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Module 1

Introduction to permaculture and social permaculture

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Module 1.1 Context

In 2021, six organisations from across Europe, Friends of the Earth Cyprus, Friends of the Earth Malta, Promimpresa, Icep, Fundación Intras and Hekate Conscious Ageing Foundation, started a cooperation: **the Social PEAS project (Social Permaculture: Empowering an Active Society)**, funded by the Erasmus+ programme of the EU. The project is focused on creating permaculture training for professionals working with vulnerable adults, such as people suffering from mental health issues, people with physical and intellectual disabilities and former drug or alcohol users. The aim is to develop and promote a permaculture-based curriculum and educational programme that will help vulnerable communities and experts to tackle issues around physical and mental health. This teaching material has been developed and co-created by the partners.

Social context

In the EU 21% of the population is at risk of poverty or social exclusion (Eurostat, 2019). These disadvantaged people in Europe form part of different cohorts which include:

- People who suffer from mental health issues: 7% of the EU population suffers from chronic depression out of which women are particularly affected (Eurostat, 2014),
- Elderly people: Over 20 % of people over the age of 65 in Europe,
- Former drug or alcohol users,
- People with disabilities,
- Early school-leavers,
- Migrants and refugees.

In many cases the marginalization is intersectional, some of the above groups would experience heightened discrimination and lack of opportunities due to additional aspects related to gender, race, ethnicity, and coming from certain socio-economic backgrounds. The COVID-19 pandemic has accentuated these issues of social isolation and exclusion and has also affected the mental health of a proportion of the population that was previously unaffected.

Moving forward presents an opportunity and a need to build strong social networks where no one is left behind. Building back a better Europe, a Europe of solidarity and care will require better integration and support of previously neglected groups in society. The future also holds challenges linked to climate change, environmental sustainability and food security as outlined in the European Green Deal, Biodiversity Strategy 2030 and the Farm to Fork Strategy. These challenges need to be met not only with advances in technology but also with people-centred and people-driven slow and small-scale, accessible local solutions.

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One holistic approach to regenerating ecosystems and communities, in line with the objectives set by the EU through its policies, is that of **permaculture, and more specifically, social permaculture.** The concept of permaculture embodies sustainability through working with nature and building resilient communities. Its ethics can be simplified to three main aspects: Earth Care, People Care, Fair Share.

Working in a group, planning together, creating gardens, community spaces or built structures (eg. water harvesting unit, compost heap, compost toilet, little pond, vermiculture bin etc.), seeing plants and food grow, organizing community events, focusing on local governance issues, health and well-being, being outdoors as a community – these are all exercises that have an abundant benefit on peoples' mental well-being, as well as provide life-skills in the aspects of planning, co-designing, executing a communal plan. Permaculture offers a holistic and complex yet simple and pragmatic framework that can be applied basically anywhere in social and natural environments.

Despite all these benefits, social workers/educators/trainers and people who work with disadvantaged adults would not necessarily have the skills to execute such activities and build self-sustaining permaculture gardens, or other social or material structures with the vulnerable adults that they care for.

This teaching material aims to cater for this knowledge gap and build on the work of existing projects to create a social permaculture training for people working with vulnerable adults, as well as for vulnerable adults to increase their knowledge and competencies to be able to use tools from social permaculture and nature therapy for improvement of well-being and social resilience.

Historic context and a potential tipping point

Environmental and social organisations, participating in the development of this teaching material, started to focus systematically on permaculture as a potential tool to tackle mental health issues in early 2021. Back then the impact and the toll of the pandemic on mental health started to be seen in communities, and among health professionals, social workers, etc.

In many countries people were isolated in their homes or in lockdowns. It soon became clear that gardening was one of the popular, low cost, accessible and effective ways for people to look after themselves and their mental and physical health. Urban permaculture projects blossomed, people started to grow edible plants on their balconies, in their windows, on their roofs and wherever they could find the space. Local green patches allowed community members to socialize in a socially distanced manner and also to enjoy growing plants, which in itself can have a positive impact on mental health.

As time went on additional large-scale hardships hit Europe. Russia started the war in Ukraine in early 2022. At the same time many countries experienced the worst drought in a century during the Summer. Energy and food prices are rising at an unexpected speed, putting extra burdens on people, families and communities in many places in Europe.

In the meantime, many NGOs and local communities experience and report an unexpected boom in relation to environmental and health consciousness among their communities and target groups. Many members of both young and older generations turn their attention to healthier and more environmentally responsible life-styles and activities. Many grass-root level NGO experts and community leaders say that this phenomenon can be partly seen as a contemporary social response to these current events (eg. pandemic, war, inflation) and equally the result of the work of environmental and social movements in the last decades.

One can argue that these current hardships are actually boosting the efforts and the impact of environmental and social movements. Also they turn the general and media attention of the wider society towards more sustainable

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and regenerative environmental and social practices. These are rather uplifting and in some ways positively unexpected turns of events when we talk about social change.

Many people, social workers, activists, educators, community leaders and organisations believe that now is a potential tipping point in the implementation of local sustainable community actions and educational programs. The attention and the need for such local solutions are growing among many communities. This teaching material aims to contribute and support these initiatives by offering permaculture-based knowledge and activities for all sorts of communities, including ones of vulnerable people.

Permaculture context

The Permaculture Movement is a relatively young movement with a rather “Western” narrative. It is still growing, forming and transitioning at a high speed. For many years it was seen mostly as an agricultural or gardening approach. However, the Ethics of Permaculture, the Flower of Permaculture and the Design Principles (see Module 1 for definitions) incorporate not only the natural ecosystems and the agricultural practices, but many other aspects of human life (eg. buildings, education, health, governance etc.). The social implications of permaculture, or in other words social permaculture, have become an important focus of the movement only recently.

The History of Permaculture

Permaculture was conceived and developed in the 1970s by co-workers Bill Mollison and David Holmgren in Australia.

Originally the term was a contraction of “Permanent Agriculture” for that is what it was, the design and implementation of permanent (sustainable) agricultural systems. Systems designed in this way tend to have closed energy cycles, being modeled on natural ecosystems, there should be minimal primary inputs such as chemical fertilizers.

The designed system should also have a high degree of inter-linkage; ”waste” outputs from one part of the system being used as inputs for another part. The ideal is a closed cycle, where outputs become inputs, requiring no primary inputs and producing no waste products. This will not be found in simple (single output) systems, which is why Permaculture design tends to produce multi-layered and highly interlinked systems, echoing natural ecosystems.

It is also useful to recognise the historical soil in which permaculture germinated. It was a decade since Rachel Carson had written Silent Spring with its dire, and subsequently validated, warnings about the threat that DDT and other pesticides pose to the environment.

Half a decade after James Lovelock had conceived and published his Gaia theory, proposing that to gain a true understanding of our planet we should view the whole earth as a superorganism (which he termed “Gaia”) with the same self-sustaining and self-regulating feedback mechanisms as are found in all other living organisms.

About the time Mollison and Holmgren were working on permaculture, a Norwegian philosopher and mountaineer, Arne Naess, first published his concept of “Deep Ecology”. This ultimately calls for each individual to recognise their necessary connection with the world.

Thus Permaculture was conceived at a time when we were just beginning to recognise that our local actions could have a far greater impact on the biosphere than those which we had originally intended. Carson showed us that chemicals originally designed to “kill pests on my cabbages” were less discriminate and more far reaching in their toxicity than we had intended or foreseen.

Lovelock showed how our local actions can lead to reactions on a global scale, due to Gaia’s feedback mechanisms. Naess proposed a philosophical framework by which we could understand our position as part of nature as opposed to the more traditional view of ”Humankind” being in some way separate from ”Nature”.

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From this it is not surprising to find that Permaculture design tends to produce systems which avoid the addition of synthetic chemicals to the biosphere, look for multiple connections between various elements of the system and attempt to align, as far as possible, with the natural cycles of the world.

However, having said all this, Permaculture is not ”Rocket Science”, it is basically the application of common sense coupled with a few basic design tools.

(Extract from R. J. Bambrey”s article; “Permaculture” What’s That?; Country Smallholding Magazine April 2006).

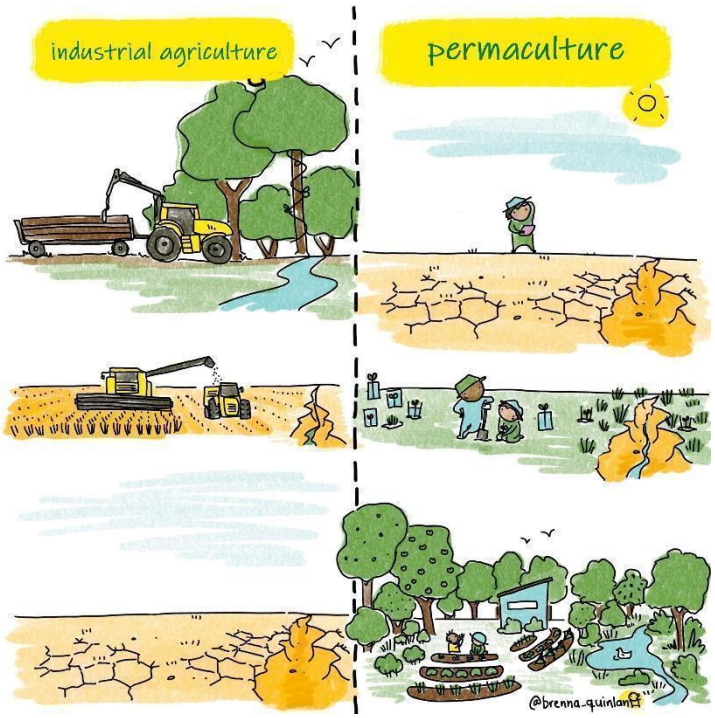

Figure 1: Difference between industrial Agriculture and Permaculture

At this point it is important to emphasize that permaculture was not “invented”, but rather “rediscovered” by “modern” permaculturists. Practices and approaches used in permaculture, are largely based on common sense, scientific facts, ecological mechanisms, laws of Nature and historic knowledge of poor or traditional communities that live(d) close to Nature (Figure 1).

One example of traditional practices that are pretty much the same as what we now call permaculture:

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The legacy of 4,500 years of polyculture agroforestry in the eastern Amazon

A study by Maezumi et al showedthat persistent anthropogenic landscapes for the past 4,500 years have had an enduring legacy on the hyperdominance of edible plants in modern forests in the eastern Amazon. They found an abrupt enrichment of edible plant species in fossil lake and terrestrial records associated with pre-Columbian occupation. Through closed-canopy forest enrichment, limited clearing for crop cultivation and low-severity fire management, long-term food security was attained despite climate and social changes. Their results suggest that, in the eastern Amazon, the subsistence basis for the development of complex societies began ~4,500 years ago with the adoption of polyculture agroforestry, combining the cultivation of multiple annual crops with the progressive enrichment of edible forest species and the exploitation of aquatic resources. (Maezumi, 2018)

Definition(s) of Permaculture

So what is Permaculture? Googling the term, or asking permaculturists this question, one can get many different answers based on the focus and the perspective of the definition. There is no “one and only” definition. Permaculture is a framework or an approach to sustainable human and community activities, therefore the definition is often defined on the basis of the local context.

Also, there is an evolution of the term as time goes by. In the 70’s, the focus was more on agricultural practices. Later on the scope widened. By now permaculturists define their social change and health and well-being related activities and actions based on permaculture ethics and design principles. As a result, the definition of permaculture is also evolving. The whole process is very organic and beautiful; a lot of thinking, social dialogue and co-creation are involved in the process.

In the meantime it is interesting to notice how flexibly the permaculture framework can be used and applied in basically any kind of social space. It is also interesting to notice that the many different definitions of permaculture reflect on the organic nature of the approach.

A few definitions to the term **“Permaculture”**

- Permanent Agriculture
- Permaculture is an innovative (design) framework for creating sustainable ways of living.
- Consciously designed landscapes which mimic the patterns and relationships found in nature, while yielding an abundance of food, fiber and energy for provision of local needs.
- Permaculture is a **practical method of developing ecologically harmonious, efficient and productive systems that can be used by anyone, anywhere.**
- "Permaculture, originally 'Permanent Agriculture', is **often viewed as a set of gardening techniques**, **but it has in fact developed into a whole design philosophy and for some people a philosophy for life**. Its central theme is the creation of human systems which provide for human needs but using many natural elements and drawing inspiration from natural ecosystems. **Its goals and priorities coincide with what many people see as the core requirements for sustainability**.“ / Emma Chapman
- Permaculture is primarily **a thinking tool for designing low-carbon, highly productive systems** but its influence can be very pervasive. What can start as a journey towards living a more ecologically balanced lifestyle can go far deeper, even transforming our worldview and radically altering behaviour. This is the inspirational nature of permaculture; it is a means of connecting each of us more deeply to nature’s patterns and wisdom and of practically applying that understanding in our daily lives.

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- Permaculture is an **applied science, a holistic design system that emulates systems that exist in Nature to create sustainable human settlements and food production systems** which integrate harmoniously with the natural environment.
- Permaculture is variously understood as a set of gardening techniques, a radical form of ecological agriculture, a design philosophy for a sustainable society and an international social movement to achieve **all of the above and more**.
- Permaculture is an approach to sustainable design thinking, agriculture, and community, as well as a **globalized movement**.
- Permaculture is also **a network of individuals and groups spreading permaculture design solutions in both rich and poor countries throughout the globe**.
- Permaculture is the radical **political notion** that living in harmony with nature and with one another is possible.
- Permaculture is **a simple and complex philosophical and practical approach to how to live life on Earth in a sustainable manner.**

Permaculture, well-being and mental health

One of the huge advantages of permaculture is that it is both conceptual and pragmatic/hands-on at the same time. On the one hand it is a purely theoretical and well established logical framework. It offers people a common understanding of today's environmental and social problems and core issues. It also offers people theoretical answers to the major issues of our current times on individual, community and policy levels as well. On the other hand, the focus of permaculture, its solutions and practices are super-pragmatic, hands-on and efficient. Permaculture gives understanding and comfort to the mind and useful things to do for the hands. These are two qualities that potentially make permaculture useful for people who struggle emotionally and mentally in the current societies.

In addition, properly applied permaculture practices are ideology-free, inclusive, and harmonious with Nature and humans' psychological needs.

In the following picture, you will see some of the terms that describe permaculture practices. It is worth noticing that these terms are also ones often used when we talk about needs related to mental health and well-being.

Figure 2: Permaculture and (mental) health

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Many people who practice permaculture express that the process gives them pleasure, and a sense of connection, settles the mind and the body and contributes to physical and mental health. This is basically the core reason why permaculture-related consciousness and suitable practices can be used effectively in any kind of community including ones of vulnerable adults (Figure 2).

Garden and non-garden based permaculture practices

As it was mentioned before, permaculture was originally about agriculture, gardening, and food production. When someone wants to develop a permaculture garden from scratch, they have to devote 10-20-30+ years to reach a mature permaculture forest garden.

But permaculture is not only about this any longer. Applying the design principles and ethics of permaculture to any aspects of human life defined by the petals of the Permaculture Flower, open up and provide an endless source of short-term, long-term, garden based and non-garden based activities. These activities can take place in urban and rural areas, outdoors and indoors as well. Possibilities are infinite. The following chapters will explain these in more detail. Our intention is to help our readers to understand the permaculture logical framework, as well as to give practical examples of what kind of activities can be done in certain local circumstances and with specific target groups.

Module 1.2 Ethics, Principles & Flower of Permaculture

After reading the introduction, one might ask these questions:

- If the permaculture framework is so flexible, how can we decide if a project is a permaculture project or not?
- What makes an initiative a permaculture one?
- What are the common grounds in the permaculture movement?

There are three fundamental pillars that the permaculture concept is based on. These are simple, well-structured and robust:

- The Ethics of Permaculture
- The 12 Design Principles
- The Flower of Permaculture with its thematic petals

As long as a project or an initiative is in line with these three pillars, they can be seen and understood as a permaculture project. Ideally the people who carry out the initiatives are aware and conscious about permaculture, but it is not a must. For example, if a local municipality is willing to develop the village based on permaculture principles they would want to incorporate all the local initiatives that support the sustainability and permaculture concept. Even if some of these local initiatives do not call themselves permaculture ones, they can still be seen as significant elements of the local social permaculture system and structures. As an example: there might be a local kindergarten that focuses heavily on environmental education. From the point of view of the municipality this kindergarten will be linked to the “education” petal of the Permaculture Flower in the local social fabric. We will talk about this in detail later.

But first, let’s have a look at the fundamentals:

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Permaculture Ethics

This is very simple and pragmatic.

1. **Earth Care:** Maintaining and regenerating biodiversity and nature's capital
2. **People Care:** Providing and exercising sufficient care for self and community
3. **Fair Share:** Setting limits to consumption and reproduction, redistributing surplus

What this means is that permaculture projects should not compromise any of these ethical basics. It also means that exploitation, abuse, inequality should not and cannot be part of the system. At the same time care, kindness, attention, justice, fairness, solidarity etc. have to be part of the system (Figure 3).

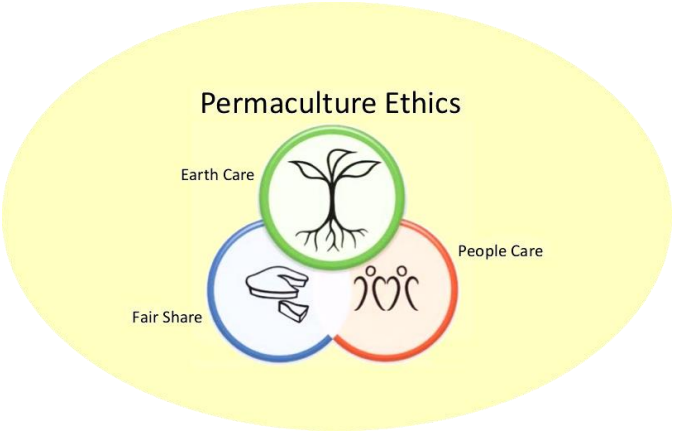

Figure 3:Interconnection between Earth Care, People Care and Fair Share

Vulnerable adults and also people working with them often experience inequalities, systematic exploitation, abuse, lack of access to support structures etc. Properly designed local permaculture actions and interventions can be effective to heal and empower members of the communities. Social innovation potential of permaculture also has to be mentioned at this point. The co-creation potential for social workers, vulnerable communities, municipalities and (social) permaculture system designers is huge.

Design Principles

The Design Principles were developed by David Holmgren, co-originator of permaculture. Permaculture principles are brief sentences that can be relatively easily remembered. They can function as a checklist when considering the usually complex options for designing ecological and/or social systems. These design principles are universal, but the methods that express them will vary greatly according to local circumstances, place, people and situation. They are applicable to personal, economic, social and political reorganization, as illustrated later in the Permaculture Flower (Table 1).

Table 1: Design Principles to create a permaculture space in relation to vulnerable adults, mental health or social permaculture

Principle	Potential implication example in relation to vulnerable adults, mental health or social permaculture
1. Observe and interact	Before taking any action, first listen to people really carefully.

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2. Catch and store energy	Be conscious about where the energy is within the community. Maintain activities or rituals that hold and keep spirits high. Even in difficult times validate dark feelings and transform them into positive action.
3. Obtain a yield	Always try to see the situations/systems from an energetic perspective as well. Focus on what kind of benefits can be drawn from them. Yield can be obtained on many levels, for the whole community, for any of the members, the caretaker, etc.
4. Apply self-regulation and accept feedback	Design and maintain safe feedback loops and channels within the community. Make sure that even the most vulnerable members have the real and safe spaces to express their honest opinion. Also, create structures in which feedback is valued, evaluated and the information is channeled back to the development of the system.
5. Use and value renewable resources and services	Everyone is good at something and most of the time passionate about something that is beneficial for the community. Make sure to dig out these skills and passions and include them as resources or energy for development.
6. Produce no waste	Try to make sure that everyone, all skills, all good intentions are involved and utilized and no people, no skills, no good intentions are wasted or left behind.
7. Design from patterns to details	Try to understand the "big picture", the major patterns, norms, formal or non formal rules, dynamics of a given group, structure or action. Based on that, design the structures/actions in a way that is suitable or at least acceptable to all members.
8. Integrate rather than segregate	Try to find solutions that can integrate all or many actors, factors, members. It might mean that progress will be slower but potentially more sustainable and more robust from the point of view of the community.
9. Use small and slow solutions	If you can afford not to rush things, try to give the process enough time for everyone to get on board. Social change and community development is often a slow process and lasting change can be reached in small and slow steps. In mental health related work and working with vulnerable adults this is not something new and it's a key element of change.
10. Use and value diversity	Especially in the design, the delivery and the feedback phases try to incorporate diverse people and opinions. It might slow things down but again, it creates more robust and resilient, and accessible systems.
11. Use edges and value the marginal	Include marginalized people during the process and connect two otherwise unrelated people/ areas.
12. Creatively use and respond to change	Especially in human systems, change is always there. Marginalized and vulnerable people, underfunded systems often generate unexpected hardships and difficulties. It can be very demanding for the people responsible for maintaining the system. Try to be as creative as you possibly can and also make sure that you obtain yield for your own self to avoid burnout.

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Permaculture Flower

As you can see there are the Ethics and the Design Principles at the heart of the concept. The petals represent the different areas of human life and community structures. The red spiral represents the interconnectedness within the whole system (Figure 4).

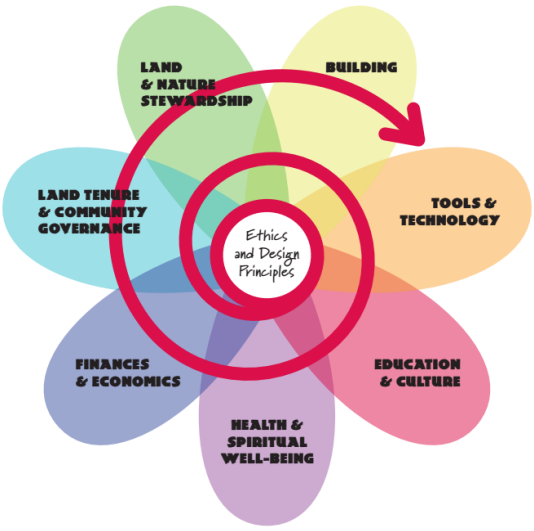

Figure 4: The Permaculture Flower

Table 2: Examples of activities that may be considered in relation to the different petals

Area	Petal	Examples
Biological field	Land and nature stewardship	Bio-intensive gardening Forest gardening Seed saving Organic agriculture Biodynamics Natural farming Agroforestry, Agro-ecology Nature-based forestry Integrated aquaculture Community gardens Urban permaculture sites Pollinator friendly (urban) spaces Community composting Edible landscaping in urban setups
Built field	Built environment	Passive solar design Natural construction materials Water harvesting and reuse Disaster resistant construction Earthships

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		Elderly, dementia and disability friendly eco-buildings Co-housing design
	Tools and technology	Reuse and creative recycling Hand tools including high tech, small scale tools Bicycles and electric bikes Wood stoves Fuels from organic wastes Wood gasification Bio-char from forest wastes Wind and solar systems Energy storage IT based simple garden and building tools IT based care providing tools
Behavioral field	Culture and education	Eco-schools Participatory art and music Life-long learning Accessible and barrier-free education and culture Action Research Citizen science Transition culture Voluntary simplicity Anti-discrimination and empowerment programmes Male-violence reduction and girls empowerment programmes Free online educational and mentoring programmes for vulnerable people Reintegration of marginalized groups Decolonisation
	Health and spiritual well-being	Home birth and breastfeeding Complementary and holistic medicine Free and accessible healthcare Women's reproductive rights and health Accessible and safe contraception and abortion Yoga, Tai Chi & other body/mind/spirit disciplines Indigenous cultural revival Mental health and wellbeing support Preventive checks and practices Conscious Aging Self-care of carers Dignified hospice care

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		Euthanasia, Assisted dying Dignified Dying
	Finances and economics	Ethical investment Fair Trade Local and regional currencies Share economy, carpooling, ride sharing, tool sharing Farmers markets and Community Supported Agriculture (CSA) WWOOFing (worldwide work in organic farming), Workaway and similar networks Tradable Energy Quotas Life Cycle Analysis Circular economy Gift economy Care-centred and care-based local economies Debt-free money and non-profit structures for running care-based social infrastructure
	Land tenure and community governance	Cooperatives Cohousing and eco-villages Open space technology and consensus decision making Sociocracy Participatory democracy

Is something a permaculture project or not?

Let us give you a few concrete examples of social permaculture related projects that can be beneficial for vulnerable adults and vulnerable communities. Many of these are already common practices for experts working with vulnerable adults. It might be worthwhile to add some permaculture-related extra layers and by that perhaps deepen the impact and the efficiency of the whole support system around and within the community (Table 3).

Table 3: Practices used in permaculture projects working with vulnerable adults

	Good examples
Building	Community composting unit. Rainwater harvesting system. Small pond (water habitat) with plants, and animals.
Tools and technology	Community composting unit in a care home Traditional and modern/professional hand tools

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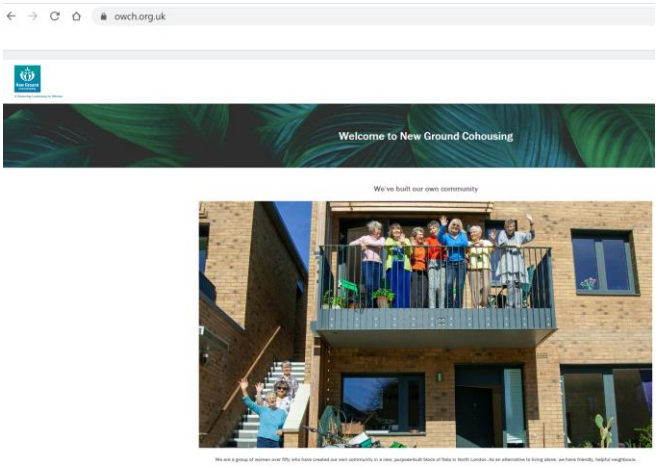
Education and culture	Hands-on, activity-based education Community art projects Performance with an educational message Intergenerational story-telling projects Cooking and gardening trainings
Health and spiritual well-being	Self esteem and self confidence boosting activities Botanical walks (fitness and learning element) Community care system for the elderly
Finances and economics	Creating products in the community, selling them to the wider public via fundraisin events.
Land tenure and community governance	Using the generated funds based on democratic decision making within the community.
Land and nature stewardship	Maintain a little vegetable patch or a bunch of potted plants within the community

To decide whether a project meets the requirements of being a permaculture project, it is recommended to make an internal evaluation based on the ethics and the principles. The community or the project leader/initiator can evaluate whether any of the three ethics have been compromised. After that they can check if the process is in line with the design principles.

For example: is an elderly care home a permaculture one? It depends…

This London-based women co-housing project is definitely one. They have community governance and ownership, they have their vegetable garden, they provide care for one another etc. https://www.owch.org.uk/



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And of course many care homes are not at all permaculture ones, as they exploit the staff and the elderly as well. Read this article:
https://www.investigate-europe.eu/en/2021/elder-care-for-profit/

Module 1.3 Roadmap to design a social permaculture project

This teaching material is designed to be used by people who are possibly new to permaculture and they want to use it to improve their physical or mental health, or they might be vulnerable adults, or social workers, or other professionals working with or helping vulnerable adults.

Individuals, diverse communities, support workers, therapists may be interested in permaculture and be willing to use it as a method to improve physical and mental health and wellbeing of themselves and others.

If you are a person who has the intention to design an effective social permaculture project, here are some tips, steps and questions to consider.

Dreaming phase

Read this teaching material and familiarise yourself with the basic ideas and principles of permaculture. Amazing and inspiring stuff is all over the internet, from community solutions to housing solutions, from healing to governance, from pots to forest gardens, etc.

Based on the information and inspiration, be playful and dream a bit. Find a spot that you really like (e.g. in nature, in a bathtub or in a cosy cafe) and sit for a while. Or have a nice drink with your colleagues or mates and brainstorm together. Or go for a run if you are a runner. Do whatever is the best activity for you to bring yourself to a creative state of mind and heart. Ask yourself this question: what would be helpful and fun to do in my own context and community? Or this one: How can I use permaculture knowledge to make my and/or other's life better?

Give this one enough time, and try to enjoy the process. It is possible and even likely that this process itself will be an uplifting and energizing exercise for yourself. Dream strategically in line with your personal or organisational mission.

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Design phase

After the first step focus on the pragmatic aspects and answer these questions for yourself:

- Who is the target group of your planned action?
- This is a very important question: What is your aim? Do you want to promote/teach permaculture or do you want to use permaculture to reach other aims (e.g. give mental stimulus to people living with dementia by using permaculture practices). The actual methodology might be very different either way.
- How many people do you want to target?
- Do you plan to work with them on a long run, or do you just want to have one-off sessions?
- Do you plan to have an outdoor or an indoor activity?
- What are the potential risks or special circumstances when delivering the project? (e.g. you are working with disabled or elderly people and the site of the action has to be safe and accessible)

- Have you or your organisation got a good enough space to carry out the project or do you need to use a public space or the site of others? Have you got space for a garden or potted plants? Maybe a roof, a safe yard, a large balcony or a greenhouse? Remember Design Principle 1: Observe and interact. Look around and see what kind of spaces and assets you already have. Make an assessment of what resources you already have. It is sometimes very surprising that with careful permaculture design how much resources we can mobilize for "free".
  An example: *a school permaculture project was based on pots and soil donated by the parents. It took place on the concrete yard of the school. The first planting event turned out to be a community event where teachers, pupils and families learned together and had fun together. Other than organising the event there were hardly any extra costs for the school. Later it was the responsibility of the pupils to water the plants and they could practise the regular activity of looking after other creatures. They were also allowed to harvest the plants. It was a very low investment, effective, high-impact activity.*
- Have you got the expertise necessary to carry out the planned action or do you want or need to invite external help? If yes, who might be that person or organisation? Here the question rises again: do you want to have a one-off occasion or do you want to develop a strategic partnership with the invited expert? *A useful tip: there might be small eco-farms, community gardens, art spaces, urban community spaces, eco-schools, gardens of elderly care homes, etc. in your region. See if they are doing similar things or if their site is open to host such trainings, events.*
- If you dreamed of a big-scale project remember Design Principle (DP) 9: Use small and slow solutions. Make a pilot and see how it works. Improve it based on the results of the pilot. Try to apply DP7: Design from patterns to details, and DP5: Use and value renewable resources/ services. In the process, DP4: Apply self-regulation and accept feedback. DP12: Creatively use and respond to change, and make sure to DP3: Obtain a yield.
- Check if the project is in line with the Ethics of Permaculture.

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Evaluation phase

Once you have the first version of your social permaculture project planned, stop for a moment. Take a big step back and look at the plan from a distance. See how it feels for you, for your colleagues. Does it feel right? Does it sit well with your mission, time, resources, target group(s), season, etc.?

If it does, go ahead and start implementing.

If it somehow just does not feel right, go back to the dreaming phase and give the process another go. Consider all the new thoughts and ideas you harvested in the first round of thinking.

Example - Social permaculture project design - HCAF, the Netherlands

Let's use the example of Hekate Conscious Ageing Foundation which is based in the Netherlands. The organisation wants to design a permaculture based programme to support lonely individuals of all ages who are struggling with the mental effects of the pandemic.

Aims: Offer knowledge, community and action to vulnerable citizens of the Noord-Holland region to tackle loneliness and improve mental health

Target group: lonely citizens, young and old, mentally suffering from the social impacts of the pandemic

Site and expertise: HCAF does not have a garden or private open space so it has to use other facilities. The organisation has the permaculture trainer staff.

Activity: Forming a local learning community, teaching the basics of permaculture and doing action together.

This is an intro-level one-off training of three days. Participants finishing the training can join the already existing online social permaculture community of HCAF. It is a follow-up option if they want to carry on their permaculture journey.

Methodology used:

First day: online gathering where people learn about permaculture theory (based on this teaching material) and they also share about themselves. The learning community members get to know each other and warm up. They will be asked about their motivation to join the course and what they are willing to gain (harvest).

Second day: outdoor training day on a local care-focused eco-farm. Further permaculture knowledge is given to the participants, and they also do hands-on work on the farm (eg. setting up a compost heap). Team building exercises are also carried out and a sharing circle about how people feel.

Third day: online gathering where people share about their permaculture journey and how they feel about the process. They are requested to draw their own conclusions and also set some individual goals for their own next step in relation to tackling the original reason why they joined the course.

There is at least a week between the training days to allow enough time for participants to reflect on their own learning processes. Maximum number of participants is 15.

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Example - Social permaculture project design - Friends of the Earth Malta

As a second example, let's take Friends of the Earth Malta, based in Malta, who collaborated on the piloting of the Social Permaculture training with two local organisations working with vulnerable adults, one with adults with mental and physical disabilities, and the other with adults recovering from drug and alcohol addiction.

Aims: Offer training and support to set up a permaculture garden and/or permaculture activities in the day centres of two organisations working with vulnerable adults, to enrich their therapeutic process. ,

Target group: adults with mental and/or physical disabilities; adults recovering from drug and alcohol addiction

Site and expertise: Friends of the Earth Malta has a small community garden outside their office, and the two organisations participating in the pilot also have outdoor spaces at their different care centres, ranging from a field, to an urban garden, to spaces like courtyard or roofs. Friends of the Earth Malta has two staff members experienced with delivering training on gardening, permaculture and group facilitation.

Activity: Piloting the full training developed as part of the Social PEAS project, to teach the basics of social permaculture and how to set up a permaculture garden, with two local organisations, encouraging them to implement the activities at their centres.

In this case, the training material is delivered as a 12-part training course, with two lessons per module. The 6 month programme consists of 2 sessions per month of 3 hours each, delivered at different locations to learn from different contexts, sites and needs. After following the training, the participants of the training are capable of implementing social permaculture practices and activities within their organisation with the vulnerable adults they work with.

Methodology used:

See training schedule here.

Maximum number of participants is 20-25.

References and resources:

Macnamara, L., 2012. People & Permaculture. Caring and designing for ourselves, each other and the planet. Permanent Publications, The Sustainability Centre, East Meon, Hampshire, England.

Toby Hemenway, 2009: Gaia's Garden, Chelsea Green Publishing

Toby Hemenway, 2015: The Permaculture City, Chelsea Green Publishing

Aranya, 2012: Permaculture Design: A step by step guide, Permanent Publications

Maezumi, S.Y., Alves, D., Robinson, M. et al, 2018. The legacy of 4,500 years of polyculture agroforestry in the eastern Amazon. Nature Plants 4, 540–547 (2018). https://doi.org/10.1038/s41477-018-0205-y

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Module 2

Natural ecosystems and communities

Authors: Victoras Pallikaras (Friends of the Earth Cyprus) , Mark Ciantar, Suzanne Maas, Sabela Rubio (Friends of the Earth Malta)

Module 2.1 Natural ecosystems

Permaculture draws inspiration from nature. To better understand nature, natural processes and natural ecosystems, in this module we look deeper at these. We also explore the role of humans and their communities, and the relationship between humans and our environment.

Natural systems

One of the definitions of a natural ecosystem reads as follows: 'A system, or a group of interconnected elements, formed by the interaction of a community of organisms with their environment[1]. A key word here is the term 'organism', biologically defined as 'a single individual, or being.' So we can simply explain a natural ecosystem as a group of living beings interacting with each other and with their environment (Figure 1).

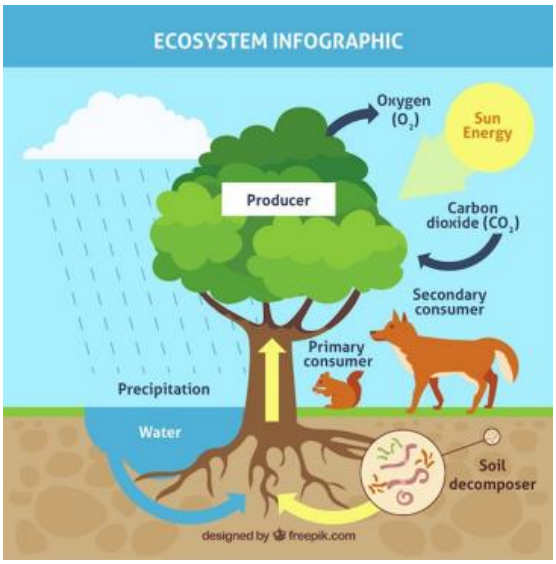

Figure 1: Infographic about natural ecosystems

[1] https://www.dictionary.com/browse/ecosystem

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Living organisms

Living organisms in a community need not be of the same type, technically referred to as **'species'**. As a matter of fact, they cannot be. If they were, they would have their very own existence seriously threatened. And this for the simple reason that nature has designed single species in such a way that they need other species to survive. Some species have further evolved to live in communities with their own type, such as in the case of honey bees. But whilst keeping in mind that this is not the norm with everyone, on the other hand each species is naturally designed to interact with other species for its own sustenance and the survival of the whole ecosystem[2].

Taking the example of honey bees to illustrate this, even the common observer can notice that while honey bees are very well organized as 'independent' communities of their own type, they nevertheless need the existence of flowering plants – amongst other living creatures - in the whereabouts of their hives to survive. On their own part, some flowering plants have 'learned' to take advantage of the existence of honey bees for their reproductive processes. It is indeed an amazing experience to observe how some flowers are able to attract honey bees to their nectar, and at the same time make these social insects carry their precious pollen from one individual flower to the next! Some flowering plants have traveled very far in the development of very elaborate mechanisms for this purpose (see Figure 2 below for example).

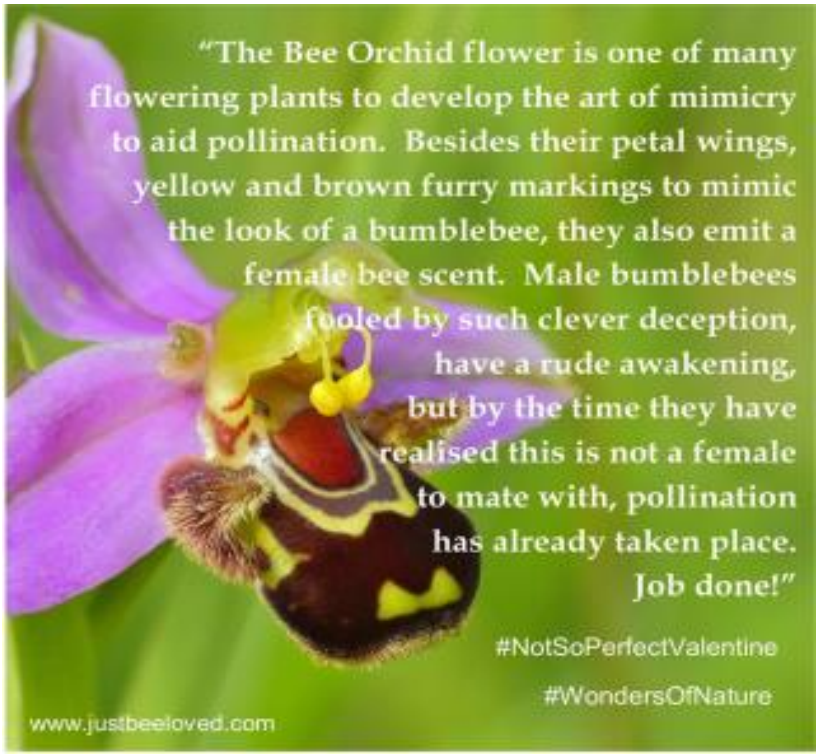

Figure 2: Intricate connections between plants and bees

[2] https://biologydictionary.net/organism

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Interactions between species and environment

However, as we have seen in the definition of natural ecosystems, besides interacting with each other, living organisms interact also with their environment. Honey bees, for example, are able to choose the perfect location to build their hive if left alone. Different factors affect their choice, such as the immediate availability of food and water, and the movements of the sun (especially vis-a-vis the temperature regulation of the hive). The same applies to plants: the availability of sunlight, weather conditions in general, and conditions in the soil directly affect the life of the plant. Such requirements vary from species to species. And this is exactly the beauty of it all, seeing how different species have been resilient in using the resources 'on the ground' paving the way to the creation of such a rich biodiversity we can witness today! It is in fact in each species own interest not to create unnecessary competition with others for the use of resources, but rather to live in perfect harmony, interconnected, a living celebration of unity in diversity! In common terms, we refer to this 'symphony' as balance.

So far we have seen how a natural ecosystem is regulated by its own internal norms, primarily dependent on a network of relationships we normally refer to as the 'web of life'. But it is also true that external factors may displace this equilibrium. A drought, for example, directly affects the population of honey bees and flowering plants in general in an ecosystem. Plants die off because of lack of water – a very basic requirement for plant growth – and honey bees are decimated for the same reason. However, the social insects are not only affected because they are able to find less water to drink, but also because they are not able to collect enough nectar for their long-term survival (both because they find less flowering plants, and also because there are less worker bees to do the job). Moreover, the drought affects all the inhabitants of the ecosystem, threatening its very existence if it is long-lasting.

A community of flora and fauna dwelling in a particular habitat is referred to as a biome. And our planet is in fact a 'living' system of interconnected biomes that interact with each other on this macro-level in the same manner we have just explained on the micro-level. Everything is in fact interconnected. And whilst a single ecosystem might appear to be heading towards destruction, a closer look at the bigger picture will reveal an even more extraordinary event: that the 'disaster' is in reality incorporated in an effort on the part of the planet to maintain an equilibrium that is essential for the existence of life on earth.

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Example - Paarden Psyche, the Netherlands

Let's take the example of Paardenpsyche in the Netherlands, where the interaction of humans and horses is key.

Aim: Paardenpsyche uses their horses to help people that are struggling with mental diseases and cure traumas, ED's, anxiety and sensitivity etc.. Being in a natural environment gives peace of mind and feels different from a room with 2 chairs for therapy sessions. The contact/connection with horses brings people out of their head and closer to their own feelings and to nature.

Activity: Task-oriented sessions with a horse to work on an objective or change process. A form of experiential learning: the horse reacts to the behavior and congruence of the human being. This takes place in a natural environment in the presence of horses that contribute to peace, safety and relaxation.

Figure 3: Paardenpsyche[3]

Module 2.2 Human communities and community systems

Human communities

A community is defined as a group of people with distinct characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings. Individuals are vital to community life since, when engaged collectively, they can be the engines of community transformation and social change. Generally, the role of individuals within their community is to be productive in their vocation, respectful and caring in their relations, and sufficient in any other necessary roles so that the community may prosper, grow, be free, and be protected from harm.

Patterns from nature

People as individuals and communities are natural systems like ecosystems, and when people can fluently think holistically, they can be able to be more independent, adaptable, resilient and resourceful. Specifically, humans have been utilising nature's interlocking patterns as a guide, developing their buildings, crafts, arts and technologies. Nature is composed of structural patterns as well as patterns governing behaviour on an individual and collective level (Figure 4).

[3] https://www.paardenpsyche.nl/

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Figure 4: Patterns in nature (Clarent sufi, 2012)

Structural patterns combine strength and beauty with an efficiency of space, providing people with attitudes that they can emulate in their design work towards a life-sustaining Earth culture. For instance, a wave pattern is found in nature, including water, heartbeats, sound, sleep and brain activity, but is applied in music and bio-rhythms by humans, being beneficial for time measurement, the building of momentum, eroding, etc.

What is more, the branching pattern in nature is found above and below trees and plants but is used for transport, family trees, website design and mind maps by humans, being useful for gathering and distributing flows of nutrients, energy, information, water, air from or to a large area. Finally, the lobe/honeycomb pattern is observed in nature through berries, hair and fur, reptile and fish scales, bird's feathers and pine cones, however, is employed by humans for roofing, jewellery, flooring and insulation, being uniform, waterproof and resilience for the production of a safe structure from simple elements.

Table1: Structural patterns in nature and human applications (Macnamara, 2012)

Pattern	Where it is found in nature	Human applications	Characteristics/benefits	Attitude as designer
Wave	Water Heartbeats Sound Sleep Brain activity	Music Bio-rhythms	Measurement of time Building of momentum Eroding Repeating but each one is different Pulsation	Constantly changing Accepting ups and downs Time for action and time for rest Wave of activities
Spiral	Snails Plant tendrils Inner ear Whirlpool Tornados	Herb spiral Corkscrew Springs Healing elements Seasonal living/growth	Protection Acceleration or deceleration Can store energy Compaction Indefinite growth Supportive Efficient use of space	Out a bit and round a bit Transcend and include Gradually improving or eroding Repeating to almost the same place Building or successes

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			Powerful Beautiful Concentrating or dispersing	
Branching	Trees and plants- above and below Evolutionary tree of life Blood vessels Waterways Antlers Capillaries	Transport Family trees Website design Mindmaps	Spreading Cover large surface area Creates lots of edge Stabilising Anchoring Gathering Cant travel both ways Resilient Increases diversity and spreads over a wider area Exchange and transport	Can cut off parts and the rest survives Useful for gathering or distributing flows of nutrients, energy, information, water, air from or to a large area. Can reach out in stages
Lobe/Honey-comb	Berries Hair and fur Reptile and fish scales Birds' feathers Pine cones	Roofing Jewellery Flooring Weather cladding Insulation	Lots of edge for exchange between parts Can produce a large and strong structure form simple elements Uniform Protection Waterproofing Resilience	Small groups building to larger movements Protection and strength in numbers Multi-faceted More flexibility than just one large unit Modular Can sacrifice parts and the rest is undamaged
Net	Birds' nests Leaf and plant tissue Bramble thicket Coral Bone structure Sponge Spiders' webs'	Barriers Hedge-laying Straw-mulch Cob walls Nets Woven cloth Knitwear Sieves	Strong and light Big surface area Permeable Spread the load- distributes tension Catches things Strengthens and reinforces Interconnected Resilience Resistance Repairable Supportive and protective Efficient use of space Creates lots of edge	Making connections Spreading the workload Harvesting yields Swifter communication than a chain-of-command Many routes to the same place

Like structural patterns, behavioural patterns are found repeated in nature, and each has characteristics and benefits that people use in their design work. Structural patterns inform behavioural patterns, for example, the flocking pattern is found in starlings, pigeons, herring and grazing animals but is utilised by humans for settlements, sports teams and non-hierarchical teams, being in solidarity through 'safety in numbers' and promoting group trust and sense of belonging.

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Table 2: Behavioural patterns in nature and human applications (Macnamara, 2012)

Pattern	Where it is found in nature	Human applications	Characteristics/benefits	Attitude as designer
Flocking schooling/herding	Starlings Pigeons Herring Grazing animals	Settlements Non-hierarchical teams Sport teams	Simple rules Shared leadership Minimising edge- less exchange with outside Protective Safety in numbers Interdependency	Safety in numbers Sense of belonging Solidarity Group trust Less effort Aligning with like minded people
Co-operative	Ant's nest Bee hives Penguins in midwinter	Workers' co-ops International communities	Sharing of labour Sharing of resources Roles and specialisation Interdependency	Many hands make light work Working for the good of the whole Fair share of responsibilities and profit
Hierarchical structures	Gorillas Elephants Lion prides Wolf packs	Businesses Tribal communities	Quick decisions Chain-of-command Interdependency	Acknowledgement of hierarchies in experience, skills and knowledge
Family or pairs	Swans Gibbons	Nuclear families	Interdependency	Co-operation Commitment
Solitary	Tigers Bears	Freelancers Self-employed	Freedom Independence	Specialisation Finding our own niche

Additionally, the co-operative pattern is observed in ant's nests, bee hives and penguins in midwinter, but is implemented by Workers' co-ops and Intentional communities in humans, supporting the light work by many hands and fair share of responsibilities and profit as well as working for the good of the whole. Last but not least, the family or pairs pattern is seen in swans and gibbons but observed in human nuclear families, encouraging interdependency, cooperation and commitment.

Learning from nature

Taking all of the above information into account, it can be seen that human communities are formed using the patterns of nature as a paradigm. The use of the metaphors above from the natural world, supports the view of people as part of nature, with the understanding of patterns such as waves and branching being deeply intuitive as they form part of people's bodies. When people connect with their patterns and those around them, they have a sense of belonging to something immensely ordered, vast and amazing.

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Example - Snow-drop Animal-Assisted Therapy, Malta

Let's take a look at the ''Snow-drop Animal-Assisted Therapy'' Animal - Assisted Therapy aids in reducing physical, mental, and cognitive difficulties.

Aim: Animal assisted therapy (AAT) as defined by the Pet Partners is a 'goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process' (Kruger, Trachtenberg & Serpell 2004). It involves specifically trained animals and professionals working as co-therapists (Pet Partners, 2012). The European Society for Animal Assisted Therapy (ESAAT) defines it as a 'deliberately planned pedagogy, psychological and socially integrative interventions with animals for children, youths, adults and senior citizens with cognitive, social-emotional and motor disabilities, behavioural problems and for focused support. It also includes health-promoting, prevention and rehabilitative measures' (ESAAT 2011).

Context: The use of animals in promoting and improving the life of humans has been around for a long time, yet the complementary healing modality is not widely integrated into mainstream education and healthcare. Animals and humans have coexisted in therapeutic relationships with each other for more than 12,000 years (Serpell 2000). Records demonstrate that animals were used in different roles from companions to therapy for persons suffering from epilepsy, mental disorder, terminal illness and anxiety/stress disorder. Animal-assisted therapy is designed to promote improvement in human physical, social, emotional and/or cognitive function (Fine, 2000).

Figure 7: Complementary healing modality with the use of animals

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References and resources:

Clarent Sufi, 2012. Everything in the Universe is spinning.The Resonance Project Archives. Published: 2014. Available at: http://www.clarentsufi.com/blog/2014/05/14/everything-in-the-universe-is-spinning/#more

European Society for Animal Assisted Therapy(ESAAT), 2011. ESAAT – European Society for Animal Assisted Therapy (2004). Available at: https://www.esaat.org/en/

Pet partner, 2012. 45 118th Ave SE #100, Bellevue, WA 98005. Available at https://petpartners.org/

Cunningham, W. P. & Saigo, B. W., 1999. Environmental Science: A Global Concern. Boston, US. Enger, E. D. &

Smith, B. F., 1998. Environmental Science: A Study of Interrelationships. Boston, US.

Fine, A. H. 2000, Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice. Academic Press, UK.

Kruger, K., Trachtenberg, S., Serpell, J., 2004. Can Animals Help Humans Heal? Animal-Assisted Interventions in Adolescent Mental Health. University of Pennsylvania School of Veterinary Medicine, Philadelphia, US.

Macnamara, L., 2012. People & Permaculture. Caring and designing for ourselves, each other and the planet. Permanent Publications, The Sustainability Centre, East Meon, Hampshire, England.

Serpell, J. A. 2000. Creatures of the unconscious: Companion animals as mediators. Cambridge University Press, UK.

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Module 3

Life cycle of the Plant

Authors: Victoras Pallikaras (Friends of the Earth Cyprus) , Mark Ciantar (Friends of the Earth Malta / Inteko) , Suzanne Maas, Sabela Rubio (Friends of the Earth Malta)

Like any other living organism, plants too have their own physiology. Their bodies are perfectly designed to make it possible for the plant to grow in a particular habitat, and for this to happen, to carry out specific processes.

3.1 Structure of the plant

Although at first glance different species demonstrate a striking variety in shape and size, to the point that an inexpert eye might find it extremely difficult to identify a particular organism as a plant; the species that are more developed within the plant kingdom reveal a common basic structure: a subterranean structure commonly referred to as the 'root', and an aerial structure known as the 'shoot' (Figure 1).

Root systems vary in structure between different plant groups, but the basic function of the roots is common to all, namely, anchorage and the absorption of water and nutrients from the substratum. In some species, roots are modified to perform other functions, such as the storage of food and reproduction. Here it is interesting to note that root systems prevent soil erosion by their very existence (Figure 1).

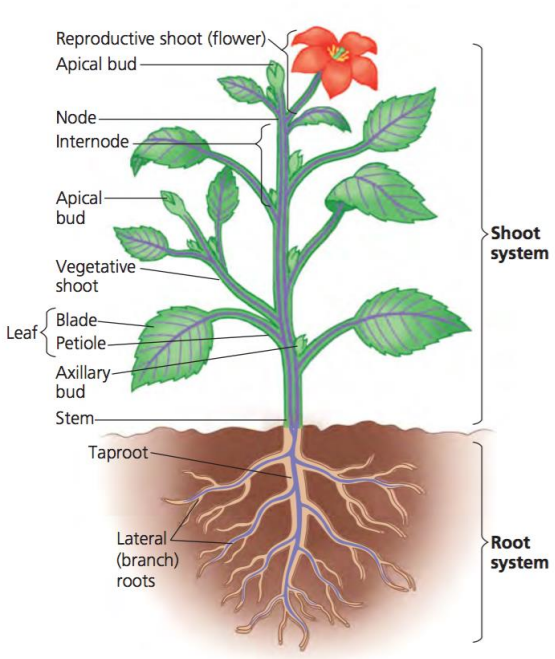

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Figure 1: Plant structure, growth and development [4]

The main upper, aerial structures of the body of a plant are the stem, the leaves, the flowers and the fruit containing seeds. The stem – or main stalk of a plant – supports branches, leaves, flowers and fruits, and facilitates the transport of water and nutrients throughout the plant body through a highly intricate system of vascular tissues. Occasionally, stems store food and serve other purposes too. Leaves come in a huge variety of shapes, sizes, texture and colour, but they all carry out very vital functions for the plant, namely, the manufacture of food, transpiration, the interchange of gases and transportation of water and nutrients. Some leaves have been modified to perform special functions such as the provision of extra support for the plant (Figure 1).

Flowers carry the reproductive organs of the plant, and in order to reproduce, different species of plants require the aid of either the wind (such as in the case of grasses) or the action of animals such as insects (as is the case of the cherry). We know in fact that insects are attracted to flowers by their smell, colour and form, which they visit to feed upon their sweet nectar and pollen. Honey bees, for example, carry pollen grains that are accidentally attached to the hair on their body from flower to flower (Figure 1).

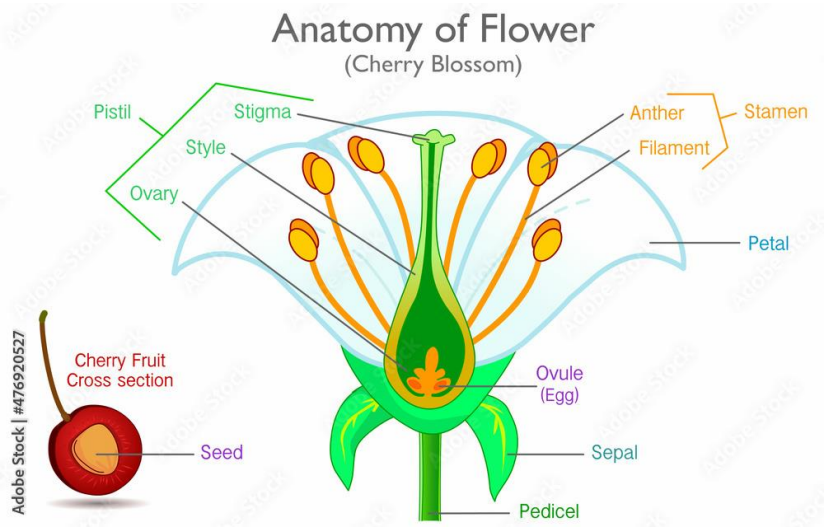

Figure 2: Anatomy of Flower (Cherry Blossom) [5]

A close look at a cherry flower reveals the presence of pin-like structures called stamens, responsible for the production of pollen grains, the equivalent of an animal's sperms. The club-shaped structure in the middle of the flower is the carpel, the female part of the flower. The carpel leads to an ovary, containing an ovule, inside which the microscopic egg cell can be found (Figure 2).

[4] https://apbiologyctd.wordpress.com/plant-structure-growth-and-development/

[5] https://stock.adobe.com/fr/images/anatomy-of-flower-fruit-cross-section-plant-reproduction-system-diagram-explanations-components-parts-pistil-petal-stamen-filament-anther-structure-sample-cherry-blossom-illustration-vector/476920527

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Reproduction: pollination and fertilization

All flowers are designed to carry out the same mission: pollination (or the transfer of pollen from the stamen to the carpel) resulting in fertilisation (or the encounter of male and female gametes). The direct result of this encounter is the formation of one or more new individuals of the same species. Once fertilisation is completed, flowers give way to the formation of one or more seeds, specialised structures with a protective coat, carrying the plant embryo together with food reserves. Nature protects the seed from extreme conditions, such as cold and drought, by drawing out the water from it, leading it to assume a dormant state. It is indeed a fascinating experience to observe how nature has 'designed' different seeds to be able to disperse and travel far, making use of the wind, animals or even by mechanical means. And all this in order to avoid competition for resources with the mother plant, colonisation of new habitats and increasing the chance for better conditions to live in (Figure 3).

Reproduction is not successful unless the seed finds the right environmental conditions to germinate, that is, to develop into a mature individual plant. These conditions vary from species to species, but they basically include the availability of water, oxygen and light, temperature and soil depth. Surrounded by the right conditions, seedlings sprout making use of the food reserves, and grow until they become fully independent. Once they develop their first green leaves, they are able to produce their own food through photosynthesis and hence become self-supporting.

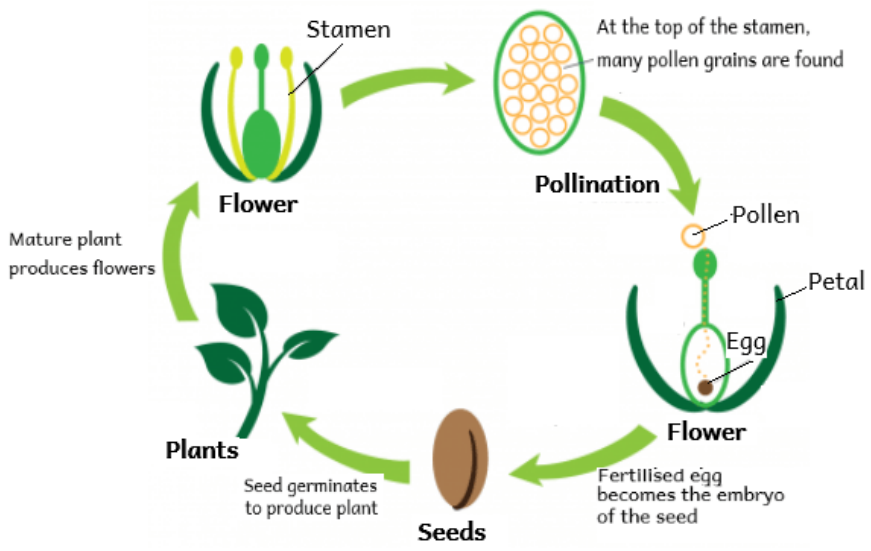

Figure 3: Reproduction cycle of plants [6]

Here it is interesting to note that some plant species have developed an alternative mode of propagating themselves other than sexual reproduction so far described; this method is known as vegetative reproduction. We can observe this happening with the strawberry plant that grows branches from the main stem, called runners. Runners grow along the surface of the soil and put down roots at intervals, thus giving way to a row of new strawberry plants. The space in between the new plants eventually withers away.

6 https://teleskola.mt/7-12-flowering-plants-reproduction/

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3.2 Life Cycle of an individual

A life cycle is described as the sequence of biological changes that occurs as an organism develops from an embryo (egg) into an adult until its death.

Human cycle of life and development

The life cycle of a human consists of seven stages including the foetus, baby, child, adolescent, adult, elderly and death. Although the human life cycle is described in stages, people continually and gradually change from day to day throughout all of these stages. The life cycle starts with reproduction and the foetal stage, in which the foetus grows in the womb surrounded by amniotic fluid and is fed through the umbilical cord.

After birth to around two years of age the baby stage occurs, followed by the childhood stage which is characterised by more independence and includes children from three to ten years old. Subsequently, the adolescent stage takes place which is defined as a young person between the ages of 10 and 19. During that stage, puberty occurs resulting in body and behavioural changes, as well as greater brain development and enhanced independence. Eventually, adolescents develop into adults and between the ages of 18-39 the human body is at its peak of fitness and strength. Finally by the age of around 67 people reach the elderly stage, which is characterised by less strength and more tiredness.

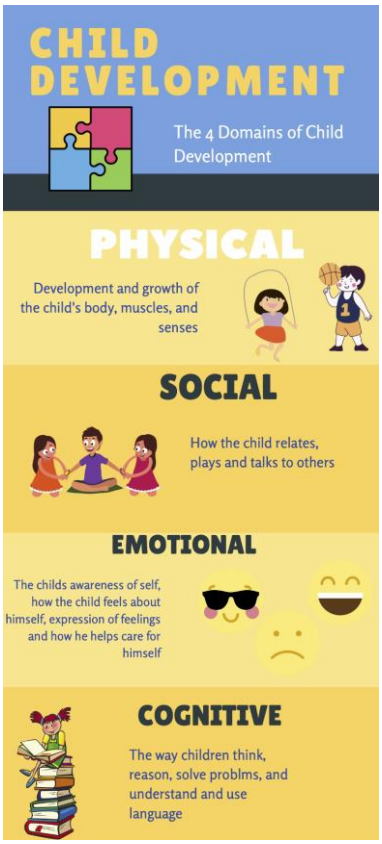

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Figure 4: Child development: The four types of child development[7]

- **Physical:** Even though physical development including body growth is the most obvious form of development, human development is multidimensional (physical, cognitive and socioemotional development) since our minds, emotions and social relationships can grow.
- **Cognitive development** refers to the maturation of thought processes and the tools used to obtain knowledge, become aware of the world around us and solve problems.
- **Socioemotional development** encompasses changes in personality, emotions, views of oneself, social skills and interpersonal relationships with family and friends.
- **Cognitive development and socioemotional development** are both affected through the response to external or internal sensory stimuli, enhancing the generation of different networks within the brain. What is more, human development can significantly be affected by factors including genetic factors, socioeconomic factors, family characteristics, nutrition and the types of experiences during early childhood (Adverse experiences can promote behavioural issues). Therefore children with no genetic disorders, of higher socioeconomic classes, higher family education levels, good nutrition and variety of foods and positive experiences during early childhood have been shown to have a notably increased healthy development.

Nature cycle of life and development

The lifecycle and developmental stages of humans can be simulated with the ones of nature and especially plants. The life cycle of plants starts with reproduction, seed formation instead of a fetus and other multiple steps and periods of growth, ending in a death like the human lifecycle. Additionally, plants like humans respond to different environmental stimuli consisting of light, gravity, water, and touch, by growing and developing their stems, roots or leaves and flowers towards or away from the stimulus. Apart from that, like humans, the growth of plants is also impacted by environmental factors such as sunlight, temperature, soil moisture, humidity, and nutrients. Consequently, the optimisation of the above conditions is required for the development of plants, which is a similar phenomenon to humans.

[7] https://www.bbbgeorgia.org/child-development

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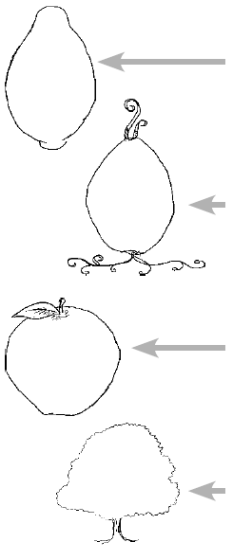

Growth phase: *Vision, Limits and Helps;* there are the anchor points of the child. The phase is represented by the seed, showing the potential and what is going to help or limit growth.

Exploratory phase: The next phase is of the apprentice, the young adult, learning, thinking and expressing. It is represented by the roots, reaching out, searching and exploring with *Patterns, Ideas and Principles.*

Production phase: The adult stage of deciding, doing and producing is represented by the fruit, where we are looking for yields from our design in the anchor points of *Integration, Action and Momentum.*

Reflective phase: *Appreciation, Reflection and Pause* are the introspective and insightful stages of the elder, represented by the mature tree.

Figure 5: Life cycle of plants (Macnamara, 2012)

In summary, an individual's life cycle has similar traits to the plant life cycle, both beginning with birth and ending with death and comprising reproduction and growth. Both humans and plants respond to stimuli and their development is affected by different factors.

Ecosystem of humans

Zones can be used to map out our connections with other people throughout our lives. Each zone has defining characteristics, although they are not fixed and do not have distinct edges.

Zone 00 - ourselves
Zone 0 - partners, spouses, children, people we live with, people we see most regularly
Zone 1 - friends and other family
Zone 2 - neighbours, work colleagues, acquaintances, schools, clubs, where there can be common bonds and understanding, or assumptions and motivations
Zone 3 - community of interests and locality, friends of friends, shared cultures
Zone 4 - national
Zona 5 - global -the wilderness - people we are unlikely to meet, this zone contains the largest number of people

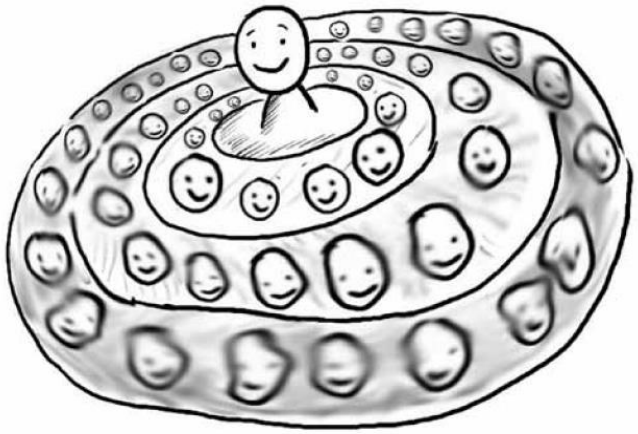

Figure 6: Permaculture zones applied to the personal ecosystem (Macnamara, 2012)

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Which zone people are in, shifts over time. People are not always in the zone you would like them to be; some closer and some further away. How we manage our relationship with these people may depend on which zone they are in. Our range of people care skills and abilities to relate to people within each zone varies. Some of us have compassion and understanding for people in zone 5 and can dedicate our life's work to people in other countries, many of whom we will never meet. Others spend their energies supporting a close-knit family.

Example - Alter Nativa, Slovakia

Let's take the example of Alter Nativa in the Slovakia:

Aim: In Alter Native, people are looking for the possibilities of a more valuable and meaningful existence on this lovely planet. They are trying to create a place where they could fulfil their lives more fully and where the rules and way of being would be more in line with their inner feelings, in a sustainable ethical relationship with nature and to each other.

They strive to restore the original relationships and principles, replace competition with cooperation and limitless growth with natural balance. For coexistence and living in a harmonious, synergistic community in a safe environment for them and their children.

All this with a sensitive use of the achievements of the human mind and modern times, in a way that disturbs nature and living things as little as possible. environment. Everything within their human possibilities, in the small Gemer village of Brdárka.

Figure 7: People painting a wall together in Alter Nativa[8]

[8] https://alter-nativa.sk/

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3.3 Lifecycle of a Community

The concept of 'life cycle' in biology refers to the cyclical process that an organism goes through from the beginning to the end of their life. This process does not happen in a vacuum, on the contrary: members of a species go through a series of changes as they pass from the beginning of a given developmental stage to the inception of that same developmental stage in a subsequent generation.

Lifecycles in an environmental context

The lifecycle of an oak tree goes from germination of the acorn, to growth from oak seedling to sapling to tree, to reproduction by spreading its own acorns, until the oak tree eventually dies, and becomes part of the fertile ground for the next generation of oaks. The seed contains all the nutrients needed to start life, but germination and healthy development into a seedling will only occur in an environment that has suitable conditions, supportive of the next phase of its growth. A mature oak tree, ready to reproduce via its production of acorns, is an integral part of its wider environment and an important component of the ecosystem (Figure 8).

Figure 8: The life cycle of an oak tree[9]

However, things don't always go as smoothly as depicted in the picture and description above. The seed may land in an unsupportive environment, lacking the right conditions for growth. The seedling may be attacked by disease and wilt before it can reach the next stage of life. The sapling may be nibbled on by a passing deer.

Much the same applies to the human life cycle. While we all pass through the same stages of life - from foetus to baby, child, adolescent, adult, and elderly - not everyone does so in the same kind of environment, with the same kind of opportunities and under the same kind of conditions. The importance of this realisation, that we are a product of our natural and social environment, is just beginning to be (re)acknowledged in medical circles. While

9 https://ecotree.green/en/blog/the-life-cycle-of-a-tree

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certain diseases, disorders and issues are indeed an individual affliction, many are not. Taking mental health issues as an example, mental health is often seen as any other illness, in this case caused by chemical imbalance in the brain. However, a growing group of psychologists and medical researchers is questioning this and seeking at least part of the explanation of the illness outside of the individual; in broader social structures and the quality of our living environment (Ahsan, 2022 and Smith,2020).

Returning to the oak tree, if the seedling were wilting we wouldn't diagnose it with "wilting-plant-syndrome" – we would change its conditions. Yet when humans are suffering under unlivable conditions, we're told something is wrong with us.

Socio-ecological models

Socio-ecological models (SEM) present a broad approach to health and well-being, including physical, mental, and social well-being. Socio-ecological models recognise that factors at different levels - the individual level, the interpersonal level ('relationships'), community and society - influence the health and well-being of people (Sallis et al., 2008; Silberberg et al., 2011). Such models consider the complex interplay between individual, relationship, community, and societal factors. Figure 9 presents a socio-ecological model. The first level of the model includes the individual and their personal characteristics, such as age, education, income, and health history. The second level, relationship, includes a person's closest social circle, such as friends, partners, and family members, all of whom influence a person's behaviour and contribute to their experiences. The third level, community, explores the settings in which people have social relationships, such as schools, workplaces, and neighbourhoods, and seeks to identify the characteristics of these settings that affect health. Finally, the fourth level looks at the broad societal factors that favour or impair health. Examples here include cultural and social norms and the health, economic, educational, and social policies that help to create, maintain, or lessen socioeconomic inequalities between groups (CDC, 2007).

Figure 9: Socio-ecological model of an individual and their relationships with others, the community and wider society[10]

10 https://www.cdc.gov/violenceprevention/about/social-ecologicalmodel.html

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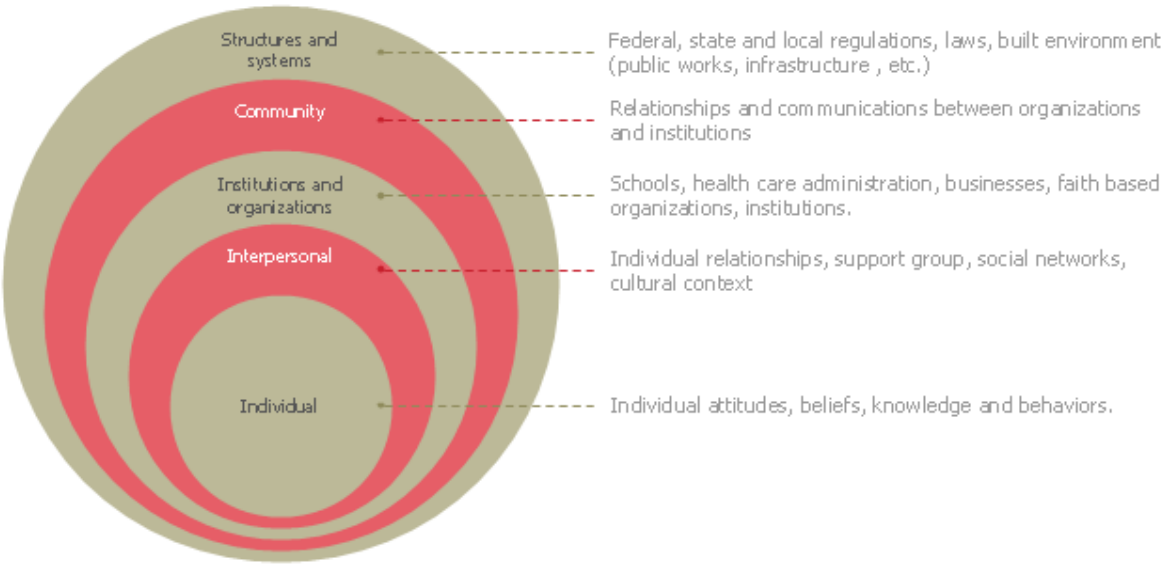

Figure 10: Socio-ecological model 'onion diagram'[11]

Socio-ecological models have been applied successfully to address different public health issues. To take tobacco control and cessation campaigns as an example, interventions have targeted smokers on multiple levels: through smoking cessation treatments, tobacco tax increases and prohibitions on smoking in public places. These intertwined approaches helped to establish a new non-smoking social norm and created a synergy between the interventions at the different levels (Sallis et al., 2008). When looking at the difficulties that vulnerable adults are facing, a socio-ecological model advocates integrating approaches to change the physical and social environments rather than modifying only individual behaviours, providing a holistic approach for therapy and support (Silberberg et al., 2011). As Dr. Sanah Ahsan concluded in their article on mental health, we must look at our conditions and see how we change those to be able to thrive. A tree needs fertile soil, water, nutrients and sunlight to grow and develop through its life cycle. For a human being, the water might be a universal basic income, the sun safe, affordable housing and easy access to nature and creativity. Food could be loving relationships, community or social support services (Figure 10).

[11] https://www.conceptdraw.com/examples/ecological-onion-model

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Example - PermaKultura.Edu.PL, Poland

Let's take a look at the ''Permakultura'' educational project in Ustroń, Poland.

Aim: The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings – said the precursor and master of natural farming Masanobu Fukuoka.

In the context of the above, the school of PermaKultura is focused on holistic education which includes the philosophy of Deep Ecology, co-feeling the Biosphere, empathy for other creatures, caring for our Planet in the context of ecosystems, caring for others and practising fair share: sharing the joy in Friendship and in harmony of the ancient ethics of self-restraint (following the role model of the philosopher-gardener Epicurus), and also in modern voluntary chasteness.

Their educational activity includes organising lectures, workshops and webinars. They also take part in symposiums and festivals in Poland as well as abroad, and they run a publishing office.

Figure 11: Group of people from the Permakultura project[12]

[12] https://permakultura.edu.pl/en/

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References and resources:

Ahsan, S., 2022. I'm a psychologist – and I believe we've been told devastating lies about mental health. The Guardian - Opinion, Mental Health. 6 September 2022. Retrieved from: https://www.theguardian.com/commentisfree/2022/sep/06/psychologist-devastating-lies-mental-health-problems-politics

Centers for Disease Control and Prevention. The social-ecological model: a framework for prevention. Atlanta (GA): Centers for Disease Control and Prevention; 2007. Retrieved from https://www.cdc.gov/violenceprevention/overview/social-ecologicalmodel.html.

Ciancio, O., 1996. Il bosco e l'uomo. Published in 1996 by the Italian Academy of Forestry Sciences.

Macnamara, L., 2012. People & Permaculture. Caring and designing for ourselves, each other and the planet. Permanent Publications. The Sustainability Centre, East Meon, England.

Roberts, M.B.V., 1986. Biology for Life, Surrey, UK, pp 42, 368-381.

Sallis J.F., Owen N., Fisher E.B., 2008. Ecological Models of Health Behavior. In: Glanz K, Rimer BK, Viswanath K (editors). Health Behavior and Health Education (4th ed., pp. 465-485). San Francisco: John Wiley & Sons.

Silberberg, M., Cook, J., Drescher, C., McCloskey, D.J., Weaver, S. and Ziegahn, L., 2011. Principles of Community Engagement. NIH Publication, pp.11-7782. Retrieved from https://www.atsdr.cdc.gov/communityengagement/index.html.

Smith,S.S, 2020. The Well Gardened Mind: Rediscovering Nature in the Modern World.HarperCollins Publishers, 16 Apr 2020.

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Module 4

Requirements for Growth

Authors: Victoras Pallikaras (Friends of the Earth Cyprus) , Mark Ciantar (Friends of the Earth Malta / Inteko) , Suzanne Maas, Sabela Rubio (Friends of the Earth Malta)

4.1 Growth Requirements for plant life

Basic plant nutrients and elements

The surrounding environment of plants in general – namely, soil and air – provides them with the necessary requirements they need to thrive. However, we find an exception with aquatic plants, which get whatever they need directly from water; and some others that follow different rules.

These basic requirements include essential elements (carbon, hydrogen, oxygen, nitrogen, phosphorus, sulphur, magnesium, potassium, calcium and iron), light and an adequate temperature. Plants absorb carbon and oxygen from the air (in the form of CO2 and O2), hydrogen from water (absorbed through the roots) and the rest of the elements in the form of mineral salts present in the soil (also absorbed by the roots). In addition to these essential (or major) elements, plants also need small amounts of minor elements (also called trace elements), such as copper and sodium(Figure 1).

Structural elements	**Ions absorbed by plant**
Carbon, C	CO_2
Hydrogen, H	H_2O
Oxygen, O	O_2
Primary nutrients	
Nitrogen, N	NO_3^- , NH_4^+
Phosphorus, P	$H_2PO_4^-$,HPO_4^{-2}
Potassium, K	K^+
Secondary Nutrients	
Calcium, Ca	Ca^{+2}
Magnesium, Mg	Mg^{+2}
Sulfur, S	SO_4^{-2}
Micronutrients	
Boron, B	$H_2BO_3^-$
Chlorine, Cl	Cl^-
Cobalt, Co	Co^{+2}
Copper, Cu	Cu^{+2}
Iron, Fe	Fe^{+2}, Fe^{+3}
Manganese, Mn	Mn^{+2}
Molybdenum, MO	MoO_4^{-2}
Zinc, Zn	Zn^{+2}

Figure 1: Essential plant nutrients

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The combined adequate presence of elements, light and temperature allow for vital processes within the plant body to happen. The one that characterises the plant kingdom is known as **photosynthesis.** In simple terms, photosynthesis refers to the ability of the plant to turn carbon dioxide and water into sugars and oxygen, using energy from the sun. Because of this, plants are the only living organisms capable of producing their own food (the sugars); whilst they release into the atmosphere the by product of this process – oxygen (Figure 2).

Leaves are the specialised organs on the body of a plant that are designed to make this happen. They come in a vast array of sizes, shapes, shades and arrangements, adapting to a similar diversity of habitats. Within the leaves, microscopic green bodies called chloroplasts are filled with chlorophyll molecules that are responsible for photosynthesis (Figure2).

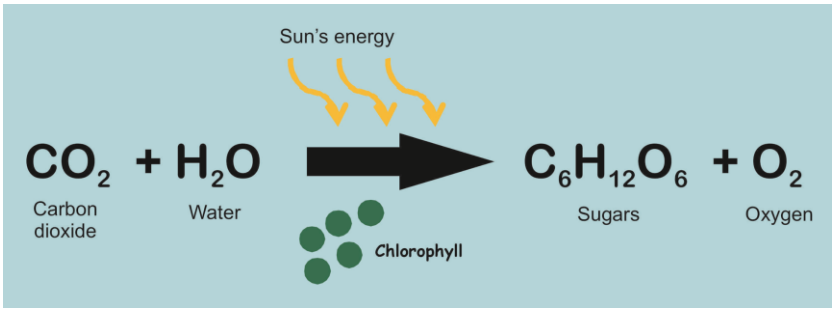

Figure 2: The combination of elements known as photosynthesis

Transpiration and respiration in plants

Transport of fluids within the body of a plant is brought about by the combination of root pressure and evaporation of water from leaf stomata. These microscopic openings on the surface of a leaf blade allow for the exchange of gases with the atmosphere, including the escape of water vapour (transpiration). Moreover, plants – like all living organisms – need to break down sugars (in their case, obtained from photosynthesis) to get the energy (in the form of ATP, adenosine triphosphate) they need for all living processes (apart from photosynthesis). They do this by combining the sugars with oxygen. Waste substances (other than excess oxygen, carbon dioxide and water) that the plant does not need are stored away in the plant body and finally get rid of when the plant sheds its leaves (Figure3).

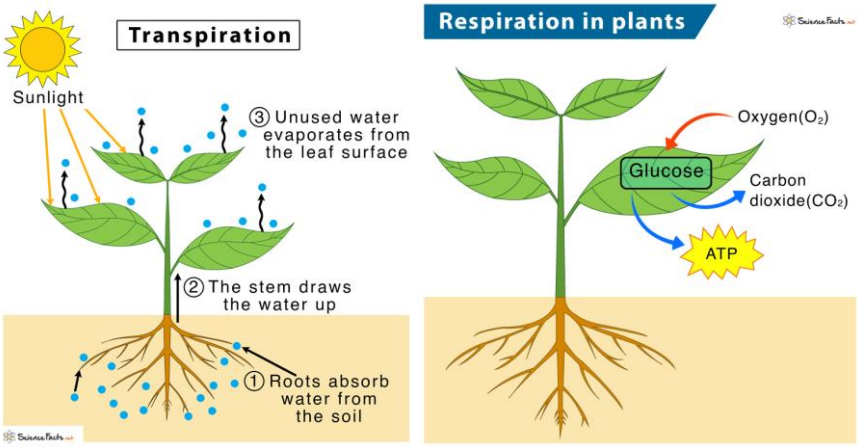

Figure 3: Transpiration and respiration in plants

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Plants response to external stimuli

In order to take the best advantage of the resources available in their surrounding environment, plants too – like animals – have 'learned' to respond to external stimuli, mainly light, gravity and touch. Since they are unable to move from one place to another, plants have developed responses related to growth, known as tropisms.

This is why shoots grow vertically, seeking light, bringing leaves in the best position to capture the maximum of light and air, exposing flowers for a greater chance to be pollinated by insects and facilitating seed dispersal. This is also why roots grow downwards, penetrating the soil "which is their means of anchorage and their source of water and mineral salts." And this is also why climbing plants grow tendrils (or are able to wind themselves around firm objects) that enable them to support themselves (Figure 4).

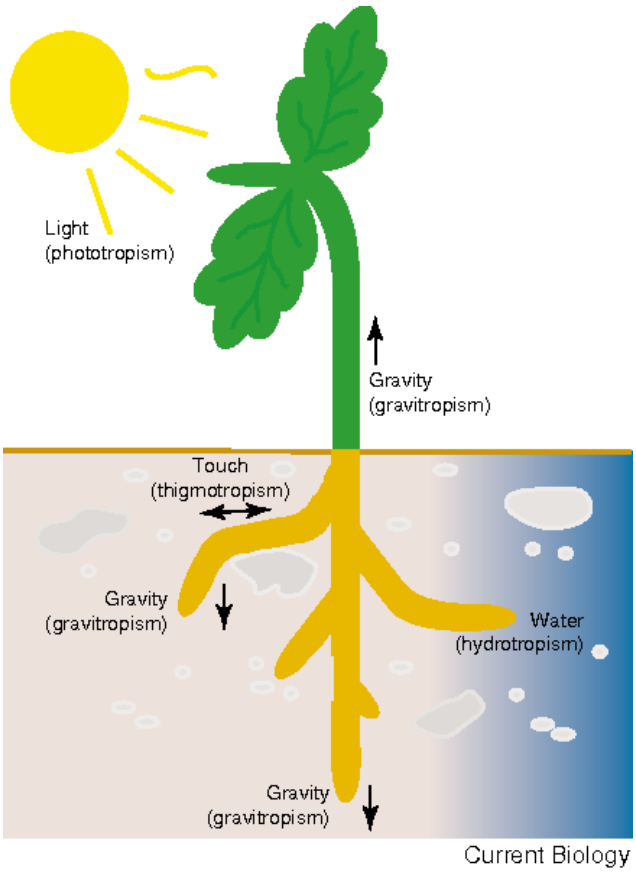

Figure 4: How plants respond to external stimuli

Research has also shown that plants respond to water, chemicals and temperature. "Thus roots tend to grow towards soil which is well watered, contains the right chemicals, and is reasonably warm; and they grow away from poor soil which does not have these qualities. In temperate regions seeds will not usually germinate unless they are chilled beforehand, which ensures that they do not germinate until after the winter; and for flowering to occur, plants need to be given a certain amount of light beforehand"(Figure 4).

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4.2 Individual Growth Requirements

A fundamental principle of permaculture is 'people care'. People care involves the fulfillment of certain requirements for the growth of an individual and for the subsistence of a community. This section explores these requirements and looks into how they affect an individual's growth.[13]

Creating a safe environment

A safe and secure environment is one where people can freely pursue their daily lives without worrying about experiencing politically motivated, ongoing, or widespread violence. Also an environment where the people can feel safe to express opinions without judgment or without the risk of being ostracised. The absence of widespread hostilities, a sufficient level of public order, the protection of important individuals, communities, sites, and infrastructure, and the unhindered movement of people and goods within the nation and across borders are characteristics of such an environment.

Ensuring Mental Health

Many people's lives are peppered with anger, fear, worry,anxiety and guilt, however communities could have been remarkably different if people felt joyful, confident, hopeful and peaceful on a regular basis. Therefore we can be affected by the negative emotions that can almost be connected up into a spiral of erosion: worry leading to fear to anger to guilt and maintaining momentum to spiral into more and more negative feelings. Our energy can shift rapidly. This is particularly true with children; they can be out walking and saying how bored and tired they are one minute and the next they see a cat ahead and run off. Hence, our emotions and our energy levels are linked. Our emotions can follow a wave pattern and it isn't necessary for us to expect to be totally joyful all the time, but when we get stuck with feeling low then it is good to have some way of pushing ourselves up again without resorting to something artificial that is unhelpful to our health in other ways.

[13] https://onlinelibrary.wiley.com/doi/full/10.1002/bse.2708

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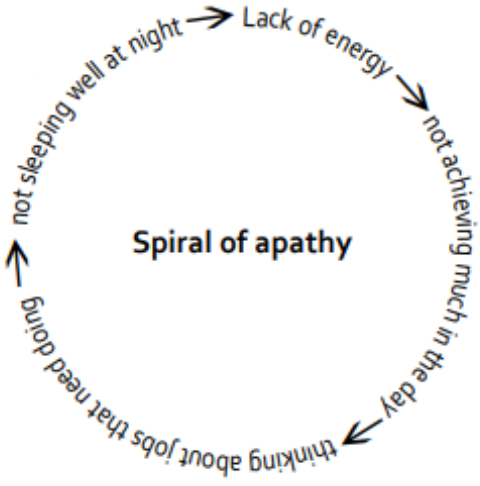

Figure 5: Spiral of apathy

Anger is a symptom of something else going on, which can arise from a physical hurt, shame, teasing, unfairness, fear, misunderstanding or embarrassment. We can use the energy behind the emotion to motivate us to do something. We need to find ways to integrate and transform the energy rather than suppressing it. There are also times when we find ourselves caught in mental circles. This could be from worrying about something, replaying conversations or gossip, or being caught in a loop of indecision. We can write down why we are worrying, what we might like to do differently and possible courses of action, focusing on the lesson and then letting it go. We need to find ways to grow and develop happiness in our lives.

Small amounts of joy can quickly dispel a lake of anxiety, if only we could bottle it. We all need to find our own ways of building up our reserves and being able to access them at times to bring ourselves up. Being joyful and happy can motivate ourselves and others around us.

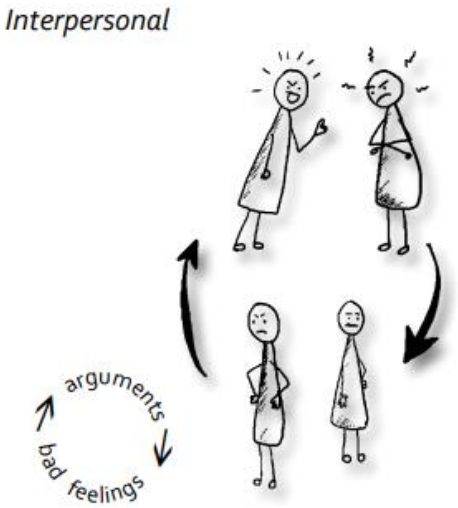

Figure 6: Interpersonal spiral of erosion

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Physical health

Physical health is not only affected by moving our bodies but also by other factors including nutrition, preparing food, rest and relaxation, and food. Keeping our bodies moving is a natural state, with our modern lives allowing us to keep still for much longer than we would have done in our ancestry, so we have to create opportunities for exercise. How we move our bodies has been developed over the years of sitting at school and office desks and is unlikely to be fully natural and freely flowing, however If we watch children moving we can witness what it's like to move freely with the whole body. We need to find ways of incorporating exercise into our existing daily and weekly routines. Cycling to work, walking to school, taking stairs instead of lifts, parking further away, stretching at our desks or walking faster, are all steps to creating energy in our bodies and building momentum that might lead us on to other forms of exercise.

Figure 7: Yoga class with participants of Social Peas permaculture training in Malta (FoEM)

What we put into our bodies determines what the body can do and when we choose our food, unless we are growing our own, we have to interact with bigger systems that may have something other than our best interests at heart. Most of our food choices are not made on a nutritional basis but are influenced by geographical, social, political, religious, psychological and economic factors. We have to weigh up availability, cost and nutritional value while being bombarded with advertisements and special offers. Humans have also developed patterns of foods they choose, methods of eating, preparation, number of meals per day, time of eating and size of portions from when they were small children. Whatever we eat has short, medium and long-term effects and therefore it is important to keep track of how food affects our body and select the ones that are beneficial to our system. What is more, cooking with fresh ingredients has more nutritional value than processed food; generally less sugar, salt and fat. The process of cooking also has value and enjoyment in itself and is not just about the end product. Growing, preparing and cooking the food extend the experience and bring more satisfaction, incorporating other needs of participation and connection as well as exercising our design skills and creativity[14].

Rest and relaxation are important parts of maintaining our systems since they present benefits for our physical and emotional bodies. Our energy follows a wave pattern and periods of rest and renewal are as necessary as the activity. For example If we are taking some time out to relax then there is no point in feeling guilty about it and thinking that we 'should' be doing something else. Sitting and doing nothing and just daydreaming for 20 minutes

[14] https://www.tandfonline.com/doi/abs/10.1080/04353684.2017.1315906

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is a valid part of self-care. Finally, sleep is vital to our physical and emotional health as it allows the subconscious mind to process our day's events and integrate new learning.

Education

Education systems should be characterized by increased ecological literacy and reconnection with the Earth (school gardens , forest school), teaching self-responsibility and collective responsibility – giving and receiving feedback, building experimental, social, spiritual, living and cultural capita (practical skills, real life projects, integration of different classes and integration with wider community, songs, celebrations) and accelerated learning techniques (multiple intelligences, collaborative learning). Education systems are also important to have a positive social and emotional learning environment as well as teachers who are trained for the development of peoplecare skills.

Figure 8: Social Peas training session – Requirements for Plant Life (FoEM)

Social network

Our interactions with others influence everyone's quality of life and this is significant in terms of peoplecare, because communication is the key to relationships. It is the bridge between two people, the glue that holds marriages together and allows groups and families to function. Our social well-being relies on good communication. Words can be medicine or poison for our relationships, building rapport or destroying trust. Central to communication is our ability to listen and is called 'hearing each other' because listening is the foundation for healthy interactions; from this we create fruitful, sustainable relationships. Listening shows respect and allows us to be in touch with the other person's feelings and thoughts. Truly listening to people is a gift and deeply nurturing. We can bring our self-knowledge, awareness and development into our relationships to make them more rewarding. Additionally, improving our observation of people around us will require becoming more conscious and reconnecting with those instinctual processes. This will allow us to interact more with our observations, becoming more mindful of our interrelations.

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Learning

Learning involves the whole body and mind – head, hands and heart learning. Learning is creation not consumption as it is not just the passive storage of knowledge. We literally have to create connections with our existing knowledge and skills, in our minds. Collaboration aids learning since co-operation between learners speeds up learning, we are all able to learn more when we help each other. Even those understanding the material easily will learn more by having to explain it to others. Learning comes from doing the work itself with feedback, therefore trying skills out and hearing constructive advice. Positive emotions greatly improve learning due to the fact that when we are relaxed and happy, we can learn more[15].

Apart from the above, there are lessons we can learn from other cultures, our ancestors, and extending those lessons into caring for future generations. Opening ourselves to learning from outside our current culture allows us to see beyond it. As a child we perceived the world in a certain way; as we grow up we see more pieces of the jigsaw, and realise that there are different facets to reality. Looking at the world through the eyes of other cultures, our ancestors or future generations is like peering through different windows for a fresh view. We are able to recognise more than one possible reality. This can open doors to other ways and possibilities and help us to call in the reality that we want.

Working

When we bring people together, we create a new system. The system then has emergent properties that can be more productive or at times volatile. There are yields that emerge from working together, both for the individuals and for the group. These could be anything from increased self-confidence, better reputation and more ideas, to laughter and spontaneity. Whatever a group's purpose there are common things to consider including the structure, dynamics, roles, meetings, decision-making and facilitation methods. These factors can improve the overall functioning and well-being of the group. We can bring our communication skills into our group work and take the ideas and methods from group work into our families and relationships.[16]

Spirituality

Another aspect of our health is our spiritual well-being. This is not necessarily aligning ourselves to a religion but being aware of a bigger picture, of life outside of ourselves and our control. We could think of it as our intuitional health. There are environments that encourage and support us to open up to a spiritual perspective. Places of worship and retreat centres hold the space that allows us to open up to the possibilities, and we can then carry this awareness and attitude back into our daily lives. A spiritual robustness is expressed through the daily living of a spiritual path. Spending time with nature as our spiritual teacher encourages an appreciation of death and life cycles. Realisation of ourselves beyond time, words and body provides the foundation for spiritual health. It is easy to get caught up in 'little' world experiences, the day to day running of our lives; expansion into 'big' world perception allows us to see the beauty, connection and order in the world. Giving thanks and expressing our gratitude for the lives we lead and all the gifts it presents us with opens our hearts.

[15] https://www.proquest.com/openview/b72830585b28738e4c077a5042781e7c/1?pq%20origsite=gscholar&cbl=48912

[16] https://www.proquest.com/openview/b72830585b28738e4c077a5042781e7c/1?pq origsite=gscholar&cbl=48912

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4.3 Community life and growth

'People care' in permaculture means not only taking care of individual health and growth, but also includes creating better conditions for the resilience and subsistence of a community. Using the permaculture approach to design human settlements means modelling them on the relationships found in natural ecosystems. We need to see our communities as the ecosystems they are and consider how the components of these places can be better integrated.

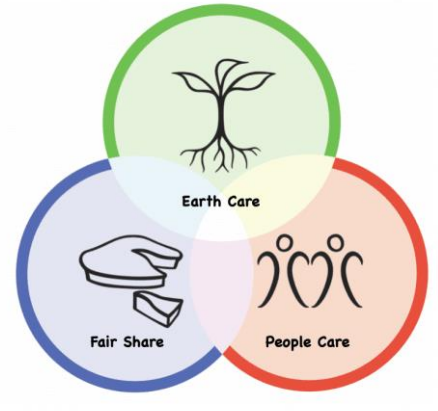

Figure 9: 'People care' in permaculture

Human settlements can be seen as a type of ecosystem. The geographical context and urban form are shaped by developments and interventions, and further adapted by new plans, rules and regulations. However, many times, development projects do not serve the community and the users as well as they could.

In light of the multiple crises that the planet and its inhabitants are facing - environmental crises such as climate change and the decline in biodiversity, but also socio-economic crises, like financial crashes and the impacts of rising energy prices, and health crises like the pandemic and widespread mental health issues - it is more important than ever to create resilient communities.

Resilience refers to the ability of a system to maintain its ability to function in the face of change and shocks from the outside. Resilient communities are prepared to withstand external shocks and have the capacity to bounce back from sudden environmental, social or economic changes (Hopkins 2008).

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The example of the Transition Towns movement

The Transition Town movement was born as a response to the twin challenges of the energy crisis and climate change. Transition initiatives are based on assumptions (among others) that life with dramatically lower energy consumption is inevitable, and that our settlements and communities currently lack the resilience to enable them to weather severe energy shocks. Transition town efforts focus on rebuilding local agriculture and food production, localizing energy production, rediscovering local building materials, and rethinking how we manage waste, all of which build resilience.[17]

The Transition Town approach is built on a balance between the 'head', the 'heart' and the 'hands':

The head: they act on the basis of the best information and evidence available and apply their collective intelligence to find better ways of living.

The heart: they work with compassion, valuing and paying attention to the emotional, psychological, relational and social aspects of the work they do.

The hands: they turn their vision and ideas into a tangible reality, initiating practical projects and starting to build a new, healthy economy in the place they live.

The values and principles of the Transition Town movement focus on the need to reduce energy dependency, especially from fossil fuels, and carbon dioxide emissions. They promote inclusivity and social justice, subsidiarity (self-organisation and decision making at the appropriate level) and balance. The Transition Town is part of an experimental, learning network who share ideas and power, and collaborate to create synergies.

Figure 10: Participants of the Transition Towns movement installing solar panels on a roof[6]

[17] https://transitionnetwork.org/about-the-movement/what-is-transition/principles-2/

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Intentional communities

In module 2, where we looked at patterns from nature as a blueprint or inspiration for human behaviour, we learned about the co-operative pattern, which is observed for example in ant's nests and bee hives. In human structures, we find such models of cooperation in workers cooperatives and intentional communities, which have their basis in supporting the work by many hands and fair share of responsibilities and profit as well as working for the good of the whole.

Intentional communities are planned, residential settlements of people who live together, share common priorities, values, and beliefs. They stray from the traditional living style of a family structure household and enrich the lives of their residents with more meaning, intention, and sense of belonging. There are different types of intentional communities, each model serving a different purpose for its residents, from which we can distinguish ecovillages, communes and cooperatives.

The defining factor of a commune is its internal economy; residents in these types of communities share nearly all or 100% of their income, which is usually generated from conducting a business or selling a product from within the commune. This eliminates the societal lifestyle of working for wages in a traditional job setting. In return, residents are asked to contribute a certain amount of hours of labour per week, such as growing and harvesting plants, repairing or building spaces for the community, or helping with household tasks such as cleaning and cooking.

Cooperatives are smaller communities of people who usually live under the same roof and share the cost of living, but do not share income. They create a strong sense of kinship through family-style dinners, weekly movie nights, and equally shared household responsibilities and decision making. Like all communities, cooperatives usually organise activities and initiatives with the wider community, as a way of contributing to the area they live in, and as a way of integration of vulnerable groups.

Figure 11: Ecovillage Bhrugu Aranya in southern Poland

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Ecovillages can be defined as communities with a strong ecological focus which prioritise sustainable living practices. They practice organic farming, and it is usually the main source of food for the community, together with local products from nearby villages. Ecovillages are characterised by the use of renewable energy, such as solar power, and in fact certain communities are focused on sharing sources of renewable energy as a way of reducing energy dependence and creating their own community energy.

Finally, ecovillages tend to have a strong connection with their surroundings. It is the case of Bhrugu Aranya, an international ecovillage located in southern Poland. The community's land supports an abundant population of an endangered frog species, which does not exist anymore in the region.[18]

There are other ways to create or contribute to intentional communities, such as the example of Dutch students living in nursing homes in a project by Humanitas Deventer, which simultaneously addresses the issues of high cost of living for students, as well as loneliness among the elderly. This project helped young and older people to feel a part of the same community, while creating deep and meaningful relationships across generations and giving both sides "a great deal of positivity and support"[19].

Figure 12: Students living in nursing homes in project by Humanitas Deventer

Indigenous communities

The link between cultural and biological diversity has been widely explored when it comes to one of the oldest and most widespread examples of communities: indigenous communities. Indigenous peoples account for most of the world's cultural diversity, with between 4,000 and 5,000 of the estimated 6,000 cultures in the world. Approximately three-quarters of the world's 6,000 languages are spoken by indigenous peoples. Many of the areas of highest biological diversity on the planet are inhabited by indigenous peoples.

[18] https://www.ic.org/directory/bhrugu-aranya-ecovillage-poland/

[19] https://www.westgatehealthcare.co.uk/news-article/building-bridges-these-dutch-students-live-in-nursing homes

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The “Biological 17”, the 17 nations that are home to more than two thirds of the Earth’s biological resources, are also the traditional territories of most of the world’s indigenous peoples.

This correlation between areas of high biological diversity and areas of high cultural diversity is particularly significant in rainforest areas, such as those found in the Amazon, New Guinea, Indonesia and the Philippines. Several studies on this topic reveal that indigenous cultures are slowly disappearing, and with them languages, and ultimately, knowledge.

Since the ecological knowledge accumulated for centuries by indigenous peoples is contained in languages, and in most cases, this is passed on to other groups and new generations orally, language extinction is leading to loss of ecological knowledge.

The link between culture and environment is clear among indigenous peoples. All indigenous peoples share a spiritual, cultural, social and economic relationship with their traditional lands. Traditional laws, customs and practices reflect both an attachment to land and a responsibility for preserving traditional lands for use by future generations. In Central America, the Amazon Basin, Asia, North America, Australia, Asia and North Africa, the physical and cultural survival of indigenous peoples is dependent upon the protection of their land and its resources.

Figure 13: Example of indigenous peoples working the land in a traditional and sustainable way

Over centuries, the relationship between indigenous peoples and their environment has been eroded because of dispossession or forced removal from traditional lands and sacred sites. Land rights, land use and resource management remain critical issues for indigenous peoples around the world. Development projects, mining and forestry activities, and agricultural programmes continue to displace indigenous peoples. Environmental damage has been substantial: flora and fauna species have become extinct or endangered, unique ecosystems have been destroyed, and rivers and other water catchments have been heavily polluted. Commercial plant varieties have replaced the many locally adapted varieties used in traditional farming systems, leading to an increase in industrialised farming methods.

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Modern resilient and resilient communities could be seen as a modern version of the traditional communities, and they share many features with indigenous communities. Going back to a way of living similar to the one of our ancestors can be seen as a response to dominant socioeconomic conditions that foster individualism and competition over cooperation and communitarianism.

Throughout module 4 we have delved into the topics of life, growth and development. While the first step to a healthy and meaningful life starts with one self, it might be useful to explore communitarian ways of living to work on our personal and social growth.

References and resources:

D. G. Mackean, 1998. GSCE Biology, London

Ferguson, Sarah. 2012. Taking the Permaculture Path to Community Resilience. Smart Cities Dive.

Hopkins, Rob. 2008. The Transition Handbook: From Oil Dependency to Local Resilience. White River Junction, Vt.: Chelsea Green Publishing.

Macnamara, L., 2012. People & Permaculture. Caring and designing for ourselves, each other and the planet. Permanent Publications. The Sustainability Centre, East Meon, England.

M. B. V. Roberts, 1986, Biology for Life, Surrey

OHCHR. (n.d.). Leaflet No. 10: Indigenous Peoples and the Environment.

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Module 5

Permaculture design

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5.1 Permaculture design with land

Observe, optimise and encourage participation

The core idea when designing a permaculture orchard are the “ground/nature connection” and the optimisation in the use of resources. The “ground connection” means having a permanent contact with the soil, animal and plant biodiversity. The use of soil as an educational and therapeutic tool allows developing responsibility, empathy, job training, perseverance, respect, tolerance, teamwork, the work well done, knowledge and respect for the environment... But overall, it keeps people focused on the “here and now” as an important step in the development of mental health.

In design practice, the optimisation of the use of resources means taking into account that each element we place relates to the elements around it in a continuous transfer of energy and matter. With this in mind, it is a matter of seeking positive associations with the aim of minimising work and its energy cost, and maximising positive relationships. For example, having a naturalised pond near the fruit orchard provides useful environmental humidity for some species, algae can be collected as compost or mulch, it offers shelter for amphibians that will eat pests, a drinking trough for birds that not only controls pests but also fertilises the soil, and the fruit tree provides nutrients to the pond in the form of fallen leaves and shade that prevents it from drying out in summer (Figure 1).

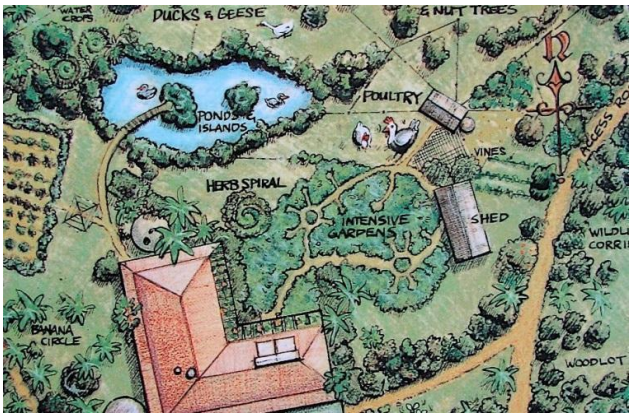

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Figure 1: Example of permaculture design with land[20]

The method in Permaculture is based on observation of nature and how the associations take place, seeking to understand and apply them. It is essential to spend as long as possible observing natural patterns and collecting data of the environment in order to design. At the level of farming practice, it draws mostly on Fukuoka principles and traditional farming methods in Southeast Asia and Native American cultures, although no traditional knowledge should be disregarded in this regard.

From the very beginning, every participant shall be involved in the design. It is to be kept in mind that this project is alive, constantly exposed to the process of trial-and-error due to the observation and correlation of different elements of the design. This trial-and-error methodology can be also applied as an effective therapy so beneficiaries can make it part of their own daily learning.

The design of a place depends on the area where it is located: the climate, region and altitude above the sea level. We have to take climatology, orientation, vegetation and culture into consideration so we can adapt us to the nature of the place.

Regarding culture, for instance, the contact with the traditional knowledge of the environment around our therapy center can provide relevant information for the project – such as information about the local traditional crops or the plant material suitable for the area, so the planning and continuity of the crops are ensured. Collecting this information is also part of the training: with the help of the instructors, the pupils can visit the gardeners and farmers of the area, universities and agricultural research centers. That way, they can socialize and make known both Permaculture and recovery of persons with mental illnesses.

This information will also allow us to identify the existing seed network and marketing channels we can link our future permacultural production with.

Steps

1. Visiting and observing the place: the orientation of the land, the sunny and shadow zones, the plants and animals living there, the water streams or the distance to the water sources, the soil, etc.
2. Drawing the elements of the project on the best location according to the collected information and trying to respect the way nature has placed things and considering always the principle of the optimisation of resources. If there are maps of the area available use them to draw on them.
3. Create a timetable: make a plan to implement. A plan of action based on your priorities, budget and logical order of establishment, remembering to plan according to the scale of permanence.
4. Cultivate the soil and start seeding.

[20] Drawing from the Association for the Development of Permaculture

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Key elements

Water resource, water catching system.

Water harvesting is a very important element of the design and has to be strategically designed in the project. Most of the water resources will probably come out of external water supplies. However, some other water resources can be generated through water catchment and wastewater treatment. Whether we are designing a new place or redesigning an existing one, the possibility to divert rainwater towards swales should be taken into consideration. Swales in paths and roads can be used benefiting from any land inclination. The swales are long excavations in contour lines made along the ground that allow the infiltration of the water into the subsoil

Figure 2: Swales for the rainwater

In case we have infrastructure with roofs but don't have a pond to store water, the water can also be diverted towards these channels. That way we benefit from the nutrients entailed, elevate the groundwater level of the area and avoid erosion. This contributes to more available underground water, which is very beneficial for the roots of the trees, especially during droughts and summer.

Hedges as borders of the ecosystems

One of the most important steps during the observation process is the identification of the wind direction, especially that of the prevailing wind and the strongest and most destructive ones. This information will be useful to place the evergreen grove on the boundaries of the orchard as hedges. This hedgerow can be composed of trees and evergreen bushes, preferably fruity and native since they are more resistant due to their acclimatization. The hedges serve as barriers that will soften temperature and humidity, slow down wind, attract biodiversity and protect our permacultural structure.

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Figure 3: Bushes and trees at the hedge of a garden[21]

Biotopes attracting animal life

The surroundings of the hedges are the best place to create biotopes, small places to attract life as the name itself indicates. A biotope is a small pond where dragonflies, frogs and toads can live with aquatic plants –such as lilies, hyacinths, water lettuce, duckweed– or semi-aquatic ones –such as lilies and rushes. Native animals can benefit from this water and we can search native aquatic and semiaquatic plants acclimatized to the area.

The function of these plants is to oxygenate the water and to keep it clean so it attracts wildlife. These can be predators that restore the balance in the ecosystem of the edible garden and its surroundings and increase the biodiversity at the same time. The biotopes should be placed on shaded areas and not too exposed in order to facilitate the arrival of animals. The biotopes always become an interesting place for observation and therapy.

Figure 4: Pond attracting different species of plants and animals[22]

[21] https://morningchores.com/homestead-hedges/

[22] https://www.treehugger.com/permaculture-water-features-inspiration-and-ideas-5189614

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Pollinators' hotels

A "pollinator volcano" is a haven for our friends and allies: the bees, which are the most well-known pollinators (Figure 5). Not only our edible gardens and edible forest gardens benefit from their pollination but also the whole area around. In order to integrate one or more hives safely in our plot of land we use what we call "pollinator volcano". It allows us to work close to the hives without any risk of sting. We named it like this because it has the shape of a small volcano. The ideal place to set the "volcano" would be in a forest edible garden.

Figure 5: Pollinator hotels

Wastes - resources network connected to the neighbourhood

In the design of the place it is very important to keep in mind the need of a network to manage the conversion of waste into resources. It is important and necessary to survey the area or any neighbourhood, village or city in order to identify the waste produced by our neighbours. We can take advantage of this waste as part of our permacultural project in terms of mutual support. This task serves to re-educate and raise awareness within society about the need to cool down the planet together – some take responsibility for part of the waste while others use them as nutrients to be turned into food. If there were already any relationship in collaboration with the neighbourhood it would be a great chance to deepen it (Figure 6).

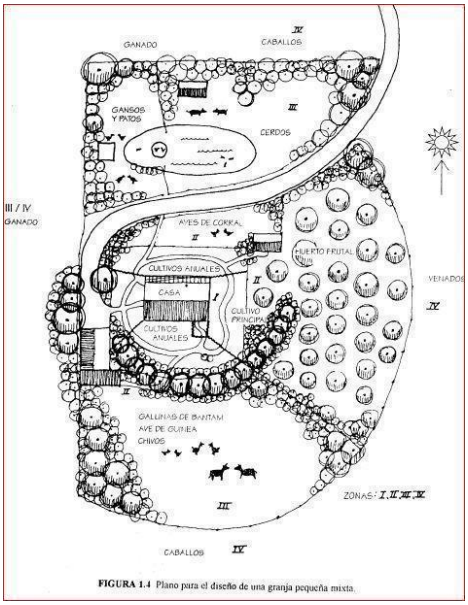

Figure 6: Permaculture design with land [1]

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Example - La comunità di Danisinni, Palermo, Italy

Let's take the example of "La comunità di Danisinni" in Palermo:

Aim: In 2016, the Danisinni Community created the Community Farm that is the result of the daily work of the parish's volunteers. An oasis of peace open to all of Palermo as well as to families in the area. First it was planted with fruit trees and after also animals were rescued and involved in the project.

Today the Farm represents a place where people "get their hands dirty "through planting, breeding, cooking, playing, painting, construction of planters, benches and animal shelters. The area has been divided in four sections to enable the performing paths and the different interests.

The biblical garden has hosted seasonal vegetables farming and many parish members daily work over there, as well as past prisoners in social reintegration. The ludic section finds in the playground a zappy space for children and their families. In this section it's also possible to have lunch cooked from farm volunteers. A third area concerns shelters and animals activities and care: it's an amazing place where it occurs to see a newborn lamb or the multicoloured plumes of ornamental chickens. Finally, in the Farm there is also the creative marquee where inside, every day, many workshop activities for children turn over from circensian art to theatre, from karate to Graeco-Roman wrestling, from handling workshops to painting ones. Furthermore, inside the marquee, events, performances and common thinking moments are periodically organized.

In 2013, The Community of Danisinni also created a "bio-pond" irrigated by Papireto river waters and planted with Papyrus, located in the heart of the square within the garden of the district's main kindergarten.

Figure 7: The garden zone of La comunità di Danisinni [23]

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5.2 Permaculture design without land

In many cases we do not have land, we may not be interested in gardening or we do not have the time and resources to deliver a long, garden-based project. So the question raises: how can we use permaculture in non-garden setups. In this chapter we focus on how permaculture design approach can be used to design social and community projects.

Social and community projects

As it was already described in Module 1, there are three basic elements of the permaculture narrative and mindset:

- Ethics of Permaculture
- Flower of Permaculture
- Design principles
-

Whenever we decide to design a project or an action based on permaculture, we always need to be or make sure that **1**. it is in line with the Ethics of Permaculture, **2.** it is related to one or more petals of the Flower and **3.** design principles are met and not compromised.

So, when one starts designing a project it is a good idea to think consciously about whether it is socially and environmentally justifiable and whether it serves the Fair Share aspect.

Obviously to answer these questions it is not necessarily straightforward. In fact, it is often not straightforward at all. If more people are involved in the given project, it will probably generate an interesting dialogue and discussion in the community to define the boundaries of the project from a permaculture ethics perspective. Also, this dialogue will probably focus a lot on resource (time, money, materials, attention, etc) management to define what the best and most efficient use of the limited resources are, to fulfil the permaculture criteria.

In a way, permaculture design thinking in non-garden setups can be seen as a specific decision-making tool that requires high consciousness level, holistic and pragmatic thinking from the people actually designing the project.

[23] https://www.danisinni.it/the-community-farm/

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Figure 8: Open day and handmade goods market organised by Friends of the Earth Malta as part of the Nature Therapy project at Villa Chelsea, Richmond Foundation, Birkirkara

For example: Assume we want to organize a community garage sale in a small town, where community members can sell, swap or give away their used stuff. This community action is related to waste management, local economic systems, education and awareness raising about consumption, supporting economically striving families, etc. So one simple action can have many layers linked back to the wellbeing of both nature and community. In a way it can be a very simple and straightforward action. We choose a suitable nearby spot, advertise the event, organize the space with volunteers, collect waste afterwards, and that is basically it.

Useful questions to start planning

What if we want to put a bit more design effort into this in order to make a bigger impact? In that case the permaculture design framework can come handy.

We can for example ask and answer these questions during the planning of the project:

- Who exactly do we want to help with this action?
- Are there any specific vulnerable groups that we would like to reach with this action?
- How can the project be more inclusive and accessible?
- How can we make sure that marginalized groups, with less access to community information, can also hear about the event and make use of it?
- How can we make sure that those people who care for others (eg. mothers, carers), with very limited spare time, can participate?
- How can we make sure that during the organizing of the event we generate the least waste and use mostly secondhand material wherever extra material is needed?
- How can we make sure that all these “extra” aims do not generate too much extra and unfair burden on our own people, volunteers, and staff members?

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Figure 9: Repair Cafè organised by Friends of the Earth Malta at the Lifelong Learning centre in Msida

Asking and answering similar questions in the planning phase of a new initiative will help us to reach the maximum yield with the least resources. By yield we do not only mean material yield! We also mean impact, connection, synergies, raised awareness and knowledge, etc.

This approach can be applied to all sorts of projects relating to one or more petals of the Permaculture Flower. A detailed list of activity ideas can be found in **Module 1**.

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Example - Austerlitz zorg / Austerlits cares, The Netherlands

Let's take a look at the '' Austerlitz zorg'' project in Austerlitz, The Netherlands.

Aim: At the initiative of Austerlitz' Belang, a working group was started in early 2012 to map out the wishes of residents, brainstorm, hold discussions and explore. At the end of 2012, a cooperative was established under the name 'AUSTERLITZ ZORGT'. The aim of the cooperative is to make it possible for the elderly inhabitants of Austerlitz to continue living in our village as independently as possible for as long as possible. Austerlitz Zorgt organizes the necessary support, care and help for the elderly and other needy people in the village. At a later stage, the care needs of families and young people will also be addressed.

Some of the principles of Austerlitz Zorgt are:

- Care and welfare facilities are offered through preferred providers that are hired by the cooperative.

- The cooperative must be able to rely on broad support among the population. Services are therefore offered according to need on the basis of a regular dialogue with the population.

- As many services as possible are provided in and by the village itself, using local professionals and volunteers.

- Through good coordination and efficient support from village volunteers, Austerlitz can offer excellent care and welfare facilities at lower costs than usual. The savings are to the benefit of the municipality. In exchange, the costs of the village supporter and care coordinator are reimbursed by the municipality.

- Existing activities for the elderly, such as the elderly soos, the meal, the coffee mornings, etc. are stimulated and cherished.

- Existing facilities such as the pharmacy delivery service, the blood lab in the village hall on Mondays, the physiotherapist, the extra visits by the practice nurses of the general practitioner, etc. will be honored.

- For the time being, the cooperative does not hire employees, but works with freelancers and employees of suitable organizations who endorse the Austerlitz Zorgt approach, want to hire local employees, are willing to work with self-employed people and are prepared to pay the overhead costs. reduced to the services actually provided.

Figure 11: Group of elderly taking part of the Austerlitz Zorgt[24]

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References and resources:

Hemenway, T., 2009. Gaia's Garden; A Guide to Home-Scale Permaculture. Chelsea Green Publications, England

Macnamara, L., 2012. People & Permaculture. Caring and designing for ourselves, each other and the planet. Permanent Publications, The Sustainability Centre, East Meon, Hampshire, England.

[24] https://www.austerlitzzorgt.nl/

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Module 6

Harvesting, sharing and learning

Authors: María Carracedo (Intras), Suzanne Mass (Friends of the Earth Malta), Sabela Rubio (Friends of the Earth Malta)

6.1 Harvest with respect to nature

Obtain a yield

Harvesting with respect to nature may well follow the principles of the North American indigenous canon which governs the exchange of life known as the "Honorable Harvest". "The Honorable Harvest, a practice both ancient and urgent, applies to every exchange between people and the Earth. Its protocol is not written down, but if it were, it would look something like this:

Ask permission of the ones whose lives you seek.

Abide by the answer.

Never take the first.

Never take the last.

Harvest in a way that minimizes harm.

Take only what you need and leave some for others.

Use everything that you take.

Take only that which is given to you.

Share it, as the Earth has shared with you.

Be grateful.

Reciprocate the gift.

Sustain the ones who sustain you,

..and the Earth will last forever."

(Wall Kimmerer, R., 2013)

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Figure 1: Third Permaculture Principle – Obtain a yield[25]

The current Western socioeconomic system is based on the principle of "taking from Earth as much as we can". But the problem is that resources are limited and we cannot keep taking without replenishing. Harvesting with respect to nature changes the question from *"What else can we take from Earth?"* to "*What can we give back to Earth*?" Collectively, by assent or by inaction, we have chosen unsustainable policies and lifestyle we live by. But we can choose again and work with Nature, not against it (Permaculture principle).

Following the Permaculture Principles that we saw in the first modules, we can see how **obtaining a yield** is one of the basics of permaculture. "You can't work on an empty stomach": this principle can be seen as a directive to always make sure a system is providing definitive benefits. It's like the difference between doing work and doing useful work.

Bill Mollison says: "The yield of a system is theoretically unlimited (or only limited by the information and imagination of the designer)." So 'obtain a yield' is not something we do once, but is a design approach to how we farm, garden, run our homes and communities. Again, the possible number of uses of a resource within a system is mostly limited by the knowledge and imagination of the designer. You will see how this principle is similar, and different, to others concerning waste and energy.

Think of yields broadly. A yield does not have to be edible and does not even have to be tangible. Therefore, observing and recognizing potential yields is key. A chicken does not yield just eggs (and meat), but fertilizer and insulation, perhaps CO2 for plants, and even companionship, warmth, and love. Compost does not just yield fertile organic matter; it can also yield heat for a hot bed or a greenhouse.

The roof of a building—or an education shelter or tool shed—can provide a yield of rainwater. The building can also yield wind protection or reflected heat or light for tender plants if one designs and sites it properly. If we design wisely and observe, we can get a yield where it otherwise may be wasted.

[25] https://www.permaculture.org.uk/principles/obtain-yield

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Figure 2: An abundant harvest[26]

Fruit trees yield fruit, but all trees yield shade, oxygen, transpired humidity, organic matter, habitat for birds and insects, a carbon sink, plant stakes, wood—and beauty. Permaculture stresses the use of plants that are functional for things like food and fiber, but functional plants can also be beautiful, and beauty should be consider a yield, (which is why it's included as a "use" in our guilds). Building community can yield friendship. Growing your own food can yield happiness.

"Starhawk" posted on the Fellowship for Intentional Community: "'Obtain a yield' is a good principle for activists and communitarians to remember when we fall into the trap of exploiting ourselves out of our altruistic desires to serve a greater good. We also need to get something back, to sustain ourselves economically, emotionally, and physically with food and rest and beauty and yes, also money, if we are not to burn out and become non-functional[27].

Expanding our idea of yields increases the potential for us to obtain harvests from activities. Job satisfaction, play, fun, friendship, growth and learning can be valued yields as well as more tangible ones such as money, time saved and material gains. If we don't harvest the yields, we can't benefit from them; this is sometimes simply about recognising the valuing them as such. We can increase the worth of the harvest by further processing or combining yields. By making fruit into jam, we are adding value as well as catching and storing energy. Obtaining yields helps us to maintain motivation and momentum on our paths. Rewards provide incentives for us and are much more satisfying when they come from our work itself rather than externally.

Making the production sustainable

Sustainable production refers to an approach that makes the most of the earth's resources for future generations of humans and for the rest of the living beings. It guards against depleting these resources. Nature is by itself a sustainable system, Permaculture seeks to imitate that sustainability by fostering biodiversity, which is essential for sustainability.

[26] https://permaculturepriniciples.com/permaculture-principles/_3/

[27] https://edibleevanston.org/content/permaculture-principle-3-obtain-yield#:~:text=This%20principle%20can%20be%20seen,work%20and%20doing%20useful%20work

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Some rules could be:

- Collect and save water
- Avoid using “external” resources (electricity, chemical products, etc.)
- Understand that the orchard is not just a collection of plants but an ecosystem than you have to sow the whole thing: water, soil, insects and other animal living in there, other plants (there are no weeds in nature, everything has a meaning)
- Learn the sowing and harvest natural calendar of the plants in your region and climate. Take the fruits in the right moment of maturation. Example: FoE Malta ‘Agrokatina’ calendar of seasonal produce DOWNLOAD GUIDE
- Harvest just the necessary (think carefully about what necessary really means).
- Keep more than enough seeds and plants for next season.

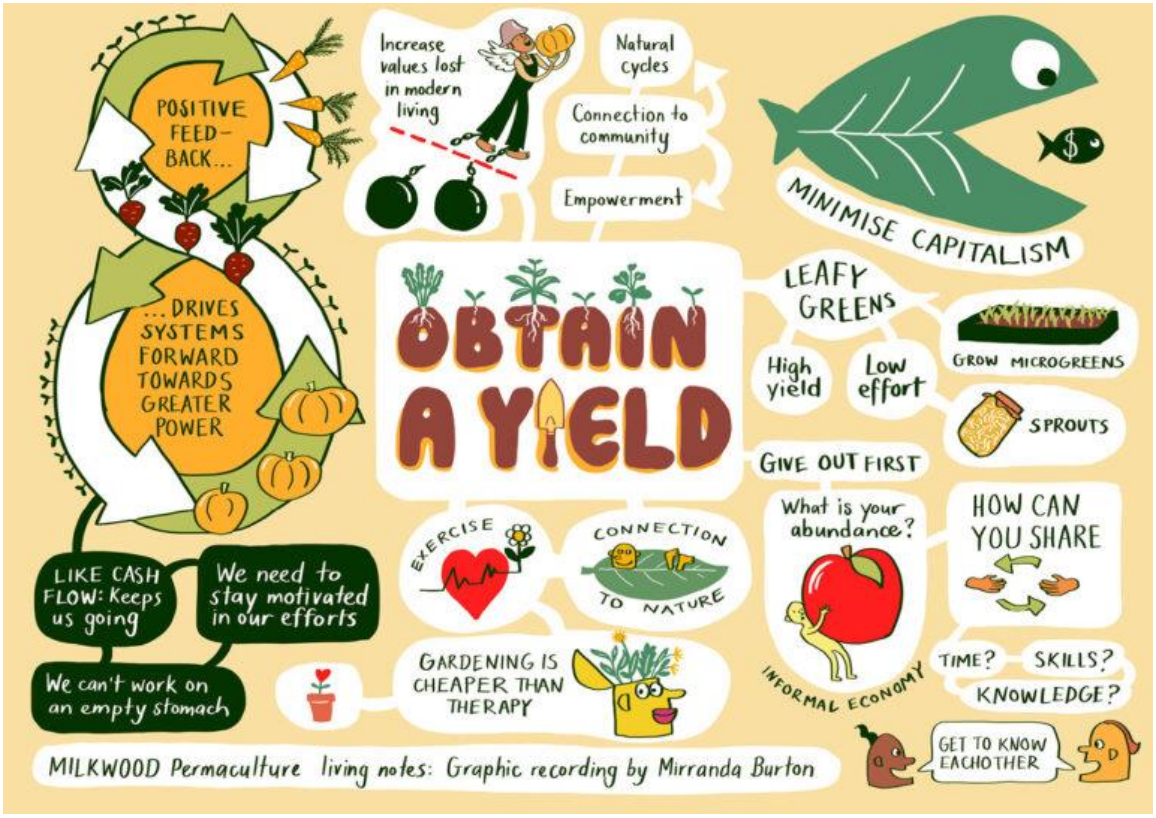

Figure 3: Graphic representation of ‘Obtain a yield’[28]

[28] https://permacultureprinciples.com/permaculture-principles/_3/

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Composting with respect to nature

Composting is simply the process of taking organic waste and decomposing it back into nutritious soil to enrich the garden.

Composting in accordance with nature, seeks to utilise the wildlife-facilitated cycles of decomposition which occur in nature. Not only does this convert garden waste into rich, nutritious soil, but it also generates habitat for animals and fungi to encourage them into the garden. To start off, here are 6 simple lessons to help you start ecological composting.

1. Forget about your green bin: Earth's biosphere is essentially a closed system. Biological matter cycles throughout the system but does not leave it. Where possible, your garden should be no different. Nutrients start off in the soil, where they are absorbed and used for growth by plants before being shed as leaves to return to the soil.

2. Every time you fill your green bin with leaves you've raked up, or branches you've pruned off, you are losing some of the nutrients your garden has accumulated.

3. So, from now on, don't let garden waste leave your garden. It can be converted back into soil through ecological composting, and the nutrients retained to fuel your garden's growth.

4. Remake the forest floor: the fallen leaf litter is a form of mulch in itself and shouldn't be wasted. Rather than putting garden waste in a compost bin, you can use it to recreate a forest floor within your garden. It will help prevent evaporation as well as providing nutrients for a wide range of fungi. These fungi will break down the leaves, provide food for animals and produce stunning displays when they produce the fruiting bodies we know as mushrooms and toadstools.

5. Old logs become good soil (and habitat): the idea of putting logs into the garden, rather than taking them out, can be counterintuitive to most gardeners. But leaving logs to rot can improve not only the soil in your garden, but also the biodiversity.

6. Upcycle fruit and vegetable scraps for wildlife: It's easy to assume that once your fruit or vegetables get too brown, or grow a little mould, that there is nothing left to do but bin them. However, they can be 'upcycled' for your garden wildlife, and help to generate rich soils in the process. Old fruit like bananas and peaches make an excellent source of sugars and nutrients for butterflies and, once they begin to rot, will host a wide array of fungi. Vegetable scraps, though less sugary, will also provide food for invertebrates and fungi.

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Figure 4, 5, 6: Composting workshop - Social Peas permaculture training, Friends of the Earth (Malta)

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Example - Porto di Terra, Polizzi Generosa, Italy

Let's take the example of Porto di Terra, a community project of living and working in the mountains, based on the principles of permaculture and transition, hospitality and the valorisation of local products.

Aim: The aim of the project is to pursue and disseminate a sustainable lifestyle in contact with nature and to achieve the development and implementation of knowledge for the protection of local biodiversity, the preservation of the landscape and the valorisation of local knowledge. All this is achieved through diversified skills: farmers specialised in ecological techniques, environmental educators, designers, cultural mediators, researchers.

From the initial project they created an association that now is involved in many interesting project to repopulate the area. The operational structure is located in the countryside close to the forest. On site there are vegetable gardens, seasonal vegetables, aromatic herbs, fruit trees, in fact most of the food is self-produced.

Figure 7 and 8: Participants of the project building a house with organic materials [29]

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6.2 Harvesting in Social Context

Living organisms are not only means but ends. In addition to their instrumental value to humans and other living organisms, they have an intrinsic worth.

Following the rule of looking at nature and getting inspired by it, it is easy to discover that living in social contexts means pursuing cooperation, not competition, this is the very basis of future survival and of existing life systems.

If we understand ourselves as part of a community or society, and the community as our micro-ecosystem, it is clear that, as it happens in Nature, everything is interconnected and our actions have an effect in other part of the system, that is to say in other people or beings.

Permaculture - the art of designing beneficial relationships

This connects with these 2 bases of the ethics:

- Care of the People: Provision for people to access those resources necessary to their existence.
- Self-imposed Limits to Population and Consumption: By governing our own needs, we can set resources aside to further the above principles.

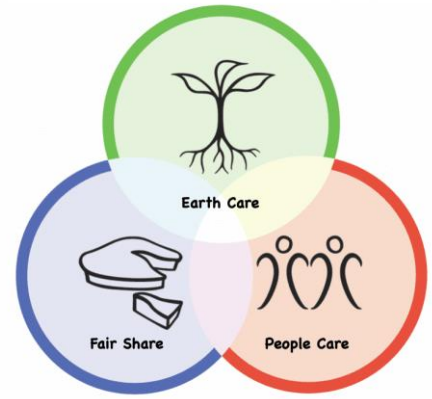

Figure 9: Permaculture Ethics[30]

In the same way, there is a need to harvest in harmony with nature (**Module 6.1**), our society should create circular relationships.

[29] https://www.facebook.com/portoditerraproject/?ref=page_internal

[30] https://permacultureapprentice.com/permaculture-property-design-features/ethics/

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We look at plants in the garden not in isolation but in terms of how they affect one another, how they interact, how they can provide fertility or protection for one another, how we can get multiple yields from each element. Although each plant is capable of growing on their own, when planted together they fulfill the needs of the other plants to propagate the most plentiful yield. The relationship cultivated through these plants represents just one of the many social metaphors implied by permaculture practices.

If we build our community around sustainable relationships, we can implement this back into our connection with the earth. A multi-faceted system of symbiotic relationships creates a positive feedback loop between people and the land. An ethical relationship both with the land and our community propagates positive reinforcement of trust and support. If we feed and nurture ourselves through our social relationships, we can proliferate this as a parallel to the flora and fauna of our surroundings. A community benefits most when there is a diverse set of skills shared throughout the social ecosystem.

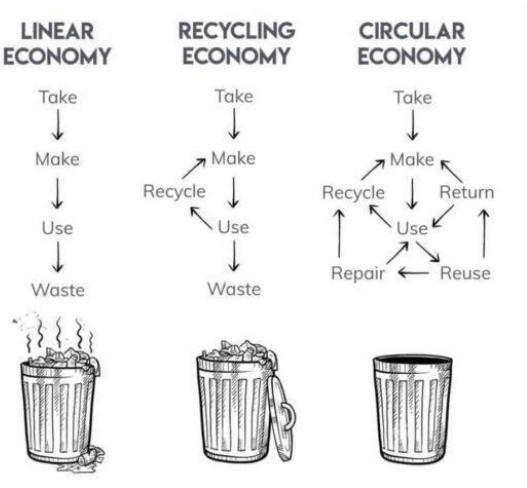

Figure 10: Different models of economy

But relationships between plants, insects, soil, water, and micro-organisms, complex as they may be, are relatively easy to deal with. People are much more challenging. We each have our own needs and goals and complicated life histories and styles of communication. Our understanding of soil biology or water harvesting techniques is often far more advanced than our skills at making decisions together. Our needs and goals often clash, and we don't always have the tools we need to resolve conflicts.

Moreover, we are embedded in larger systems that do not encourage beneficial relationships. Our overarching economic system sacrifices the good of people and the earth to the goal of achieving short-term profits. It maintains itself by fostering systems of prejudice and exploitation—racism, sexism, classism, heterosexism, ageism, ableism—all those constructs that separate us and elevate some peoples' good over others. Those systems affect us deeply, often unconsciously, no matter how much we might deplore them and struggle against them.

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The key insight of social permaculture is that, while changing individuals is indeed difficult, we can design social structures that promote beneficial patterns of human behaviour. Just as, in a garden, we might mulch to discourage weeds and favour beneficial soil bacteria, in social systems we can attempt to create conditions that foster nurturing, empowering relationships.

Permaculture's three core ethics are care for the earth, care for the people, and care for the future—that third ethic is also often framed as "fair share": share surpluses and reduce consumption.

These ethics can serve as a guideline for weighing our decisions and actions. Before we build a structure or engage in a new endeavour, we ask ourselves:

- How will this impact the environment around us?
- What resources will it use?
- Will it provide for people and community, and further empowerment and equality, or the reverse?
- Without limits to exploitation and consumption, without an ethic of returning benefits to soil, to plant, animal, and human communities, balance cannot be obtained.

The 8 Inuit Societal Values (traditional, ancient):

- Inuuqatigiitsiarniq - Respecting others, relationships and caring for people.
- Pijitsirniq - Serving and providing for family and/or community.
- Pilimmaksarniq/Pijariuqsarniq - Development of skills through observation, mentoring, practice, and effort.
- Piliriqatigiinniq/Ikajuqtigiinniq - Working together for a common cause.
- Tunnganarniq - Fostering good spirits by being open, welcoming and inclusive.
- Aajiiqatigiinniq - Decision making through discussion and consensus.
- Qanuqtuurniq - Being innovative and resourceful.
- Avatittinnik Kamatsiarniq - Respect and care for the land, animals and the environment.

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Abundance thinking

Central to an Earth culture and the fair shares ethic is the idea of abundance. The industrial growth culture has the opposing belief of scarcity. Scarcity versus abundance is fear versus trust. A scarcity mindset has an underlying fear that there isn't enough. An abundance attitude trusts that our needs will be provided for. When we give of our time and services we are assisting the flow of energy, this allows the flow to return to us. When we are open to giving we are open to receiving. When we give we don't need to be concerned about the consequences of our actions or be looking for gratitude or pay back. With a scarcity state of mind we hold tight to our time, energy and resources and they can stagnate and pollute (Figure 11).

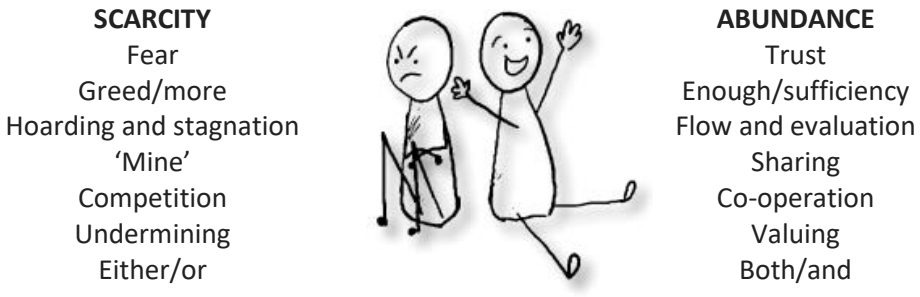

Figure 11: Scarcity vs abundance thinking

We can get caught in the trap of hoarding resources when in fact there are some that stay the same with use, and others that actually increase with use. We can become protective of our possessions and not want them to be used like a child hoarding our toys when in fact they will remain the same even when played with over and over. There are other resources that increase with use; some plants that are harvested frequently can produce much more than when left, harvesting herbs promotes healthy and productive growth. Friendships also increase with use.

There is some confusion about abundance and opulence. The excesses of the 'too muchness' world are not based on true abundance. Many environmentally conscious people want to move away from the spendthrift, wasteful attitudes and swing towards the scarcity mindset, believing that we have to do without to be 'green'. This is certainly the view the media presents, that being green means doing without, simplicity a regression to a primitive lifestyle. Luxury, beauty and quality can all sit beside simplicity and being sustainable. We can invest in quality products that are going to last like a well-built tool or a pair of boots that can be resoled. We can create beauty and luxury around us that doesn't harm others (Figure 11).

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It is within our power and abilities to create surpluses and abundance in our lives. Abundance is more than just material items; we can create abundances of self-esteem, confidence, practical skills, friends, local community, purpose, knowledge and time. This starts with observing what we have, seeing the surpluses and redefining what we have in terms of what we need. Appreciation and abundance go hand in hand. It is about making the choice to see the abundances; are we seeing the strawberries that we have in plenty or do we want imported bananas? Of course strawberries and bananas aren't the same, but abundance is about valuing what we have rather than focusing on what we haven't got.

Learning from mistakes

When talking about harvests, we also need to talk about failures. Not all crops, ideas, or projects come to full fruition. It is a fact of life that not all our efforts will lead to success. What matters is how we deal with such failures, and the frustrations that come with them.

When something doesn't work quite in the way we expected we could use this as a learning opportunity. This is starting to break the idea that there is only success or failure. Mistakes are not failures in our lives, but opportunities for us to try something new, to improve our skills and to find solutions to our problems in creative ways. We can harvest the feedback from the experience to provide us with rich information and a better starting position in the future.

Questions we can ask ourselves to learn from our mistakes and harvest feedback:

What could we do differently next time?

How could we improve?

What are the patterns of what we did that could be different and what are the details that could be changed?

– Adapted from Macnamara, 2012

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Example - Blooming Minds, Malta

Let's take the example of "Blooming Minds":

Aim: The initiative of ecotherapy sessions was made by Birdlife Malta and the Richmond Foundation. The sessions exist out of outdoor sessions that work to improve people's mental health, as well as foster an appreciation for nature. They run specialist sessions in nature art, gardening, hands-on conservation work, and even yoga in the great outdoors. In this supportive environment people can improve their well-being by boosting social connections, building confidence and independence, learning new skills, and enjoying the calming effect of being in green spaces.

Figure 12 and 13: Participants of Blooming Minds taking part in outdoor activities [31]

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Final remarks of the course

Throughout these Training Modules on Social Permaculture, we have learned about the permaculture basics: the origins of this concept from 'permanent agriculture', its application through the Permaculture Ethics and Design Principles, and the different areas of life in which we can practise permaculture, represented by the petals of the Permaculture Flower.

Along this learning experience, we have found out that permaculture means much more than creating a garden; it is a mindset and a vision for a more holistic way of living, in all areas of life - from land and nature to community organising and financial systems, from buildings, tools and technologies, to education and spirituality. When we look back to the permaculture ethics - Earth Care, People Care, Fair Share - we see the applicability of these values to wider social and community work. This is what this training on Social Permaculture aimed to share: how we can use the thinking, tools and methodologies from permaculture practice in work with vulnerable adults. This teaching material was built on the work of existing projects and initiatives, to enable people working with vulnerable adults, as well as vulnerable adults themselves to increase their knowledge and competencies to be able to use tools from social permaculture and nature therapy for improvement of well-being and social resilience.

Now that we are at the end of this training, we can celebrate the completion of this training course and take stock of the knowledge and experiences gained - our yield obtained! However, as material prepared with a train-the-trainer approach, this is all but the end. The knowledge and experience should now live on, through your work, projects and practices with the vulnerable adults you work with, but also in your wider life, with friends and family. Hopefully, the permaculture mindset has permeated different parts of your being and your doing, and you have a new-found appreciation for the ways of nature, our role in that as humans, and what we can learn from its lessons to live better, more connected and more sustainable lives.

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References and resources:

Macnamara, L., 2012. People & Permaculture. Caring and designing for ourselves, each other and the planet. Permanent Publications, The Sustainability Centre, East Meon, Hampshire, England.

PERMACULTURACO- POR UN MUNDO SOSTENIBLE (2020) *¿Qué es la permacultura social?* https://permacultura.co/

STARHAWK (2016), *Social Permaculture—What Is It? (Blog post on https://www.ic.org/)*

WHITEFIELD, P. (2005) The Earth Care Manual: A Permaculture Handbook for Britain and Other Temperate Climates.

GOVERNMENT OF NUNAVUT, https://www.gov.nu.ca/information/inuit-societal-values

WALL KIMMERER, R. *(2013) Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*.

FAO *(2018) Sustainable food systems: Concept and framework.*

PERMIND Training Guide (www.permind.eu)

USEFUL LINKS	
Water harvesting	https://www.youtube.com/watch?v=hPBg17HDQkg
Water harvesting and turning it back	https://www.youtube.com/watch?v=pGMcrt4cSTM
Water harvesting	https://medium.com/permaculture-3-0/rainwater-how-to-harvest-and-store-it-e31d08f64e5e
Food harvest	https://www.youtube.com/watch?v=e-dm670Nytg

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