



Introduction

Guiding Individuals and Groups through the Transition

GROWING AWARENESS OF A WORLD REACHING AN END-OF-CYCLE PHASE

A GREAT TRANSITION encompassing both humanity and the environment is already underway. In a world of fluctuating oil prices, worldwide economic crises, and worry about climate-related disasters, our living habits are in upheaval. Individualism, born of the euphoria of industrial growth and unfettered consumption, is on the wane: people are thinking twice before hopping into their cars, reading labels before making purchases, paying attention to the energy efficiency of their homes, and engaging in all kinds of other such shifts. Collective-minded behaviors are becoming commonplace: carpooling, community gardens, educational work bees, and bartering are springing up everywhere. People are questioning how we organize ourselves socially and economically when it comes to food, health, education, agriculture, energy, finance, governance, access to natural resources, and other concerns. All human activities are being re-examined in the light of our new reality: the awareness of a finite and fragile world. Urgent changes are required, a fact that is worrying to many citizens. As our old benchmarks fade away, our new reference points remain only vaguely defined.

THE URGENCY TO ACT

The urgency of seeing this transition through is being felt all the more strongly as demographic pressure mounts: the global population is expected to rise from seven and a half billion in 2020 to nine billion by 2050. Currently, one out of every two human beings is a city dweller. By 2050, three out of every four of us will live in an urban environment—most in huge cities. The limits of today's urban models are becoming apparent: the world's largest cities currently occupy two percent of the world's surface yet consume 75 percent of the available energy, emitting 80 percent of human-generated CO₂ in the process. What will this picture look like with two billion more people bustling about our cities?

We know that our fundamental human needs aren't going to change. To live peacefully, to flourish, and to lead creative and productive lives, humans must count on having food, housing, clothing, transportation, communication, etc. We are a long way off from that point today, with millions still unable to have these vital needs met. How will humanity withstand the demographic explosion that is playing out on our bounded planet? The need to rethink our economic and sociocultural models, already obsolete, is inevitable.

PREPARING TO LIVE WITHOUT FOSSIL ENERGY

If we do not act, true disruption lies in wait. Who today is prepared, either personally or collectively, to cope with a power outage lasting several days or — worse — several weeks? How about a major break in the energy supply resulting from an earthquake, storm, tsunami, nuclear accident, or attack? This is not the stuff of science fiction: each of these scenarios has played out in one country or another in the last few years. Picture this — suddenly, no lights in your home (thankfully, candles and matches still work!), no streetlights, no drinking water from the tap (city water is distributed by electric pumps), no stovetop for cooking, no heating other than woodstoves (almost all heating systems rely on electricity, including pellet stoves), no hot water to shower with, no gas for the car, no delivery to stores (supermarkets have only three days' worth of food), no more newspapers, no more radio or television, no more telephones, no more computers, no more Internet, no more emails! No more elevator to carry you down from the office after a day's work. No more credit or debit card payments, no more ATMs. Pretty much *everything* runs on electricity or oil!

One ripple in the supply and all of society enters a state of paralysis, with a domino effect that is hard to imagine on a large scale. Apart from a few countries like Canada, where 60 percent of the grid runs on a hydroelectricity (96 percent in the province of Quebec), most of our societies rely heavily on fossil energy for electrical power.

Even France, whose leaders proudly tout its energy production independence thanks to nuclear power, is 100 percent reliant on imported uranium to supply its reactors. Uranium, a strategic (and therefore fragile) fossil resource, is a non-renewable material that powers an industry in which hazards and radioactive waste pose major threats that remain unsolved.

TAKING CHARGE OF THE ENERGY IN YOUR LIFE

The precariousness of the situation is a wake-up call encouraging us to reduce our dependence on fossil energy, to limit our greenhouse gas emissions (which threaten the climate), and to engage concretely in the transition to renewable energies in all dimensions of our lives: our water and food supply, our housing, our transportation methods, and our social, professional, and cultural activities. The priority today is to bring our lifestyles — as individuals, families, and collectives — into harmony with the available resources on the planet.

HUMAN PERMACULTURE AS A RESPONSE TO THIS DELICATE PERIOD OF TRANSITION

To rise to the challenge and help build the newly emerging world, the field of human permaculture proposes an innovative, holistic, creative, and interactive approach. It maps the foundations of classic permaculture — a concept born over four decades ago — onto human pursuits. Permaculture, the natural practice of agriculture defined by Australians Bill Mollison and David

Holmgren, has seen burgeoning success throughout the world in recent decades. Permaculture training opportunities are widespread and festivals are thriving, attracting masses of youth, not to mention adults of all ages, looking to delve into this approach. Yet the human-focused dimension of the discipline remains much less well known — and the time has come to fill this gap!

The originality of the “human permaculture” approach is considering the discipline in its broadest scope. It’s about building (or rebuilding) human ecosystems using the models provided by nature: generating more interactions between people rather than having everyone working solo in urban silos, producing more energy than we consume, and opting for simple tools over high-tech solutions — they are so much easier to maintain and repair, after all!

This approach is in keeping with the aims of the growing number of people who want to work together to design solutions in the face of current and future uncertainty.

BUILDING THE CHANGE RATHER THAN ENDURING IT

Because we know that “another world is possible,” because we are helping build it around us, we are writing this book to offer readers the chance to master the keys to human permaculture (Part 1). Through a design process (Part 2), we invite readers to ask the right questions in order to find appropriate responses for their specific situations, rather than defaulting to ready-made solutions.

This book invites readers to reconcile with nature (on which we are totally reliant given that we form an integral part of it), to discover or rediscover the ways in which they are vitally linked to the water, the soil, and the forest (Part 3), and to “permacultivate” their food in a way that’s in line with today’s issues (Part 4).

This book gives informed readers the tools they will need for the transition. Each reader can adapt these tools to suit their own pace and their own preferences, and for whatever situation — be it their family, neighborhood, school, business, and so on. Armed with an understanding of the global issues connected to their everyday actions, and inspired by pioneers and examples of workable alternatives, readers will be equipped to design their daily lives. They will be able to reorganize their activities sustainably and harmoniously to create viable and fertile ecosystems around them, freely and fully consciously. Most will likely have to work to overcome the inevitable “resistance to change.” But overcoming these sticking points is easier when one can see how others have made the leap and landed on their feet!

Enthusiastic permaculturists may gather new perspectives and be tempted to bore their friends and family with tedious exhortations. But remember, our only power resides in changing ourselves. There is no point in trying to change others! The example we set will either give people the urge to commit to undergoing a transformation in their own time, or it won’t. Such choices are strictly personal — though extremely contagious!

What Is Your Impact on the Planet?

HERE ARE A FEW FUN TESTS designed to calculate the impact of your personal and collective activities on the planet. The point, of course, is to become aware of these impacts so that you can try to limit them.

1) CALCULATING YOUR CARBON ACCOUNTING AND YOUR ECOLOGICAL FOOTPRINT

What is the surface area of your home? How many kilowatt-hours of electricity do you consume each year? How old is your refrigerator?

How many kilometers do you clock in your car each year? How many on public transportation?

How many times per week do you eat meat? Fish? How much butter and cheese? What volume of locally grown vs. out-of-season fruits and vegetables do you consume? Do you drink bottled water or tap water?

How much household waste do you take out every week?

What is your annual budget for computers and other electronic devices? How much do you spend on shoes and clothes?

How much meat or pet food do your pets eat?



How many weeks per year do you spend on vacation in sunny climes?

Answering these questions about your housing, transportation, diet, and consumer products yields a wealth of information. Developing a

consciousness of the impact our lifestyles have on the planet and on global warming is a precondition for reducing our *carbon accounting* and our *ecological footprint*. What does this mean?

Carbon accounting

Carbon accounting is a way to assess the volume of greenhouse gas (especially CO₂) emitted by a person or group in the course of their everyday activities, with the goal of reducing their impact on the climate. Knowing the type (fossil or renewable) and amount of energy people consume indicates how dependent they are on fossil energy — and how vulnerable they are in the event of a (potential) energy crisis. These facts are good to know!

We encourage you to do your carbon accounting test online! For example, try this calculator: carbonfootprint.com/calculator.aspx

Much more complex calculators are available for companies and communities: ghg.protocol.org/companies-and-organizations

Ecological footprint

The notion of the ecological footprint, first developed by William E. Rees and Mathis Wackernagel in 1992, gained widespread public attention during the 1990s.

The ecological footprint reveals the influence human activities have on natural resources (the exploitation of soil, water, forests, terrestrial and aquatic wildlife, and so on); unlike carbon accounting, which deals “only” with the effect of

human activities on the climate. The ecological footprint compares the pressure from human activities to the Earth’s “biocapacity” to restore itself (i.e., to regenerate its resources and absorb the waste produced by humans). The planet’s resources are limited, while the population is increasing. If I consume more than my share of natural resources that I am entitled to mathematically, if I consume resources faster than nature can replace them, and if I produce more waste than the planet can absorb, then I am monopolizing the public good; I am infringing on the share that belongs to my fellow human beings and that of future generations. The ecological footprint applies at all levels: individuals, cities, countries, and humanity as a whole. It can be expressed in equivalent “hectares” and equivalent “planets,” as in, “How many planets would we need if everyone lived like I do?”

The Global Footprint Network maintains the most current and complete footprint calculator: footprintcalculator.org.

2) REDUCING YOUR CARBON ACCOUNTING BOTTOM LINE AND YOUR ECOLOGICAL FOOTPRINT

This entire book will help you pursue this goal! People often find the results of carbon accounting and ecological footprint tests surprising — and motivating. By pointing out which parts of our lifestyle make up the biggest pieces of the ecological pie, these tests encourage us to find ways to improve our results.

We recommend that you take both tests *before* reading this book — and then take them again a *few months later*, once you have begun your transition and absorbed some of the basics of energy sobriety and resource sharing. The difference will surprise you!

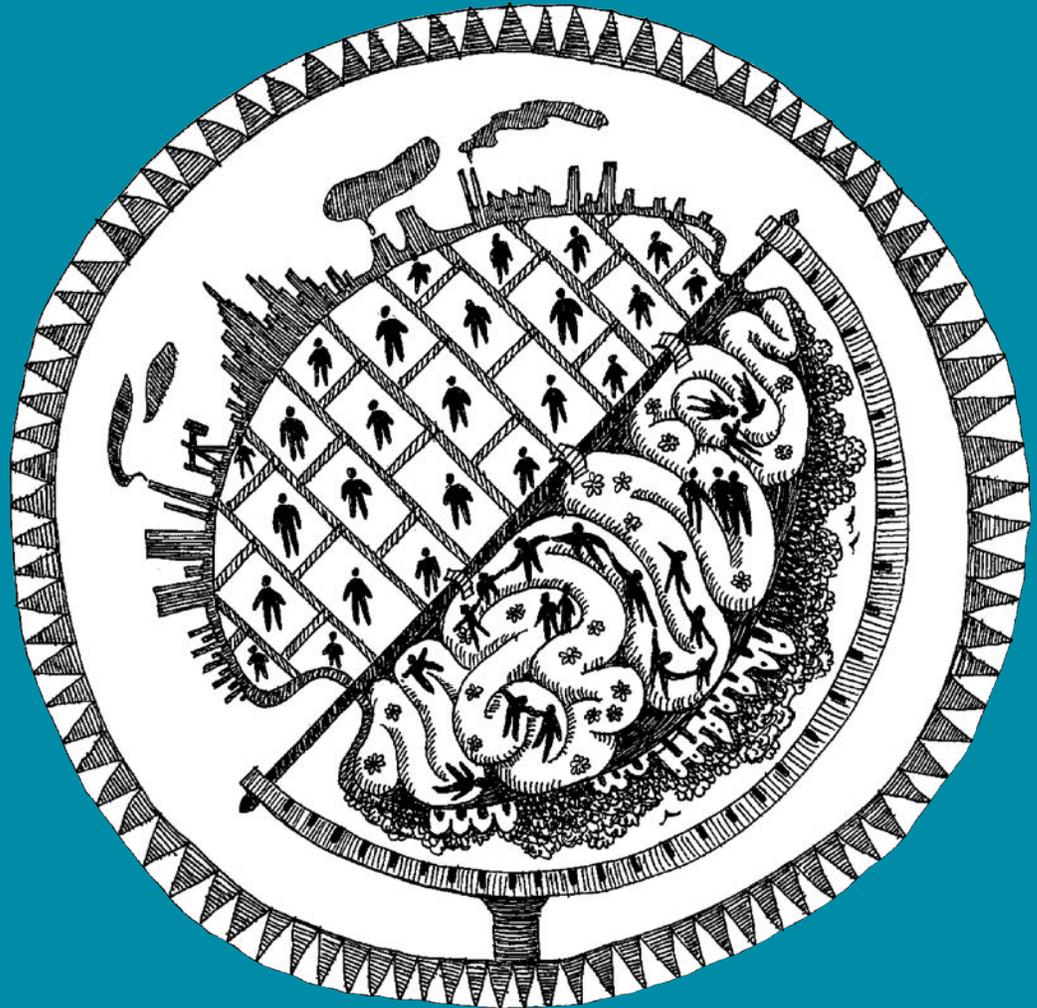
We are consuming the resources of one and a half planets: spot the error!

After you subtract the global surface area of oceans, deserts, and mountains, and once you have accounted for the space needed by other animal species, what remains is an average of one and a half hectares of biologically productive land, or three soccer (football) fields for each of the roughly seven billion individuals alive today. That's not much to meet a person's needs from cradle to grave (water, food, living space, materials to manufacture all the equipment they will need, clothing, transportation, etc.). Especially when you consider that this area is shrinking as the population increases. China, the United States, India, Brazil, and Russia alone represent 50 percent of the world's ecological footprint.

If we do nothing to change our lifestyles (though we are starting to!), by the year 2050 humanity will need the equivalent of three planets to meet our needs, process our waste, and absorb our pollution. The interest owing on this ecological debt will be a significant drain on our grandchildren's food, health, and pocketbooks. Adopting a lifestyle compatible with the planet's limited resources is an urgent matter.

For a deeper dive into our ecological footprint and one planet living, check the Global Footprint Network: footprintnetwork.org/





Part 1

The Keys to Human Permaculture

Chapter 1

Definitions and Foundations of Classic Permaculture

*I hold it equally impossible to know the parts
without knowing the whole,
and to know the whole
without knowing the parts in detail.*

— Blaise Pascal (1623–62)

HUMAN PERMACULTURE takes the principles of permaculture as defined in the 1970s by its founders, Bill Mollison and David Holmgren, and applies them specifically to the human domain. In Part 1 we will explore a few keys to understanding the meaning of this transposition and performing it successfully.

Those new to permaculture will no doubt appreciate a simple definition of the concept of permaculture. However, it would be very limiting to box permaculture into just one definition since it encompasses such varied practices and domains. For starters, we can say that permaculture is a systemic approach that makes it possible to create viable ecosystems inspired by the laws of nature. Although the term permaculture was

applied to agriculture when initially conceived, it has since evolved to deal with human culture more broadly, including its social and economic dimensions. It is a mix of ancestral

wisdom and common sense, enriched by scientific understanding. Permaculture combines a holistic approach with local solutions that seek to limit the negative impacts of human activities on the planet.

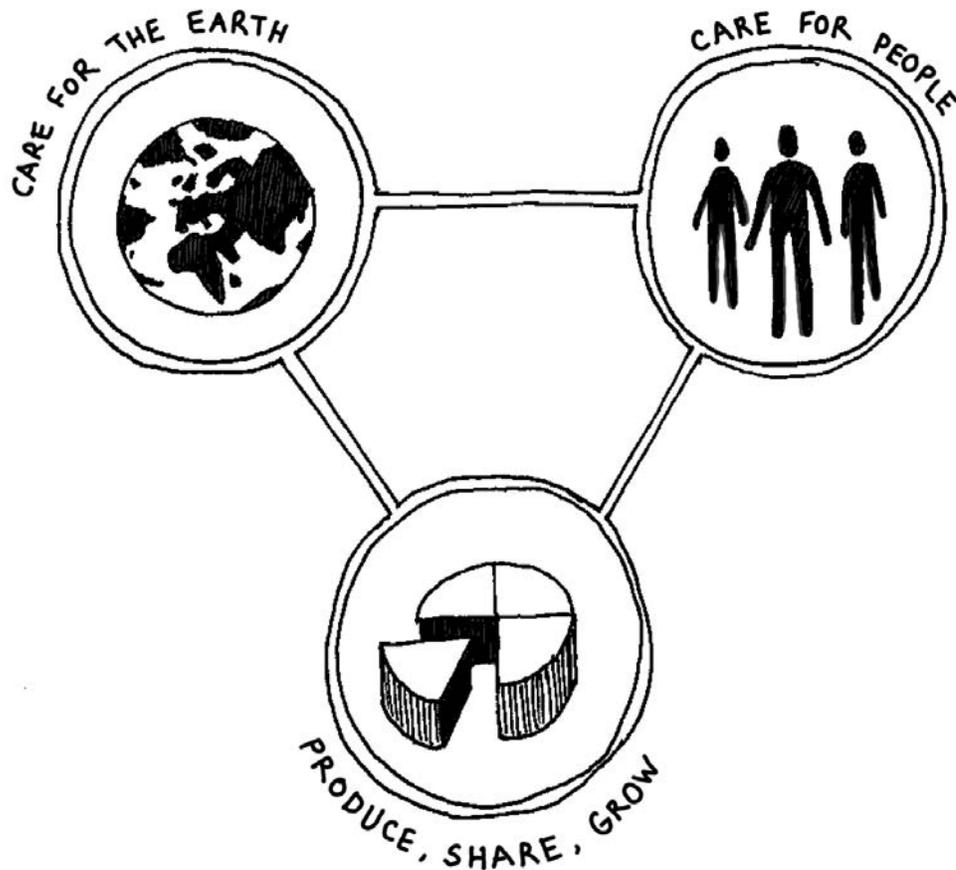
Permaculture is inspired by the functioning of natural ecosystems, the dynamic matrix of living organisms interacting with each other and with their environment, exchanging energy and matter to maintain and develop life. Every ecosystem is bound to evolve, transform, and adjust to outside changes through a process of adaptation. Otherwise, it is doomed to vanish! The interrelation of all ecosystems overlapping with each other since the dawn of time has continuously allowed life to sustain and renew itself. This is how the immense puzzle that forms our planet Earth, each piece of that puzzle a complex ecosystem unto itself, has played out for the last 4.5 billion years. These ecosystems have formed, matured, and refined themselves, allowing for the propagation of species and their continued existence. The

Permaculture is a systemic approach that makes it possible to create viable ecosystems inspired by the laws of nature.

ecosystems are all the more dynamic and fertile by virtue of their being connected to a wide diversity of species, each stimulating and reinforcing the others through positive interactions.

Being modelled after the laws that govern natural ecosystems, permaculture organizes human activities as harmoniously as possible. The approach provides viable and sustainable designs that take into account all strata of the ecosphere

and increase the number of interactions between the systems created. Permaculturists are encouraged to pay attention to natural resources — wild plants and animals, water, soil, wind, and sun — but also to the economy, agriculture, urban planning, and the relationships and exchanges among individuals. The spirit of permaculture is summed up by its founders as follows: it seeks to care for human beings and the environment



while regenerating life and fostering abundance and sharing.

DESIGN: AN EFFECTIVE DEVELOPMENT TOOL

The word *design* appears frequently in permaculture jargon. In this context, design refers to a set of practices for conceiving, planning, laying out, and structuring a space, project, group, relationship, or organization to make it fertile and sustainable.

In nature, species adapt to their environment. With humans, this plays out somewhat differently. In the industrial world, which is based on the idea that economic growth is infinite, education has given itself the mission of making people efficient at producing and consuming. Schools and universities teach working methods, techniques, and pedagogical content geared toward

this objective. Diplomas reward the students who fit into this mold, sidelining the rest. Similarly, human beings exert influence on the environment to make it respond to the needs identified by society — even if it means defying the fun-

damental laws of nature. We fashion landscapes as we please, often with little regard for the living things that already occupy them, neither knowing nor worrying about the long-term consequences of our actions.

By contrast, permaculture encourages people to account for the fundamental needs of both humans and the environment with a view to

achieving long-term overall well-being. In this model, human intervention consists of creating systems that exist synergistically and harmoniously with each other, respecting the laws of nature and the original features of the site in question. Permaculturists endeavor to intervene as little as possible in the ecosystems in which they work, and strive to enhance all life-giving elements. They transform what can be transformed and bring in as little as possible from outside the system. This means every design is by definition unique. Acquired knowledge or past success can be incorporated, but each design remains particular to its own situation.

PHILOSOPHICAL FOUNDATIONS

Permaculture rests on the idea that nature is spontaneously abundant — that life begets life indefinitely through the interrelation of all its existing forms. Thus, a forest destroyed by fire is able to build itself up again through interaction with other living systems that contribute to its rebirth. Like all living species, the human species has a special role to play; human beings are endowed with a singular capacity to create and to act in a deliberate, planned fashion — for better and for worse. This liberty comes with great responsibility for the species. Using freedom for good requires a great deal of wisdom and intelligence. *Homo sapiens*, which came on the scene just 200,000 years ago on a 4.5-billion-year-old planet, has committed some serious follies of youth in recent decades: by exploiting human

Permaculture rests on the idea that nature is spontaneously abundant — that life begets life indefinitely through the interrelation of all its existing forms.

and natural resources to satisfy certain short-term interests, “*Homo industrialis*” threatens the equilibrium and preservation of the Earth system. Permaculture is a summons — one among others — to help modern humans rediscover wisdom. Nature and the effectiveness of its mechanisms of regeneration provide the template: that is what biomimicry is all about. By restoring equilibrium in natural ecosystems using the tools of

permaculture, humanity may gradually regain its rightful place in the universe.

ORIGIN AND EVOLUTION OF THE WORD PERMACULTURE

The concept of permaculture was developed in Australia in the 1970s in response to the major climate crisis that was already rearing its head. The word is a contraction of *permanent* and

The founders' legacy

Two Australians, considered the cofounders of permaculture, helped spread the movement around the world.

Bill Mollison (1928–2016). It is with gratitude that we salute the memory of this founder of permaculture, whose death we learned of in late September 2016, just as we were finishing up the first French edition of this book. He taught in the unit of Environmental Psychology at the University of Tasmania, where he met the young David Holmgren. In 1978, together they published, *Permaculture One: A Perennial Agriculture for Human Settlements*. The book was the outcome of their discussions on the relationships between agriculture, landscape architecture, and ecology, a vision that Mollison had begun to encapsulate in the term *permaculture* in 1974. In 1978, Mollison founded the Tagari community in

Stanley, Tasmania, a 70-acre establishment that achieved self-sustainability. In 1979, he created the first permaculture training institute and published *Permaculture Two: Practical Design for Town and Country in Permanent Agriculture*.¹ In 1988, Mollison published *Permaculture: A Designer's Manual* and, in 1991, *Introduction to Permaculture* (revised in 1997).²

Mollison also spread permaculture by delivering intensive 72 hour training courses around the world. These became the international standard for permaculture design courses. He laid out a number of principles used in the design process, some of which have become slogans among permaculturists:

- Work with nature rather than against it.
- Plan for energy efficiency.
- We are limited only by our imagination.
- Diversity is the basis of resilience.



- Each element performs multiple functions.
- Every function is performed by multiple elements.
- Use the least effort for the maximum effect.
- The problem of one element is the solution to another element.
- Take responsibility for your life — now.

Mollison showed that the robustness and effectiveness of a system are the result of both the quality and the quantity of its interconnections: for example, if one element weakens or malfunctions, it is usually because another element is missing. In such situations, Mollison therefore proposed the introduction of a new element into the system to regulate the disturbance. He received the Right Livelihood Award, the “Alternative Nobel Prize,” in 1981.

David Holmgren (1955–) In 1978, he published *Permaculture One* with Bill Mollison. He experimented with and refined the permaculture approach on

his mother’s farm and later on his own farm. In 2002, he defined 12 principles that underpin a sustainable society and published *Permaculture: Principles and Pathways Beyond Sustainability*,³ a work based on a quarter-century of experience. Holmgren wagered that energy consumption would decrease after peak oil. His vision inspired Rob Hopkins and the transition town movement. Holmgren has been giving “certified Permaculture Design Courses” since 1991. He helped found the Australian ecovillage Fryers Forest, home to 11 families. Through the application of permaculture principles, this 300-acre site (once devastated by the operation of a gold mine) has been rehabilitated, in particular by developing the forest and by stocking water in reserves. Holmgren also works on retrofitting suburbs.



TO FIND OUT MORE: Holmgren Design: Permaculture Vision and Innovation, holmgren.com.au.

culture. In this context, *permanent* connotes sustainability rather than mere continuation over time. *Culture* evokes both cultivating the soil and the cultural dimension in itself. In this book, we use the word *culture* in its broadest sense, with reference to cultivating the soil, cultivation of the self, and human cultures. Similarly, we use *nature* to speak about the physical and biological environment, but also “human nature” as well.

Permaculture did not invent anything new! From time immemorial, well before the word “permaculture” existed, Indigenous people have been “caring for people and the environment by generating abundance in a spirit of sharing.” For many decades and in many parts of the world, knowledgeable people and groups have kept the flame alive, bringing new life and credit to ancestral practices that all but disappeared as they

were eclipsed by the industrial era. Today, these approaches are being built upon with the application of more recent scientific discoveries. And with the intention to advance a long-term vision that blends respect for human beings and for the environment, they share the same goal as permaculture. Depending on the field to which they are

applied, these approaches go by such names as agroecology, agroforestry, biodynamics, biomimicry, sociocracy, alternative economies, citizen alliances, vernacular architecture, bioelectronics, talking circles, and so on.

In this book, the word *permaculture* includes all activities that apply and imitate the natural

Permaculture ethics

In adhering to the ethics of permaculture, permaculturists commit to:

Care for the Earth

Here, caring means protecting, it means paying attention, and offering respect and gratitude. “Earth care” applies to living things in all strata of the ecosphere. These include the life of the soil and subsoil, microorganisms, the world invisible to the naked eye (the most populous and oft-forgotten world); water in all its forms, marine and other aquatic life; the atmosphere, the air, and the gaseous components needed for life; and the other planets that influence life on Earth, as well as invisible realities (depending on individuals’ beliefs).

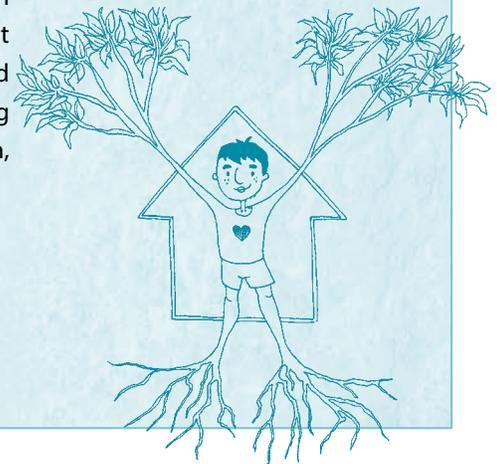
Care for humans

“People care” means ensuring that every person, starting in childhood, is given the proper conditions to live, grow, develop consciousness, achieve their potential in all dimensions, and do what they were born to do. It means ensuring that every individual has access to the

abundance that is an inherent principle of life. It means organizing work to ensure human beings struggle as little as possible to produce the goods they need.

Share resources fairly and redistribute the surplus

Given that our planet has limited resources and is home to a rapidly growing human population, permaculture encourages sobriety in production and consumption. It calls for the “fair share” of natural resources and goods. It encourages people to strike a just balance between the needs of each person — present and future — and those of other living organisms (human, animal, and plant).



proclivity of ecosystems to create a dynamic of life, regardless of the field of application.

In fact, these three pillars of permaculture interact in a virtuous circle: if we care for the Earth, humans benefit from higher quality of life. If we care for the Earth and people, the abundance thus generated can be shared equitably. Equality will motivate people to care for other people and for the Earth, and so on.

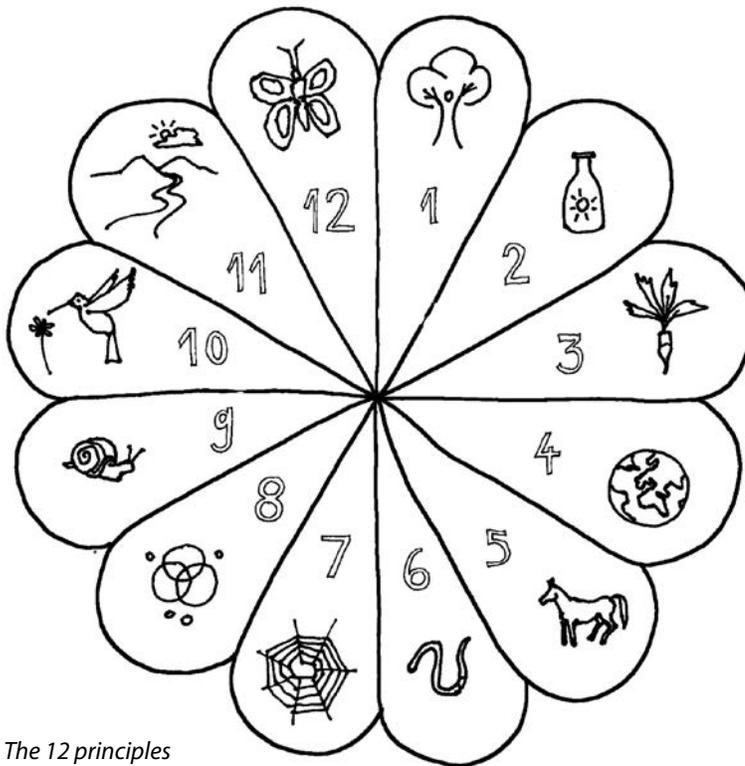
All living species evolve and participate in the action of life. These permaculture ethics highlight

human beings' place in creation and their role in co-constructing the world. They help clarify the meaning of our presence on Earth.

PERMACULTURE PRINCIPLES AS DEFINED BY DAVID HOLMGREN

The illustration “house person” (page 15) is inspired by a drawing featured on David Holmgren’s website, representing the appropriate position of humans within the universe. Each person and their habitat are harmoniously connected to the environment. In Holmgren’s view, it is incumbent upon each person to become a responsible citizen and to do their part in building a sustainable world, without waiting for ready-made solutions to arrive from on high.

- 1 Observe and interact
- 2 Catch and store energy
- 3 Obtain a yield
- 4 Apply self-regulation and accept feedback
- 5 Use and value renewable resources and services
- 6 Produce no waste
- 7 Design from patterns to details
- 8 Integrate rather than segregate
- 9 Use small and slow solutions
- 10 Use and value diversity
- 11 Use edges and value the marginal
- 12 Creatively use and respond to change



The 12 principles of permaculture.

DEFINING HUMAN PERMACULTURE

“Human permaculture” is created by the *interaction* of individuals within a “team.” Teammates organize their work around projects in which each person has the opportunity to express their particular skills (their “niche”) by reaching for a common objective, all while applying the three foundational ethics proposed by permaculture: earth care, people care, and fair share.

The term we created, human permaculture, is intended to go much further than social human *interrelations*: communication, caring, and functioning around societal rules, etc. Human permaculture projects are built around the human qualities and capabilities that are present (rather than those that aren’t), which stimulates the creation of enhanced exchange zones — a well-known concept (“edge effect” or “border effect”) in the world of permaculture for those regions of greater diversity of life where ecosystems meet and overlap.

- Social permaculture is about human *interrelation*.
- Human permaculture is about the *interaction* of human talents, which are woven

together in teams to create Life in all its forms.

The two approaches are complementary. Human permaculture contributes:

- The idea of the individual life design, also known as the life plan.
- The expression of niche profiles that belong to each individual.
- The exchange zone (border effect), i.e., the stimulation of talents that merge within a team to spark collective intelligence and genius.

This functioning can be observed in the wild in a number of social species such as termites, bees, and lions. It also seems to appear in the complex construction of our modern societies — which have nevertheless forgotten an elementary principle: that every life is imbued with its own function, its own niche, flowing from the fact that it possesses the biological tools required to express itself.