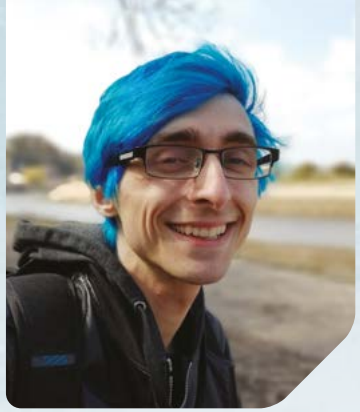

EARTH RISING
Information Booklet

Hello and welcome to the Earth Rising Informational Booklet!



Inside you'll find a treasure trove of information explaining all the terms we use for our Influence cards and Practice tokens. Many of them may contain terms that haven't been heard of before, and that's okay! Each of us start our journey of understanding somewhere, and whether you're 8 years old or 80, it's always a good time to be a part of changing our world into something better for all of us.

When I began designing and researching Earth Rising, I knew very little about the realities of the situation our world is in. What I learnt was sobering, but in the end it gave me hope. We can change the course of our societies, and our futures. We have the tools and understanding required to make the difference needed, all we need now is the will to put it into effect. It's my hope that this book will help you begin this same journey, and start to recognise which practices in our societies we need to promote, and those we need to resist.

Each of the following sections have been thoroughly checked and verified for factual accuracy by six organisations that each have years of experience on the front lines of transforming our world into a sustainable future. With their help, these sections will answer:

- *Which organisations are working to change our world?*
- *What makes a real life practice Unsustainable?*
- *Why is the Sustainable practice linked to it a direct solution?*
- *How is the Status Quo Strikes! card a realistic example of how green efforts are stopped?*
- *What actions can YOU take to make a difference?*

Every entry for each practice will also feature two examples of **Supporting Practices** (other practices that make the Sustainable side even more effective) and **Aggravating Practices** (other practices that make the Unsustainable side's damage even worse) which show how no single practice is alone, and how changing just one practice can make a big difference, even in other sectors.

We know there are a lot of conflicting sources out there and we want you to be confident we're giving you accurate information. At the back of this booklet is information about the sources we've used. We hope you can use those and this booklet to begin your own journey of learning about our world and how to change it!

Happy playing!

Laurie Blake
Game Designer and Activist

Agriculture

The Agriculture sector is the means by which our society grows, collects and distributes food to its people, ensuring that they have enough to eat and with enough diversity of food-types that they're able to stay healthy. This can also include some naturally grown substances, such as cotton and hemp, which are grown for production of other goods, however the foremost role of agriculture has always been to grow food.

The Permaculture Association have shared their expertise and knowledge gained through working with real farmers and ecologists to help us show an accurate depiction of which of our real life practices are keeping us in a dangerous spiral of ecological destruction, and what we could do to transform our food supply into one in balance with nature.

The Permaculture Association Britain

Our Vision and Purpose

We seek to build a network of systems thinkers with the power to create healthy cultures and ecosystems. Sharing and self-organising are strengths of the permaculture network. The Permaculture Association has a participatory structure so members can be directly involved.

Through this we aim to create a healthy and peaceful world, where we care for each other, the earth and future generations, share resources wisely and continue to heal and regenerate communities and ecosystems.

Permaculture is a design approach based on understandings of how nature works. At its heart permaculture has three ethics:

- Earth Care
- People Care
- Fair Shares

This makes permaculture a unique toolkit that is used to design regenerative systems at all scales - from home and garden to community, farms and bioregions around the world.

With permaculture, people are treading lightly on our planet, in harmony with nature. Taking care of people and fellow creatures. Making sure that we can sustain human activities for many generations to come. Culture change not climate change!

We have been supporting people to learn and apply permaculture for over 36 years.

PERMACULTURE
ASSOCIATION

permaculture.org.uk

Polyculture Farming

Monoculture Farming

Polyculture Farming is the cultivation of multiple crops in the same field, either sequentially or simultaneously. The interaction of these plants creates a diverse self-supporting ecology, keeping soil healthy and increasing crops defense from disease and pests enough to negate pesticides[1].

Despite how it may appear, polyculture farming has been the prevalent method of food cultivation for thousands of years, with monoculture farming taking root as recently as the 1940s. Its benefits were clear to farmers looking to maximise profits - less labour and the ability to mechanise or chemically address many of the more time consuming aspects of farming, such as weed control and collection. Yet the long term effects are finally becoming clear - erosion, deforestation, contaminated and depleted soil and water sources and a widespread loss of biodiversity[2]. The intensive nature of this method has been shown to produce roughly one-third of all greenhouse gas emissions[3].

With world ecosystems under threat, farming intensification has led to a rise in the danger of disease[4], and with our global reliance on only a few crop strains, the loss of one could lead to crop failures similar to the Great Irish Potato Famine of 1845, but on a global scale. Diversifying our farming techniques is a vital step to mitigating this disaster.

Supporting Practices

- Natural Capital Accounting
- Habitat Regeneration

Aggravating Practices

- Industrial Chemical Farming
- Population Growth

Community Supported Agriculture

Food Import Reliance

Food is a constant in our lives, yet few people know where their food comes from or how it got to them. With the cheapest food grown in bulk from around the world, much of it has added chemical preservatives to make it last the trip, diminishing its nutritional value.

Community supported agriculture brings high quality, locally sourced food back to the table, allowing people to play an active role in the planting, growth and harvesting of their food, while making family or community owned farms more able to survive without the need to compete on world markets.[1] But it's not just about food quality and community bonds! Shipping large amounts of food between countries increases emissions, with many richer companies using land purchased in developing nations to farm produce, meeting emissions targets back home by releasing them abroad.[2]

At the same time, communities dependent upon food from overseas are vulnerable to shortages should any disruption occur, especially in rural areas. Farmers reliant upon imported seeds are affected further, as disruptions impact crop projects for entire years, pushing food prices up and increasing food insecurity.[3] With 34 countries in the world unable to produce their own food and reliant entirely on imports, and with more countries expected to join them, food insecurity is an issue that needs to be tackled more than ever.[4]

Supporting Practices

- Consumer Cooperatives
- Community Dashboards

Aggravating Practices

- Carbon Credits
- Closed Door Deals

Marine Permaculture

Overfishing

Seaweed is the unsung hero of our world. Considering that life started in our oceans, it should be of no surprise that they'll have the final word when it comes to the sustainability of our planet's ecosystems. Yet the fate of those oceans are under threat, with ocean productivity - the rate at which plants convert carbon into organic material through photosynthesis - declined by 40% since the 1950s[1].

This decline in productivity is thought to be due to our oceans capturing 90% of heat generated in our atmosphere, creating a thickening layer of warm water near the surface[2]. This heat creates a barrier for the nutrients needed for plankton growth, which is a vital food source for many fish. These fish fight for survival against the combined effort of these collapsing ecosystems and global fisheries, which have reported a drop in fish catch by 23% per person over the last 25 years, despite an increase in effort by a reported 2500% as international demand rises[3].

Marine permaculture systems are floating platforms placed at a depth of 25 meters, using wave energy to bring nutrients back to pre-global warming levels. These nutrients restore plankton and kelp growth, and attach to the permaculture structure to form a mini-ecosystem. With polyculture aquafarming, these ecosystems benefit fish as much as they do us, creating a sustainable food source that, with the kelp's incredible absorption of CO2 and growth rates of 30 times that of land plants, could de-acidify our oceans and consume a whopping 12 gigatons of CO2 per year using less than 10% of our ocean for aquaculture[3]. With seaweed being increasingly used in plastic alternatives, fuel, cattle feed, and even agriculture fertilizer this planet friendly farming could transform our lives, and our world[4].

Supporting Practices

- Pioneer Materials
- Closed Door Deals

Aggravating Practices

- Habitat Destruction
- High Red Meat Diet

Habitat Regeneration

Habitat Destruction

More than just bees, pollinators include butterflies, moths, bats, birds, beetles, wasps and even some small mammals. All these species are simply animals that visit flowers and transport pollen grains between them, and their actions are responsible for the growth and fruition of plants that provide us with the vast majority of fruits, nuts, vegetables, natural oils, fibres and many raw materials. Simply, if it flowers, it needs a pollinator.[1]

This makes pollinators responsible for 1 of every three bites of food eaten across the globe, and the loss of these pollinators presents serious risks for our food sources, especially as the high yield crops we depend upon are increasingly pollinator dependent. With the use of rented hives and hand pollination currently offsetting the damage, the loss of natural pollination sees an expected increase of land conversion for agricultural use due to a drop of up to 65% in yield per crop[2].

This presents a two-fold problem. Our pollinators have declined dramatically in the last 20 years, with species such as the monarch butterfly having declined by 90%, and beekeepers reporting 42% loss in colonies[3]. Their declines are due to habitat loss, pesticides and diseases, but with pollination dropping agriculture is needing to increase its scale and pesticide use to cope with yield loss, further intensifying the problem on two fronts. Worse, with agriculture moving more to the developing world, the reliance on imported food brings parasites and diseases across from different ecosystems, further endangering our pollinator species as they have no natural defense to protect them[4].

Protecting our pollinators requires strong, decisive policies and leadership from countries around the globe, and it's clear more than ever that our future rests on the smallest of creatures.

Supporting Practices

- Nature Needs Half
- Climate Legislation

Aggravating Practices

- Food Import Reliance
- Deforestation

Agroecology

Industrial Chemical Farming

Industrial Chemical Farming is characterized by large-scale monoculture, heavy use of chemical fertilizers and pesticides, and meat production in CAFOs (confined animal feeding operations). The industrial approach to farming is also defined by its heavy emphasis on a few crops that overwhelmingly end up as animal feed, biofuels, and processed junk food ingredients.

From its mid-20th century beginnings, industrial agriculture has been sold to the public as a technological miracle. Its efficiency, we were told, would allow food production to keep pace with a rapidly growing global population, while its economies of scale would ensure that farming remained a profitable business. But too often, something crucial was left out of this story: the price tag.

In fact, our industrialized food and agriculture system comes with steep costs, many of which are picked up by taxpayers, rural communities, farmers themselves, other business sectors, and future generations. When we include these "externalities" in our reckoning, we can see that this system is not a cost-effective, healthful, or sustainable way to produce the food we need.

And the good news is that it's not the only way. Scientists and farmers are developing smart, modern agricultural systems that could reduce or eliminate many of the costs of industrial agriculture—and still allow farmers to run a profitable business.

Regenerative agriculture is a system of farming and grazing practices that can reverse climate change by building healthy, biologically-diverse and mineral-rich soils, all the while sequestering carbon from the atmosphere. Global soils contain 2 to 3 times more carbon than the atmosphere. It is estimated that at least 50% of the carbon in the earth's soils has been released into the atmosphere over the past few centuries, partly due to destructive agricultural practices.

Regenerative Mixed Farming

Industrial Meat Farming

Industrial livestock methods produce around 95% of all meat, eggs and dairy, and it's no secret that these livestock are poorly treated and often abused[1]. The problematic nature of these methods of farming extends well beyond an animal welfare standpoint. Livestock produce around 51% of greenhouse gas emissions[2], and the methane these animals produce has a much higher warming potential than even CO^2[3]. Although financially inexpensive, these methods are costing the world.

Regenerative mixed farming is a collection of sustainable farming and grazing methods which focus on soil health, carbon sequestering and ecosystem support and preservation. By farming in harmony with nature rather than fighting against it, we can reimagine agriculture entirely, utilising perennial crops, crop diversity and integrated grazing. Mixed farming uses livestock as a means of regenerating the farmland between crops[4], and emphasises plant diversity with minimal soil disturbance and less human input. This method of farming also works to keep the soil covered, lessening water and wind erosion and naturally preventing weeds from germinating in the soil through the use of cover crops like cereals and legumes[5].

These farming methods lead to a reduction of carbon in our atmosphere, enriched soils, and improved biodiversity within our farmlands. By using this collection of farming methods the need for pesticides and chemical fertilisers is also reduced, lessening chemical runoff. They also improve the nutritional quality of the crops we put on our table, meaning regenerative mixed farming improves the overall health of the people and the planet alike[6].

Supporting Practices

- Agroecology
- Natural Infrastructure

Aggravating Practices

- High Red Meat Diet
- Industrial Chemical Farming

Nature Needs Half

Deforestation

Nature is life. The production of the oxygen we breathe is dependent upon a complex ecological web of interconnected processes, all providing a cycle that keeps our planet, and ourselves, healthy, diverse and vibrant. Each living creature contributes to our biosphere, and they need the space to live so that they can support this system, and in turn, us[1].

The rampant deforestation that has gripped our planet does not just harm our oxygen production and biodiversity, however. Through the loss of our forests we also lose an essential defendant against global warming, as trees pull more carbon from the atmosphere than any other natural system. Worse still, the carbon they've stored is released back into the atmosphere once rotted or burnt, and with most deforested land replaced by agriculture and livestock, these practices generate huge quantities of greenhouse gasses where once it was being absorbed[2]. These devastated forest communities become breeding grounds for disease, threatening our food alongside out ecosystems.

Presently a mere 15.4% of our planet is protected in pockets across the globe[3] through the efforts of conservationists and green lobbyists, and with protected areas found to have double the preservation effects than areas outside of legislated protection[4]. With this in mind, many scientists, conservationists and future-minded public officials call for stronger protection than the 30% by 2050 being considered by the United Nations[5]. When 70% of our planet is ocean, is 50% really too much to ask to safeguard our future?

Supporting Practices

- Pioneer Materials
- Natural Capital Accounting

Aggravating Practices

- Habitat Destruction
- High Red Meat diet

What can YOU do?

All this information can seem a lot, and the practices involved might seem out of your hands. Nevertheless, every person who acts has their impact added to the whole, and much like any ecosystem the individual actions create a greater, unstoppable movement. Below are four small ways that the Permaculture Association recommend you can make a big change.

Eat Local, Seasonal Food

Food transport, packaging and processing make up 6% of CO2e emissions from rich countries. Local, seasonal food means lower emissions, so find a source near to home - a farmers' market, community supported agriculture or your garden. Avoid air-freighted fruit and veg; use frozen or tinned instead.

Eat Less Meat and Dairy

One of the most powerful actions you can take to reduce your climate impact. Meat and dairy have a very high carbon footprint, especially beef and lamb. Globally, the spread of beef farming is causing huge deforestation. Reduce your meat consumption, and consider vegetarian or vegan options.

Study Permaculture

Permaculture is an approach to designing healthy, productive, wildlife-friendly places that can be applied from a personal to bioregion level. It combines ethics, understanding of nature and design principles to create a model for low-carbon living, thinking differently and climate adaptation.

Make Compost

Dumping garden refuse and food waste in landfill produces methane, a potent greenhouse gas. Composting it, done properly, produces none. Compost also enriches the soil with nutrients and helps it absorb carbon. Composting can be done in many ways, from a domestic to industrial scale.

Remember that every small action is part of a greater whole. Anything you can do helps our planet, and sustains our future!