



Learning how Indigenous Peoples' food systems support people and landscapes to thrive

A synthesis of thirty stories from Karen Peoples of Northern Thailand, Garo People, Karbi People and Khasi People of Northeast India and the Ogiek Peoples of Kenya.

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1. Introduction

The Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) Global Assessment showed at least a quarter of the global land area is traditionally stewarded by Indigenous Peoples (IPBES, 2019; Garnett et al, 2018). The need to recognise and respect the central role of Indigenous Peoples in nurturing a healthy planet was well articulated in the 2021 Territories of Life Report (ICCA Consortium, 2021). The case for supporting Indigenous Peoples to secure land access and self-determine their own governance systems to halt biodiversity loss and adapt to climate change is also building. The contributions of Indigenous Peoples have been acknowledged in article 8 of the Convention on Biological Diversity (Convention on Biological Diversity, 2023), the Intergovernmental Panel on Climate Change (IPCC) working group III sixth's assessment report (IPCC, 2022; IWGIA, 2023), the 2021 UN Food Systems Summit (UN Food Systems Summit, 2021), strategic plans for biodiversity (Forest Peoples Programme, 2020) and national climate action and adaptation plans (NDCs and NAPs) under the Paris Agreement (UNFCCC, 2022). Collectively, these steps send a strong signal that lots can be learned from bringing Indigenous Peoples' food systems into conversation with western modernity's response to the current polycrisis (FAO, 2021; Kimmerer and Artelle, 2024).

The sixth assessment report of the IPCC encouraged the scientific community to expand the scientific knowledge base on climate change (UNFCCC, 2023). However, the expansion of scientific knowledge may not be a simple case of doing more research. There is growing acceptance within some corners of academia that we cannot expand our knowledge systems without paying attention to inner dimensions and capacities across individual, collective and system levels (Elin et al, 2023; Inner Development Goals, 2021; Ives et al, 2023; Chambers, 2017). Our ways of being and relating steward the way we do science and the way we make policy (Ives et al, 2023; Andreotti et al., 2019). But the influence of these inner dimensions on what we do and how we do it is difficult to see by actors socialised in western modernity (Stein et al, 2020; Wamsler and Bristow, 2022).

In response to this challenge, collectives of researchers, educators, practitioners¹ are calling for a different approach: one that builds capacities to re-examine the foundations of our worldview and self-view especially in western modernity (Tănăsescu, 2023; Andreotti et al, 2021; Machado de Oliveira, 2021, Bendell, 2021). In the policy arena researchers call for greater understanding among decision-makers and the general public about how worldviews and self-views are driving the climate crisis, as well as being the answer to it (Wamsler and Bristow, 2022).

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¹We continue to learn from [Decolonial Futures](#), [Center for Ecozoic Studies](#), [Ecoversities](#), [Global Tapestry of Alternatives](#), [The Conscious Food Systems Alliance](#), [Selvagem](#), [La Via Campesina](#), [RIVER](#), [Work That Reconnects Network](#), and the [Commonverse](#).

1.1 About TIP's storytelling project

In 2022, The Indigenous Partnership for Agrobiodiversity and Food Sovereignty (TIP) undertook a project titled *Demonstrating that People and Landscapes Thrive under Indigenous Peoples' Food Systems*, funded by The Rockefeller Foundation and in collaboration with field partners in Thailand (Pgakenyaw Association for Sustainable Development), India (Northeast Society for Agroecology Support), Kenya (Ogiek Peoples' Development Programme) and Mexico (Glocal Bej Universidad Intercultural Maya de Quintana Roo). These partners work with and represent the Karen Peoples, and Khasi, Karbi and Garo Peoples, Ogiek Peoples and Yucatec Maya Peoples respectively, who reside in areas of high bio-cultural diversity and represent a plurality of food systems and practices. The project aimed to generate evidence on the agroecological performance of Indigenous Peoples' food systems, responding to growing calls for a more robust evidence base on the contributions of such systems to sustainable food system transitions.

The project used two methods. The first was an adapted version of FAO's Tool for Agroecological Performance Evaluation (TAPE; FAO, 2019), which takes a multidimensional approach to assess transitions towards more sustainable food systems. The tool allowed the TIP project to make assessments of Indigenous Peoples' food systems, based on outcomes of food systems (e.g., resilience) and some of the patterns and structures (e.g., governance) that influence observed agroecology practices. The TIP project complemented the use of the TAPE tool with participatory storytelling to generate a deeper understanding of agroecological food systems, including the paradigms of thought, worldviews, and values systems that underpin structures, practices and outcomes within Indigenous Peoples' landscapes. It set out to answer this research question:

When, how, why, in what ways do Indigenous Peoples' food systems support people and landscapes to thrive?

This storytelling component of the TIP project presented a unique opportunity. By listening to Indigenous Peoples' stories about their food systems, the project travelled beyond the world views and values systems most frequently reproduced in western modernity into diverse bioregions, cultures and ways of being and co-existing. The evidence it generated is both a celebration of Indigenous science and a demonstration that the outcomes of food systems are contingent on the world views we bring to their design and practice.

1.2 About this report

This report synthesises what the storytelling component of the TIP project learned about the nature of Indigenous Peoples' food systems. It is informed by thirty stories told by Karen Peoples of Northern Thailand, Garo, Karbi and Khasi Peoples of Northeast India and Ogiek Peoples of Kenya. The report articulates characteristics common to the Indigenous Peoples' food systems studied, articulating community and cross-country analysis on the linkages between outcomes, agroecology practices and the values systems and worldviews that underpin them. This report looks across the rich and detailed evidence depicted in the stories to draw analytical conclusions about when, how, why and in what ways Indigenous Peoples' food systems support people and landscapes to thrive.

Section 2 summarises seven key findings before exploring each finding in more detail. The report links off to stories that support each finding, showing how the bigger narratives we co-created about Indigenous Peoples' food systems are uniquely expressed by Karen Peoples of Northern Thailand, Garo, Karbi and Khasi Peoples of Northeast India and Ogiek Peoples of Kenya. This section is particularly relevant to organisations and governments seeking evidence on the value of supporting indigenous food systems through funding, policy and legal frameworks. Many of the stories were told orally and our partner organisations who work with communities are keen to attract funding to convert the stories into written artefacts that preserve local language and culture.

Section 3 brings the key findings from our synthesis of the stories in conversation with western modernity and anthropological worldviews. We pay particular attention to aspects of the findings that extend, challenge, deepen and disrupt dominant conceptualisations of food, economy and governance in western modernity. In the spirit of co-inquiry, we pose questions we can organise around in our collective efforts. This section will be of interest to support agencies, organisations and networks birthed by western modernity whose mission is to promote agroecology and regenerative food systems that are in service of all life. We are keen to attract funding to host a dialogue series around the stories and the questions which promotes deep engagement with the challenges of our times.

The methodology used to derive these findings is explained in detail in the Methodological Report of the project [Agroecology Assessment Report of Indigenous Peoples' food system](#) (TIP, forthcoming). Results of TAPE assessments for each country context are also available. Given that this report is in English, and summative in its nature, we recommend visiting the TIP website to read the [stories](#). They are instructive and dramatic, each with their wisdom to share.

2. Key Findings

There are seven key findings derived from the the storytelling which provided valuable insights into the Indigenous Peoples' food systems. These are summarised below:

1 Food systems are rooted in the locality and the peoples

Indigenous Peoples have a deep and intimate knowledge of the locality, the landscape and the identities of the species and living systems that inhabit it. Attention to ecological dynamics and rhythms supports Indigenous Peoples to co-evolve food and medicinal systems that create mutually beneficial synergies with an ecosystem and between sub-systems. The human-environment relationships integral to Indigenous Peoples' food systems co-evolve with spiritual and cultural connections to the land. Through ceremony, ritual, festivals, education, and storytelling, the symbolic, sacred and social dimensions of local life reinforce a worldview that sees humanity as an integral, everyday participant in the protection and promotion of biodiversity.

2. Food systems are biocentric, designed for all life

All living beings and systems are valued throughout the process of food production in the Indigenous Peoples' food systems studied. Many of the stories celebrate humans who respect nature's gifts and pursue the common good. The stories make the link between these values and food systems that are resilient to changing environmental and social circumstances. The stories caution against humans playing an over-sized role which does not allow the diversity of elemental forces, species (plant, animal, human) and services (shelter, food, habitat) to play a role in the functioning of the ecosystem. Humans should see themselves as members and humble participants of an interconnected whole.

3. Food systems are inter-species collectives

Indigenous Peoples' stories teach that food systems are relational beings comprising humans, animals, plants, land, sacred elements (e.g., water, fire) acting in conversation with each other. Food cultivation is rarely depicted as an activity that human beings do alone. It is much more common for women and men to be described as one interacting partner in a collaborative effort spanning generations, species, and different scales of the system. Therefore, Indigenous Peoples present an expanded view of connection, collectivity and commons which informs complex governance systems that encourage human beings to give Mother Earth space to regenerate herself.

4. Food systems are co-evolved slowly, blending traditional and new

Indigenous Peoples' stories teach the power of traditional wisdom for stewarding food cultivation as well as the power of adaptability and innovation for specific challenges, including food scarcity. Indigenous Peoples' Knowledge is not static; it evolves as climatic conditions and landscapes evolve. Evolutions come about through experiential learning in a context where failure has real-life consequences. The stakes are high, so the bar for adaptation and innovation is equally high, requiring that any changes support all life to flourish as well as promote sufficiency and self-reliance of humans. The stories celebrate the role of proven and trusted wisdom holders, the power of lived experience in decision-making and localised experimentation, warning against naïve adoption of easy solutions, which create problems for other living systems.

5. Food systems value sufficiency, sharing and self-reliance

A sufficiency mindset helps to promote sharing and self-reliance. In many of the stories it is the loving sharing of resources – with other people and with other living beings and systems – that creates nutritious foods and sustainable yields. Sufficiency is not inefficient; it ensures that everything and everyone gets to thrive. Ceremonies and cultural traditions sustain a sacred and symbolic connection to different food varieties, which, when enveloped by a sufficiency mindset, promote smaller, diverse yields over larger, less diverse yields. This approach to food cultivation is shown in the stories to support a rich diverse ecosystem. In turn, the health of the ecosystem underpins healthy diets and protection against crop failure, which is what characterises self-reliant food systems. The commodification of food disrupts the delicate interdependence between sufficiency, sharing and self-reliance, which only leads to precarity for protagonists in the stories.

6. Food systems are supported by reciprocal governance and knowledge management practices

Indigenous Peoples live as part of earth not just on it and from it. Ethical stewardship and governance are considered inseparable. Locally this is often expressed as “sharing and caring”. The prevalence of sharing and caring in Indigenous Peoples’ food systems is underpinned by a complex interplay of rules, norms, customs and taboos that steward collaborative food cultivation and hunting practices towards reciprocity and away from exploitation of people, species and ecosystem services. Indigenous governance systems, while entwined in local cultures, often have values in common, including relational liberty, sufficiency over increased consumption, self-reliance over market-reliance, non-market forms of solidarity and circularity, responsiveness to need, hard work and virtuosity.

7. Resilience grows from respecting and nurturing nature, not saving it

In the Indigenous Peoples’ stories collected, resilience emerges from the interaction of autonomous species and living systems working together. Humans are celebrated when they respect the health of the whole and do not take too much. When protagonists transgress nature’s boundaries they live with the consequences. But the links between respect and resilience run deeper than avoiding food systems collapse in the stories. When protagonists respect and nurture living entities through their food cultivation and hunting practices, they promote nature’s capacity to look after its own health. In an Indigenous modality, humans become important participants in the co-design of food systems that are in service of all life. Once humans have become integral to the whole, their removal from land and ecosystems can have unintended consequences, especially to biodiversity and ecosystem stewardship.

2.1 Key Finding 1: Food systems are rooted in the locality and the people

Indigenous Peoples have a deep and intimate knowledge of the locality, the landscape and the identities of the species and living systems that inhabit it. Attention to ecological dynamics and rhythms supports Indigenous Peoples to co-evolve food and medicinal systems that create mutually beneficial synergies with an ecosystem and between sub-systems. The human-environment relationships integral to Indigenous Peoples' food systems co-evolve with spiritual and cultural connections to the land. Through ceremony, ritual, festivals, education, and storytelling the symbolic, sacred and social dimensions of local life reinforce a worldview that sees humanity as an integral, everyday participant in the protection and promotion of biodiversity.

The story collection illustrates how Karen, Khasi, Garo and Ogiek Peoples see humans as responsible for ensuring that landscapes and biodiversity thrive in their presence. For example, in the Ogiek story of [Ogiek Ecological Zones](#), deep knowledge of the land's needs and services informs local governance decisions about land use and food cultivation. Consideration of cultural and religious activities in the Ogiek Peoples' decision to settle in Tuimasat illustrates the importance of connecting human endeavours to the features of the land.

A sense of responsibility to the land is paired with a deep understanding of the interconnectedness of the ecosystems in which humans are embedded. In the Ogiek Peoples story, [The Hare and the Elephant](#), the synergistic effects of intercropping maize and beans are illustrated. The Garo story, [Weeding in Jhum Fields Us](#), shows how weeds and bamboo can be used to more efficiently and effectively cultivate sweet potato. The story, [Introduction of Pumpkin in Ogiek Territory](#), illustrates how the cultivation of a food that is well suited to the local climate requires minimal input beyond natural processes of seed dispersal and germination.

Deep and intimate knowledge of a locality also enables Indigenous Peoples to use the natural world as a guide and teacher. Farmers and Traditional Knowledge holders of the Khasi Peoples share how they read signs from nature in the story, [Natural Cues For Time Keeping And Weather Forecasting](#). The story reveals the myriad conversations that they have with natural systems to make agroecological decisions. In [Phu Maw Taw](#), a Karen story about rotational farming, the behaviour of different animals is recounted in some detail, as is the use of local knowledge, wisdom and culture to solve problems.

The collection of stories also speaks to the power of intimate knowledge of a locality to protect biodiversity. When foods, grains, animals, seeds, herbs and natural medicines feature in cultural and spiritual ceremonies and sowing and harvest rituals, the biodiversity of the local area is being celebrated. The Garo Peoples' story, [Discovery of Wanchi- Traditional Yeast](#), describes *wanchi* as a sacred ingredient. Its discovery in fermentation processes led to the incorporation of a wide variety of natural elements to enhance the flavour and nutritional complexity of rice beer, which also promoted biodiversity. As the practice of brewing rice beer is declining, humans are participating less in the everyday conversation between diverse terrestrial and aquatic life forms. Without a revival of cultural heritage, the worry is that biodiversity will be lost.

2.2 Key Finding 2: Food systems are bio-centric, designed for all life

All living beings and systems are valued throughout the process of food production in the Indigenous Peoples' food systems studied. Many of the stories celebrate humans who respect nature's gifts and pursue the common good. The stories make the link between these values and food systems that are resilient to changing environmental and social circumstances. The stories caution against humans playing an over-sized role which does not allow the diversity of elemental forces, species (plant, animal, human) and services (shelter, food, habitat) to play a role in the functioning of the ecosystem. Humans should see themselves as members and humble participants of an interconnected whole.

The relationship between biodiversity, ecosystem health and human wellbeing is a common thread in the story collection. In stories about childbirth from Khasi and Ogiek Peoples this relationship is presented as a deep bond, with ceremonies that give placentas back to the land and sacred baths infused with forest energies for infants. In stories about growing food human beings do well when their food systems are designed from synergistic relationships, mimicking how life organises itself.

The Karen story, [Miss Red Eye Frog and Miss Deer](#), celebrates the diversity and nature of all the plants and animals who are part of a rotational farming system (e.g., green squash, sesame, wild banana, wild chicken, cobra, wild pig). When things become out of balance (in the story, this occurs when labour exchange practices are abused), harmonious relationships between species quickly unravel, with disruptive and even deadly consequences. The story collection foregrounds biodiverse interdependencies between species and services within an ecosystem. In the [Origin of the Khasi – The Hynniewtrep Hynniew skum \(Seven Clans\)](#) story, cooperation between different entities is frequently cited as the way to overcome challenges and achieve common goals. The elemental forces worked together to transform the world into a vibrant and abundant place.

And human beings interact collaboratively with nature to contribute to the health of earth's ecosystem. Sub-systems, including food systems, are encouraged to co-exist within the overall system. This is why the story [Turot: The Ogiek Hunting practices](#) emphasises how hunters take careful measures to avoid the killing of pregnant mammals or their young.

In a bio-centric worldview, natural systems are considered inherently wise. In [Life in Trees](#), an Ogiek man seeks comfort, stewardship and practical help from a tree across the course of his life. The tree is a central figure in the story providing a multitude of ecosystem services including shelter, food and habitat. In the stories, a biocentric worldview is credited with providing resilience to changing environmental and social circumstances. For example, a rich variety of wild edibles and breeds is a feature of nutrient-rich Indigenous Peoples' food systems that sustain humans through droughts and other socio-ecological challenges.

2.3 Key Finding 3: Food systems are inter-species collectives

The Indigenous Peoples' stories teach that food systems are relational beings comprising humans, animals, plants, land, sacred elements (e.g., water, fire) acting in conversation with each other. Food cultivation is rarely depicted as an activity that human beings do alone. It is much more common for women and men to be described as one interacting partner in a collaborative effort spanning generations, species, and different scales of the system. Therefore, Indigenous Peoples present an expanded view of connection, collectivity and commons which informs complex governance systems that encourage human beings to give Mother Earth space to regenerate herself.

The authority of nature as a knowledge holder is celebrated in the story collection. Animals, plants and supernatural beings are often depicted as being wise, as having knowledge about food systems that humans can listen to and learn from. The Ogiek story, [Bribe for the Monkey](#), is about interdependence. After an initial altercation which is resolved by human kindness, a friendship blossoms. The hard-working mother and the monkey become a great team, roaming the forests together gathering food.

The story collection shows how sacred forests and totems are used to nurture life and mark a respectful frontier between the thriving of humans and the thriving of all other living beings in a locality. The human capacity to observe, listen and communicate with other living entities is linked to ecosystem health and food systems resilience in the stories. In the Khasi story, [Seed Dialogue](#), farmers maintain communication with seeds throughout sowing and harvest. Seeds are described as “part of the family, possessing life ... and believed to understand human words”. When seeds are shared with different clans, an exchange always takes place to prevent the seeds from feeling neglected by the household giving them away. Seeds that have been eaten by animals are called back by Elders at harvest time to respect the role of the seeds in future food security. These traditions are considered important for imbuing food practices with respect for the power of nature.

The human capacity to see humanity as one interacting member of an inter-species collective shifts responsibility and accountability in the stories. Human beings cannot conquer living systems, and neither can they fix natural processes. They can respect their talents alongside the talents of their co-collaborators, noticing how talents co-exist with responsibilities. In the Karen Peoples' story, [The Orphan and the Pond](#), the water-bailing system to catch fish has the ability to naturally recover itself provided that no more water resources are taken than are necessary for subsistence. Mutual respect creates the space for individuals to play their own part in maintaining the health of the whole. In [Phu Maw Taw](#) the success of a rotational farmer is linked to his love, patience, forgiveness and understanding of other beings. His experience leads to diligence and humility. But these capacities are not noticed by a greedy onlooker who tries to copy his success. In [The Beast Wedding](#) it is a trusting relationship between humans, birds and trees which explains the girl's survival and resilience.

2.4 Key Finding 4: Food systems co-evolve slowly, blending traditional and new

The Indigenous Peoples' stories teach the power of traditional wisdom for stewarding food cultivation as well as the power of adaptability and innovation for specific challenges, including food scarcity. Indigenous Peoples' Knowledge is not static; it evolves as climatic conditions and landscapes evolve. New knowledge and cultural evolutions come about through experiential learning in a context where failure has real-life consequences. The stories celebrate the role of proven and trusted wisdom holders, the power of lived experience in decision-making and localised experimentation, warning against naïve adoption of easy solutions. They reflect the conversation unfolding in Indigenous Peoples' communities about how to hold the traditional and the new in balance. When new practices have eroded soil health and degraded human health, the stories suggest the contribution of traditional wisdom is particularly valuable in offering solutions.

In our knowledge-rich world, greater value is placed on insight and wisdom than knowledge accumulation in the Indigenous Peoples stories collected. Wisdom is depicted as the application of knowledge to specific contexts with a careful, holistic and considered approach. In the Ogiek story, [The Discovery of Honey](#), the woman carefully observed the natural behaviour of bees before designing logs to make and store honey, which saved the family from drought. In the Karen story, [The Rice Spirit Bird](#), an orphan is able to use local knowledge about rotational farming to convert poor soil into rich soil. The qualities that the orphan displays are kindness, innovation, patience and respect for nature and the Rice Goddess. Rice fills his granary, even during "starving season".

In the [Origin of the Khasi – The Hynniewtrep Hynniew skum \(Seven Clans\)](#) story, wisdom about food cultivation has a moral underpinning, purposefully connecting decisions about the cultivation of crops and gathering of food to a deeper sense of what it means to be a Khasi and a human contributing to the health of Earth's ecosystems. The selection of caretakers for the Earth is told in great detail. While initial choices led to conflict and exploitation, the Seven Clans represent an important shift towards ethical leadership, participatory decision making, environmental stewardship, shared accountability and respect for cultural heritage. These decision-making principles are interwoven with Khasi value system "*Ka Tip Briew Tip Blei, Ka Tip Kur Tip Kha and Ka Kamai ia ka Hok*" (Acknowledge God and acknowledge Man, Know thy kin, Strive for righteousness) which highlight social cohesion, mutual aid, respect for nature and fairness and justice in the pursuit of the common good.

Elders, women, animals and spirits feature frequently in stories about the transfer of traditional knowledge and in stories about the stewardship of localised experimentation. In the story [Harmony of Nature: The Ogiek Journey through Pregnancy and Birth](#), it is the "gentle hands and knowing eyes" of the experienced herbalists who "understood the language of the forest" who are trusted to be guided by the wisdom of nature to select healing plants and craft remedies tailored to the specific needs of mother and child.

The stories also teach that it takes courage to slow down when faced with threats and/or new supposed opportunities. By taking a considered approach, which involves careful deliberation, the impact and consequences of decisions can be properly accounted for, and incorporated into decisions about the evolution of food systems. For example, the

Karen Peoples' story, [The Beast Wedding](#), warns against trusting in strangers who promise quick wins to food production, and advocates instead for the power of traditional, time-tested knowledge about what works. While an old story, the beast in the story is often interpreted as depicting chemical fertilisers and mechanised farming in contemporary narrations. In the Karen story, [Rice and Money](#), rice and money (as protagonists) argue about who better looks after people. After first trying money, which resulted in hungry children who could not stop crying, the villagers reverted to rice, distributing seeds so everyone has enough food to support themselves and their children. In [Naw Pha Do](#), another Karen story, the king, who had been sitting above the town people, gets down from his high seat to sit on the ground. Upon eating the kind of rice planted on rotational farms and feeling his hunger stop, he understands why the farmers had been reluctant to give up rotational farming the same way their ancestors had done. The Karen Peoples stories celebrate the power of discerning whether a solution today will create problems for tomorrow. Instead of short-termism, people turn to spirits and nature for help to withstand hardship and come up with new ideas.

2.5 Key Finding 5: Food systems value sufficiency, sharing and self-reliance

A sufficiency mindset helps to promote sharing and self-reliance. In many of the stories it is the loving sharing of resources – with other people and with other living beings and systems – that creates nutritious foods and sustainable yields. Sufficiency is not inefficient; it ensures everything gets to thrive. Ceremonies and cultural traditions sustain a sacred and symbolic connection to different food varieties, which, when enveloped by a sufficiency mindset, promote smaller, diverse yields over larger, less diverse yields. This approach to food cultivation is shown in the stories to support a rich diverse ecosystem, and the health of the ecosystem underpins healthy diets and protection against crop failure, which is what characterises self-reliant food systems. If farming and hunting practices are altered in the commodification of food, the interdependence between sufficiency, sharing and self-reliance is disrupted. The disruption of this relationship is dangerous and puts the protagonists in the stories in precarious positions.

The dependency of successful food systems on a sufficiency mindset is a common thread of the stories. The Karen story, [Rice and Money](#), narrates the relationship between birds, humans, rice and money. The lesson is clear: if you value money more than food then you are always at risk of being hungry. Money can get you food, but without food your money means nothing. So, the sale of food to derive monetary savings is linked to precarity in the socio-ecological system as everything gets out of balance. In contrast, the sharing of food surpluses and the storage of food is linked to immediate self-reliance and future resilience.

These lessons are echoed in the Ogiek stories about respectful hunting practices ([Turot: The Ogiek Hunting practices](#)), seed sharing ([Introduction of Pumpkin in Ogiek Territory](#)), food storage and preservation ([The Brave Man](#)). In all the food systems that the project studied, humans were valued when they took only what was needed, shared what was surplus and prepared for future challenges, most commonly drought. This sufficiency mindset is embedded from a young age. For example, the Khasi story [Placenta and Umbilical Cord Ceremony](#) describes how the placing of the placenta and umbilical cord on the tops of trees roots a newborn baby into its home. The ceremony

celebrates humans as part of the natural world and begins a human life with the act of giving to nature. The valuing of sufficiency is brought to life by sharing practices at every stage of the food production cycle, including seed keeping, soil improvement, pest management and food storage. The sharing of knowledge and labour are often turning points in Indigenous Peoples' stories about food systems. In the Ogiek story, [The Hare and the Elephant](#) , the hare asks for help and the elephant shares the practices that have supported his high yields. At the end of the story, both the elephant and the hare have enough food to eat. In the story, [Types of Labour Exchange](#), the Khasi Peoples explain how knowledge exchange on agriculture is not just a practice but a way of life. In an outlook that foregrounds sufficiency, wisdom is collectively generated and collectively enriching.

Food is considered more valuable than money because it is part of a system that nurtures the environmental, social and cultural fabric of society. In many of the stories, food is love. It is how nature expresses its love to humanity and how humanity expresses its love of others.

The Karen story, [The Mother Fish](#) , demonstrates different kinds of love, between the mother and her children, brotherly love, between the husband and wife and between human beings and nature. Love is expressed through food sharing and caring, including between humans and nature.

As species who have capabilities to grow and hunt food, human beings have a particular set of responsibilities and accountabilities to other living systems. In the Khasi story, Seed Dialogue , the consumption of seeds by birds, rodents and animals is not stopped. Instead, a request is made for the seeds to return “to fill the baskets once more”. This is intended to illustrate the value of sharing and caring with the land and with nature. The story teaches that agriculture is not just about taking from the land but also about giving back and nurturing the relationship human beings have with the natural world. In the Khasi story, Folk Hunting Traditions, a sufficiency mindset manifests itself in customary hunting practices to protect rotational farming systems. The intention of the hunt must be pure and the hunters must stay focused. The hunters are strictly prohibited from picking or consuming any fruits or crops they see in the fields or surroundings. The act of stealing places the hunters in peril because it empowers the bear who steals millet, maize and cucumber from them.

2.6 Key finding 6 - Food systems are supported by reciprocal governance systems

Indigenous Peoples live as part of earth not just on it and from it. Ethical stewardship and governance are considered inseparable. Locally this is often expressed as sharing and caring. The prevalence of sharing and caring in Indigenous Peoples' food systems is underpinned by a complex interplay of rules, norms, customs and taboos that steward collaborative food cultivation and hunting practices away from exploitation of people, species and ecosystem services. Customary governance systems, while entwined in local cultures, have values in common, including sufficiency over increased consumption, self-reliance over market-reliance, non-market forms of solidarity and circularity (sharing and caring), mutual responsibility, social justice, co-operation, hard work, trust, honesty and virtuosity.

Shifting cultivation and weeding systems are built on the reciprocal sharing of time, energy and expertise. Labour exchange systems are complex and adapted to the number of members, the clans involved, and the stage of the food cultivation process. In the Karbi and Garo story, *Weeding in Jhum Fields*, a collaborative approach including women and children collecting weeds for mulch allows for all wastes to be reused. This increases flavour and nutritional value of the crops grown, minimises reliance from external inputs and generates self-sufficiency. These outcomes explain why the collaborative efforts of traditional weeding practices are preferred over the adoption of chemical fertiliser to this day.

In the Khasi story, [Types of Labour Exchange](#), the system is described as depending on high levels of trust and honesty. Direct labour exchanges do not rely on formalities or external oversight. In other cases, people offer tokens of gratitude (e.g., a meal, grains, rice husks) to reciprocate offers of labour. Solidarity, empathy and a collaborative spirit are the cornerstone of these reciprocal exchanges in close-knit communities. When different communities support one another, mandatory participation creates norms about attendance so that the system remains fair.

The Indigenous Peoples' stories reveal how reciprocal systems depend on customary rules – formal and informal as well as complementary value systems that produce and reproduce the conditions for reciprocal exchange. For example, reciprocity is easier in food systems that value sufficiency and in food systems that value community self-reliance over market-reliance. Reciprocity is also made easier in food systems that promote non-market forms of solidarity and circularity through celebration of caring behaviour towards people and other species (see Finding 5 on knowledge sharing).

An ethic of care is expressed as a way of being and belonging in folktales from Karen Peoples in Thailand. In these stories, characters meet their demise when they disrespect other living beings in the pursuit of food cultivation. Floods and death mark the tragedies that result in imbalance and disharmony. In the Karen story, [The Orphan and The Bird](#), the bird defecates silver in response to the orphan's care of the bird. When a corrupt king captures the bird, it turns into a giant and soon after the country was flooded. Only the orphan and his grandmother survive. In the story, [Miss Red Eye Frog and Miss Deer](#), the frog treats a fellow farmer (the deer) with disrespect when the deer comes to help on the frog's farm. The story elaborates on the runaway ecological effects that follow as a result of such mistreatment.

Food systems resilience is conceptually linked to mutual responsibility, social justice, cooperation in the stories. In the Khasi story, [Relationship of Fire with Man and the Use of Fire](#), the practice of controlled burning is described as a “practice of shared responsibility” and “of unity in safeguarding our natural surroundings”. In Khasi stories, success is understood to follow hard work within a supportive relational context. No one can manage a shifting cultivation farming system alone.

The rooting of reciprocal governance systems in an ethic of care gives customary norms gravitas. Even as formal and informal rules evolve around innovations in food practices, they evolve around a moral thread. This is evident in stories that make an explicit causal link between good intentions and success, between virtuous process and healthy yields. In Karen stories, [Naw Pha Do](#) and [Banana Blossoms](#), orphans are protected by spirits

and rewarded for their virtuosity and for doing the right thing, while kings and misguided parents are punished for mistreating them. In the Ogiek story, [Sacrifice for the Rains](#), the villagers realise that it is the purity of human intention and the power of community unity that brought the rains. This realisation leads to the generation of new governance systems to use water wisely, prioritise the planting of native seeds, protect and conserve the forest and employ traditional methods that have been practised for centuries.

2.7 Key finding 7 – Resilience grows from respecting and nurturing nature, not saving it

In the Indigenous Peoples’ stories, resilience emerges from the interaction of autonomous species and living systems working together. Humans are celebrated when they respect the health of the whole and do not take too much. When protagonists transgress nature’s boundaries, they live with the consequences. But the links between respect and resilience run deeper than avoiding food systems collapse in the stories. When protagonists respect and nurture living entities through their food cultivation and hunting practices, they build nature’s capacity to look after its own health. In an Indigenous modality, humans become important participants in the co-design of food systems that are in service of all life. When humans are integral to the whole, their removal from land and ecosystems can have unintended consequences, especially to biodiversity and ecosystem stewardship.

Resilience is not often a term used in Indigenous Peoples’ stories about their food systems. However it was an organising principle of our analysis of the stories. The linking of resilience to Indigenous Peoples’ practices and worldviews surfaced a relationship between the reverence of nature depicted in stories, the health of natural ecosystems and human intervention. When human involvement is largely focused on respecting and nurturing, then space is created for nature to serve itself. When individual entities are not over-exploited, they can look after themselves and contribute to the health of the whole. This contribution then reduces the level of intervention required of humans.

In [Relationship Of Fire With Man And The Use Of Fire](#) the Khasi community write: “We regard “*mei ram-ew*,” our mother earth, as a living entity with the capacity to rejuvenate itself. Like a living being, it can teem with a multitude of life forms. To honour this innate vitality, we deliberately allow our fallow lands to regenerate”. The story describes how fire is a force for renewal, not destruction, when it is part of a sacred dialogue between humans and fire where humans make respectful requests of the fire. The conversation continues through the burning process to ensure the fire keeps its promise while humans protect other living systems from fire. While the community invests in the selection of fire guardians and in the complex social checks and balances to ensure its ethical and safe use, the use of fire reduces human effort and involvement in other ways. For example, fire helps with governance, demarcating boundaries between communal and private land and it catalyses a nutrient rich environment and the regeneration of various plant species.

In the Ogiek story, [Life in Trees](#), community resilience is linked with the mutual support between man and tree. The tree offers resources in times of need and the man reciprocates by caring for the tree and the environment. In many of the Ogiek stories and rewarded for their virtuosity and for doing the right thing, while kings and misguided parents are punished for mistreating them.

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In the Ogiek story, [Life in Trees](#), community resilience is linked with the mutual support between man and tree. The tree offers resources in times of need and the man reciprocates by caring for the tree and the environment. In many of the Ogiek stories

including [Harmony of Nature: The Ogiek Journey through Pregnancy and Birth](#) and [The Discovery of Honey](#), it is appreciation and respect of different plants, elements, spirits and animals interacting which is linked to human health and resilience. By being able to appreciate how life organises itself, Indigenous Peoples are able to mimic natural processes that provide roles to other living entities in the design of their food systems, which sustains humans and other living systems. In [Ogiek Ecological Zones](#), it is the landscape and its features which shape decisions about food cultivation and land use. The division of tasks between men (hunting) and women (water collection) makes visible the contributions of different actors, with some roles fulfilled by both men and women including the preparation of honey and the collection of herbal medicine. This appreciation of the individual as a participating member of a much larger collective effort extends across species.

In the Karbi peoples story [Arnām A Bari \(Garden of God\) and Shad Domahi \(The “Domahi” Dance\)](#), one member from every household gathers at a plot designated as the sacred garden in the ritual Arnām A Bari. Divine blessings are made to deities, followed by joyous dances, before members of the community are granted permission to commence the sowing of crops. In the Shad Domahi ritual, cows are bathed and blessed with water as “a gesture of gratitude for their indispensable role in supporting mankind through food and labour”. These rituals, along with others that practise reverence for crops like rice, millet and maize are reenacted seasonally to underscore the importance of human belonging and nurturing of a healthy inter-species collective.

In an Indigenous modality, therefore, humans are integral to the health of the whole. Not as a saviour but as a humble participant.

3. Reflections and Recommendations

This section brings what we learned from the Indigenous Peoples' stories to western modernity. Reflections are offered on Indigenous Peoples' worldviews and values systems that gesture towards a different way of thinking about food security, food cultivation, biodiversity and climate change. Accompanying recommendations are posed as introductory questions to prompt inward reflection about the roles that we each play as individuals and co-contributors.

The reflections and recommendations are intended to be most useful to support agencies, organisations and networks seeking to promote agroecology and regenerative food systems that are in service of all life. By bringing Indigenous Peoples' worldviews into conversation with the worldviews of western modernity, we hope that new possibility spaces emerge to compost, recalibrate and regenerate the questions that will build the collective intelligence for agroecological transitions conducive to all life.

Related to Key finding 1 - Food systems rooted in the locality and the peoples

What examples does humanity have of bioregional, national and global policies working in respectful and reciprocal relationships with local environments, their living systems, cultures and sacred relationships?

So much of global and national food policy happens at a level of governance which is disconnected from the particularities of a locality. This results in homogenised, one-size-fits-all policies that are wrongly assumed to apply to diverse landscapes, microclimates and species profiles. Indigenous Peoples' food systems are a counterpoint to this approach. Indigenous Peoples see themselves as accountable first and foremost to their localities, and all the living systems that call that locality home. This worldview explains the value of local knowledge holders and the importance of distributed decision-making in food production and cultivation. This has implications for the ways that agencies, organisations and networks relate to the local.

Related to Key finding 2 - Food systems are biodiversity-centric, designed for all life

How might a biocentric worldview change how food policy and practices are formed?

In an anthropocentric worldview, policies on food develop around humanity's needs for livelihoods and desires for prosperity. The life frame is the human. Even in our most advanced conceptualisations of regenerative food systems, articulations in western cultures tend to centre the human. Assessing the success of a food cultivation practice is accordingly bound to the human sphere. The Indigenous Peoples' stories present another way of achieving food and financial security for humans. They suggest that our life frame should be bio-centric, because when food systems support dense webs of synergistic relationships, they support the health of the whole. Being bio-centric also helps humans to avoid exploitative practices, which only create more problems for humans and more-than-humans. For example, intensive farming models generated food for humanity but the models have also created requirements for external inputs and requirements for protected areas to restore nature.

Related to Key finding 3 - Food systems are inter-species collectives

What human capacities for inter-species collaboration do we need to deepen and how?

In an anthropocentric worldview humanity is portrayed as being alone in food cultivation. Individual land ownership is one extreme example of this. We have lost capacities that enable human food systems to thrive in harmony with other beings and living systems of a locality. The Indigenous Peoples' stories presented here remind us that we can recultivate capacities to listen and be guided by nature. Fire ceremonies and land-based convenings and cultural traditions are particularly important, and initiatives including [Selvagem](#) and [RIVER](#) are blending traditional and scientific ways of knowing. Other transdisciplinary initiatives in academia include an [ecolistening project](#), which blends art, science and technology to listen to biological, anthropogenic and geophysical processes. The use of complex systems science and biomimicry to understand interconnections between species, living systems and ecosystem services are other examples.

Related to Key finding 4 - Food systems are co-evolved slowly, blending traditional and new

How the design of food systems be informed by different ways of knowing and being ?

Where do we find courage to slow down in our search for regenerative solutions when the world is moving so fast?

Western modernity is hungry for knowledge and overwhelmed with information. But data is not the same as wisdom. Indigenous Peoples' stories teach patience in innovation and the value of discernment in making wise choices. The stories also celebrate different way of knowing, not privileging some data sources over others, nor human ways of knowing over natural processes of knowing. The stories also illustrate appropriate scales of knowing and problem solving, encouraging the design of food systems that work for living beings and living presences local to the site of food cultivation. This approach raises questions about false quests for universality, hegemony, and certainty.

Related to Key finding 5 - Food systems value sufficiency, sharing and self-reliance

How can food systems benefit communities of actors rather than the prosperity of relatively few individuals?

What role should market transactions play in food systems that value sufficiency?

Western modernity has commodified food and the living systems that support food cultivation, reducing food to an economic transaction detached from its social, cultural and environmental roots. We have begun to see money as more important than food because money, unlike food, can be reinvested and make more money out of itself. But in so doing the process of selling and buying food has assisted concentrations of wealth, making food scarcity and hunger a concern for the majority. The Indigenous Peoples' stories reconnect western modernity to the role that food plays in nurturing the social, cultural and environmental fabric of societies. With a sufficiency mindset food surpluses are for sharing before trading. When food is given and reciprocated out of love, rather than sold for individual wealth generation, food systems promote collective self-reliance, not individual over-reliance.

Related to Key finding 6 - Food systems are supported by reciprocal governance systems

What reforms of food systems would we pursue if reciprocal governance was a central organising frame?

Customary governance systems differ from the governance systems of western modernity in their expression of reciprocity as an underpinning ethic of contribution and care. The Indigenous Peoples' stories illustrate how reciprocity is not a side line but a core organising frame for rules, norms, and behaviours. One specific example of reciprocity in action is the prevalence of knowledge sharing in the stories as a key turning point in the history of successful food systems. Reciprocal governance systems are a long way from competitive corporate behaviour, land and capital accumulation, and fierce protection of intellectual property rights.

In western modernity, close attention is paid to controlling how knowledge is exchanged. In customary governance systems it is the function of sharing which matters. It matters less that we contribute in the same way, and more that we all contribute to the whole in our own way. And the purity of our intentions matters more than the size of our contributions. In fact, in reciprocal governance systems, when individual actor groups (e.g., humans, men, landowners) play out-sized roles, it is a warning that the system is out of balance, tipping into relations that exploit and create dependency.

Related to Key finding 7 - Resilience grows from respecting and nurturing nature, not saving it

What legal and policy framework would encourage respectful human encounters with the more-than-human world in food cultivation?

In an anthropocentric worldview, humanity is depicted as separate from nature. This sense of separateness animates exploitative and paternalistic relations with nature that are not easily reconciled among peoples who live as part of earth. The Indigenous Peoples' stories show how protecting nature from humans doesn't make sense if humans are an integral everyday participant in nature. In this worldview, ecosystem health and resilience depend on the respectful nature of each and every human interaction with natural processes and living systems. When respectful service defines human encounters with the natural world, humans have important roles to play in stewarding healthy ecosystems – not as conquerors or saviours but as humble participants and contributors.

Contributors

Researcher positionalities:

The core project team for this paper was comprised of Indigenous leaders and / or representatives, and researchers and NGO staff wishing to use their skills to generate evidence about Indigenous Peoples food systems.

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