



BOOSTING NATURE-POSITIVE FOOD PRODUCTION

A pathway for safeguarding human and planetary health

ACTION GUIDES FOR THE FOOD SYSTEMS SUMMIT

The goal of the [UN Food Systems Summit Action Track 3](#) is to boost nature-positive food production at the scale needed to meet the fundamental human right to healthy and nutritious food, while at the same time restoring balance with nature. Together with farmers, pastoralists, fisherfolk, indigenous peoples, local communities, policymakers, scientists, extension agents and the private sector, Action Track 3 will co-design game-changing solutions and collective actions that simultaneously work for nature, people, and the climate.

This series of Action Guides introduces agroecological approaches and regenerative practices that make food production systems more sustainable and resilient. The strategies and actions presented in these Action Guides are evidence-based, proven to be effective, and can be adapted to diverse settings.

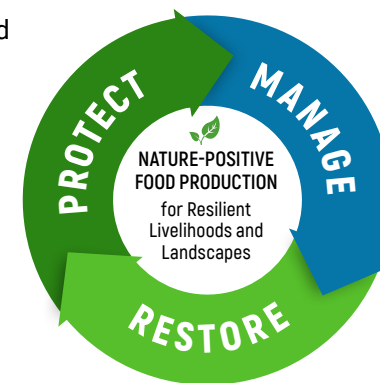
Each Action Guide focuses on key elements that influence the social, economic, and environmental dimensions of food production: soil, gender, tenure, youth, drought and water scarcity, livestock and pastoralism, among others. Collectively, the series offers a systems perspective to guide regenerative actions for both small and large producers to promote nature-positive transformation.

THE ISSUE

The way we use land and water resources to grow, harvest, and process food (collectively referred to as food production) is currently not sustainable and often harmful to human and planetary health.

To feed the global population of 9.7 billion projected by 2050 and safeguard nature's legacy for future generations, a rapid and systemic transition to nature-positive food production is essential.

By protecting, managing, and restoring the key components and functions of nature, we can produce healthy and nutritious food in ways that benefit people and contribute to climate stability, without compromising livelihoods and economic security.



IMPACTS OF FOOD PRODUCTION ON NATURE



Agriculture is responsible for

80%

of global deforestation



Food systems release

29%

of global GHGs into the air



Agriculture accounts for

70%

of freshwater use



Drivers linked to food production cause

70%

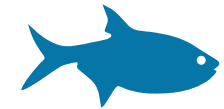
of terrestrial biodiversity loss



Drivers linked to food production cause

52%

of agricultural land is degraded



Drivers linked to food production cause

50%

of freshwater biodiversity loss

Source: WWF Living Planet Report 2020

Nature should no longer suffer from how we produce our food

The rising demand for resource-intensive foods is expected to continue. Producing more food in this way will increase pressure on finite soil and water resources and add to climate change. Current production relies heavily on chemical fertilizers and pesticides, and continuing expansion of agricultural land that destroys natural ecosystems and biodiversity habitat.

Modern industrial agriculture, deforestation, and the conversion of natural areas are wiping out species and ecosystems at an unprecedented rate, increasing greenhouse gas emissions and the risks of zoonotic disease. Humans depend on these ecosystems and their benefits to support healthy and resilient food production that can meet growing demand. Sustainable food production depends on pollination, nutrient cycling, pest management, water filtration and carbon sequestration, to name a few. Globally, the annual value of ecosystem services is estimated in the trillions of dollars. Once lost, many of these services are difficult if not impossible to recover.

Fortunately, there are sustainable alternatives for both small- and large-scale food producers. For example, agroecological approaches and regenerative agricultural practices tend to use resources more efficiently, helping to restore our 'natural capital' rather than degrade it. By harnessing the power and diversity in nature to produce more with less, these approaches and practices can also minimize the associated waste and pollution that harms human health and the environment.



What is nature-positive food production?

“Nature-positive food production is characterized by a regenerative, non-depleting, and non-destructive use of natural resources. It is based on stewardship of the environment and biodiversity as the foundation of critical ecosystem services, including soil, water, and climate regulation.”

The term ‘nature-positive’ can be applied to all approaches and practices as well as outcomes generated throughout food production. The way we produce food contributes substantially to the impacts the entire food system (including consumption and disposal of food) has on us all.

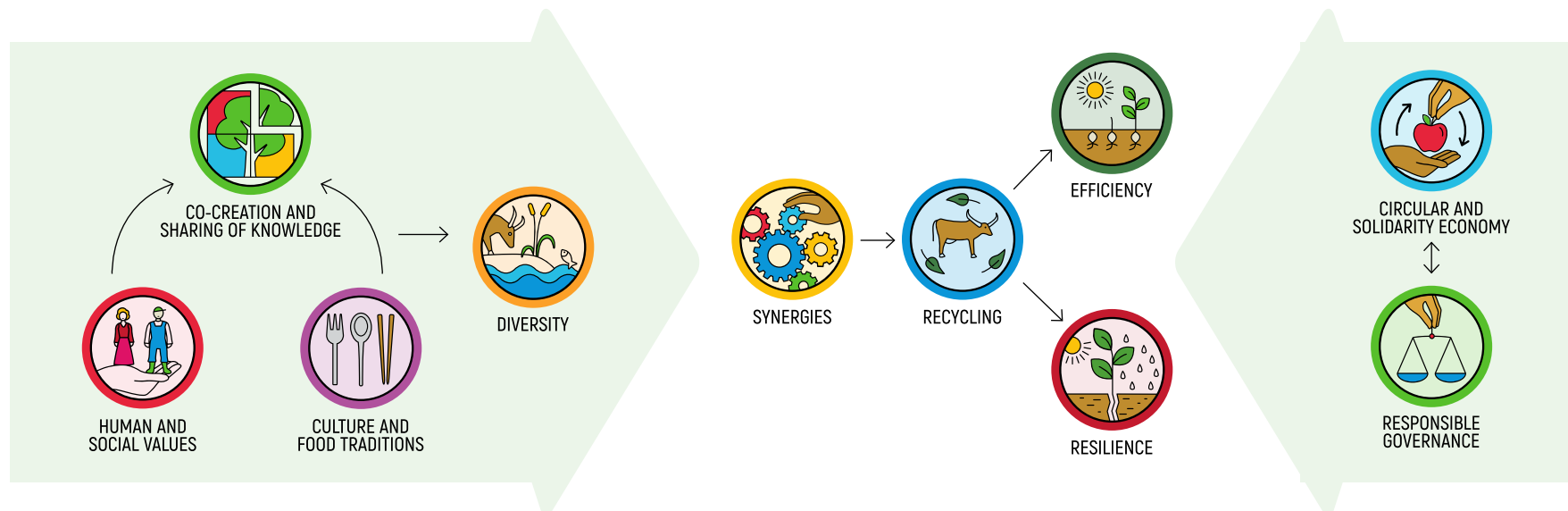
For example, decisions made locally on how we grow food can have significant impacts at the planetary scale, causing human-induced global warming and changes to local weather patterns.

Food production systems that employ **elements of agroecology** can help deliver simultaneous positive outcomes for nature, people, and the climate, often referred to as win-win or no-regret solutions. As illustrated below, these ten elements can help guide a transition to agroecology that is generated from the bottom up and adapted to the local context.

The health of soil, plants, animals, and humans is one and indivisible.

The foundations of agroecology, particularly in smallholder farms, are based on building synergies in the social and biological elements of production. The co-creation of knowledge and practices reflects local culture and food traditions as well as human and social values. Bringing together these elements helps increase opportunities for recycling, greater efficiency and diversity. When supported by responsible governance and a circular economy, these strategies and practices can help to deliver sustainable, productive, and resilient livelihoods and landscapes.

Agroecological transition towards sustainable agriculture and food systems



Delivering multiple benefits for nature, people, and the climate



Nature-positive

Nature-positive food production is most efficient and effective when it is based on evidence, knowledge and science that is then adapted or tailored to local needs and conditions. There are many examples from around the world, from conservation and organic agriculture to integrated systems, such as mixed farming, agroforestry and silvopasture.

The overarching goal is to maintain and enhance ecological processes and functions when producing food. Some of the most important are nutrient cycling, water retention, soil regeneration, carbon storage, nitrogen fixation, and the management of pest-predator interactions. The transition to regenerative food production in large-scale monocultures may be very different to that for smallholder and subsistence producers and require longer timescales.



People-positive

Food producers do not operate or make decisions in a vacuum. They consider trade-offs and respond to market signals for both their inputs and outputs. These decisions are heavily influenced by subsidies and governance regimes, supply chain rigidities, and ultimately consumer demand. Policies and investments have often led to dependencies where producers enter a vicious cycle that increases poverty and hunger as well as vulnerability to supply chain disruptions and price shocks.

To foster a more virtuous cycle, producers require support and incentives that empower them to assume greater responsibility and overcome barriers to change. Tenure security, access to technologies, credit, and markets, and payments for ecosystem services encourage innovation and enable many to profitably transition to nature-positive food production.



Climate-positive

Reducing greenhouse gas emissions, such as carbon, nitrous oxide, and methane, is an immediate and lasting climate solution. Climate-smart agricultural practices are well within our reach, particularly for industrial-scale meat and dairy production which is responsible for the bulk of the world's food production emissions.

Producers can also protect and enhance soil carbon stores in agricultural landscapes by retaining crop residues, using cover crops and minimum tillage, and rotational pasture management. On longer time scales, evidence suggests that these practices can be effective in creating new carbon sinks. Retaining on-farm native vegetation and protecting natural areas, through reduced pressure for agricultural expansion, are the most impactful ways for nature-positive practices to help mitigate climate change.

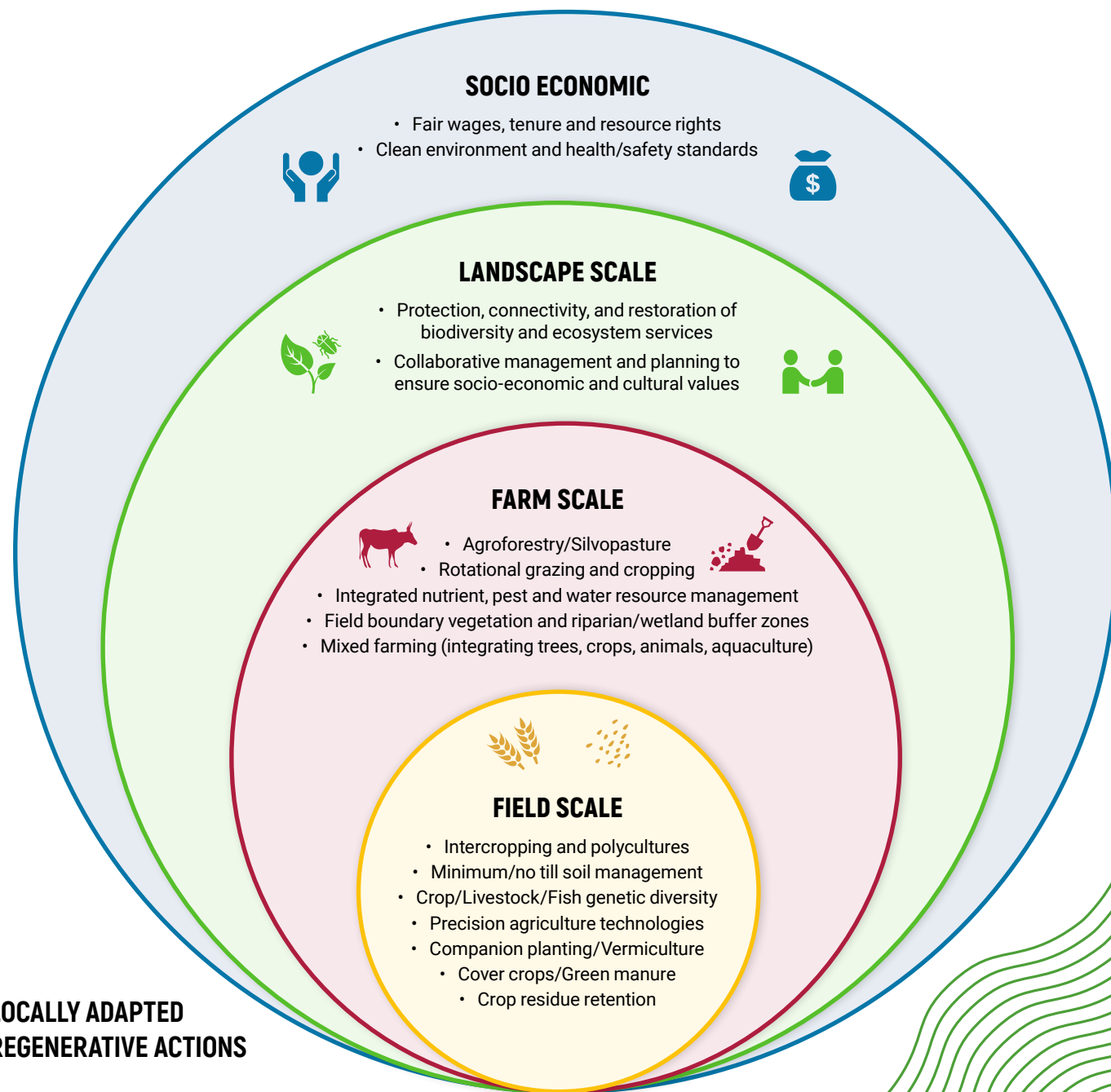
Enhancing synergies and managing tradeoffs

Food production must be safe and economical for both producers and consumers and not compromise the needs and aspirations of future generations. Furthermore, it must be inclusive, engaging and empowering for all food producers, especially women, youth, and other disenfranchised groups.

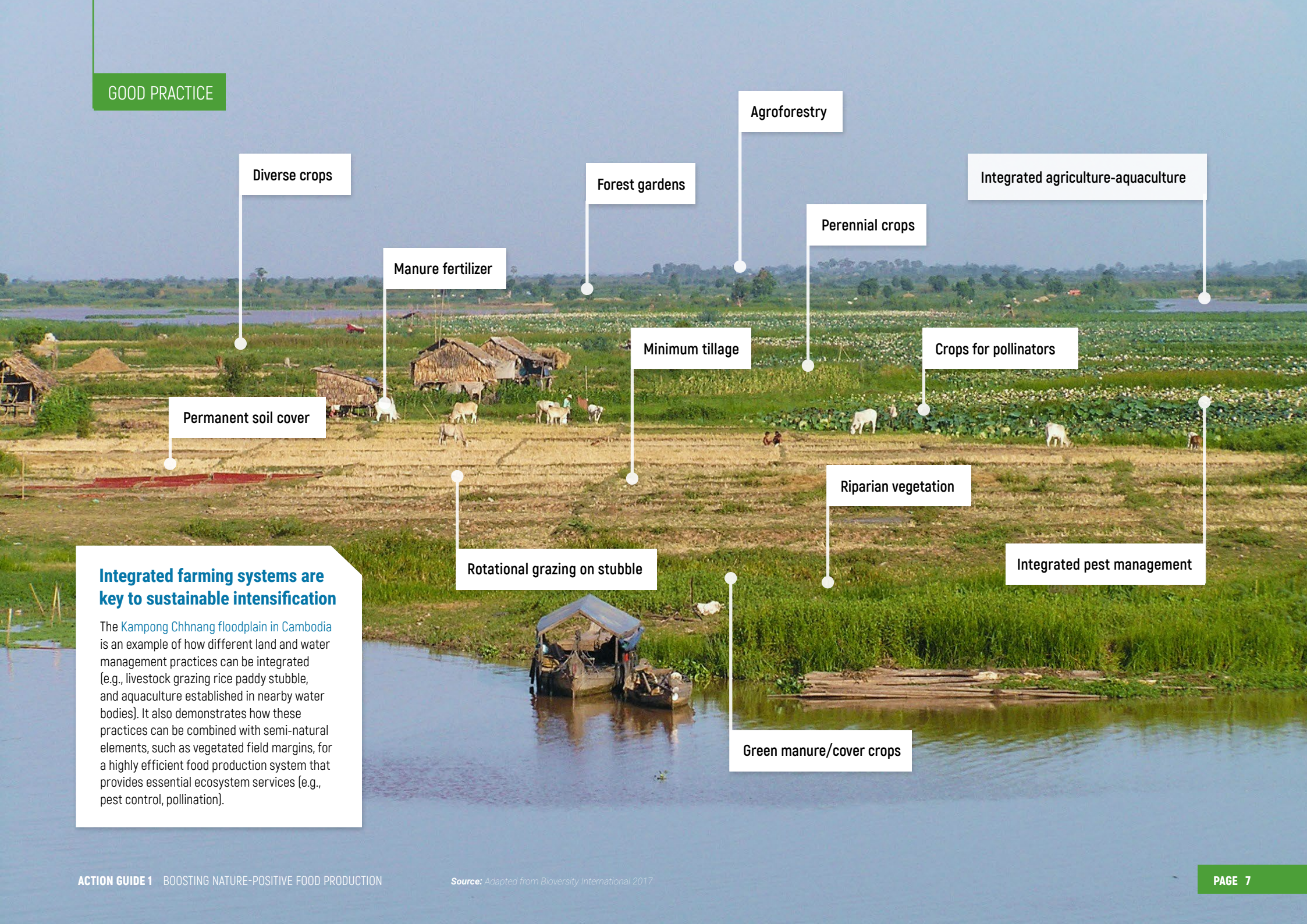
Decent jobs and stable livelihoods, safe working conditions, secure tenure, equitable access to resources and benefits, and animal welfare are all part of the business model for nature-positive food production.

An agroecological approach promotes locally adapted regenerative actions that enable synergies from the field to landscape scales. These include socio-economic factors needed to remove lock-ins and provide an enabling environment where rights and rewards can help manage tradeoffs and incentivize nature-positive changes in farm management practices. This in turn promotes healthier interactions between people, climate, and nature.

LOCALLY ADAPTED REGENERATIVE ACTIONS



GOOD PRACTICE



Diverse crops

Forest gardens

Agroforestry

Integrated agriculture-aquaculture

Manure fertilizer

Perennial crops

Permanent soil cover

Minimum tillage

Crops for pollinators

Rotational grazing on stubble

Riparian vegetation

Integrated pest management

Green manure/cover crops

Integrated farming systems are key to sustainable intensification

The Kampong Chhnang floodplain in Cambodia is an example of how different land and water management practices can be integrated (e.g., livestock grazing rice paddy stubble, and aquaculture established in nearby water bodies). It also demonstrates how these practices can be combined with semi-natural elements, such as vegetated field margins, for a highly efficient food production system that provides essential ecosystem services (e.g., pest control, pollination).



Empowering smallholders

The livelihoods of both small- and large-scale farmers, pastoralists, and fishers depend on healthy and resilient land and water resources. Nature-positive practices are particularly well suited to small-scale producers who typically use labor-intensive cultivation and harvesting practices. In many parts of the world, these producers are key providers of local diets, contributing to food and nutrition security.

Supporting and investing in smallholders is a highly effective means to scaling up nature-positive food production as:

50%

of food producers are smallholders, working on less than 2 hectares of land

Source: Lowder, S.K. et al., 2016. The number, size, and distribution of farms, smallholder farms, and family farms worldwide. World Development, 87, 16–29.

500 million

smallholders produce 80% of the food in developing countries

Source: International Fund for Agricultural Development, 2013. Smallholders, food security, and the environment, Rome.

29%

of small farms have already shifted to more sustainable practices, accounting for 9% of global agricultural land

Source: Pretty, J. et al., 2018. Global assessment of agricultural system redesign for sustainable intensification. Nature Sustainability, 1, 441–446.

Aligning small-scale production to local and regional demand for diverse, nutritious foods reduces the pressure to convert natural ecosystems to agriculture. Not only will this help avoid displacing indigenous and local communities, but it will also help reduce the risk of emerging zoonotic diseases.

Empowering smallholders also supports and expands their role as agents of change. Secure tenure and access to technology, credit and markets is seen as essential for promoting innovation and increasing investments that help scale up nature-positive food production.



We can produce more with less

Regenerative and agroecological approaches offer evidence-based strategies and cost-effective practices.

They promote greater resource use efficiency, helping to conserve biodiversity and ecosystem services.

They often generate higher total farm yields and nutritional values when compared to many high-input, resource-intensive monoculture systems.

Greater resource use efficiency – Combining multiple species, such as in intercropping with trees, fish and rice systems, and integrated livestock production, better utilizes natural resources and enhances the ecological functions that contribute to improved productivity.

Higher total farm yields – Total yields per unit area across multiple interacting crop and animal species are often greater than for monocultures. In addition to higher yields, mixed-species production offers greater food diversity and nutrition, leading to healthier diets and more resilient farms.

Lower input costs – The reduced use of external inputs, such as agrochemicals and heavy machinery, provide cost savings and significantly reduce the negative human and environmental impacts of food production, such as groundwater pollution, soil compaction and erosion.

Improved public goods – Nature-positive food production provides multiple benefits to wider society (i.e., public goods), such as enhanced biodiversity, reduced greenhouse gas emissions, and drought and flood mitigation. Rewarding food producers to maintain and enhance these public goods offers additional revenue streams.



United Nations
Convention to Combat
Desertification

Get involved