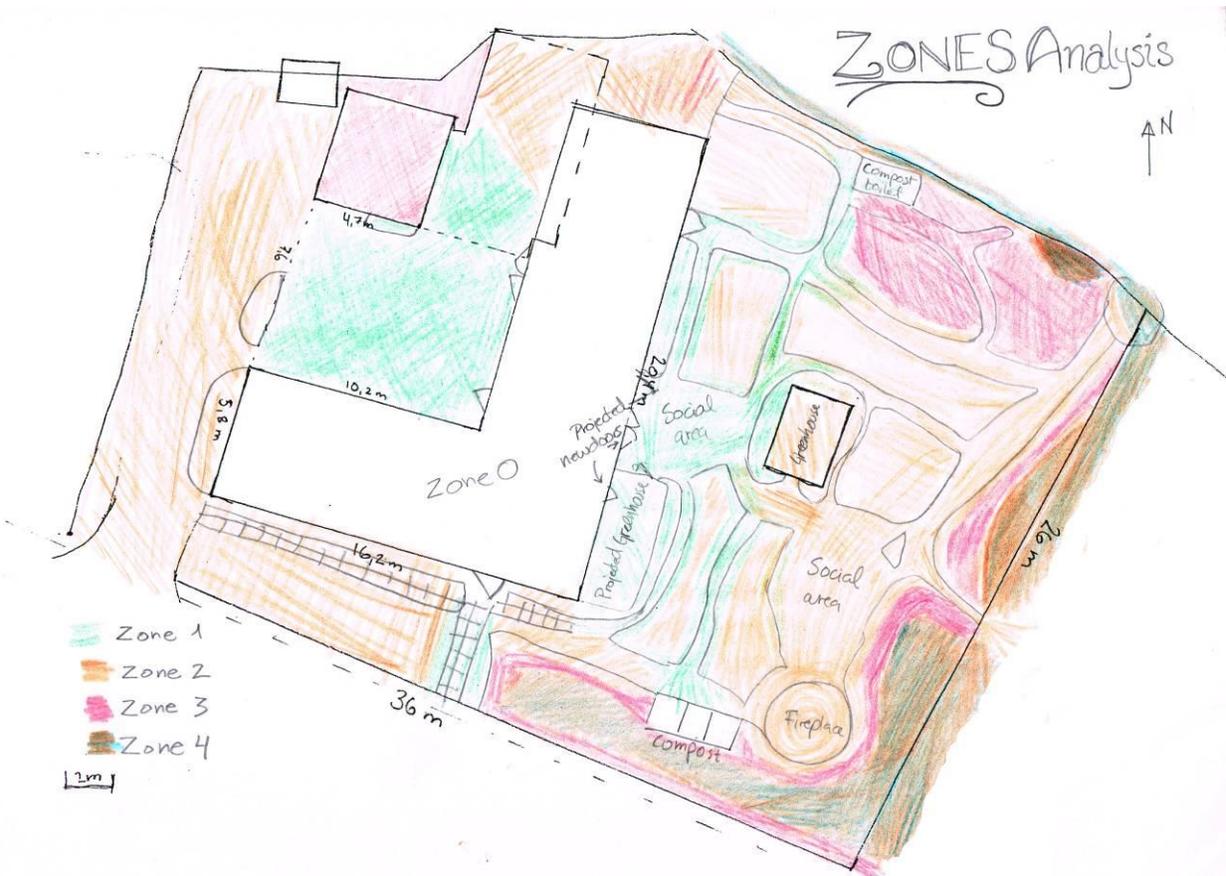
Zone 2 (visit frequently) is the social areas and also the driveway and front garden, which I expect not to be in use every day. Also most of the vegetable patches and the most accessible areas of the forest garden are within zone 2. When I have chickens and ducks, these will be placed mostly in zone 2, probably for the chickens as a chicken tractor, while the ducks can forage in all zones.

Zone 3 (visit occasionally) is the interior areas of the forest garden and the accessible parts of the shrubs. The fruit trees are generally in zone 3, whereas the vegetation right in front can be zone 1 or 2.

Zone 4 (visit infrequently) is made up of the less accessible areas of the shrubs, creating the windbreaks and view blockers. It is also some of the communal abandoned land to the east.

Zone 5 is most of the communal land to the east. There are a few pockets in the garden, for example the pile of branches in the north east corner. I want to designate more areas to zone 5, probably along the eastern boundary.

These main areas being decided upon, the area of the forest garden naturally falls into place. There is some space for expanding the forest garden if this seems appropriate. Or to contract the forest garden to create more space for social activities and vegetable growing.



Design of house and garden

Many drawings, tweaks, discussions and thoughts have come to inform the designs. They will be reassessed, tweaked and discussed many more times while implementing and using the house and garden over the next years.

“Planning is essential, but plans are useless.”

The design was split up in two for ease of illustration; the house, backyard, front garden and driveway is in one, and the back garden with forest garden, social areas and cultivation areas is in another.

Design of house and surroundings

The main decision was to use the living room as a teaching space to obtain a yield from the house. This means that a big table should be able to fit in, and I like having a library with permaculture books and a piano available in the teaching space as well. The rocket mass heater was built in a workshop to increase the learning around renewable energy solutions. The rocket mass heater's location is central to the house, giving the best spread of heating and a nice atmosphere. To be able to enjoy this atmosphere, a couple of comfy chairs or possibly a couch could be placed in front of the rocket mass heater. The rounded shape was done to make it more organic and follow the natural flow around the room between the two doors to the entry and the kitchen, respectively. The wall to wall carpet has been removed to reveal the old floor and the patina of the planks. A section of the floor was redone with recycled floor boards.

Insulation of the teaching space could have an educational element to it, meaning that different materials could be tried out, like wool, seaweed, paper wool and wood fiber to measure the difference in its heating capacity. The making of the insulated wall could be done in workshop. Another, more laborious solution, would be to do the insulation on the outside wall. More research on local solutions will be done during the winter. The ideal would be to get wool from the island's sheep farmer and her 200 sheep as this wool is given away for free.

New thermo glass has been put in all the windows on the ground floor and a triple layer added for better insulation, thereby significantly reducing the heat loss.

My own room and two other guestrooms are situated on the first floor. The velux windows have been changed for new ones for better insulation. My room is on top of the rocket mass heater, giving it warmth during the winter. From my room there is easy access to the bathroom via the entry.

The entry has a new wooden floor made from recycled planks. To give it a more organic look, a debarked tree with stumps of branches on will be used as a coat hanger. An organic clay paint was used here (and in other places needing new paint) as an alternative to more synthetic paints.

The bathroom needs no changing, but some additions. To save urine, a system with containers could be installed. Solar panels on the eastern gables could accumulate energy from the sun to heat the water for the shower. A lean-to greenhouse would improve the passive solar heat gain of the eastern wall, thus making it slightly warmer in the bathroom.

The lean-to greenhouse could also have a shower powered by the same solar system. The waste water could be recycled for the plants in the greenhouse.

A door between the greenhouse and the kitchen would mean easier access to the outdoors and to herbs and vegetables grown in the greenhouse. It would also increase the passive solar heating in the kitchen, especially with a glass door or a door in two parts that can open just the upper part.

Moving on to the utility room - it can have different functions, like an extra dining room, garden room, place for cleaning vegetables and drying herbs, place to put shoes and coats and for activities that are a bit messy or dirty. It will work to its optimum if two major changes are done: put in a double door towards the garden for easy access; and install a sink. There is already a water tap and a washing machine, so the change is straight forward.

The cold storage has a low cellar which was used for storage of food. It is in a bad condition at the moment and would benefit from a change of insulation materials. It would be a good contribution to the storage capacity and might enable a change away from having a refrigerator, thus saving on energy.

The narrow workshop towards the old stables could be cleaned up and used as a metal workshop, possibly for my hobby of making jewellery.

The old stables will serve nicely as workshop for wood and keeping of firewood and storage space. The any loft on top of the old stables is filled with many different things. It is hazardous to walk there at the moment, because of the danger of falling through. Claening up the loft and removing the old and broken floor boards would a lofty feeling to the workshop area which will probably be nice and make the old stables more attractive. It's an area that can serve different purposes as the property is developing.

Behind the old stables to the north side is a damp and cool area. Mushroom growing would be nice here.

The covered, but dripping, area is housing the trailer left from the previous owners. It has been very useful in transporting unwanted things to the recycling station. A place for firewood could be set up along the wall and tools kept in relative dryness under the roof. It has served as a place to keep construction materials, but this is no longer possible because of the leaks in the roof.

A little shop could be created in the little shed. However, the oil spill inside will take some energy to clean up. If not possible to clean it, an option would be to remove it. The roof on it is in poor condition and needs changing.

Rain water collection in the backyard is very doable because there are already gutters in place. Care should be taken to observe heavy rainfall and possibly increase the possibility for the rainwater to infiltrate the soil. The well could be restored if allowed.

Finally, the front garden. The “wow” effect could be obtained by placing elements like herb spirals, a pond for reflection of sunlight into the house and to increase habitat and bio-diversity, lots of edimentals (edible ornamental flowers) and medicinal herbs, a tyre bed several tyres high and a path inviting people inside from the road. The pond could be fed by rainwater from the roof and the rain could have a stop on the way in a beautiful wooden barrel that could provide water for plants if needed.

In conclusion, I have used organic, recycled materials wherever possible and have insulated the most significant heat loss areas (the windows). I have changed from the use of fossil fuels to renewable energy for heating and have plans for increasing the solar gain where possible. The permaculture principles of “cycling energy, nutrients and resources”, “making the least change for the greatest possible effect”, “understand and use edge effects”, “use and value renewable resources & services”, “catch and store energy”, “produce no waste”, design from patterns to details” and “use small and slow solutions” are the principles most at work here with no conflict with the other design principles. I have plans to maximise the yield from the property and to increase the fair share of knowledge through workshops and volunteers and engage the local community in the restoration of the house and garden to increase their understanding of sustainable solutions.

Back garden design

The first hand impression when entering the back garden is that of stepping into a clearing in a forest. Making the least change for the greatest possible effect was to design the forest garden area to include the area on the northern and eastern boundaries of the garden.

My desire lines through the garden were observed during the summer and the pattern of paths designed accordingly. The paths can be grassy in some parts, just wide enough for my hand pushed lawn mower and a wheel barrow. Seaweed mulch can be used in other areas to suppress unwanted growth and if I can get hold of wood chip, this would make a nice surface for paths and encourage spread of mycelium. The most used paths could be paved with natural stones. I like working with natural stones, so delineating the paths with stones would be an enjoyable solution, creating a warmer microclimate around beds. Using wood logs around beds would be another good solution for spreading mycelium.

The area immediately south of the forest garden gets a lot of sun and is protected by the eastern wall of the house, lending itself to the most intensive use of the soil for annual vegetables and row crops. This area is in zone 1 because of its proximity to the door and most used paths. Microclimates next to the structures could be used, i.e. the warmth of the eastern wall and the coolness of the shadow behind the greenhouse.

The niches for the social spaces are carefully chosen according to their exposure to the sun at different times of day and season. These are areas with multiple purposes, i.e. the space can be used as working areas when cleaning vegetables, pressing apples, organising seedlings and for outdoor teaching and eating.

Hügel cultures could be created because there is an abundance of dead wood from the mature trees around the boundaries of the property. A good place for them could be between the forest garden and the greenhouse. This would increase carbon sequestration, create habitat and increase diversity, make the food supply more resilient due to its water storage capacity and create more structure in the garden.

The compost system has a central function for both the house and the garden in recycling nutrients. Direct mulching with food scraps can also be done when appropriate, but often there is so much material and too little time to do another hügel culture.

A compost toilet would complete the design. Saving water, recycling nutrients, produce no waste, create solutions instead of problems, catching and storing energy, using renewable resources and integration are all benefits of a compost toilet. Furthermore, it would increase the capacity to have guests and workshops to have a compost toilet. In fact, it would be a good workshop to do. However, care must be taken to make it in the most responsible and legal way, because the property is situated on top of the ground water collection area for the village.

In conclusion, the back garden design supplements the livelihood at the property. It serves multiple functions and works with niches to provide for different needs. More detail is provided in a forest garden design for Kattekærhus.

Community building and skills sharing

Involving the local community at Orø, having volunteers and doing workshops are part of my concept for the homestead design.

Involving the local community

My neighbour is a museum with emphasis on preserving the old family farm “Hestebedgaard” and making available the cultural and historical artefacts. It is a non-profit organisation that organises exhibitions and events around this theme.

My intention is to build a good relationship with the museum and look for options for collaboration around sustainable practices and permaculture. I have been asked a few years back if I wanted to set up a permaculture inspired garden on parts of their land. This would be very much in my interest and when I have the time for it, I would like to make this happen.

The museum has a big barn that can hold 150 people and can be rented. This is an interesting facility that will be incorporated in future plans.

The museum has an old apple orchard, where many of the trees have died and left open tracts of grass. If at some point I need extra space for tents, this area might be an option, provided my relationship with the museum is good.

The museum has series of presentations, for example: Women in Agriculture. On this topic, I presented my development work with ethnic women in Vietnam.

The presentations are very inspirational and have brought my attention to the fact that there are many old people on the island that have interesting skills, for example how to build hot-beds, pruning, thatching, willow basketry, knitting, making lace and much more. I have yet to discover how I can involve the old people in skill sharing on my land and this way empower both the (old) people with more or less forgotten skills and the (young) people who can benefit from learning these skills.

Apart from the museum, there are a lot of interesting people on Orø of whom I only know few yet. Most of the people I have talked to are interested in sustainability, organic gardening and being more green in general. Some believe that Orø should be an entirely organic island. Others do not at all. There is great diversity and many walks of life. It is possible to stay completely isolated or very social.

It could be interesting to set up a LETS or something like that for sharing of goods, surplus and smiles. I look forward to being more involved in the community, when the building process allows it.

Creating options for volunteers

I am very keen on getting volunteers, woofers and other people to help me with both the natural building and the garden work.

So far I have had 9 volunteers, 7 workshop participants and a lot of visitors without advertising for opportunities. They have come from 7 different countries. I am confident that Kattekærhus can attract people from especially Copenhagen, where I have my deepest network and from around the world through the permaculture and woof networks.

What I can offer is involvement in the different design implementations, house repair and natural building, and I can share skills like felting, fermentation, cider making, seed saving, grafting, spoon carving, making jewellery, etc, etc.

Implementation plan

When	Activities related to this design	Comments/other activities/assumptions
June	Clean up house and garden, take all unnecessary stuff to the recycling station. Prioritise kitchen, bathroom, bedroom. Then guestrooms – ability to have people helping me.	Get help!
July	Continue cleaning up house. Consider option for heating system, insulation and design of garden.	A lot of travelling this month
August	Mulch forest garden area. Paint selected areas. Put in floors where needed. Keep cleaning up garden.	Diploma write up.
September	Prepare and invite for rocket mass heater workshop – clean up guest rooms. Make floor and foundation in living room.	A lot of travelling this month
October	Rocket mass heater workshop. Plant in forest garden.	It's going to be cold soon, so get rocket mass heater working. PEC course and diploma write up.
November	Cut down trees where necessary, make firewood. Mulch more. Prepare for winter.	Diploma write up, UK gathering, LAND Denmark gathering.
December	Make living room nice, ameliorate rocket mass heater, relax! Time for crafts.	
2015 January	Deepen contacts with villagers and look for options for collaboration and spreading permaculture. Clean	Possibly travel for one month over January and February.

	up loft.	
February	Research insulation design and local resources. Fix guestroom and teaching space.	
March	Prepare kitchen garden. Start seedlings inside. Design front garden.	
April	Fix greenhouse. Prepare for People and Permaculture workshop. Planting. Prepare beds and social areas.	People and Permaculture workshop.
May	Grafting workshop. Start implementing front garden design. Prepare for tourist season, create flea market stand.	Permaculture Educators' Course co-teaching
June	Compost toilet workshop. Build double door in utility room.	Possible Nature connection workshop
July	Herb spiral workshop in front garden.	Introduction to permaculture workshops.
August	Insulation of teaching space.	Possible bio-char workshop
September	Make preserves, herbal tea.	
October	Design for products to sell at flea market next year. Prepare for winter. Firewood.	
November	Catch up. Update and evaluate design, make tweaks.	
December	Relax!	
2016	Build new greenhouse + grey water design. Fix all outside walls. Organise more workshops and courses.	
2017	Design for mushroom production behind old stable. Organise more workshops and courses. Prepare products for sale.	By 2017 the design should be mostly implemented and the activities and workshops have been tested and a good model for using the property tested and tweaked.

Evaluation of design

My aim with the homestead design is to fulfil my long term goals and quality of life. These goals are slowly on their way to realisation and buying the house mortgage free enables the desired quality of life.

The garden already feels like a clearing in a forest, so developing a forest garden on the edges will be natural. It will be more work to keep a kitchen garden free from ash seedlings and stinging nettles.

Evaluation of implementation plan:

Up until November the implementation plan has been followed with no delays. It is satisfactory to revisit the implementation plan to be reminded of the efforts that has already been into the design and restoration of the homestead.

I could develop a Gantt diagram to create more clarity on the progress of the implementation plan and to map which activities need to be done in a certain order.

Another way of monitoring progress would be to make overlay maps. The first layer would be the base map. An overlay for each year: year 1, year 2, year 3 etc with the changes in areas could be produced. The effect would be a nice visual progression of the design.

Effectiveness of the design elements

Surveys:

Surveys of plants, structures and resources: I could have used a PASTE sheet to more systematically record Plants, Animals, Structures, Tools and Events. This is easy to do when I take stock again next year.

Mapping:

All maps have been done on the basis of the base map and are mostly on the same scale, except where it was practical to zoom in or out. For this presentation of the maps I found it most practical to draw directly on the printed out maps in A4 and then scan the map afterwards. I would like to do the maps with more resolution on big print, when its needed. The maps could have been done in a computerized program as well, but it was lovely to work with my hands and colours for once.

Flow diagram:

The flow inside and outside the house is important for the general ease of moving around. I noticed straight away that, I had to pass through three doors to go from the kitchen to the garden, which is not good permaculture design. Doing the flow chart was a fun exercise that made it very clear where new doors would have to be put in to make movements smoother, to save time and steps. Inside the house, around the oven, it was clear that a semi-circle to give a rounded flow on a stretch which is probably the most used in the house was a must. I figured this obvious fact out without the flow diagram, but the diagram was useful in identifying areas that would benefit from increased flow.

Input-output analysis:

The analysis was effective in pointing out work and pollution where inputs and outputs are not met, respectively. I will add more elements to the analysis as they appear.

Social designs:

Guests and volunteers: I have had many visitors, both friends and volunteers, so in terms of social interaction and the ability of the house and location to attract enough people it is doing very good.

The local community: Many people in the local community are curious to see what is going on. Many have seen the photos I have put on facebook of the progress of the house, especially popular is the flex oven photos. 9 people from the local community have on their own invitation come to see the flex oven. I am pleased that my activities already have attracted attention, because this bodes well for the LAND centre concept.

How the house works with many people in the house (9 adults and two children) was tested in the flex oven workshop. I found out that more than 2 people in the kitchen is too many. The kitchen is effectively design for one person with everything within close reach. More people tend to block each other and this situation requires some more patience. Hence, for workshops it is appropriate to plan for two people in the kitchen.

Implementation plan:

For now, I don't think a Gantt diagram is necessary, and a table works alright. However, it might be a good thing to do later on to create more clarity on different ongoing processes and tasks that need to happen before other tasks, for example.

Tweaks

When I start designing more in detail, I will surely need to make tweaks and amendments to the design as it is now. I will of course also add more detailed information and designs, like for the Flex oven design. It will make sense to finalise the cleaning up and work on the living room/teaching space, before making a re-evaluation. At least within a year, possibly sooner, a thorough assessment of the design should take place. November would be a good month because it is usually less busy than other months.

Mostly, I am aware of not missing any opportunity to make beneficial connections between different elements of the house and garden.

In conclusion, the homestead design has worked so far to give an overview of the different tasks, functions and elements. It has made it easier and clearer for me to see what needs to be done and what functions and options are available. Also for others to understand this project, the designing will become useful.

Reflection on the homestead design

The process of designing a livelihood and land use at Kattekærhus has reduced the pressure of the overwhelming challenges taking over such a property entails. Creating the overall design was daunting because so many different factors are at play. However, having lived at Kattekærhus for some months already allowed me to observe, interact and creatively respond to the changes it has brought to my life. I look forward to increasing my knowledge of practical solutions based on the work I will do here and thereby supporting my capacity as a teacher within permaculture.

I also look forward to deepening the relations in the local community and how we can mutually benefit each other. It is a very heterogeneous community in the sense of understanding of sustainability and organic living as well as on all other points. However, many people have shown interest in being more green and some have happily contributed to my efforts in constructions with natural materials. Creating a LAND centre on Orø will be a challenge, but I am confident that segments of the community will support this development. This has already encouraged me in my design of the land use for Kattekærhus.

The base map is the same, but the scale does vary according to the area of focus. I am aware that this can seem confusing; however I found it most practical for this presentation. I look forward to synthesising the maps onto a bigger format, A3 or A2, to have a good overview of both patterns and details.

The process of designing first, then implementing is not always the best or most efficient way to go forwards for me. I have the ethics and principles so much engrained in my thinking that they immediately inform my decisions. The way I learn best is to try out something, adjust it, try again. It is an intuitive process that scans the surroundings for useful resources or inspiration while drawing upon the memory of experience. Designing in a separate location relative to the task at hand sometimes slows down the creative workflow and does not take the immediate resources into play. Taking step by step, day by day allows me not to drown in the overwhelming work lying ahead of me on this property.

That being said, doing a design such as this, does give clarity and general overview which is important in a situation like mine. Most importantly it allows me to communicate my ideas and solutions to others. This in turn allows them to use their skills and experience to their best potential.

Diploma Criteria

Demonstrating Design Skills	Applying permaculture in my own life
- SADIM	This design allows me to live permaculture in

<ul style="list-style-type: none"> - Observation - Stakeholder survey - Zoning - Sector analysis - Flow mapping - Analysis of elements and areas - Input-output analysis 	<p>every aspect. Especially I have applied permaculture ethics and principles through organic building, green designs, analysing my patterns and finding practical and sustainable solutions.</p>
<p>Learning from and developing your permaculture practice</p>	<p>Applying permaculture to my work and projects</p>
<p>I have gained firsthand experience of many aspects of my permaculture practice by working with the practical situations presenting themselves at Kattekærhus.</p> <p>I have for several years been wanting to try out many different solutions and now I have nothing but opportunity to test them in real life.</p> <p>I have also deepened my understanding of the design process and its value on a situation which is classic to permaculture – the permaculture homestead – with all its potential for beneficial connections between elements.</p>	<p>Using Holmgren’s domains this project has elements of “Land and nature stewardship”, “Building”, “Tools and technology”, “Education and culture”, “Health and spiritual well-being” and touches upon “Finances and economics”.</p> <p>With regards to the permaculture categories this design would be mainly in site design and development.</p>