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AGROECOLOGY

Reweaving a New Landscape

Angela Hilmi

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To Larry, asante sana

To Benoit, to Arturo, hit by the modernization of agriculture,
wherever you are, may you be blessed

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List of Acronyms and Abbreviations

AC	Association Committee
AFD	Agence Française de Développement
AN	Alfredo Namitete
CAWR	Centre for Agroecology Water and Resilience
CFS	Committee on Food Security
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
IFAD	International Fund for Agricultural Development
IFAD	IIED International Institute for Environment and the Environment
IRR	Internal Rate of Return
SC	Steering Committee
SME	Small and Medium Enterprise
UCAM	Union de Camponese Marracuene
USD	United States Dollar
WFP	World Food Programme

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CHAPTER 1

The Natural Movement of Life

A Personal Introduction

Abstract This chapter presents different ways to perceive the world around us and gives the example of a paddy field. It tells the author's ideas of where agriculture stands today and how an excessive focus on formal knowledge has put aside more subjective forms of understanding what farming is about. It suggests to reorient agricultural research and funding and to focus on reweaving other more invisible threads such as movement, relationship, vibration and connection, of the living and non-living world. This chapter also introduces the different sections of the book, that is, burying sustainable development, showing the wholeness and rationale of peasant farming, finding inflection points that can trigger change from within communities, telling the story of a new financial scheme tested in a pilot in Africa and finally suggesting some steps and policies for a path to autonomy.

Keywords Perception • Invisible • Competition • Identity • Pride

There are two ways to perceive a paddy field:

> Tiptoeing in the field at night … feeling a whirling vertigo, with the stars above and below, reflected in the water of the paddy fields, surrounded by millions of floating lights, fireflies moving up and down in the unlimited space, reflecting each other in infinity, with the underworld and the

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> upper-world diluting into each other. "Late one evening I stepped out of my little hut in the rice paddies of eastern Bali and found myself falling through space."[1] (Abram 1996)

Or, as

> Southeast Asia accounts for 60% of the world's paddy rice production, it is also an important traded commodity. Rice as a share of the Gross Domestic Products, food calories and food expenditures is falling (from 7 to less than 1 in East Asia between 1961 and 2007).[2] Here follow instructions for paddy field preparation: apply glyphosate to kill "the dirty" weeds, maintain water 2-3 cm, plough or rotovate. Etcetera.

No one of these perceptions excludes the other. They are simply and essentially different. The fundamental difference lies in an understanding based on the feeling of being "within", or "part of" or, instead, of being above in a position of fear (of the uncontrollable) and dominance (the reassurance of converting reality into figures, seeing nature as a competition between the useful and the bad: the "dirty weeds").

When the second excludes the first, an over-dimensioned ego loses itself and drags with it the surrounding "others" in a cascading downfall. This is probably very much where we stand today.

Two thousand years ago, in 44 BC, Cicero,[3] who was then 62 years old, said: "agriculture is the profession of the wise, the most dignifying for any free human being."

About this book: this book is based on the author's personal views, crafted over years of working with farmer communities and decision-makers around the world. It stems from years of reflexion, theoretical work, practical experiences across continents; years of learning, sharing and listening. As such, this book reflects the author's personal opinions and understanding. The sections based on science or policy will be indicated. But much of the text is just based on own opinion and deep personal beliefs. Apologies for the uncomfort of reading a text, which may not be as impartial and scientific as the reader may wish.

The issue in this book is not to idealize the agriculture of the past, to imagine the happy wild woman jumping up and down in bountiful fields, holding hands with Earthly sisters. The issue here is to imagine a different way to focus attention. Agricultural research, agricultural development and agricultural organizations have emphasized during the last decades

certain spots which have received magnified attention and funding. We propose here new, different areas for this special attention and funding. For what? To maximize impact? Perhaps. But above all, just to feel good, to feel fulfilled with one's own life and to feel pleasure.

No need to be a specialist to realize today that agriculture is at an impasse. In many places of the world, it has lost its roots and identity. The know-how has been handed over to large companies, and farmers embark in a constant *fuite en avant* (running forward), constantly under pressure, unable to pause, aiming always at producing more and more. The paternalistic attitude of the astonishing number of players who *advise* farmers has forced them into an awkward position with often disastrous effects. If all the reports and documents written about agriculture, food and farming were put together on a big pile, it would certainly reach summits higher than the Kilimanjaro, and a spark could lighten a purifying fire that would reach above the skies. Why such a civilizational obsession to impose upon farmers? Why not upon postmen? Or upon musicians?

And, at the end, who bears the consequences of this (often wrong) advice? Farmers themselves. They bear the positives but also very much the negative consequences of the loss of harvests due to the wrong varieties; pollutions of the water, the soil and the air; with effects on their own bodies; disappearance of the life of soils with the loss of the very source of fertility; over-equipment with machinery that is usually over-dimensioned and which cannot be repaired on-farm; excessive indebtedness with devastating effects leading to the highest recorded suicide rates and overall an increased dependency and brittleness of the production system.

Overall, in the last decades we have witnessed a loss at various levels: loss of identity, loss of recognition, loss of freedom, loss of knowledge, loss of diversity and above all loss of autonomy. There has been a loss of this very characteristic of peasants: pride. Bureaucrats are not proud about their office, nor workers about their factories. Peasants *are* proud about their farms.

In this book we will firstly bury sustainable development, then on the recovered space we will install a mix of what can be felt as nonsense, to choose upon: movement, vibration, connection, intuition and perception. And add some context to the fact that farming is not (only) about food and that it is not (solely) to make profit. Then we will recount the innocent exploration of trying to build bridges with the financial vacuum cleaner (that sucks and concentrates the planet's wealth), also understood as the 1%. We will also tell a true story, in Africa, starting on royalty on

revenue and becoming a kingdom of the Earth. From illusion to delusion, we will walk the path to be able to open the curtain one day and see emptiness behind. Some steps are suggested on this path, as well as some thoughts on a policy context that would enlighten the colours of the frame.

Notes

1. Described in The Ecology of Magic p. 3 (Abram 1996).
2. From the IRRI (International Research Institute, FAO and WB) publication: Rice in the Shadow of Skyscrapers (2014) http://irri.org/rice-today/rice-in-the-shadow-of-skyscrapers-policy-choices-in-east-and-southeast-asia (8 August 2017).
3. *De Officiis, 42–151* 44 BC.

Reference

Abram, David. 1996. *The Spell of the Sensuous: Perception and Language in a More-than-Human World*. New York: Vintage Books.

CHAPTER 2

Burying Sustainable Development

Abstract This chapter revisits the concept of sustainable development and how it came about. It looks at what happened at a turning point in history, in 1974, when the notions of eco-development and co-evolution were proposed. It argues that sustainable development and commercial agriculture both stem from the same roots: sustained growth, which has led us to an impasse. Agroecology is the coming back of eco-development to cover up the mistakes of the last 40 years. This chapter proposes a shift of mindset with the notion of "being within" looking at agroecology as a way to reconnect and rebuild relationships and movement within the farming system and beyond: its reweaving capacity. Rather than linear technical fixes, it suggests to look at the critical nodes of tension in the system: the inflection points, or acupoints, to act upon these and trigger a transition towards greater harmony and well-being.

Keywords Sustainable development • Eco-development • Co-evolution • Being within

A major difference between traditional production systems and the agricultural modernization paradigm is the separation of the various components that make up agriculture, into separate fragmented entities. By doing so, efficiency was sought and specialized research was undertaken in each distinct field. As a result, we witness today a loss of the subtle webs

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and threads that connect and expand relationships. But it is these very connections that are those which, through feedback loops, allow adjustments to the surrounding environment. Little research has focused on the invisible threads connecting living and non-living systems of the Earth.

Webs and relationships extend at all levels and scales, and circular systems bring interactions far beyond the limits of the farm. Holistic approaches to agriculture show that farmers constantly fine-tune relationships and practices in connection to nature, evolving and adjusting along with time and fluctuations. Contrary to a generalized belief, these systems are not in equilibrium.

Agroecology brings back this notion of connection in that it mimics nature. It offers principles rather than recipes, drawn from biology, optimizing on-farm nutrient and energy flows. Agroecology is about *weaving*, combining into a whole, not only plants and animals but also humans and societies. By amplifying the relationships at a micro and macro level, within and beyond the farm, agroecology allows for co-evolution with nature, interactions and synergies. It is not just a new silver bullet, it is the practice of farming based on principles that have guided farming for millennia, refined and spelled-out to fit current needs and resources. It is called for by the largest world farmer organization as the shift to renewed ways of producing foods and crafting landscapes:

> *If we can agree that small farm agroecological systems are more productive, conserve soils and restore the lost productivity to degraded systems (…) then the key question is not whether we should, but how we can, promote the transition to such systems.* (La Via Campesina 2010)

This "how we can" is at the heart of this book. How can we undertake this transition? Not through the lenses of the past, nor through those based on imaginary technical fixes. Rather through re-thinking the notion of relationship which agroecology brings back as the renewed possibility for reducing dependency, building autonomy and opening up space for decision-making and self-determination. We will not in this book look into all aspects of the agroecology concept, and the way it is brought forward as practice, science and political movement. The reader can find these in the rich literature available elsewhere (Gliessman 2017; Astier et al. 2017; de Wit and Iles 2016; Tittonell 2014; FAO 2015; Altieri et al. 2012, 2015; Pimbert 2009; Wezel et al. 2009; FAO 2009; GRAIN 2009; Desmarais 2007 etc.). Here, we will only focus on the weaving dimension

of agroecology, its ability to re-create the links, and suggest other ways to perceive the farming system as a whole. We will also talk about the implications of worldviews that are oblivious to system connectedness, uncertainties and extended timescales.

We said before that overall, in the last decades, we have witnessed a loss at various levels: "loss of identity, loss of recognition, loss of freedom, loss of knowledge, loss of diversity, and above all loss of autonomy". Why? This has been evolving through a complex process over years of competing powers interacting. We take here a key turning point in history which, would it have taken another way, could have made a considerable difference, on where we stand today. We will talk about 1974.

We Lost 40 Years

It is often believed that two distinct roads have guided the last decades in agriculture: the productivist one, more often denominated industrial agriculture, and the "softer" environmentally friendly one, two supposedly distinct world visions.

We believe this came about with the concept of "Sustainable Development" brought forward by former Norwegian Prime Minister Mrs Gro Harlem Brundtland, and her Commission, dissolved in 1987, after releasing *Our Common Future* which gives the most frequently cited definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The term was used in the 1992 Rio Declaration on Environment and Development (the Earth Summit), with 27 principles which were intended to provide guidance to countries in future sustainable development.

Since the Brundtland Commission's definition, there have been at least 80 more definitions constructed. Precise and absolute definitions of sustainability cannot exist as the concept itself is contested and political (Sunderlin 1995). If we look at it carefully we realize it means everything and nothing at the same time. For some it relates to the capacity to continue for a long period of time, to others it means not damaging natural resources. In the literature, sustainable agriculture does not prescribe a concretely defined set of technologies, practices or policies; it is not presented as a package but rather as an evolving process. The term was already used at the time of the Cocoyoc Declaration on Environment and Development in the early 1970s. It was included in an International

Institute for Environment and Development (IIED) publications to suggest that lessons of ecology should be applied to economic processes, and was part of the debates on new paradigms or "perspectives" as Norgaard (1984, Kallis and Norgaard 2010) would call his co-evolutionary approach. Choosing the term "sustainable development" rather than the term "eco-development" presented in Stockholm by Maurice Strong, former Commissioner of the World Commission on Environment and Development, was, in the author's opinion, an unfortunate circumstance and a lost opportunity, a clear reflection of differing world visions: it was the result of a confrontation between country delegations. Nineteen seventy-four was the year when everything could have been different. But the notion of "sustainable development" was felt as being closer to the idea of "self-sustained growth" of Walt Rostow, former United States Adviser on National Security Affairs, and won over the concept of "eco-development". Understanding the history of the term allows to better understand that it was never adopted as a paradigm by peasant movements.

This is why we remain stuck in a mental lock-in about resources to be managed, and to be managed to the point of equilibrium. We will make here a short aside on the notion of equilibrium: the principle of equilibrium, also called Chatelier's principle, has been used to predict the effects of a change in conditions of a chemical equilibrium. In economics, the term equilibrium is used to suggest a state of *balance* between supply forces and demand forces. A state of the world where economic forces are balanced and, *in the absence of external influences*, the values of economic variables will not change. In reality, works on systems dynamics have demonstrated that the concept of equilibrium (which is the basis of most development approaches in agriculture including the notion of Maximum Sustainable Yields) is a fallacy. Equilibrium per se is a concept that does not exist in nature nor does it exist in economics (Pavageau et al. 2009; Antona et al. 1998; Aubin 1998; Cury and Roy 1989). The intrusion of variability, uncertainties, irreversibility in the systems dynamics poses the question of development, not as an effort to reach a hypothetical *best equilibrium* level, but as a constant management of interactions between economic, social and natural variabilities both in space and time. To think in terms of long-term development implies the best possible management of interactions between different sources of natural and social variability, on the basis of very long-term objectives. And here we touch upon the main difference between the notion of *viable* and the notion of *sustainable* development. The fundamental difference between the two is in the dismissal

of the equilibrium principle embedded in the concept of sustainable development and the dismissal of an analysis of the resources based on stock management. The concept of sustainable development is based on a vision of nature as a stock to be managed in an optimal way, to the point of equilibrium, with the result of sustainable development being seen in terms of ecosystems conservation and in terms of *maintenance* or restoration of equilibrium.

Being able to drop the idea of nature only as a stock to be managed brings the possibility of understanding viable development as a management of interactions. This allows to embrace uncertainties as an enriching rather than threatening characteristic of living systems. But instead, it was the choice of the sustainable paradigm embedded in the Rostow sustained growth idea that won against a co-evolutionary perspective. This has had significant implications on the way agricultural development has been oriented since. Instead of harmony and well-being, sustained growth has been leading to sustained pain, sustained poisoning of the soils, sustained growth of indebtedness and sustained over-mechanization.

The term "sustainable" used for everything and anything needs revisiting, or perhaps just burying. Should anything actually *be* sustainable? Is love sustainable? Is hunger sustainable? Would we want a child with sustained growth becoming a giant? Is there sustained growth in nature? There is not, besides perhaps the superweeds[1] of Monsanto. In nature there are seasons, spring following winter, autumn following summer; stages following a rhythmic pattern, rainy season following dry season, hot season following cold season; in nature there are cycles, women cycles, cycles of life and death, rhythms of birth, youth, old age, death and birth again.

Co-evolution in nature is de facto what is happening, not sustained growth. Nature does not care if we co-evolve well or badly and have to wear masks to protect ourselves from our own pollutions. In reality we are not even co-evolving, as the term gives the idea of an evolution parallel to nature, we are evolving inside, within, as an intrinsic part of nature, we like it or not.

Today, four decades later, it is the concept of "agroecology", closer to the initial idea of "eco-development" that is coming back, brought forward by the world's largest organization: La Via Campesina. Basically what this story tells is that we lost 40 years. Forty years of opportunities to orient research and funding into agricultural systems enmeshed in nature. In 1974, the Cocoyoc Declaration was already stating:

Thirty years have passed since the signing of the United Nations Charter launched the effort to establish a new international order. Today, that order has reached a critical turning point. Its hopes of creating a better life for the whole human family have been largely frustrated.

In 1945 we had the UN Charter, in 1974 Cocoyoc, in 1992 Rio and in 2012 Rio + 20. All the Declarations say the same. And it continues today, now in the form of Sustainable Development Goals (SDGs), adopted at the 2000 Millennium Summit, with time-bound targets with a deadline of 2015, which unsurprisingly failed. No problem, the new time-bound (bound by what?) target has become 2030, with now 169 targets pompously named "Transforming our world". The only thing that "transforms" is the number of targets (why use a military jargon?). How many turns will the merry-go-round turn again? And who will pay the price?

A Brief Snapshot of the Price

An example of calculated repercussions of unsustainable agricultural practices was given by Jules Pretty and his team in 2005 at Essex University, and the risks of pollution already highlighted in Unwelcome Harvest: Agriculture and Pollution (Conway and Pretty 1992). The research finds conservative estimates of the external costs of UK agriculture to be at least 1.5–2 billion pounds each year. The researchers calculated the annual cost from damage to the atmosphere (316 million pounds), to water (231 million), to biodiversity and landscapes (126 million), to soils (96 million) and to human health (777 million). When they extended the same framework of analysis of the external costs in the US they found it reached nearly 13 billion pounds per year.

They concluded by calling into question what we mean by efficiency: *these external costs of UK agriculture are alarming.* Farming receives 3 billion pounds of public subsidies each year, yet causes another 1.5 billion pounds of costs elsewhere in the economy. If we had no alternative, we would have to accept these costs. But *in every case there are choices.* Pesticides do not have to get into water, indeed they do not need to be used at all in many farm systems. The pesticide market in the US is 500 million pounds, yet we pay 120 million pounds just to clean them out of drinking water. *We do not need farming that damages biodiversity and landscapes; we do not need intensive livestock production that encourages infections and overuse of antibiotics.*

This means there is a misconception in the belief that food is cheap. Food is not cheap. The costs to the environment and to our health are not included in food prices. We actually pay many times for our food: the first one in the shop, the second one when we pay taxes that subsidize farmers and the third time when we pay for cleaning-up the environment and treating our diseases. According to recent estimates, the real price of food is at least two to three times higher if we included societal damage costs (FAO 2014).

And the cost of unsustainable practices is even higher when considering the future generations. An underlying characteristic of the worldviews that dismantle webs of relationships is the short sight. Short-term spans result in bad, short-sighted planning. A viable development is, on the contrary, the ability to plan with a very long time projection. Though we cannot predict the needs of future generations, we can still decide today on actions that will impact tomorrow. These are political and not scientific choices. They concern societies that are able to push forward the limits of time. The Long Now Foundation[2] talks about a *pathologically short attention span*. In reaction to this constructed emergency, computer scientist Daniel Hillis and biologist Stewart Brand built the Clock of the Long Now, a clock that will provide accurate time for the next 10,000 years.

In the absence of long-term projection, we have a dominant agro-industry model of production characterized by squeeze and dependency, control and regulation, and concentration detailed here as follows.

Squeeze and Dependency The exceptional growth of the food industry is the outcome of the squeeze upon agriculture and the growing dependency of consumers upon supermarkets. The constant pressure to impose lower costs of production is realized through an impoverishment of nature, people and products. The visible result is the degradation of resources, working conditions and quality of life, and overall, an increase in risks and the warming of the atmosphere. What matters is the way in which things are done and not the outcome. This implies an explosion of transaction costs. Instead of the promised "efficient, clean and safe world", conditions worsen with high risks of pandemic diseases and contaminated foods, inhuman production conditions and unhealthy products.

Control and Regulation By specifying rules that govern transactions and connections, monopolistic networks control people and resources at a distance. They do this by specifying, for example, that asparagus is to be

shipped or flown from places of poverty to places of wealth and they generate a large range of detailed requirements concerning quality, quantity, price, time and place of delivery, packing materials, paying time, mode of production and so on. It is control at every interface in the network. Through this seemingly near-invisible control, *the assembly of social and material resources is governed at a distance* (Ploeg 2009). What looks at first sight like neutral technical specification is in reality a hierarchical mode of governance and a mode of ordering that reshapes the social and natural worlds in a particular way. This re-patterning is strongly associated with increased mobility of enlarged flows of capital. Central to this mode of ordering is control and appropriation. An ongoing conquest that takes over once relatively autonomous and self-governed local constellations and reassembles them in a way that ensures controllability and exploitability. In doing so, it eliminates the "local", which becomes a "non-place".

Concentration Just three companies control more than half (53%) of the global commercial market for seed (ETC 2011). The top 10 companies accounted for 73% of the 2009 global market and five of the top six agrochemical companies are also in the list of the world's biggest seed companies. Consolidation appears in the form of established energy, chemical and pharmaceutical companies, now also into synthetic biology, with 60% annual growth reaching a 2.4 billion USD market by 2013 and 4.5 billion by 2015. In 2009, the global market share of the top ten pesticide companies exceeded 90% for the first time; the top six account for over 72% of the agrochemical market. The world's biggest buyers, sellers and processors of bio-based products are the agro-industrial food manufacturers and retailers. Globally the size of the commercial food market topped USD 7 trillion in 2009, overtaking the energy market. This is the basis of an agro-industrial model of production that pollutes the soil, the water, the plants and the climate.

Future generations will look back to us with the same incredulous look we have when we hear about the years of human slavery. We are today committing two major crimes against humankind and the other living species of the Earth: chemical poisoning affecting all living beings and animal unnecessary suffering through industrial production and experiments.

Today the notion of agroecology spreads like oil, as we face the repercussions of the two distinct, but closely related paradigms that led us over the years, the industrial and the sustainable one, grounded on the same

beliefs. The proponents of sustained growth have brought us to an impasse. The oil of agroecology is brought forward to cover up the mistakes of the productivist approach, the same one underlying industrial and sustainable development alike. Those who pushed it forward are not held guilty. They will not pay the consequences of their mistakes. The consequences are on farmers.

Will the agroecology concept and its food sovereignty dimension escape the co-optation by those using nirvana concepts (Molle 2008) to fit their own agenda?

We can try to imagine what could have been the agricultural landscape today, if guided instead by the "natural farming" vision of Masanobu Fukuoka, an extraordinary farmer and scientist, plant pathologist, with a deep knowledge of the complexities of synergies and adaptation, a wise man. Fukuoka (1975) writes:

> *I think an understanding of nature lies beyond the reach of human intelligence* (…) *that which is conceived to be nature is only the i*dea *of nature arising in each person's mind … An object seen in isolation from the whole is not the real thing.*

As a specialist in the plant pathology field, he states: "it is impossible for specialized research to grasp the role of a single predator at a certain time within the intricacy of insect inter-relationships." As human beings we are part of the "complexity of nature".[3] It would be pretentious to imagine we can understand it fully, let alone control it. Agriculture, intimately connected with nature, is fully dependent on the health of ecosystems and, in its viable forms, mimics nature movements and intricacies. Here is one example, the functioning of the mycorrhizal fungi: thousands of mycorrhizal fungi have lived in symbiosis with practically all existing plant species for 450 million years. They are the most important component of soil fertility. The long threads or *hyphae* of the fungus (the mycelium) build an extended network underground that connects different plants and fungi together within an intricate web of beneficial relationships. The fungus recognized by the plant (which inhibits its defence mechanisms) gets inside the root to form arbuscules of highly specialized branches with fine tips to exchange nutrients. It uses its enzymes to release phosphates from organic sources the plant has no access to, and spreads into the soil over long distances, to absorb nutrients for the plant. The fungus gets the carbon it is unable to photosynthesize by itself from the plant. Plants hosting

mycorrhizal fungi show evident signs of well-being. In addition, the fungi redistribute energy sources underground. They transport sugars synthesized by plants to other plants.

Being Within

Let us imagine for a moment another way to perceive reality, a way different to the dominant modernization and sustainability paradigms. The conventional lenses focus on an "agriculture development" perspective, with an "increase of production" objective. Here we propose something different: "a transition to harmony and well-being" perspective and a "finding of critical inflection points or *acupoints*" objective. We consider the farming system as a whole, with its different components intertwined, and complementary. Like a living organism belonging to a larger web, extending far beyond the farm, on an invisible grid.

We use the metaphor of looking at farming systems as a body with energy flows (Mamine 2014, 2016). In the same way osteopathy or acupuncture identifies the key points in the body to unlock the free flow of energy, so will we identify, and act upon, the key points in the peasant farming bodies, where the flow of energy is blocked: the acupoints.

Rather than looking at agriculture as a set of predetermined technical fixes, in a linear trajectory, to fulfil requirements of a food chain, imprisoning farmers in an extraordinarily burdening set of rigid rules and regulations, the approach is instead to look at the grid in its wholeness, the landscape crafted over time and space, and identify those very points that can resolve tensions and unleash a potential locally. The same way the pollutions extend beyond the farm, the same way acting upon the acupoints will extend beyond the point of inflection itself, and move in concentric waves, like a pebble does in the water, and it is this amplifying propagation that leads to a re-organization of the local dynamics following a domino effect. The waves of transformation extend further and further from the initial point of inflection until they connect the whole territory. The key is to find the right points, the right places, the right needs and to bring the adequate influx which can present itself in many forms, be it resources, knowledge, new connections, patterns and so on.

We thus propose to drop the term "development", in the name of which too many crimes have been committed, and to transform the concept of "co-evolution" which suggests that there are two evolutions going concomitantly when in fact there is the one and only. We embrace the fact

that we are evolving with and within, we are nature and nature is within us. We can thus speak of "being within".

The "being", in its myriad of forms, across all living kingdoms, is life itself. It is a being away from the over-dimensioned *ego* that has been leading sustained growth for decades. "Within" by definition is connected by visible and invisible threads internally and externally with oneself and the others, with oscillations of individual and collective presence and absence, in synergy, competition and sympathy. Within is also *with* the others. What we argue here is that, more important than the "object" (maize, cattle) and its "development" (increase yield, litres, weight), it is the relationships that count, and the movement of these relationships, their rhythm (such as the five natural movements of life defined by Seitai[4]). Being within, can be within ourselves and with the others, enmeshed within nature and in society, within a certain culture, and a worldview, within a certain form of existence, that can be different to another and to the "other".

"Agroecology being within" is an agroecology about links and connections, relationships, as well as about just being, here and now, in fullness. We want to explore this very fullness of agroecology. Not as a new nirvana concept that can be moulded to fit preconceived agendas of the past, but as a way to unveil the grid of relationships (dependency, synergy, competition, connection, interaction etc.). This unknown, invisible, neglected web surrounding and embodied in each being, and allowing it to exist, in an infinite myriad of forms.

Agroecology being within is also an agroecology about movement. In conventional agriculture as we saw earlier, the propagation of the effects of actions, the waves of repercussions and the migration of pollutants in the water and in our bodies are ignored. Conventional approaches have neither consideration nor understanding of "movement", this very proof of life in all its forms. Industrial agriculture paralyses movement: farming becomes a static set of technical consecutive blocks. Researchers and agronomic institutes also freeze farming into distinct silos. Movement is absent. The work centres on the visible and measurable and disregards the invisible and intangible. Movement is more difficult to apprehend than the tangible. But everything *is* movement, otherwise it is death. We will take in the following chapters a concrete example of inflection points and movement in a process of agroecological transition in Africa.

To summarize, we suggest to *move* away from the concepts of modernization, sustained growth and sustainable development to the concept of

being within, a step further to co-evolution, for an agroecology of movement and relationships, an intuitive agroecology enmeshed within nature. This gives the possibility to break free from the linearity of technical packages, and to consider critical tension nodes in the grid, to contribute to unlock them, and unleash transformations from within the systems, extending beyond in a sea of waves.

In the next section we describe what we mean by the "whole" with family farmers at the centre. We also provide a summary of the theory underlying peasant farming which explains why this mode of production is so different to commercial farming.

Food? Not Only

What do we mean by the wholeness of farming or the fullness of agroecology? We have a tendency to equate farming with food, but it is much more than food. Family farmers, peasants, do not only produce food. They are also the guardians of natural resources and social cohesion.

As natural resources managers, they contribute to water regulation both in quality and quantity, in the regulation of the local flora and fauna (increasing and maintaining biodiversity and facilitating pollination), in regulating diseases by maintaining a high diversity in their farms, in natural hazard preservation (hurricanes and other extreme weather events) by applying soil conservation practices (terraces etc.), in regulating erosion through conservation practices and in air quality and climate regulation.

And as guardians of social cohesion, smallholder agroecological farmers create new labour opportunities for members of the local communities and encourage the development of cottage industries and local craftsmanship. They are also the guardians of local languages, cultural heritages, spiritual and religious values, landscape aesthetics and the gardeners of traditional crop varieties regularly compared and exchanged amongst neighbours and in local fairs. The smallholder farms are often also places for recreation and tourism, and they give to urban dwellers a different perception of time and seasonality.

Reaping the Benefits (Royal Society 2009) used four terms for sustainable agriculture. They are: ***Persistence:*** the capacity to continue to deliver desired outputs over long periods of time/human generations, thus conferring predictability; ***Autarchy:*** the capacity to deliver desired outputs from

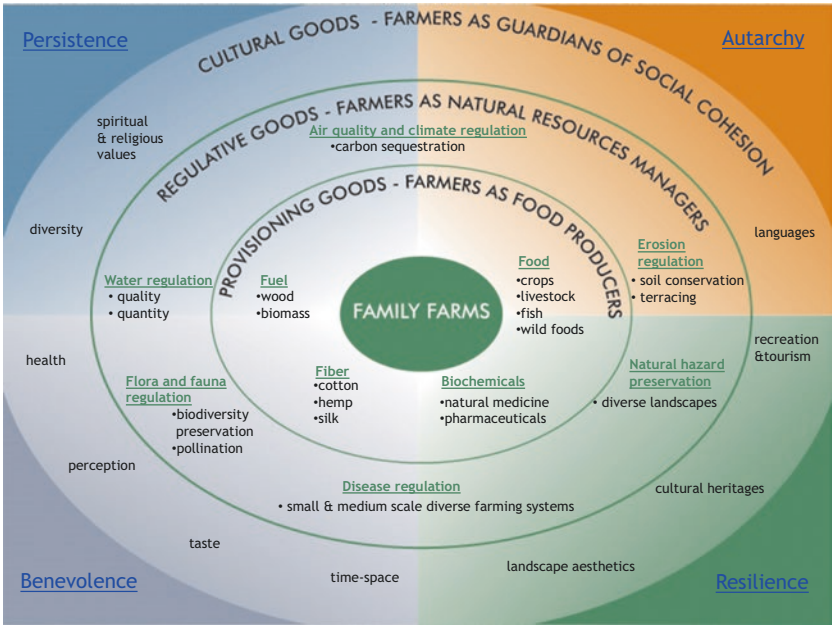

Fig. 2.1 Contributions of family farming to societies and nature

inputs and resources (such as factors of production) acquired from within key system boundaries; ***Resilience:*** the capacity to absorb, utilize or even benefit from perturbations, shocks and stresses, and so continue to exist without qualitative changes in structure; ***Benevolence:*** the capacity to produce desired outputs (food, fibre, fuel) while sustaining the functioning of ecosystem services and not causing depletion of natural capital (e.g. minerals, biodiversity, soil, clean water).

Figure 2.1 illustrates some of the contributions of family farming to human societies and nature.

The Peasant Way of Farming

We also present in this chapter the rationale behind peasant farming which is poorly known and usually not understood. We draw here from the scientific theory developed by Ploeg (2009) to describe the specificities of this particular mode of production.

Jan Douwe van der Ploeg reveals the fact that while many theories are centred on the peasant as an obstacle to change, and their place is taken by "agricultural entrepreneurs" (equipped to listen to the logic of the market), there are many more peasants than before, and there is a critical role for peasants in modern societies. Ploeg claims that a "world with peasants is better, than a world without them". But peasants are characterized by a struggle for autonomy and by processes of exploitation and marginalization.

The difficulty to understand this way of farming comes from the ignorance about its rationale. Here is a description of the main difference between different modes of production, and in which way peasant farming can be differentiated from the others: (i) peasant agriculture is built upon the sustainable use of ecological capital. Its primary aim is livelihoods. It embeds many functions beyond food. Whenever possible, it is the family that owns or has user rights on the land and other means of production and the family members who work on the farm. What is produced returns to the farm and is sold in the market; (ii) entrepreneurial agriculture is built upon financial and industrial capital (credit, industrial inputs and technologies). The principal aim is profit; the production which tends towards simplification and specialization is oriented towards the markets. It fits within the state-driven programmes of modernization of agriculture; (iii) corporate and capitalist farming follows an agro-export model. It is based on scale and monocultures. Labour force is salaried workers. Production is geared towards profit maximization.

Fundamental differences between peasant and entrepreneurial farming are the *degree of autonomy* and the *relationship to nature*. Peasants co-evolve with nature. For agricultural entrepreneurs, while nature remains an unavoidable raw material, the focus is on reducing its presence; nature being capricious, it is a hindrance to scale increase. Processes of production are progressively disconnected from ecosystems. This translates into growing counter productivity (since the 1950s efficiency of nitrogen declined, the longevity of cattle fell, energy use is multiplied, its efficiency declined and agriculture became an activity that produces large flows of waste).

Another difference is the *quality of labour*. Quality entails craftsmanship, local knowledge and relationships. This represents human capital in the sense that it reflects the ability to produce in an endogenous way. Peasants have the skills to transform nature in the sense that they have the capacity to realize high and rising productive results per object of labour

(land, animal), the so-called *savoir-faire paysan* (peasant know-how). They use internal indicators (e.g. best ration per cow is decided upon the personal life history of this particular cow). In contrast, the business entrepreneurial farming patterns labour and productive processes according to market relations use external indicators (best ration depending on price of milk and cost of feed).

In the peasant mode, the *market* is an outlet; in the business entrepreneurial mode, the market is an ordering principle. The focus on managing nature with great skills is not an expression of non-economic behaviour nor of peasants being un-enterprising; on the contrary peasants are keen to grasp new opportunities. They are enterprising, inventive and keen. But they do not operate in a business way. The underlying logic is different. The peasant logic is: production per labour object, care, dedication, self-sufficiency, aesthetic of the farm; the business entrepreneur logic is: price-cost ratio, margin, technology, scale, income.

Peasants follow a step-by-step process of growth. They aim at improvement in yields and at the value added per object of labour; they finance any increase as much as possible with their own available means. For the business entrepreneurs, the scale is the main lever. The increase in scale results in decrease in the margin per object of labour which induces a need to further accelerate the growth at farm level, a typical *fuite en avant* (running forward). They will require the newest technologies and will restructure the farm so as to fit the new technologies. In this model, taking credit becomes strategic.

The peasant mode of farming centres essentially on the creation and growth of value added, which at the higher level of aggregation translates into the creation and growth of social wealth; thus, in comparison, peasant farming contributes more to the generation of social wealth than entrepreneurial and corporate farming. This is the case in both Europe and developing countries. Field studies running through four decades show that the difference of value added between peasant approaches and business entrepreneurial approaches increases as time goes by (research undertaken by Ploeg, showed a difference of 56% in 1999).[5]

In addition, peasant farming produces the highest total amount of gross value added (GVA). This is not only due to the fact that total production per unit of area is higher, but also because within the peasant mode of farming GVA represents a larger part of Gross Value Produced. If farming is structured according to peasant mode, not only more production and employment are generated, but the peasant mode *generates more*

income. This applies to the agricultural sector as a whole. It equally applies to per capita income levels.

Hence, peasant farming (based on labour-driven intensification) is not identical to the often assumed distribution of poverty. There are many places where ongoing intensification is blocked and where diminishing returns emerge. Such phenomena are not *intrinsic* to peasant farming.

How peasant farming unfolds: all around the world peasants work with nature in a very different way than entrepreneurs or capitalist farmers do. They mould and remould resources in a way that allows continuity. In a context of dependency relations, marginalization and deprivation, they struggle for autonomy; resources are, as much as possible, self-controlled and self-managed. The co-production (or mutual transformation) human-living nature and the interaction with the market allow for survival and for strengthening the resource back. In addition, peasants usually engage in other non-farm activities and their activities are embedded in patterns of cooperation and interrelations.

Co-production brings progress and new forms of local development. A meticulous fine-tuning, slowly improving the quality and productivity of key resources together with continuous re-patterning of the relations with the outside world, allows for two interwoven processes: *production* of goods and services and *reproduction*. Production at the farm is not, as often assumed, related to family consumption; it is related to the operation of the farm as a whole.

The peasant condition and the peasant mode of farming represent a flow through time, a dynamic process that may unfold, depending upon the social formation in which it is embedded, in different directions, with different rhythms and through distinct mechanisms. It entails co-production, patterns of relation to markets that allow autonomy (flexibility, fluidity), pluriactivity, reciprocity and cooperation.

Thus, in a nutshell, the characteristics of peasant farming are summarized as follows: peasant farming tends to the production and growth of as much *value added* as possible; the focus of the entrepreneurial mode of farming is geared towards as much takeover of resources as it is of value added, and the capitalist mode centres on profits (surplus value), even when it implies a total reduction of value added. When the main conditions are equal, the peasant mode of farming results in yields that are higher; a resource base nearly always limited; intensity of production; an abundant labour and scarce labour objects (land, animals etc.); an organic unity; the resource base is not separated into opposed and contradictory

elements (such as labour and capital, or manual and mental labour). Available social and material resources are possessed and controlled by those directly involved in the labour process; centrality of labour and innovativeness; levels of intensity depend on quantity and quality of labour, importance of labour investments (terraces, irrigation systems, buildings, improved crops and carefully selected cattle etc.), the nature of applied technologies (skill oriented rather than mechanical) and novelty production; distancing from markets on the input side, differentiation on the output side.

The differing values of peasant farming are that: the farm resources normally referred to as capital (land, animals, buildings, machines etc.) do not reflect capital per se as they are not mobilized on the capital market, which means that they *do not work as outside investment that needs to realize profit*. Resources allow to generate income and to improve the farm, making it a better and more beautiful place to live. The available resources and especially the land do not function necessarily as capital in the classical sense. If they were to do so they would flow outside agriculture. Their value is that they allow for farming and that they might be converted in the longer run into a pension for the senior generation and a comfortable starting position for the younger generation that takes over. This represents a socially regulated and institutionally grounded process of conversion; a conversion very different from the conversion of capital into profits subsequently reinvested as capital in order to realize more profits. In the peasant mode of farming, civil and labour rights are as, if not more important than property rights.

A compelling example of repeasantization and peasant values is illustrated by one of the largest peasant communities in Peru, the community of Catacaos.[6] In Catacaos repeasantization emerged out of the change of former *haciendas* into cooperatives, appropriation of land and water, a rise in the number of individual plot holders and a move away from the high degree of market integration. The shared values of the peasant community were stated as follows:

> *United, indestructible and autonomous community; governed through the democratic intervention of all members; all members are equal in rights and duties; a community that recognises labour as the only source of wealth; no exploitation of resources by foreign element; secure for members satisfaction of basic needs- housing, health, food, education and employment; works for immediate and future needs of youth; engages in solidarity with labour class of country.*

Images of Peasant Farming Across Oceans

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Notes

1. See the rise of superweeds on 60 million acres of US land http://www.ucsusa.org/news/press_release/superweeds-overrun-farmlands-0384.html#.WYn8ua2B33A (8 August 2017).
2. See http://longnow.org/about/ (8 August 2017).
3. Personal communication with Olav Randen, Norwegian farmer (June 2011).
4. See https://www.seitaibarcelona.com/home/ (8 August 2017).
5. Ploeg studied the differentiated growth patterns of production and value added in Parma (Italy) provinces in 1971, 1979 and 1999. He demonstrates that in 1971, the gross value of production (GVP) realized through the peasant approach constituted 15% more than realized through the entrepreneurial mode. In 1979, the difference was 36% and in 1999 it amounted to 56%. This demonstrates that there is no "intrinsic backwardness" to peasant farming. It also stresses that the frequently articulated view that the peasants are unable to feed the world is unsound since it depends upon the "space" they dispose of.
6. See Ploeg (2009, p. 53).

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CHAPTER 3

Finding the Acupoints

Abstract This chapter explores the possibility to develop an investment model dedicated to agroecology and peasant farming, in a way that can benefit local communities. It describes an innovative conceptual approach to financing individual and collective investments, based on royalty on revenue and risk-sharing, with farmers on the driver seat of decision-making. This chapter presents the explorations of a team of international experts who tried to develop collaborative agreements with financial institutions, to test the model and get proof of concept, with a view of creating a world peasant fund for global impact. It tells the story of a pilot project implemented in Africa in 2015, in Mozambique, with a farmer association, Alfredo Namitete, and recounts the way in which the finding of the inner inflection or acupoints, and the reweaving of relationships and connections, has triggered waves of transformations for the association members and their leaders.

Keywords Investments • Agroecology • Acupoints • Reweaving • Peasants

Chapter 2 focused on peasant farming and agroecology as the re-appearing paradigm of peasant movements. It looks at where peasant farming stands (the ideological context), what it represents (beyond food), how it evolves

A. Hilmi, *Agroecology*,
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(its rationale), imagining the possibility of a shift of mindset from "agricultural development" and "yield increase" to a "transition to well-being" and the "identification of inflection points" able to trigger waves of transformation.

This is what this chapter is about: finding the critical points, inflection points or acupoints that can trigger transformations from within the systems. This chapter is also about a story telling; it recounts the adventures of trying to imagine another way to access the means to invest in the farms, when realizing that access to finance is, indeed, a critical inflection point for farmers. This is the parkour of an unusual mix of people, with diverse backgrounds, testing in real life what another way would mean. It is, essentially, the story of the people o f Alfredo Namitete (AN), a farmer association in Mozambique, who accepted to play the game and to truly go for it.

The story of the pilot project in Mozambique started in 2012. The initial idea was to develop an innovative financial scheme for peasant farming and to create a world peasant fund dedicated to the peasant way of farming. The importance of putting smallholder agriculture at centre stage had been highlighted in numerous publications (Rosset 1999, 2011; Altieri 2008; Altieri et al. 2012; IIASTD 2009; Pimbert 2009; ETC Group 2009; The World Bank 2009; Pretty et al. 2011; UNEP 2011; Herren et al. 2015; FAO 2014; Hilmi and Burbi 2016, 2017 etc.). The access to finance was considered one of the most critical bottlenecks for farmers (HLPE 2013; Development Fund 2011). But where to access finance?

Following the 2008 financial crisis, in which tens of millions of people lost their savings, jobs and homes,[1] massive flows of private capital, escaping toxic sub-primes, looked for profitable investments and more tangible assets elsewhere. Millions were invested in commercial agriculture, many in Africa. These were the years of massive land grab (50–80 million ha).[2] A new industry expanded rapidly: impact investing. The growth in impact investing became driven by institutional investors looking at "sustainability assets", in search of new investment strategies. In a few years, figures high-rocketed. Leading institutions integrated ESG (Environment, Social, Governance) in their protocols; growth in high-net worth market demand for impact and sustainability investment products, across asset categories, reached in 2014 USD 5–7 trillion in ESG or value-based liquid strategies, USD 70 billion in green bonds issuance and USD 10–20 billion in impact funds.[3]

International development organizations started looking at these newcomers in the agricultural arena. The Food and Agriculture Organization of the United Nations (the FAO Agribusiness and Finance Group, the Investment Centre etc.) published with the International Institute for Environment and the Environment (IIED), the International Fund for Agricultural Development (IFAD), the World Food Programme (WFP) and others, a series of papers in 2010 onwards, on land grab, and what was called "collaborative business models" (Cotula et al. 2009; IFAD and Liversage 2010; FAO and Miller 2010; FAO et al. 2011etc.). The need was felt to look closer at the influence of the newcomers and the international finance on land grabs (Oakland Institute 2010) and to develop principles of responsible investments (CFS 2014). The 2010 first FAO paper on agricultural investment funds for developing countries (FAO and Miller 2010) identified 80 funds and analysed 31 with a total targeted capital base of 4 billion USD. The paper concluded that most funds invested in agro-industries and value chains, preferred for bringing debt and equity capital, and that the funds, set up for profitability, did not benefit the primary producers.

A 2012 review of the Prince Charles International Sustainability Unit which looked into alternative investment models for sustainable agriculture equally concluded that there were few funds in Africa targeting inclusive development. The nine alternative models identified were all private equity funds with agribusiness value chains mainly debt and working capital, microfinance and "market bundle" packages, credit and pre-harvest loans to fill the "missing middle" between micro-credit and commercial lenders. These investment funds, oriented towards small and medium enterprises (SMEs) and value chains, were conditional, with emphasis on export crops and compliance with externally defined standards. None of these "new" investment models targeted agroecology, and none considered peasant farming as a potential engine of prosperity. Similarly, the products developed by microfinance institutions were not designed to support investment or even short-term seasonal agricultural expenditure and remained mostly lower risk urban oriented.

Innocence and Perseverance

Peasants have limited choices for accessing funds for investments that fulfil their own needs. Formal banking requires a collateral from farmers (land, etc.) and is risk-averse, and it tries to reduce transaction costs (prefering few big loans rather than many small ones). Public funds also impose conditionality

and requirements that are cumbersome and risky to fulfil. The author, together with a team of international practitioners, decided to develop a new investment scheme ("innovative model") with the idea that private investors, with social and environmental aspirations, may be interested in investments that benefit the local communities. The idea was grounded on the fact that peasant farming, applying agroecological intensification, is highly profitable if given favourable conditions and that this mode of production compares favourably to commercial farming, a reality that is not acknowledged sufficiently. An initial meeting was held in 2011, in Ispaster in the Spanish Basque Country, to define a strategy for the creation of a peasant fund as a tool to influence a shift towards family-farm-driven regional food economies and ecologies. The meeting brought together renowned leading minds in the fields of food and agriculture, peasant movements, community development, agricultural policy, environmental governance, impact investment and finance. It highlighted the importance of financing an agroecological transition with both public and private capital and the need for an enabling policy environment that supports this transition (see policy suggestions in Chap. 4).

Following the meeting, some graphs illustrating key nodes or inflection points, for investment in farming, were prepared with the purpose (which did not materialize) of mobilizing large investments for viable agriculture in start-up projects in the US. The graphs put smallholder family farms at the centre, as the engine of local economies. Investments are proposed for different sectors: towards the use of local natural resources and to mimic nature (land, water, inputs, implements); to markets that value diversity (including storage, processing, packaging, branding, certification of quality and origin, distribution; as well as to different types of markets: local markets, retail, wholesale; for the consumption of real foods, fresh foods, food recognized as being regional and local); to innovative technologies and inputs (inputs locally specific, family farm specific, bio-products such as bio-pesticides, bio-fertilizers, vermicompost, small- and medium-sized machinery and tools); to farmer-led research (co-evolution in local conditions, adaptation to climate change, research on local crops, livestock, wildlife, agro-ecosystems) and to adaptive knowledge, training and services (open-knowledge pools or platforms, developing scientific knowledge, subjective knowledge, endogenous and exogenous forms of knowledge, farmer field schools, bundle of services with single window delivery by and for farmers at their doorsteps).

The thinking behind these designs is that such investments facilitate the creation of value streams like quality foods, high-value products, aesthetic

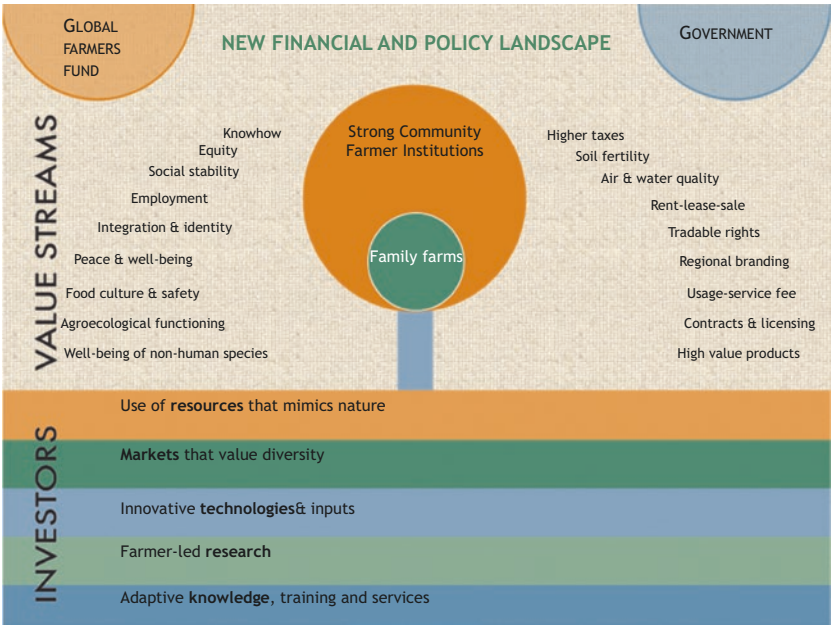

Fig. 3.1 Building wealth and value streams

landscapes, the recognition and promotion of a given region, increased know-how, air and water quality and soil fertility, which together contribute to increased wealth and to higher revenue (taxes) collected by the local authorities which can be reinvested locally. It also contributes to social stability, equity and employment, as well as to health and safety and to the generation of peace and well-being for human and non-human species (Fig. 3.1).

The expected impact in the long term is (through the possibility for farmers to invest themselves as they decide, in their own forms of viable agriculture) the provision of abundant and healthy foods for the local communities and beyond, in harmony with the local cultural and culinary habits and preferences, and the production of quality products for the national and international markets. It is also the possibility to contribute to strong local institutions and social dynamics, with increased gender balance and with solid internal democratic processes. It is a new form to provide diverse forms of local employment with the emergence of new

local businesses related to the agricultural practices. It is, in essence, a way to increase the diversity of living beings, crops and animals alike, domesticated or wild, as peasants co-evolve with nature and have done so for millennia and as they are experts in the art of local testing and fine-tuning with in situ selection of a diverse range of crops and animals, contributing to climate adaptation and also to the creation of rich and live soils which become a carbon sink and play a crucial role in climate mitigation. It is, finally, the possibility to bring back dynamic rural territories and the countryside for renewed spaces of invention and creativity with tangible and intangible values and wealth creation for the nations as a whole.

Another graph on nodes or inflection points illustrates connections, links and relationships with farmers on the driver seat of local economies. New forms of marketing quality and fresh produce can be triggered, with smallholders as active players of the local food webs. They are involved in the marketing and processing of foods within the local economies, earning a fair price and developing markets that value diversity. Investments can be oriented to support cottage industries and craftsmanship, intermediaries can be owned by, or benefit farmers, the branding can be made for products of origin which promotes regionality and difference; processing allows the product to stay in the form of tasty and healthy foods; links to retail and distribution create access to a market that recognizes quality and difference; and the whole system makes it more attractive for young people to want to become the next generation of farmers (Fig. 3.2).

The Ispaster meeting was followed by a six-month research, funded by Norfund, the Norwegian Investment Fund for Developing Countries (holding an investment portfolio of Euro 1.8 billion in 2016), to develop a new investment model. The purpose was to influence a shift of funds, with investments moving from commercial and plantation agriculture towards peasant farming, with a risk-sharing mechanism between investors and farmers.

The country chosen for proof of concept was Mozambique (Kenya and Uganda were also visited) with Uniao Nacional de Camponeses (UNAC) the national peasant organization, counting 86,000 members and representing 16 million peasants in the country, as local partner. The model had to fulfil the criteria and requirements of the funder, thus leaving little leeway for presenting another approach to investing, that is, without creating dependency and without putting farmers into the straightjacket of predetermined rules and regulations. Indeed, trying to develop the model in these circumstances was

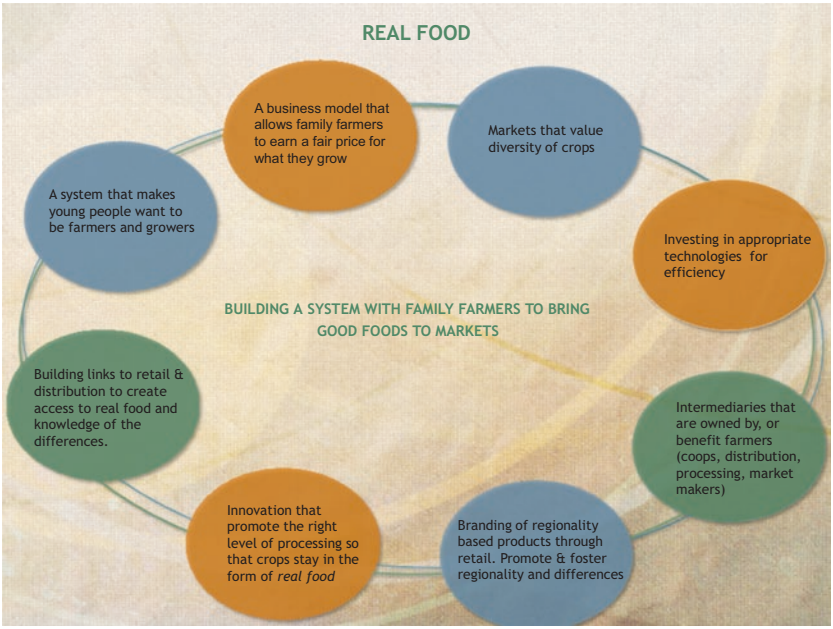

Fig. 3.2 Family farmers on the driver seat

like trying to fit an elephant in a Ferrari and making it believe it sits comfortably. In other words: impossible.

The proposal followed the predefined investment criteria, including the obedience to the internal rate of return (IRR) for the decision-making process. A projection scenario of the long-term impact of high external input (HEI) farming systems, low external input (LEI) and business as usual (BAU) was made by the Millennium Institute (MI) based in Washington (which had created the T21 model used by UNEP for the Green Economy projections). A 11.3 million Euro investment (Euro 1500 per ha) on 7520 ha of land in Marracuene and Chokwe, two districts north of Maputo, was submitted with an IRR of 10.52 over nine years. A choice *à la carte* of different interest rates and payback structures with different IRR was also presented for Norfund's consideration. In addition, additional investment ideas submitted to Norfund for scrutiny included four SMEs related to agriculture (machinery, food processing, inputs, construction), a factory for biological pest management and a project with

the Kenya farmer association Kenfap. The deliberations were kept secret and the follow-up with the investments that had been selected too. The internal process is determined by a "kiss" or "kill" approach. The proposal for investing in peasant farming was "killed". The final report "commended the hard work in *trying* to bridge the gap" (between innovation ideas and requirements of Norfund financing). But this gap could not be bridged, and the attempts to communicate (to make common) failed.

But the work did not stop there. The Development Fund and later the More and Better Network (MAB), a CSO international network, took over to continue the work together with UNAC and a team of international practitioners. A local bank came on board to "crack that nut" and help "explode" (as per banker terminology) access to credit by smallholders. The question at stake was: can credit lead to autonomy rather than to increased dependency? With a view to providing an answer, a project was submitted to the Nordic Climate Facility (the joint development finance institution of the five Nordic countries) in 2014, which won the first stages of the bid.

The project, along the lines of the bid requirements, was based on agroecology (defined in the project as the science of applying ecological concepts and principles to the design and management of sustainable food systems) and presented a model based on investment and agroecological methods for 750 farms, building crop production to a higher level in four years. The model aimed at facilitating access to different markets for increased production and better returns with value added on a diversity of crops and livestock. Investments in irrigation, animal traction, simple mechanization and training in agroecology would increase production, mitigate greenhouse gas emission and facilitate adaption to climate change. Applying agroecology to 750 ha in Marracuene would mean that carbon sequestration in soils would increase by roughly 47,000 tCO2e over 20 years with a slow build up over the first eight years. In turn, applying agroecological methods, compared with conventional farming, over 20 years would, as per project description, have reduced carbon emissions by 118,000 tCO2e.

The plan was that the project would involve financial institutions. The team held extensive deliberations with five local banks, AFD (French development agency) and other funding institutions, and with guarantee funds. Discussions took place with all, one after the other,[4] to explore ways and means to collaborate with the objective of facilitating access to credit for farmers. All discussions with banks and financing institutions failed.

Banks are risk-averse and despite the fact that the project had a guarantee fund, they found the model too risky. If negotiations, led by world experts in finance and development, were so systematically blocked, it was easy to imagine the difficulties for farmers themselves, when trying to negotiate agreements for facilitating their own investments. There is a critical tension there that is far from being resolved. It is deeply ingrained in the predominant economic orthodoxy and the rationale of what exchanges in society ought to be and what value means. While at first during discussions converging ideas are stated on routes to greater prosperity for the farming communities, it is intriguing to hear, in the name of profitability and competitiveness, the tone it can take, when moving to the contractual practicalities, with the same people brutally talking of "burning their feet" (the farmers') or of "taking a Kalashnikov to get reimbursements back".

An abysmal gap is indeed there, between finance and peasants, and, with the dropping out of a financial partner, the Nordic project was not pursued. Other attempts were made with the "traditional" development and funding organizations such as European Commission (EC), IFAD, FAO, philanthropists, foundations and many more, but they received no expression of interest.

This, somehow, came as a blessing. The pilot project could now start, freed from the confinement of standard financial and development institutions. A new phase could begin (described below under paragraph: "A true story of reweaving"), grounded on the preliminary works of the first years.

The process between 2012 and 2015 had involved a number of steps such as to define the innovative investment scheme, select the country, identify the partner farmer organization in the country, select the pilot location, collect and verify the field data, build a dynamic long-term scenario (MI), develop the financial model (which was done by an international voluntary team of experts from the MAB, Biomatrix Water, MICAIA NGO) with inputs from international experts and scientists (FAO, Wageningen University etc.), develop partnerships and fundraise.

The main partner, UNAC, was perseverant enough to not get discouraged by the ups and downs with funders, and designated Renaldo Chingore as coordinator of the project since the very start. Initially, eight farmer associations were selected by UNAC with specific criteria which would involve: having a legal registration, a secured access to land, enough years of existence (more than ten), an interest in agroecology, good maturity (responsibility, internal democratic processes, transparency), an ability to

team work, good integration, demonstrated collective participation, internal cohesion and sufficient management capacity. The process included consultation meetings with the decentralized UNAC offices and with the leaders of the associations and their members.

Once the associations had been made aware of the proposed project intentions, shared and incorporated their wishes and agreed to join, the project area was defined and a thorough data collection undertaken. The data was reviewed by international experts in the different technical fields. UNAC collected the information on crop varieties, mixed cropping, intercropping, traditional crops, wild relatives, crop yields, share of produce between home consumption and marketing, prices, nutrition profiles, farm surplus, distance to markets, farm revenue, costs and types of labour, costs of water, energy, pest control and so on. Priorities for the use of investment funds were discussed thoroughly with the farmer organizations. The process took five months until all the data was compiled, analysed and verified, and projections pre- and post-project made to reflect before and after investments, outputs, crop percentages on the field, percentages of crops sold and consumed by the family and nutrition profiles. Additional country and district data was also collected to feed a 20-year dynamic model built by the MI to forecast the social and environmental impact of the proposed investment for the long term. The T21 simulation model[5] was developed by MI and used by UNEP for the world Green Economy projections. Three scenarios were simulated and business as usual compared with low or high external inputs (BAU, HEI, LEI). The results showed clear advantages of the LEI scenario in terms of average yield, total farm surplus, total energy use and proportion of population below poverty line.

The design of the individual and collective investment scheme was based on risk-sharing and royalty on revenue with the decision-making led by the communities and their leaders. The scheme, its innovativeness and impact reflected the following: the investments are dedicated to agroecology. They can be used for individual and collective investments: for example, to improve the irrigation systems (water pumps and drainage); improve land and soils (rehabilitate/levelling of areas to allow cultivation of integrated cropping systems and agroforestry); introduce animal traction and small-scale mechanization; add animal and crop diversity and tree varieties (for fruit, fodder, wood) and facilitate year-round production with greenhouse technology. More specifically, agroecological farming entails: use of cover crops, green manures, animal manures and crop rotations to fertilize the soil, maximize biological activity and maintain long-term soil health; use of

biological control, crop rotations and other techniques to manage weeds, insects and diseases; an emphasis on biodiversity of the agricultural system and the surrounding environment; reduction of external and off-farm inputs and significant reduction of synthetic pesticides and fertilizers and a focus on renewable resources, soil and water conservation and management practices that restore, maintain and enhance ecological balance.

The innovativeness of the model was based on the idea that it could allow to bridge the divide between smallholders and financers (banks, investors, financial institutions); it reduces transaction costs, includes negotiated risk-sharing, increases autonomy of peasant communities, does not result in indebtedness (un-collaterized), is highly decentralized, is dedicated to agroecology, deals with both production and marketing of food and cash crops and is based on local institutions with collective decision-making. The expected impact of the model is farmers having access to finance who can invest in agroecological peasant farming; knowledge of financial management and of new farming practices, less drudgery at work; use of latest science and technology together with traditional practices; local seed banks of traditional varieties; co-production and co-evolution of agricultural varieties better adapted to climate change; increased carbon sequestration and better soils (soil microbiology); diversified and increased production for home consumption and for marketing; higher incomes, higher added value, higher margin on the produce; the emergence of new nested markets; better nutrition and health of community families; increased employment opportunities within the community specially for the youth; protection of the wildlife flora and fauna, protection of pollinators; more security on access to resources in particular land; improved water management (keeping water on the land); increased links within and outside the communities; reduced post-harvest losses and sustainable farming systems for the long term.

A Chart of Common Values with key principles was prepared. Overall the ethical chart of the scheme states that: the control at the ground level lies with the farmers; the decision-making process on the choice of farming systems is led by farmers; the financial model increases the autonomy of the farming communities; it is based on risk-sharing and returns, on solidarity of the relationships of stakeholders, on a group-lending process and on the viable use of local resources; it creates benefits to the local communities and the impact of the financial model can be measured by the indicators of well-being (IAASTD[6]).

A True Story of Reweaving

This preliminary work became instrumental in the next phase. Once freed from the obligations of having to formulate the project to fit the requirements of donors, a new phase began where the farmers of the associations were able to re-write the project themselves in a dynamic process, somehow co-evolving with it. Interestingly as it evolved, it progressively gained more and more autonomy, like a living organism, and, at the same time, more and more momentum.

The initial idea remained the same: to unlock a major bottleneck for peasant farming which is access to finance to invest in own farm and intensify production while at the same time building the farm for the long term. The pilot focuses on agroecological production (LEIs), strengthens local institutions (resulting in less transaction cost for partners and greater gender parity), facilitates higher levels of aggregation (collective production and selling), deals with marketing to diversified markets and does not create indebtedness and dependency (activates internal social process of control, trust and solidarity). The objectives are to allow to reinvest flows of value created locally (circular flows, local craftsmanship, SMEs), to give flexibility and choice (based on local cultures and traditions), to regenerate soils and contribute to cooling the climate (carbon sequestration, crop adaptation), while at the same time opening up the possibility for living systems and ecological processes to evolve. The model is based on individual and collective investments for agroecology applied within the framework of a transition process that includes 12 steps (described in Chap. 4). The pilot initial goal was to test the functioning of royalty on revenue (percentage of sales) and risk-sharing mechanisms.

In this new phase, the author, together with the MAB, and the Centre for Agroecology Water and Resilience (CAWR), in Coventry University, with expertise from a group of international experts, decided to initiate activities at a reduced scale. Seed funding came from the University Innovation Fund (15,000 Euros) and the Heidehof Stiftung (4400€) which then continued to provide regular seed support to the MAB network.

Consultations with the AN farmer association (founded in 2001), with UNAC Headquarters in Maputo and with UCAM the UNAC District Office were held in 2015 to decide on implementation modalities at a reduced scale. It was agreed that UCAM would manage the project to be implemented by the AN association at district level and

that an International Steering Committee would provide guidance at international level. A full-time agroecology technician would be detached from UCAM to work with farmers, coordinate activities at field level with AN and collect data and a UCAM accountant would assist with project accounts.

Three independent and complementary Committees were created:

1. AC—Farmer association Committee (President, Vice-President, Treasurer, Secretary, Head of Production) created on 23 October 2015 meeting regularly;
2. IC—Implementation Committee (UCAM President, Vice-President, Accountant, Agroecology Technician; all members of the association Committee; UNAC project coordinator) meeting on average every three weeks;
3. SC—International Steering Committee (CAWR project coordinator, MAB coordinator, Biomatrix Water financial expert, MICAIA field expert), meeting on skype every month on average.

The leaders President and Vice-President of the AN association and President and Vice-President of UCAM are all women. Leadership is renewed every five years through elections. Following internal consultations, the leaders chose a group of 30 members of the association (out of 280) including twenty two women and eight men to be the initiators of the small pilot project scheme.

To better understand the processes of internal decision-making, an example of General Assembly (GA) is given (14 April 2016 extraordinary GA), in which the association raised matters related to the pilot project: the GA was called to remind the members of the content of the bylaws of the association, to discuss the participation of members to collective works and to discuss non-members of the association occupying association land. The bylaws were read to all and the fact that some members do not participate to the association weekly meetings was raised, as participation to weekly meetings and collective works is a pre-condition for being a member. Those who do not attend were reminded that they violate the bylaws. Members were also reminded of the obligation to pay annual contributions. Regarding the non-members on the association land, members were told that no member is allowed to sell or give to someone else land without the approval of the association leading organs. Double registration in two different associations to have more land is not acceptable. The other points

discussed, directly related to the project activities, included the need for cleaning the canals and the pilot project Regulations document. One clause of concern to farmers was: "In case of non-compliance, UCAM would take the necessary measures: 1 – call of attention; 2 – suspend membership." The word "suspend" was clarified in that it did not mean "exclude".

The members of the AN association who joined the project were conscious of the fact that this was an unusual project in that it was designed and meant to test a hypothesis and to get proof of concept (after refining the approach through feedback loops). As such it was not a "development" project such as the usual grants from donors. They knew it could be a failure, but they also knew that they had their word to say and that it would be heard. They also knew that over and above the proof of concept on an innovative financial scheme, what was at stake too was to demonstrate that peasant farming is profitable when given the adequate conditions. There was a pride about it. During the initial talks in the early years 2012 and 2013, the UNAC Headquarters coordinator used to talk with farmers about a dream, the dream of creating a world peasant fund dedicated to the peasants of the world, with the first seed being planted in Mozambique, to set up the funding mechanism. After realizing the opaque resistance of the financial and investors' world, and their clear inability to grasp the peasant farming concept which could not be understood through the "logic of the market" lenses, the dream vanished. But the desire remained intact, as the dependency and subjection to donors were not felt to be satisfactory.

During the first days of the project, the discussions turned around the use of funds. Donors have accustomed "beneficiaries" to the idea of grants. Here the idea was about individual and collective investments and about the need to pay back the loans or credit in a way that would be suitable for peasants. The local perception of credit is negative. While most have never been able to receive loans from banks, those who have, mostly men, have found themselves in great difficulty. UNAC itself was the most reticent to the idea of credit and to the initial idea of having a bank as partner, after having gone through bad experiences with banking institutions and having had to find ways to "rescue" farmers. So the initial debates were animated, weighing the pros and cons. The automatic tendency when a credit is made available is to set an interest rate as banks do. The project proposed different modalities to enlarge the range of possibilities and allow farmers to choose upon and invent new ones if they wished.

The three main modalities that were suggested were as follows: 1) *individual loans*: an amount is decided by the committee of leaders of the farmer association after deliberations, and the loan is to be paid back by the individual with an interest rate, for example, 10% after harvesting and selling the produce. 2) *Collective investments*, considering that farmers would be able to find by themselves what they would need for their own investments, funds would be mobilized for those works that are needed but that they cannot do alone, and which are of collective interest such as water management, terracing, fencing, greenhouses, market storage, buildings and so on. The users pay a fee to repay the investment. 3) *Combining individual and collective investments* with a repayment that is calculated on the basis of a percentage of the sales (e.g. 30%) thus having a risk-sharing mechanism between the individuals and the funders. After a bad harvest (or when prices are low), farmers pay little (and do not lose a collateral); after a good harvest, they pay more (but they also earn more).

Modalities were analysed and it was found premature to have a risk-sharing mechanism on the individual part of the loans as there was no way to control how much was harvested or sold by individual members. They could sell "on the side" without the association knowing and being able to control the collection of 30% on sales. Regarding amounts, members agreed on a plan for the new agricultural season and on priorities and amounts needed for individual and collective investments. The following agreement was reached: each member would be entitled the first year to up to 10,000 MZN (equivalent to 210€, exchange rate Euro/Mozambican metical November 2015 at 47,51), considering that members have approximately between half to one hectare of land. Individual loans would follow modality 1 with 10% interest rate on repayment after sales. Collective investments would follow modality 3 and be paid back within the next four years, with 30% sales.

A contractual agreement was prepared, agreed upon and signed on 28 April 2016 by all 30 members. In addition to the contract, a Regulation (rights and obligations) document was prepared, discussed, agreed upon and attached to the contract. The Regulation document specifies that 50% of the Committee members must be women and that at least 50% of the beneficiaries must be women; the loans are dedicated to agroecology; all members must participate to the collective activities on the communal fields; every beneficiary has the right to know the price of selling the produce; beneficiaries must participate to the meetings they are conveyed to.

The Implementation and association Committees decided that individual investments would cover seeds, planting material (potato tubers etc.), services (hours of tractor or bullocks to level the fields) and implements (hoes etc.), for a total of 300,000 MZN to be paid back in one year. Collective investments would be used to pay a borehole and a water pump (plus a salary for a guard), for a total of 363,000 MZN to be paid back in five years. Investments totalled 663,000 MZN.

Once investment modalities were defined, the agroecology technician Mohammed Obulialia together with the association Commission and the Implementation Committee decided on the plan of action for implementing the individual and collective investments and for the planting season. He drew from recommendations from an FAO horticulture expert who undertook a field trip to the area and had recommended varieties of tomato, potato and onion. He helped the AC and IC to provide price quotations (for seeds and equipment), analysed companies (for drilling the borehole) and technical specifications of the equipment to be bought (water pump, tank etc.) and coordinated the purchasing and installations. Every step was discussed at the AC and IC meetings and shared with the SC that was providing feedback and guidance.

Mohammed was also following up the cropping season and was responsible for field data collection and for undertaking individual interviews with all 30 farmers. Questions for the baseline data included describing the land cultivated (number of plots, area, distance etc.), crops, yields, main difficulties, amount invested in inputs such as seeds, ways for farmers to find money (savings, family, loans), the functioning of the association in terms of decision-making and participation of the members. When asked about future dreams, the most common reply from farmers was to have a happy family; for others, it was a truck to transport the produce from the farm, a good house, a well-established business, a better life, a rich and healthy family or happy children. The major problems encountered were essentially lack of water to irrigate, salinity of the water and low market prices.

The planting season for the individual plots with the pilot investments started in March 2016. Once the decisions on the agroecology farming system were agreed upon and each farmer had said what she/he wanted in terms of seeds and other small implements, the technical coordinator purchased the material in bulk and organized a collective distribution. On 28 April 2016, farmers gathered to collect the inputs and to sign the contract and regulation. The tractor was hired to work on levelling the individual

plots of land. Bullocks were also hired to plough small plots. Service payment was part of the individual loans. On the collective side, four new collective plots were added totalling 2.7 ha, used for two cropping seasons per year, planted in April and later in October with the following main crops for the market (and other crops in intercropping): one plot of 216 m by 30 m was planted with cabbage, another one of 177 m by 78 m had onions and sweet potatoes, another one of 140 m by 20 m was planted with orange flesh sweet potato and another one of 214 m by 20 m with green beans. Initially, the thought was to add new cash crops as advised by the horticulture expert: tomato, onion and potato. The members having decided to have a borehole rather than greenhouse, tomato was abandoned. Potato was also in part replaced by cabbage and French beans, as there were difficulties to find planting material of potato due to the drought in South Africa. Farmers reverted to their usual and traditionally planted crops which included maize, cassava, sweet potato, cowpea, carrots, cucumbers, Irish potato, cabbage, green pepper, okra, pumpkin leaves, lettuce, beetroot, aubergine, tomato, onion, green beans and so on. The preferred crops in the driest areas were sweet potato, cassava and millet. Some farmers added new plots beyond the three or four they usually have and negotiated with their neighbours new leases (e.g. for five years). But the water remained the main bottleneck to further expanding the cultivated land, and farmers continued to water their plants with a watering can. The water pump and accessories with diesel generator (the solar powered one was not found suitable) and a water tank were bought for the borehole and installed and the paperwork for the borehole made. But the tubes were not installed in the first year, and the canals running from the borehole to the collective lands (at a distance of 800 m) were invaded by dense vegetation and needed drainage. The IC paid a company to clean the canals with an excavator (requiring 40 hours of work) but the work was postponed.

The water problem persisted and was generalized in the whole region. In 2015 and in 2016 a severe drought hit all the south horn of Africa. The persistent drought severely affected farming in Marracuene. The soil was dry, the water levels at their lowest and water unsuitable for irrigation with high salinity levels. It was followed by erratic rainfalls which did not allow farmers to forecast their planting season, as they could not know what to expect in terms of weather.

Regular technical skypes (between the author, the UNAC coordinator and the agroecology technical expert) were held during most of the year

(usually twice a month) specially during cultivation season. These were used to seek guidance on specific technical needs. One example was on 10 June 2016 when Mohammed alerted on a massive worm infestation (of a larval stage of a moth) making holes on the stem of cabbage (*Hellula undalis*) spreading fast in the fields, specially in the communal fields that had less crop diversity. This was amplified by the fact that the neighbours, who were not following agroecological principles, were using pesticides, thus prejudicing those trying to use natural control methods. The SC provided advice and suggested remedies and at the same time put farmers in touch with other specialists working in the country facing similar problems. A Cuban agroecologist based in the north of Mozambique, Zenen, after seeing pictures of the diseases also provided local recipes using ashes, soap, tobacco leaves and *piripiri* pepper.

The months of project implementation were punctuated by a series of problems and dramatic events. The saddest one was the death of the most proactive member of the association, who had been one of the most motivated persons since the start, helping all members in any way he could with total dedication, Arturo Mazive, formal Secretary of AN, who will always be remembered with great love and respect. In addition, the extreme droughts, the erratic rainfalls, the serious pest infestations and the water salinity making it improper for irrigation resulted in very poor harvests despite the tremendous dedication and efforts of farmers and the hard work in their fields.

The effects were clearly visible on the land. The crop varieties that had been recommended by the international horticulture FAO expert all died. There was no harvest of the trials made with some seeds of tomatoes, onions or potatoes. Instead there were local varieties of small onions clustered together that could resist the drought and traditional varieties that quickly replaced the introduced ones when conditions hardened. It was revealing to visit the fields in times of drought and see the clear difference in strategies between fields cared by women and those by men. In practically all cases observed, men had favoured cash crops with less diversity in their fields, and with the drought and diseases, the plots were looking desolated. Most women had reoriented their choices, when climate became too instable, and kept the seeds they had acquired from the individual investments, for planting later in the year. Instead they modified the soil structure in their plots, making hips in different parts of the land, with a high diversity of intertwined sweet potato, cassava, been, maize, millet and many more, watering each plant with the water can. The look of the fields

was different, with a feel of green abundance despite the drought, with plants with different root depth and height for solar, water and nutrient optimization. These crops were mainly for family consumption, and little was available for the market. In addition, other problems piled up such as low prices on the market, greater difficulty in transport to bring the crops to the market and the unresolved issue of security for the pump (the guard left, and association members would sleep at night near the pump).

In these conditions it was difficult to imagine how to repay the loans. And the main question was: who controls the money? Already during the second meeting of the Implementation Committee, in October 2015, the question arose from one of the members about why the money was deposited in the UCAM account (the Marracuene District branch of the UNAC peasant organization in Mozambique) rather than with the AN farmer association itself. That was an interesting point. This decision had been taken by UNAC Headquarters to provide some initial framework and guidance to the association. But what actually happened is that the UCAM intermediary role was a hindrance for the association, which did not feel that it had full control and responsibility on its own investment fund. In a way this preparatory phase was necessary as, when the decision was taken a year later to transfer the fund to the association, the process of opening a bank account and training a treasurer and deputy treasurer took time and is still ongoing, as we are writing. But in terms of motivation there was a clear shift, an inflection point, the day the decision was taken and approved by all parties concerned to move the funds to the association. That day, the association took total ownerships of the processes of decision-making and became increasingly motivated and active. There had been some mistrust towards UCAM, and once this UCAM phase was over, the full momentum really took off.

In December 2016, at the end of the contracts of the two detached UNAC support staff (technical coordinator and accountant), the Steering Committee asked the full transfer of responsibilities to the association. The decision was approved by the Implementation Committee and UNAC. The UNAC coordinator, Renaldo, highly knowledgeable in building social processes, and with years of experience as regional representative in *La Via Campesina*, played a decisive role in the success of the transition. UNAC Headquarter in Maputo did a full audit of the project accounts and found three points of concern: 1) some amounts of seeds that had not been distributed to farmers, 2) discrepancies in the volumes of cement for the construction housing the borehole and the water pump

and 3) a delay in fulfilling works within established deadlines, from the company contracted to clean the water canals to improve drainage. UCAM resolved points 1 and 2 and is negotiating point 3 (still to be resolved as of August 2017).

The association undertook a series of administrative procedures to update its legal registration and to formalize its documents in order to be able to open, for the first time, its own bank account. The opening of the account was successfully achieved and greatly celebrated, on 13 March 2017. UCAM transferred the balance of the funds to the account of the association. The total amount in July 2017 was 434,093 MZN (6037 Euros, exchange rate EUR/Mozambican metical 71,9) of which 112,451 MZN was the balance of the account including repayment of loans and the rest, a transfer from the MAB network for the new phase).

There onwards a very dynamic process found its own rhythm with the association Committee meeting regularly, and an increasingly close intersection between the activities of the 30 members of the pilot and the activities of the other AN association members. The later felt increasingly involved, as activities of the pilot are presented and discussed during the weekly meetings of the association with all members. The other members knew they would also increasingly benefit from the water pump, the cleaning of canals, the soil levelling, the new planned agroforestry garden which now is a garden with seedlings, fruit trees and pineapple, the new market place that is being designed with marketing promoters being nominated to facilitate the selling of the produce at higher prices and many more.

The repayment of loans has been critical due to the harvest failure in the cropping seasons of 2016 (drought, erratic climate, water salinity, pest infestation). This added to the falling market price for the main cash crops, beans and cabbage (3 MZN per kg or 0.04€) meant there was no cash to repay loans. During discussions in November 2016, members who were part of the scheme proposed to sell their own possessions (one spoke of a wooden cart) to pay back the individual loan, which is what they said they would have done to repay a bank. The argument was extensively discussed internally and the advantages of a risk-sharing mechanism, if they would have chosen it, emphasized, as this would have meant no or low repayment (30% of sales). The SC and IC made very clear to the members that the loans were there to improve and not to damage the existing living conditions and thus selling personal items to repay loans was out of question. Instead a solution was found to reduce the debt by half.

The details of each loan for farmers had been registered and the items they received documented. Most of them had only taken half or two-thirds of their entitlement and had not used all the seeds, a part of which they kept in reserve. Thus, only 136,000 MZN out of the total planned 300,000 MZN were used. In view of the exceptionally bad weather and other price and pest circumstances, the AC decided to clear half of the debt and to request only half (72,000 MZN) of the capital and no interest rate. As of July 2017 reimbursements totalled 25,696 MZN (36% of total due). The SC proposed to find other ways such as hours of work in the orchard or to erase the total debt, but after deliberation the association decided to ask for the reimbursement of the remaining but without imposing any penalty in case this was not possible. Farmers continued to pay back little by little to the treasurer, when they all meet on Thursdays, and did not request the loans to be erased, as they knew that this paying back was going to a common fund that belonged to the association and that this would at some point return to them in one way or the other.

As time passed it became clearer and clearer that the turning point for the pilot was the moment the association had gained its full autonomy. Until then, the project was progressing, but with some delays and discrepancies on some of the activities. What the donors sometimes call the "resistance to change" when it is in fact a wise resistance to prevent future failures.

When the transfer from UCAM to the association was confirmed, things moved forward very fast. The GA in April brought the pilot new activities at the forefront of the discussions, and all members (close to 300) beyond the 30 direct pilot project participants themselves, followed closely the debates. A new momentum arose, unleashing a powerful internal dynamic. A series of discussions took place on priorities for 2017. The following were agreed upon: to plant an agroforestry orchard garden with diverse fruit trees around the borehole and pump which is an area that does not get inundated and has light sandy soils; fence the orchard garden (which the association named *Jardim Angela*) to avoid damage from animals; build a greenhouse for seedlings; improve the credit allocation and reimbursement system; make credit available to more farmers; train the treasurer and assistant-treasurer with a certified accountant; transfer the pilot documentation and archives to the association and create a register; train the association members in agroecology; improve marketing by creating a marketing commission with sales pro-

moters who are members of the association; increase profitability of the use of the borehole water in the individual and collective fields and clean the water canals.

The association Committee, which since the closing of the Implementation Committee calls itself simply the Commission, expanded and now counts ten members (five men, five women) plus one member, Renaldo, from UNAC and all others from the AN association. It has now created three Sub-Commissions: one on finance to keep the accounts, one on production and marketing, which also buys the equipment for collective investments, and the third one on training in agroecology. Each Sub-Commission has four permanent members. A new credit contract has been prepared for the new planting season with loans up to 1500 MZN (21€) per person for individual credit, with 10% interest rate for a period of six months (which can be extended to maximum one year), and 10 additional farmers selected by the association (on the basis of their motivation and participation to communal activities) and invited to join the scheme; activities to train in agroecology were initiated during the weekly meetings when all members attend, with presentations by two association members, Angelica and Casilda, who had been trained in short 7–10 days training courses given in Mozambique (one by Zenen Cuban agroecologist, the other by Steve Gliessman, Pablo Tittonell and other members of a FAO team); three groups were formed for the collective activities on the communal fields and they regularly meet on Tuesdays (led by Armando, Commission Chief), Thursdays (led by Judite association President) and Saturdays (led by Bartromeu President of Fiscal Council); in June, the land was prepared for planting the orchard and 200 pineapple crowns, 25 orange trees, 25 mango trees, 10 avocado trees, 10 guava, 68 medicinal drumstick tree (*moringa oleifera*), cassava and sweet potato were planted; Armando is organizing the association register to file documents and credit contracts and reimbursement tracking; a security guard has been identified to live on-site, near the pump, and the small office will be expanded into a marketing site (*casa agraria*).

In its last meeting in July 2017 the Commission identified the positive and negative points. The positives were: the water borehole for irrigation, the fruit trees planted collectively, individual credit, training in agroecology and accounting, opening the association bank account, reorganization of the social organs (*orgao sociaes*) of the association, the transfer of the project from UCAM to the association and the transfer of new funds by the MAB (4400€). The negatives are: climate change with the drought

and the rains that affect the crops, delay from UCAM to transfer the funds to the association account and pending cleaning of canals from the company contacted by UCAM in 2016. Challenge: motivate people to participate to agroecology training sessions using the collective activities as demonstration areas.

A new detailed 2017 budget was entirely prepared by the association Commission, divided into nine key activities: 1) field preparation (animal traction, 81 fruit trees, horticultural seeds, 1500 pineapple crowns, biofertilizers and organic pesticides) 678€; 2) collective marketing (building a common selling point—*casa agraria*, packaging material) 875€; 3) irrigation (water tubes, 100 l diesel for the pump) 1020€; 4) training (one treasurer and two assistants, agroecology for members, four marketing promoters) 219€; 5) individual credit, 653€; 6) administrative costs (desk equipment, guard for the association headquarters and water pump/borehole seven months) 450€; 7) greenhouse, 1742€; 8) fencing of the orchard garden, 1016€; 9) contingencies, 435€. Total 7088€. The association starts with six activities and keeps a 30% reserve fund as buffer which can be used only when funds are replenished. Some activities have started already (the fencing of the orchard and pipes have been bought etc.), and as of August 2017, works are actively progressing. The starting date for distribution of individual loans to farmers was arranged for 24 August 2017.

The decision was to increase the number of farmers entitled to credit with 10 more and put the ceiling of individual loans to 1500 MZN (21€) for six months. This decision contrasts with the initial individual loans the previous year, that were for 10,000 MZN. So the optimal amount has been reduced. The Commission also decided two innovations: firstly to annex to the contract a detailed plan of use of the funds which will be first agreed upon and then written by the farmer (with the help of the Commission if needed); secondly the Commission will follow up and accompany the use of the funds. The difference with the previous year is that there was no cash money given to the farmers. They had to state what they needed within the overall agroecology cultivation plan, and this was bought in bulk and distributed to avoid for farmers having to go to town to buy a few grams of seeds. But in some cases farmers had changed their mind in the meantime, and when seeds came, it was not what they wanted. So it was felt more appropriate for this new year to have cash and no common distribution, but at the same time close supervision, help and guidance, on the use of funds, by the Commission.

Regarding collective investments, the association has not yet been able to bear the fruits of the work done for the borehole and water pump as the tubes have not yet been put in place; it has not yet had the water canals cleaned to improve drainage and not yet harvested the fruit trees, but members are very motivated to expand on the existing site to build a simple marketing space with a space for storage and to start organizing the sales with promoters selected amongst its members. A slow food organization working nearby has contacted them to buy their vegetables which are pesticides and chemical free. The most positive outcome of this first year has not been in terms of total production, yields, big sales and the like but rather in terms of reinforcing the decision-making bodies of the institution and the skills of its members. It has also been about making a U turn, a total shift in the attitude of being usually a receiver of external assistance or foreign aid, picking a few things here and there and leaving the rest (to the dismay of donors), to being in full possession of the strings that can be pulled to make change happen, with full responsibility of the results.

The Commission also decided to organize a new plan for agroecology training for the AN members and for those interested, who can also be neighbours outside the association as they consider that this will avoid chemicals around the association land. The Commission proposes to have an internal mapping of the training process in agroecology. They would like to share their experience with other agroecology initiatives with three to four members going somewhere else in Mozambique, Africa or beyond, to visit other agroecology schemes, in an exchange programme. They will use the agroecology orchard as demonstration (*machamba*) field. The programme for members, essentially designed by the agroecology facilitators of the association who will train the members, has been declined in 12 points: theoretical training based on participative rapid diagnosis; analysis of the production problems and definition of local solutions; sharing of experience locally with other organizations; preparation of bio-fertilizers with cow dung and bio-pesticides; peasant farming practices and crop rotations; soil coverage "dead/live" and protection against pests; preparation of soils with minimal disturbance; production and conservation of local seeds; preparation of improved manure; definition of spaces between the association of plants; reinforcement of collective production in demonstration plot and use of local products: charcoal, ash, cow or chicken manure, bagasse, banana, sweet potato, cassava and rice or millet.

The Commission developed an agroecology programme for a 60-day training course in eight phases for 160 people with one week of practical

training in each session. The proposed budget totals 420,000 MZN (5841€) including training material, meals, exchange programme for three farmers for seven days, building of the *casa agraria* for marketing and to be used as a training space.

And things continue, by themselves, without the need of external "assistance". A powerful momentum has been triggered and is finding its own pace with the people of AN. It is now that the story really starts; it is now that autonomy is recovered. To conclude, the story of the initial phases of the pilot in Marracuene, we can say that the project failed and succeeded at the same time, or neither one nor the other. There is no proof of concept, as initially planned, that investors could earn money by investing in peasant farming, in this particular context. Drought, erratic rainfalls due to climate change, crop diseases, low market prices, health deterioration of leading members of the group, the passing away of the one member who used to help the others with transport to the market, the country deteriorating national security which hampers movements on the roads, all of which are outside the control of the farmers, have made it difficult to harvest volumes and to earn cash for repayment. Local conditions were too difficult and did not make the cropping season "profitable" during this first project year. This may very much change in the future. But this is probably the best proof that financial extraction cannot and should not work in this context. What would banks have done to recover their loans? Other ways of exchanging value in human societies at large, and of accessing value, need to be imagined or re-invented, and this is now the main research focus of the author. The financial institutions are anchored in narrow principles and objectives that do not align with the movements of life at large. And peasant farming is embedded in life itself. It does not function in this limited logic. Indeed, as recounted at the beginning of this chapter, trying to innovate in finance was a Sisyphus path, strewn with impossible communication and disappointment. These different worlds are light-years apart.

But what happened then in AN in reality? In reality, there is an extraordinary perseverance of the people on the ground, anchored in the land. Despite the harsh conditions, the group of farmers involved in the scheme kept going, and the work continued, keeping hope and solidarity alive. There were tensions and disagreements, but these were expressed and aired in the somehow protected precinct of the open *agora*, the meeting place and market place, of the association, under the wings of its leaders. There was no sign of discouragement or of wanting to pull out of the

project; on the contrary, the exchanges, visits and meetings continued at the same pace, with this natural acceptance, the same rituals, dances, jokes, formal and informal discussions punctuated by laughing, singing and lively mimicking and animated debate. Despite the low harvests, peasants did make enough to make a living and life goes on.

In fact, what did actually happen is that with seed money, which in the development world would be considered no money at all (15,000 Euros, then 4400 Euros), a deep transformation in the association took place. This is where we can speak of inflection or acupoints. By providing an influx in certain critical points corresponding to specific bottlenecks, waves of transformation began. This takes time to be started, but when it does, it goes fast. The money went to resolve the water access (borehole), the cleaning of canals (drainage), the levelling of the land, the increase of diversity with seedlings of new varieties of crops and fruit trees, the need for small implements and tools and so on. Another example of acupoint was the possibility to exchange and see what was happening in other places. During the project some members went to Nampula, in the North of Mozambique, to see how cooperatives were functioning there. Others went to Tanzania to see how peasant markets were being run. Another positive influx was the training in agroecology by different external experts who came to Marracuene. It was this newly acquired expertise, and exchanges with other's initiatives, that brought a series of new questions and proposals. Of course, all this is not new. But it is *the way* in which it was happening that meant it had meaning and significance for the primary people involved. They were choosing themselves what they wanted or needed, at their own pace. Another important element was the different Committees with established processes for decision-making. The turning point was when the association was able to open its own bank account. This is when the members undertook the cumbersome administrative procedures to get the official association paper work straightened out (which will also reinforce their access and control on the land in case foreign investors would want to take away "idle" land). The members actively started a new planning process including the fenced orchard garden, the marketing site (*casa agraria*) which will also be a meeting point, the irrigation systems, the soil preparations, the office and register, the greenhouse, as well as the agroecology and accounting training. Some of which are in the pipeline to be funded later. There and then, suddenly, the possibility to invent another future, to look at a new horizon, opened up.

Some of the steps to reach that point will be described in the following chapter. The 12 steps had been described before the pilot, as they were identified as being some common steps underlying successful agricultural transitions in different parts of the world and were found instrumental in the implementation of the Marracuene pilot project.

People from Alfredo Namitete in Mozambique

Thought Leader

Thought Leader

Thought Leader

Thought Leader

Thought Leader

Thought Leader

Thought Leader

Thought Leader

Thought Leader

Thought Leader

Thought Leader

Notes

1. See film by Charles H. Fergusson. 2010. "Inside Job."
2. Reportedly subject to negotiation by international investors between 2006 and 2011 much of it in low-income countries (HLPE 2013).
3. Personal communication Dave Chen, 2014.
4. Socremo Bank, Mozabank, Banco Opportunidad, Ecobank, BancoTerra, Agence Française de Dévelopment (AFD), Thembani Guarantee Fund and later Triodos and Rabobank.
5. See T21. Available at http://www.millennium-institute.org/integrated_planning/tools/T21/T21_sf.html (7 August 2017).
6. International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD 2009).

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CHAPTER 4

The Threads of Repair

Abstract This chapter proposes 12 steps for an agroecology transition. These have been developed based on the observation of successful transitions worldwide. They are not incremental nor in a particular order and can be used as and when needed as an inspiration to the transformation process. They are about democratic consultation and negotiation, exploration of new practices, the re-organization of resources and the values that are shared by the community, and they leave an open space for communities to themselves design their own futures. They suggest a reweaving of the social fabric, together with the enabling policies that can facilitate more viable farming globally. What is proposed here is not a fit-all scenario, but rather the re-connection of new webs of relationships that can trigger renewed forms of collaboration, which in turn have the power to foster intensive farming systems able to produce nutritious foods and societal welfare.

Keywords Democratic consultation • Values • Mapping • Emergence • Policies

Chapter 2 recounts the story of an agricultural transition to agroecology, in a farmer association Alfredo Namitete in Mozambique. A pilot project tests new ideas for accessing individual and collective credit for peasant

A. Hilmi, *Agroecology*,
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farming. The strengthening of local links and relationships, the new connections with the outside and the re-organization of internal dynamics have triggered a deep transformation and created a new momentum for change. This came about progressively, through the ideas and actions of the people of Alfredo Namitete, with seed money and guidance from a team of international practitioners. The approach that was implemented was based on steps that are not specific to this pilot project and that had been instrumental in other parts of the world.

These steps are described here in case they could be found useful elsewhere. They can be used as inspiration for re-orienting the inner flows for agroecological transitions within communities.

Twelve Steps for a Transition

Transitions are capricious and difficult to tame. They contain elements of surprise and force people to deal with the unexpected; hence the need for active involvement and for a diversity of ingredients, to make sure that they can follow their own specific trajectories. Peasants would often like to do more and differently, but they are constrained; how to unleash that locked potential, the unlimited abilities "on offer" that lay idle? Twelve steps are proposed here. They are not incremental nor are they in order but they follow a reiterative process. The framework that is presented can be visualized as a painting for which only the frame is being built and for which the painting in itself is left blank for local communities to do the painting and mix the colours as they wish. The surrounding framework, instead, is carefully designed with clear roles and responsibilities for the different players involved. In other words, the framing that surrounds this centre of open possibilities will contain the values, the principles and the conditions that can allow the emergence of endogenous development until it becomes self-propelling.

A transition is a process or a period of changing from one state or condition to another. The word comes from *transire*, "go across". The purpose here is to present the possibility of a path to go across the bridge of unsustainable current practices in agriculture. The steps do not necessarily follow each other as there is no pre-established sequence, but there is continuous reiteration amongst them.

Transitions are multilayered, multilevel, multi-actor, multidimensional and multistage. Central in transitional processes is the creation of

new connections and patterns that connect people, institutions and resources that were, until then, isolated. This is where local conversation and democratic consultation take all their importance. Transitions are very much about the exploration and creation of these new connections.

To follow these steps some conditions need to be met: for a transition to materialize, basic rights need to be recognized, access to an outlet such as a market needs to be made possible and farmers need to have the basic means to produce. Then, a transition can take place, and when it becomes successful it starts to be self-propelling and to go through complex progressive stages. It is also important to know that in transitions there are periods of confusion and the construction of temporary technologies which may appear at first sight irrational, but they are the ones that allow a smooth passage from one stage to another until a more adapted form emerges. Another characteristic of transitions is that they often need people who facilitate interface and help make things happen as they feel committed and align with the common goal.

The 12 steps that are presented here constitute the framework for this transition to materialize. Usually, the common approach, when building a framework, is to fill up boxes. In this case the approach will be different. The idea is to leave the boxes purposely empty. To keep them blank so as to leave an open space where all futures are possible. The surrounding is designed with clear roles for the different players involved: farmer organizations, regional cooperatives, policy makers, political leaders, investors, corporations, scientists, citizen groups, businesses and many more. In other words, the framing that surrounds this centre of open possibilities will contain the values, the principles and the conditions that can allow the emergence of endogenous development (defined as a self-generated development which is essentially based on local resources). Open spaces for autonomy are voluntarily opened and left to the ingenuity of those who decide to re-organize their resources with the aim of transforming a grim reality into flourishing dynamics. Obviously this is not an easy path to take, and it does not go without struggles and battles, but it is alive; it brings back life. Resignation and misery can give way to questioning, revisiting, trial and error and creativity. Probably chaotic, and intermittent at the start, it can find its own rhythm if it is guided by confluent very long-term visions defined for and by the community. When relationships

are being rebuilt, when links are reconstructed, when resources are re-evaluated through different lenses, when outreach beyond borders allow innovation to flow and novelties to emerge, then the space for thinking, expanding and thriving is brought back into existence.

A sad process to witness is the slow and seemingly irreversible decay of whole territories and regions previously endowed with landscapes of aesthetic beauty, falling into the hands of outside powers of control that dictate form, size, quality, delivery, price of monotonous large quantities of low quality commodities imprisoned in strictly regulated processes, being delivered far away to impersonal plastified outlets. It is difficult in this context to imagine the encounter by an anonymous consumer with the pleasures and delights of foods. When human relationships are absent and the consumers lose knowledge about what they are eating and where the food comes from, pleasure fades away. Whole territories lose their identity in this way and this is the tragedy of our times. But we know that a lot could be produced in a different way. The question is how to re-establish another way.

We have learned from the development interventions of the last decade that one master plan fits-all does not work, nor does a solution imposed from the top. What makes a difference is to set free the productive capacities, imaginations and willingness of those who are in the countryside. This means that we neither have to start from scratch, nor do we have to start everywhere at the same time. Due to a variety of reasons (different ecosystems, different social organizations etc.) some places start transitions earlier than others. These are the places that can be converted into true learning spaces for progress, especially when outside means are made available. Once these promising places turn out to be successful, then attention shifts to how this can be facilitated and extended to wider areas. Facilitation will mean that instead of blocking these unlimited ingrained potentials, the purpose will be to provide the means and tools that are needed to accompany these various transitions at various stages.

A pro-peasant mechanism that can positively accompany transitions could be thought of but has not been invented yet, though we know that this is where value and a vast potential of dynamic creation of wealth exist. Nowhere yet has there been a transition platform created specifically to imagine, invent, build and give access to tools and mechanisms of the third millennium specifically aimed at peasants. Legal knowledge, financial

tools and many more are still to be invented to fulfil the unlimited potential of peasant communities not only in rural areas, but in urban surroundings too; tools and mechanisms that can make it attractive for younger generations to engage in the crafting of foods and services of the third millennium.

The Importance of Void

The following steps are taken from real life processes of change that are already occurring in many parts of the world. To facilitate their understanding, one concrete example is chosen here (presented in italics), the North Frisian Woodlands[1] (NFW) in the Netherlands, to illustrate each step, with the understanding that the proposed principles can be applied worldwide.

1. Local Conversation

The process starts on the ground, at the level of the communities. It corresponds to the need felt for change, either because of a situation that has become unbearable, usually due to pressures from the outside, or due to an increased degradation of resources and quality of life within or sometime due to an emerging strong belief that things could be done far better. The characteristics in regions and countries widely differ, but the mechanics and dynamics are alike. Mobilization starts on the ground, triggered by diverse purposes, when some individuals, women and men, coalesce around the opening up of new opportunities; they all encompass the search for a better quality of life be it in rural or urban surroundings. In the farming context the purpose is to bring back acceptable conditions of production linked to basic social and labour rights, together with access rights. Along the process, access to specific tools can be facilitated by an open platform to support the premises of change towards diversified forms of existence. This is especially true when people feel themselves that they could do better and translate this into proposals that are encouraged by those who align with their purpose.

In the NFW, during the early 1990s a national law (on ammonia and animal production) was implemented to protect nature from acid rain. The new regulations implied that in the hedgerow landscape, agricultural activity would have to be frozen. The proposition provoked considerable anger in

the area. The argument was that farmers had created that landscape and had always taken care of it. Mobilization begun and farmers started to develop a proposal for an alternative solution.

2. Mapping of Resources

Looking around with a fresh look will allow us to map opportunities and constraints in a different way. The reframing of existing resources can transform sources of pollution and nuisance into assets that can feed back into the production loop. In addition to mapping resources, mapping the territory is a tool widely used that provides a powerful projection to the future, presenting visually what could be, and a bonding exercise towards a common vision. Comparative approaches that explore heterogeneity and compare in quantitative and qualitative terms the way resources are being used in different ways of farming (e.g. industrial versus agroecological) are often an eye opener for those taking a fresh look.

The municipality promised not to declare the hedges acid-sensitive elements in exchange of the promise from farmers to maintain and protect the hedges, ponds, alder rows and sandy roads of the area. Thus, farmers' willingness to maintain and further develop natural elements emerged as an important resource. Consequently, six associations were created with this purpose, and they took responsibility for caring landscape, nature and biodiversity. Thus state objectives were secured but through other more appropriate means.

3. Exploration of New Practices

Post-modern tools for peasants, different from those developed in the modernization paradigm, are still to be invented. Many viable practices exist in different parts of the world, but new tools need to be invented to bridge them and take them forward (e.g. sophisticated patterns of intercropping and mixed cropping exist in many parts of the world, experiments are now brought forward in some areas such as cereal and vegetables in pastures in permaculture but these are not widely shared). Here there is a whole new field to be explored. Having access and sharing knowledge and services could be facilitated by virtual platforms able to merge different forms of connectivities involving a skypepeasant with wikipeasant and google-for-peasants and many more still to be imagined, that could be interwoven into the fabric of local and experiential knowledge, mixing subjective and objective knowledge towards novel forms of applied knowledge. The purpose being to open-up the possibilities of novel technolo-

gies made by and for communities, thus facilitating independence, autonomy and self-determination. Open source access to the depth and breadth of millennia of accumulated knowledge related to agriculture, with due protection against knowledge appropriation, can be a way to put accumulated wisdom at the service of peasants for trial and adaptation in different environments, a response to the vagaries of the weather and the climate (Fig. 4.1).

Knowledge Tools

The idea is the construction of diverse pools of easily accessible knowledge in different forms that can allow the opening up and expansion of possibilities at a local level, benefiting from the successes and failures in other places. This would (i) reduce the isolation of farmers and their marginalization at the edge of progress and dissolve the backward perception; (ii) bring forward the pride and recognition of the main artisans of our foods;

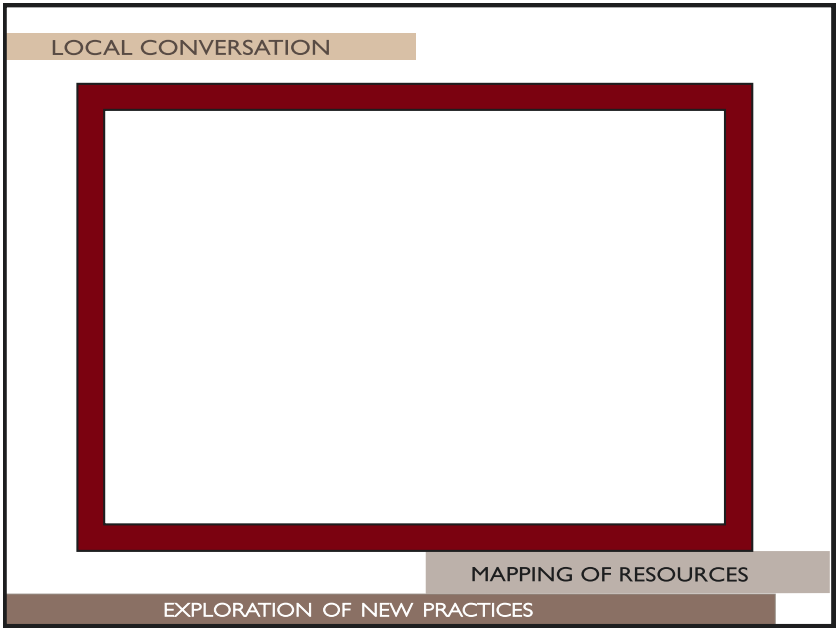

Fig. 4.1 Steps 1 to 3

(iii) open up the range of possibilities and (iv) increase the ability to better cope with changes and lead to all sorts of applications such as exchange and distribution of different seeds by peasants to be tried in their own fields and so on. New ideas could be tested in transitional spaces, strategic niches which would constitute the physical areas for experimentation.

Several novelties were developed and tested for the maintenance of alder[2] *rows, which later became the ingredients of the national programme for nature management by farmers. The associations designed an environmentally friendly machine for manure distribution (a machine appropriate for small fields surrounded by hedges and alder rows) and succeeded in engaging nearly all farmers in the management of nutrient accountancy systems.*

4. Democratic Consultation

The initial conversation, the mapping of resources and the exploration of internal and external knowledge (both subjective and objective) by a small group of motivated individuals within the community will then transform as the momentum grows into a more structured consultation process involving additional local and external players. A democratic consultation can take place with the possibility of making a coalition that is inclusive and representative and that is interesting for all parties involved which will then attract external players who might support it.

Farmers formed the first association to maintain hedges and so on. in the spring of 1992. Then a second one in autumn of the same year and another four were created in the surrounding municipalities, and together, during the course of 2002 these six associations and cooperatives created the overarching NFW cooperative. This cooperative is now actively engaged in regional and sometimes also in national debates about the future of farming. Simultaneously, it democratically organizes many activities in its own area.

5. Re-patterning

This is the time to engage in redefining long-term objectives, to reorganize or re-pattern resources in a different way to build a new series of links that facilitate the converting of local dynamics into newly formulated logic. This is a reiterative process that goes back and forth at the same time as the landscape and relationships are being transformed.

Two important modifications for participating dairy farms were strategic for producing effective environmental progress: the use of chemical fertilizer was

strongly reduced and slurry was rebuilt into good manure. Within a few years the curves representing nitrogen losses per hectare changed completely. The average loss per hectare decreased from 346 kg per ha in 1996 to 150 kg per ha in 2002. NFW also became involved in a wide range of activities for maintaining and improving nature, and as a result it was possible to achieve qualitative improvements of landscape and biodiversity far beyond those to be gained from single units of production. Gathering, analysing and understanding data about nature, landscape and the environment became a large research programme carried out by scientists and farmers together. This programme shifted several boundaries between science and practice and transformed several boundaries within science itself while creating new levers for local self-regulation.

6. Shared Values

As numbers of committed individuals increase, the time comes to consolidate the bonds of the coalition with the crafting of the shared values (the commonly agreed ethics to be respected by all) and common principles (reflecting the main beliefs and the new philosophy of the group). These shared values or common principles help to link people and to strengthen the building of a promising future and the construction of new alternatives that will tie people together. Different forms of cooperation will be created with varying degrees of engagement that can form higher degrees of aggregations (social organization).

After several rounds of consultation, the NFW cooperative formulated a mission statement. This lists ten commonly shared values that reflect the history of both the area and the cooperative. They also reflect the interests, prospects and the emancipatory ambitions of its people. They involve community, the unity of human and land, farming gently, own rights and entitlements, performing better, reliability, progressing slowly but steadily, not being alone and caring for the future, with satisfaction and joy.

7. Negotiation

In the process, those leading change are confronted with unequal power relations. One of them is the access to resources. The key is the strengthening of farmer organizations and social movements. In addition, new tools to support peasant communities would be welcome, tools or mechanisms that can support the negotiation process. Thus, the second fundamental tool here is the legal support to communities which are not in a position to reclaim autonomy and rights. One possibility for a tool still to be

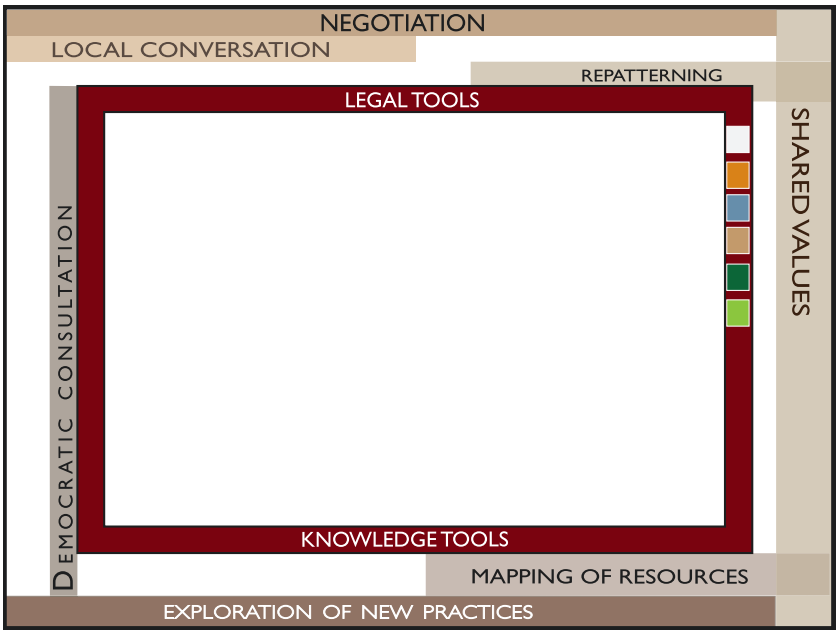

Fig. 4.2 Steps 1 to 7

invented is one that can facilitate access to a bundle of services, in particular legal services. An approach similar to the group of Elders (convened by Nelson Mandela in 2007, including Desmond Tutu, Mary Robinson etc.) could be sought. Instead of former presidents and political leaders, there could be a group of renowned lawyers at the service of the peasant communities that could intervene in specific litigation cases (Fig. 4.2).

Legal Tools

Legal tools can entail the creation of a group of lawyers able to structure an entity that can provide open and free advice and support to communities struggling for their rights. This can be done in close collaboration with the UN bodies and entities that have knowledge and access to information on specific laws and various legal instruments worldwide.

The first two nuclei involved difficult bargaining: the expectations of participating farmers and the surrounding institutions had to be brought in line. A solid contractual base for reciprocity had to be constructed without one

of the parties concerned feeling the victim of any opportunistic behaviour by the other. The effective grounding of the cooperatives took further shape when a contract was signed by the then minister of agriculture. The cooperatives obtained exemptions from legal obligations (such as injection of slurry into the subsoil) and room for large programmes and a new peasant trajectory towards sustainability.

8. Creation of New Links

Opening up new opportunities will result in the creation of new links. Novel arrangements can then be tried and be amplified. Once the new links are made, they will in turn open up new opportunities and challenges, bringing forward different ways of using and sharing resources that need to be discussed. Platforms of discussion will be created and evolve which will allow confrontation, alliances, argumentation, choice and mutual interaction and exchange.

As emerging ideas become more convincing, for example, energy-saving devices or the use of renewable energies or the search for less dependency on external inputs or the use of non-synthetic products or even activities which may or may not be directly related to farming, like small-scale processing, local industries, service provision, local markets, artisanal products, leisure activities such as agro and ecotourism, roof cultivation in cities, new quality products, new fresh products and so on, the need for investment may arise.

This will in no way resemble standardized projects, condescending aid, paternalistic approaches of development agencies, silver bullet packages designed by traditional expert systems in controlled environments. Within this framework, investments will go beyond traditional forms of aid that create dependency. It will be investments that result in the creation of new wealth and to which many rural people will commit to; in short, real world investments with real life accountability leading to transparency and regulations.

Financial Tools

This is where the need for new tools arises: the need for financial tools. Financial tools are still to be invented as currently occurring in other sectors (e.g. the UK social bond, using investor capital to reduce a social cost) that would be specifically designed for peasants, while being full financial

instruments designed to fulfil a gap, catalyse a possibility and grounded in the reality and scale that can make them useful. In addition, thinking can be pursued on the possibility of creating a world fund that belongs to peasants and serves the creation of wealth within peasant communities.

Good manure became translated into a major correction of the Manure Law that allows for local exceptions to a global set of rules imposed on farming. In the practice of farming this helped considerably to avoid huge cost increases. The web of novelties extends beyond the NFW area, into agrarian policy-making, into science and into changed soil biology beneath the area thus modifying value flows and investments in the regional economy and creating an enlarged goodwill for farming. The wood harvested from the alders and hedgerows is increasingly used for energy production. Thus the cooperative is constructing financial tools that might increase its dynamics, scope and effectiveness.

9. Agricultural Transition Platform

While the complexity of interaction, creativity and responsibility increases at local level, it is possible to imagine formalizing the creation of a more global forward-looking platform which brings together representatives of peasants, investors, policy makers, corporations, scientists, Civil Society and other relevant players to provide a space where the chiasm of confluent views and interests can find an amplifying beat. The success of the local regeneration of communities could be supported by a reiterative back and forth between local and global dynamics supported by such a platform that would provide open-access tools as and when required in a decentralized fashion.

From 2003 onwards the NFW greatly enlarged the field in which it operated (green energy, improving the quality of soil, air, water; strengthen recreation and tourism; cost reduction; animal welfare and health; improving quality of products; management of landscape and nature and land bank). The working plan contained 30 specific projects, which covered many aspects of the regional economy. Among those who signed the contract were the provincial government, the ministries of agriculture and spatial planning, the district water board, the five municipalities, the environmental federation, nature organizations, and Wageningen University. This agreement has resulted in the creation of a new territorial board in which the NFW and other partners meet at least twice a year.

10. Permeability and Synergies

During the transformation process, it is important to ensure that, while internal dynamics are being strengthened, the community is not isolated

from the outside and that connections and constructive links in the new fields are reinforced with exchanges with the outside. It can be the moment of confronting the ideas with the outside and of strengthened exchanges and learning. This would imply travel and visits to and from other areas and countries to share information and experiences in different fields such as agroecology, permaculture, regenerative agriculture, farmer-to-farmer, IPM (Integrated Pest Management), learning and testing different practices, techniques and technologies that can be adapted to specific scales and characteristics of production. It also includes learning about other forms of communal functioning, institutions and forms of access. This phase could be thought of as the synergetic plant-fungus relationship where both plant and fungi benefit, with expanded hyphae going further in different directions to explore and bring new resources (Fig. 4.3).

In the initial exploration of relevant heterogeneity, people in the NFW were convinced that many improvements are already available, albeit hid-

Fig. 4.3 Steps 1 to 9

den, hence there is no need to reinvent them. What matters is to find, unwrap, test and combine them. This principle was very important in the case of good manure, and with the construction of area-friendly machinery for slurry application with a specially engineered pump obtained from Germany.

11. Emergence

With expanded networks inside and outside the communities, and the exploring of different channels of production and the selling of quality products (local markets, nested markets etc.) and the fact that similar mechanisms occur widely, a qualitative shift occurs, the possibility of emergence or coalescence becomes real, with powerful ways of producing food and dynamic communities that become the norm rather than the exception. Instead of speaking of the industrial system of food production as the "conventional" system, it is the highly diversified, nutritious and dynamic multifaceted local family production that becomes dominant and the norm.

The construction of this now widely accepted and scientifically supported re-patterning of the social and natural world, contained in the micro-cosmos of the dairy farm, took many years to develop. The approach has spread, like ink dots, all over the country, especially since it impacts positively upon the economy of the farm unit.

12. Distribution of Wealth

In this context, additional value is created at local level resulting in global wealth, which is not captured by higher levels of aggregation. It is then possible to reinvest within the communities that produce that wealth (Fig. 4.4).

With a cooperative approach, the management of landscape and biodiversity could be lifted to the level of the territory as a whole. The cooperative management of nature and landscape creates an additional flow of income into the regional economy of four million Euros per year for the maintenance of landscape and biodiversity alone. During 2004, the average farm participating in the programmes for nature and landscape management gained an extra value added of some 10,000 Euros. Beyond this are considerable gains due to the novel practices that have been developed. For the participating farms this may render another 10,000 Euros.

To conclude, these are the 12 crucial ingredients of transitional processes. In elaborating them we have strongly drawn on real life processes

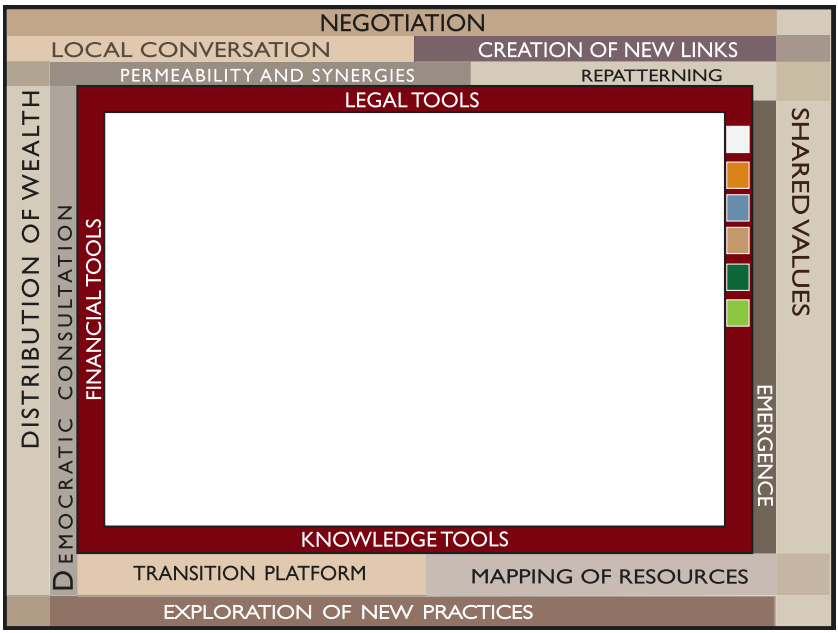

Fig. 4.4 Steps 1 to 12

of change that are already occurring in many places of the world, especially in rural areas. Of course this list is not meant as a blue print; transitions are always capricious, they contain elements of surprise, and during the transition people have to deal with the unexpected, hence the need for active involvement and different ingredients, and in every situation the transition follows its own specific trajectory.

As pointed out earlier, processes of transition have starting points which are those places where people decide to explore different possibilities that are laboratories for governments as well. These places are interesting because they show to what degree these new developments are solid. Transitions start in these promising points. We should not pretend to start with comprehensive plans as progress is to be made along the road. In a transition process there cannot be mainstreaming. It is only when starting points become convincing that they can be extended. In many places farmers feel that they could contribute far more but the possibilities are blocked. This is what this transition is about: taking these hindrances away. More wealth can then be unleashed than is presently the case.

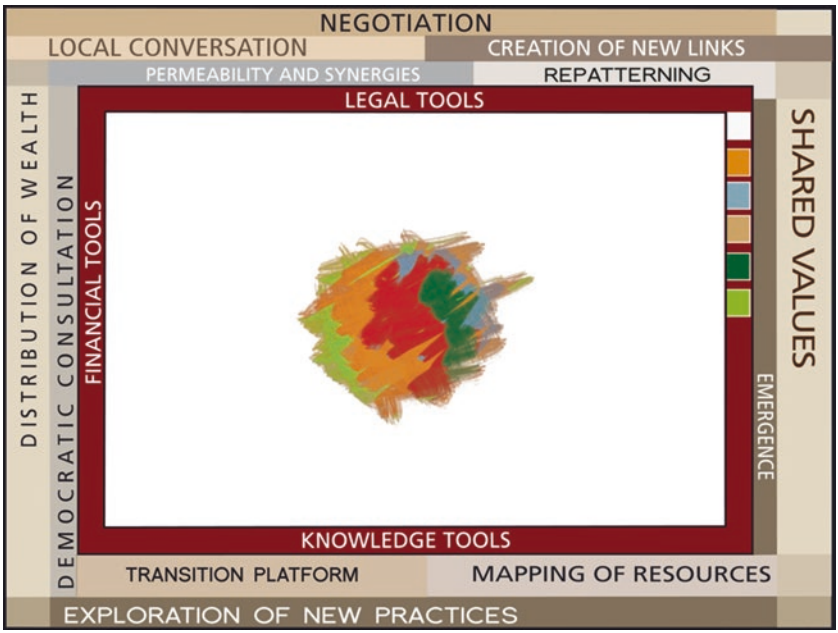

Fig. 4.5 The 12 steps framework

Different players can sit together and plan what is needed to bring the transition forward as a qualitative jump towards new opportunities, in which the different parties work together to outline a more promising future. This implies common ground and permeability amongst different complementary sectors. A firm ground exists already. It needs to be further refined (Fig. 4.5).

A Conducive Scene

Policies for an Agroecology Transition

The transition to agroecology would also benefit from enabling policies. Some ideas for policies presented here are only those related to the transition process. They concern firstly the importance of understanding agroecology and peasants for what they are and their potential to create wealth, and secondly the transformations on the ground that can enable endoge-

nous forms of development to thrive. Some other more general policies are briefly touched upon under the section global policies.

One of the important considerations is to make a clear distinction between peasant farming and corporate farming as they obey to a completely different logic of production as we have seen above. Designing the same policies for these two systems as one entity is a mistake which automatically prejudices one or the other. The difference lies in three key dimensions: (i) **value**, field studies have demonstrated that peasant farming produces more value than any other mode of farming, even in those places and at that time when others are incapable of doing so. Without peasant farming many places would be unused. When prices are low, peasants continue to produce whilst corporations stop; (ii) **nature,** peasant farming builds on living nature, by constantly exploring its potential and amplifying it. Instead of destroying nature, peasants co-evolve with it. They protect biodiversity, ecosystems, waters, soils and other strategic resources; (iii) **relationships,** the peasant mode of farming is part of an intricate web of relationships, connections and extended networks which stimulate local economies; hence, the development of peasant farming translates into substantial increases in the quality of life in rural areas as well as in the neighbouring cities.

Three sets of policies are presented here. In every situation, the appropriate mix needs to be defined. Within a range of different possibilities, choices can be made. These policies are in line with the UN process of negociation of a UN Declaration on the Rights of Peasants and other people working in rural areas (last session of the intergovernmental working group held in May 2017), and consistent with the International Year of Family Farming (FAO 2014).

First set of proposed policies: shift priorities towards the agroecological peasant way of farming.

This implies to recognize the economical and social value of peasant farming and reconsider the present support to industrial agriculture and agribusiness. It implies a shift towards agroecology and food sovereignty. It also implies strengthening local organisations, as the locus for peasant-based innovation and the management of resources, with the ability to adapt to changing conditions. In 2008, the world leaders (FAO 2008) recognized the need:

> *to assign appropriate priority to the agriculture, forestry and fisheries sectors, in order to create opportunities to enable the world's smallholder farmers and fishers, including indigenous people, in particular in vulnerable areas, to*

participate in, and benefit from financial mechanisms and investment flows to support climate change adaptation, mitigation and technology development, transfer and dissemination. We support the establishment of agriculture systems and the sustainable forest management practices that positively contribute to the mitigation of climate change and ecological balance.

In 2011, the FAO Council endorsed recommendations for the Rio+20 Summit green economy agenda, stressing that "This transition process involves both large and small holdings, whereby sustainable systems are supported equitably" (FAO GEA 2011).

Although the role of smallholders and ecological balance are recognized, including the need for *fairer* support systems, the reality is that policies lag behind. Shifting priorities towards the agroecological peasant way of farming implies not only recognizing the economic and social value of agroecological farming but also reconsidering the present support to industrial agriculture and agribusiness (subsidized synthetic inputs and fossil fuel, agricultural subsidies, non-payment of social and environmental externalities etc.). It implies a shift towards agroecology that goes hand-in-hand with food sovereignty, where people decide what to produce and what to consume within more localized food systems.

Second set of proposed policies: recognize the need for basic rights, autonomy and self-determination.

A transition towards the agroecological way of farming can only occur if there is a recognition and protection of smallholder rights. Access rights as well as social and labour rights are the necessary and unavoidable baselines to unlock the potential *on offer* within communities. This means a halt on land grab and a review of the conditions for access to land, water, credit and markets for women and men. It implies the negotiation at local level of protected open spaces, for innovation and the remodelling of landscapes. Regarding markets, it has been recognised that markets can be effective mechanism to link the production and consumption of foods, but vast distortions can occur so it is crucial that markets are embedded in well defined institutional contexts which is in itself, an open ground for policy. A high degree of monopolisation and speculation that destroys much of the social fabric and ruins ecologies, is to be avoided. The balance has to be reestablished by allowing for small and medium enterprise to prosper.

Third set of proposed policies: remunerate peasants decently; an insurance for today and tomorrow.

To live with dignity, peasants need stability and higher prices for their produce. One example of possible policies in this direction is the creation of new markets that support locally produced foods (e.g. programmes that establish that a minimum percentage, usually 30% of foods served in public institutions such as schools and hospitals, are procured locally). A decent price that can cover the cost of production implies also that governments do not allow the dumping of highly subsided cheap foods coming from abroad, that a minimum price is set, that food speculation is forbidden and that public stocks are built.

Peasants need also to be paid for the services they create for societies such as gardening the countryside, creating beautiful and changing landscapes, breeding new varieties of crops and animals, maintaining nutritious varieties that adjust to the cultural consumption habits, raising animals in more humane conditions, creating living places for wildlife (birds, insects) and recreational spaces for families, storing carbon in soils and crops and keeping soils alive and waters clean. Remuneration can be sought for peasants for their positive contributions to maintaining the beauty of landscapes, keeping and increasing biodiversity, mitigating climate change etc. In this set of policies it is important to avoid heavy bureaucracy and overregulation. Here legally conditioned self-regulation is the key.

Another remuneration need is one that gives assurance to societies that, tomorrow, there will still be farmers who are able to produce nutritious foods. In order to make sure that in the near future the human capacities and knowledge to produce and produce well will still exist, there is a need to introduce a flat rate that helps family farmers survive instabilities and fluctuations.

Global Policies

New international trade rules are needed. International trade rules, in the WTO (World Trade Organisation) and under bilateral and regional trade agreements, would benefit human societies by being changed to support rather than undermine local ecologies and economies. International trade rules for food should therefore only concern the produce that crosses borders, which is only about 10% of the total food produced worldwide. Each country should have the right to decide its own levels of self-sufficiency and its own ways of protecting and supporting sustainable local and national food production and consumption. All direct and indirect subsidies on export production in the industrial countries should be brought to an end.

Notes

1. See Ploeg (2009, p. 85).
2. The alder trees are characteristic for this area. Alder rows are important carriers of biodiversity. They have been planted by farmers, from ancient times until today, in order to create boundaries between different plots needed to prevent the escape of animals.

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CHAPTER 5

Pleasure

Abstract This chapter provides concluding remarks on content of the different chapters of the book. In a nutshell, it suggests to drop the idea of growth and proposes instead to concentrate on movement, which is intrinsic to life. It suggests to look at the contributions of the peasant way of farming in terms of foods, taken in their extended meaning, with those things, including landscapes, which humans are part of, and which contribute to the pleasures of life. The proposal is to imagine agricultural systems as a living body, crossed by energy streams, belonging to a larger grid, with waves of repercussions extending beyond. In this web of interlace, there are key expansion points and points of tension (like in acupuncture or osteopathy) that can be identified, and which can allow to trigger change and transformation from within, towards reaching greater well-being and autonomy: the "true freedom".

Keywords Illusion • Consciousness • Pleasure • Foods • Autonomy

The illusion of total control (over the soil, the weather, the plant, the animal) has led to a compartmentalization, simplification and homogenization of the chain of food production, a chain in which we are entangled and stuck, while around us nature struggles to absorb our pollutions, and withers away. Agroecology comes as the needle to reweave the fabric of farmer's destinies, away from excessive indebtedness and dependency. The

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chain is being replaced by a web of relationships, human and natural, towards reclaiming open spaces for self-determination and existence, a space within nature that is not based on dominance over living and non-living kingdoms of the Earth.

Agroecology is an old child, it was born many years ago and it is still in its infancy, going through the bumpy road of adolescence. Who will be those imposing upon it? Will it find its freedom? Will it be able to become this qualitative shift into the way human societies are living and producing their foods? Will it be allowed to be what it is: a new form of listening, perceiving, observing and building relationships? Merleau-Ponty (1945) used to say: "We know not through our intellect but through our experience." Will there be a space for experience? This very experience built over years of attentive observation. We cited earlier Marcus Tullius Cicero. Two thousand years ago he said: "Agriculture is the profession of the wise, the most dignifying for any free human being." Where is the free human being if we paralyse in our societies, the very essence of life?

In the first chapters of this book we raised the curtain on the scene of the last decades. When we look at the players who have pulled the strings and influenced "agricultural development" (not the farmers themselves), we see that a same worldview is at the heart of the approaches behind industrial farming, commercial farming and sustainable development. Approaches are based on the assumption of sustained growth. The same can be observed in cancer cells, which pursue unlimited growth and multiplication. This has led agriculture into a dead end, and agroecology comes as a rescue concept to cover up past mistakes. A major one has been the dropping out of the idea of "eco-development" first proposed by Norgaard (1984, Kallis and Norgaard 2010) in the 1970s that would have oriented research in a radically different direction and brought it closer to Fukuoka's (1975) vision of natural farming. But the one-straw revolution did not take place. Perhaps one day when pulling up the curtain, there will be nothing behind, no ballet of mascaraed players, no concert and cacophony, nothing, just the natural movement of life.[1] The first chapters are also about the peasant way of farming and its wholeness beyond food.

We decided to break free from the lock-in of "agriculture development" and "increase of yields". We speak instead of a "transition to harmony and well-being" and look into "untying the tension knots" in the systems, what we would call the inflection points or acupoints, using empirical approaches as well as intuition, as prerequisites to any science. For this, we "see" or perceive peasant farming, as exemplified in the two

descriptions of the paddy field at the start, in its entirety and in its connection to the above and the below. We take all of its entwined and complementary components (some of which are illustrated in Fig. 2.1) and its connections with the outside (some illustrated in Fig. 3.2) and imagine it as a living body, crossed by energy streams, belonging to a larger, infinite grid, with waves of repercussions and vibrations extending far beyond. In this web of interlace, there are key expansion points (with a great power of amplification) and points of tension (like in acupuncture or osteopathy). We propose to search for these inflection points that can create a shift in the system and put attention and resources in these (some examples in finance flows, illustrated in Fig. 3.1), a palpation or exploration of the farming body, to find where the energy is blocked and weakened, learning how to find the nodes and isolate them from the surrounding "noise".

Instead of growth, we prefer movement. Without growth there is being, without movement there is death. We thus suggest to stop the agitation of "sustainable development" and bury it once and for all, and to observe what it would feel instead, to *being* within. Within the systems, within ourselves. And, to enjoy the pleasures, as done naturally, in human societies around the planet, when people nourish themselves with the foods, diverse foods, not only the ones they eat, of their existence, when conditions allow. Pelluchon (2015) talks about the flavours and tastes of foods as an intrinsic expression of the pleasures of life itself. We are all connected through our relationship to foods which underlies the interdependence between species. Merleau-Ponty (1945) raises the reciprocity between the self-consciousness and the consciousness of the world that surrounds us and its interlace in each perception. This means also another way to perceive the world outside. For Levinas (1971) "the world where I live is not beside me, it is conditioning and anteriority. It nourishes me and bathes me", and "What I need for my living creates me, but, more importantly, it gives taste and value to life itself." There is nowhere better than this world says Fukuoka at the end of his life. "Years ago I realized that we human beings are good just as we are and I set out to enjoy my life." This is why we like to speak about living within the world, and not besides it, using it as a utensil.

To conclude, and put this book in the shell of a nut, we can say that Chap. 1 is an image of contrasting perception; Chap. 2 is about a living "thing" or practice, peasant farming; Chap. 3 is about the interlace of crossed streams of energy that flow through that "thing" with an example in Africa and Chap. 4 is the framework to take a path (Figs. 4.1–4.5) that

can unlock the nodes in the flows of that "thing", a thing without which there would simply not be a humanity. It is the one that feeds us all, and not only in terms of calorie intake. In this sense embracing agroecology is not neutral. Ecology in itself is not one more specialized field, nor a separate science; it is the required philosophical renewal of the fundamentals of ethics and politics. This renewal goes hand-in-hand with a total reconfiguration of autonomy, which *is* the "true freedom".[2]

Notes

1. Listen to music piece number 6 "Back to life" Allevi & All Stars Orchestra. Arena di Verona.
2. See Pelluchon (2015, p. 15).

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