

# TOOLKIT

## Peasant Agroecology Schools and the Peasant-to-Peasant Method of Horizontal Learning



LA VIA CAMPESINA  
2017

## CONTENTS

|   |    |
|---|----|
| Key Messages  | 3  |
| Introduction  | 4  |
| Agroecology and why it matters.                                     | 9  |
| What is agroecology?  | 9  |
| The need for amplifying agroecology                                 | 14 |
| Agroecological schools and territorial methods                      | 15 |
| The case for peasant agroecological schools.                        | 18 |
| Peasant technical schools   | 19 |
| Peasant training schools  | 21 |
| Peasant movement schools  | 24 |
| The case for the peasant-to-peasant method of horizontal learning.  | 31 |
| Where does peasant-to-peasant come from?                            | 33 |
| Why is peasant-to-peasant a social process?                         | 36 |
| How does the peasant-to-peasant model amplify agroecology?          | 39 |
| Building peasant-to-peasant processes: essential tips               | 42 |
| Putting it all together: peasant-led education for food sovereignty | 49 |
| Case 1: India's Zero Budget Natural Farming Movement                | 49 |
| Case 2: Cuba's Peasant-to-Peasant Agroecological Movement           | 52 |
| Case 3: Not Just for Peasants:                                      | 59 |
| The Farmworker Agroecological Movement in United States             |    |
| Further resources   | 61 |
| References  | 62 |
| Annex 1   | 66 |

## **Key Messages**

The problems caused by input-intensive monoculture cannot be solved with more input-intensive monoculture; we need agroecological solutions at every level.

In order to amplify agroecological transitions beyond the scale of individual farms, we need to create broad social processes of experimentation, innovation, remembering, sharing, and multiplying agroecological methods, led by farmers.

Agroecology is already becoming a mass movement; La Via Campesina (LVC) has developed innovative methods for socializing agroecology in its schools and territorial processes.

LVC's peasant agroecology schools (PAES) are flexible and can be made relevant to each specific context; in all places, combining technical and political education, practice and theory are key strategies for PAES.

The peasant-to-peasant (PtP) method is a combination of several methods of peasant-led, horizontal learning; in many cases, it has produced self-catalyzing processes of agroecological transition across local, regional and national scales.

The combination of PtP processes, along with PAES for permanent training and practice-based reflection, makes for a formidable strategy for scaling-out agroecology, with potential for enhancing food production and access, social equity, and ecological function across the planet.

## Introduction

It is time to create a global process to transition toward safer and healthier food and agricultural production.

- UN Special Rapporteur on the Right to Food, 2017

Families, communities, collectives, organizations and movements are the fertile soil in which agroecology flourishes. Collective self-organization and action are what makes it possible to scale-up agroecology, build local food systems, and challenge corporate control of our food system. Solidarity between peoples, between rural and urban populations, is a critical ingredient.

- Declaration of Nyéléni, 2015

As never before, agriculture today plays a role in all of the unfolding crises of the twenty-first century. Despite producing many more calories than are needed to feed humanity, the globalized food system leaves a billion people hungry, and another billion with micronutrient deficiency (Kremen, Iles and Bacon, 2012). At the same time, the growing dependence on chemical fertilizers and pesticides, as well as petroleum, coupled with oversized feedlots and global commodity routes, make the planet's food system among the chief factors contributing to carbon dioxide and methane emissions causing global climate change (Tilman et al. 2001).

The modernization of global agriculture has meant the application of technologies that maximize short-term yields at the same time as they undermine the long-term factors of agricultural productivity and stability, such as soil fertility, water cycles, seed diversity and local knowledge. The science and technology used to produce food is generally owned by large transnational corporations that are guided by the profit motive, rather than any of the many other purposes that agriculture serves, such as providing food and health, guaranteeing sustainable livelihoods, or maintaining a natural resource base for future generations. The industrial agriculture model is only

about 60 years old, but has already contaminated water sources, replaced tens of thousands of seed varieties with a dozen cash crops, diminished soil fertility around the world, accelerated the exodus of rural communities toward unsustainable megacities, and contributed to global inequality. Additionally, the corporate food system currently contributes between 44 and 57% of global greenhouse emissions (Grain, 2011).

For a long time, corporate manufacturers have insisted that pesticides are safe to use, that expensive, hybrid seeds will produce better in all field conditions, and that the same technical packages can be applied to diverse agricultural systems (Ecobichon, 2001). Research has conclusively shown not only that these are myths, but that the same consolidated seed and chemical companies that now control our access to food have been dishonest all along about their knowledge of harm produced by their products (UN Special Rapporteur on the Right to Food, 2017). Pesticides, synthetic fertilizers, and petroleum-hungry monoculture are responsible for hundreds of thousands of annual deaths of farmers and farm workers by poisoning, as well as incalculable damage to ecosystems, watersheds and the atmosphere. Additionally, the technologies of industrial monoculture diminish the capacity of agriculture to employ the rural workforce, leading to abandonment of the countryside and the loss of the cultural diversity embedded in rural communities.

La Vía Campesina, the world's largest peasant movement, is a leading voice in the global movement to recover food from transnational corporations. Since its first international conference in Tlaxcala, Mexico, in 1996, La Vía Campesina (LVC) has proposed *food sovereignty* as an alternative to corporate agribusiness (see Box 1). Food sovereignty can be briefly defined as the right of peoples and nations to create and maintain their own food systems, and has been at the heart of civil society protests against the free trade model since the 1990s. Food sovereignty means a fundamental emphasis on local and domestic food production, based on land access for small farmers and ecological production practices (Rosset, 2006). As a political proposal, food sovereignty implies a radical democratization and decentralization of the agriculture-food system, including the dismantling of corporate power over food (Patel, 2009). On a more cultural level, it is an affirmation of rural community, local knowledge, and gender equality (Wittman, 2010). Rather than the better-known concept of food security, which makes no mention of where food comes from or how it is produced, food sovereignty explicitly underscores local and national food routes, democratic processes of decision-making, recuperation of cultural forms of production, distribution and consumption, and the relationship between food and the environment.

La Vía Campesina rejects the industrial agriculture model, at the same time as it rejects the predominance of the profit motive over any other principle in the capitalist structuring of global food systems. In collaboration with civil society and consumer groups, rural social movements propose distinct methods for a different kind of food system. Instead of the corporate model—inherently unstable, biologically homogenous, chemical megafarms—rural social movements argue that a fairer land distribution, as well as the recuperation of ancestral practices of co-production of food with natural ecosystems, can lead to sustainable food systems now and into the future.

**Table 1. Key concepts in debates on food and agriculture.**

|   |
|---|
| Food system   |
| <hr style="border: 2px solid #4a7ebb;"/> <p style="text-align: center; color: #4a7ebb; font-weight: bold; margin: 0;">LA VIA CAMPESINA</p> <div style="background-color: #4a7ebb; color: white; padding: 10px; margin: 10px 0;"> <p>La Vía Campesina (LVC) is a transnational social movement made up of hundreds of agrarian organizations in 79 countries, with a combined membership of over 200 million people, including peasants, small farmers, indigenous peoples, farm workers, landless workers seeking land, and rural women.</p> </div> |
| The entire, scale-dependent process that includes interacting components and activities related to production, distribution, processing and consumption of food, including the manufacture of farming inputs, the management of genetic diversity, energy and water, as well as the impact of this process on people and the environment.   |
| Monoculture   |
| A type of agricultural production focused on single crops in large areas, where economies of scale and capital-intensive technologies can be applied to diminish the labor required per unit of production.   |
| Polyculture   |
| Found in all indigenous food systems, a type of agricultural production based on spatial (intercropping) and/or temporal (crop rotations) diversity, emphasizing the complementarity of distinct plant and animal components, diminishing the amount of area required per unit of   |

production.

Agroecology is the science that considers the ecology of food systems (Francis et al. 2003). At the same time, however, agroecology has emerged globally since the 1980s as a response to the devastating impacts of agricultural modernization—a sort of counter proposal to industrial agriculture (Gliessman, 2013). As such, it encompasses a science that understands farms as ecosystems, a set of productive practices that incorporate ecological principles into farming, and a global social process of people becoming engaged with farming and food systems (Wezel et al. 2009). Agroecology as a science combines peasant and indigenous knowledge with agronomy and systems ecology, in a scaled, systemic approach that recognizes biological, social, cultural and economic factors of complexity. As a set of productive principles, agroecology emphasizes nutrient cycling, energy and water efficiency, enhanced above- and below-ground biological diversity, and a fundamental reliance on locally available resources and knowledge, such as that found in indigenous polycultures the world over (Gliessman 2009). The United Nations (UN) Special Rapporteur on the Right to Food recognized in 2010 that agroecological farming could double food production in many parts of the world, and with lower usage of water and energy resources (De Schutter 2010). Proponents argue that agroecological farming has the potential to slow, stop and even reverse global climate change (Grain 2011).

Peasant organizations have increasingly recovered ancestral and traditional agroecological practices and principles throughout their territorial structures, in order to make themselves less dependent on costly, petroleum-based farm inputs and markets controlled by transnational capital (Rosset and Martinez, 2012). Agroecology also defends peasant wisdom and traditional agricultural systems, most of which have been sustainable over hundreds or thousands of years (Altieri and Toledo, 2011). The connection between agroecology and family farming is extremely relevant to debates about how best to promote sustainable farming.

The world has an estimated 500 million family farms, which is to say, nearly 90% of the 570 million farms that exist (Graeub et al. 2015). Holding only an estimated 53% of the world's farmland (Graeub et al 2015), family farmers produce up to 80% of the world's food (FAO, 2014). Among family farmers, smallholders (< 2 ha) are estimated to constitute the vast majority (~85% of all farms) and of these, approximately half utilize strategies that could be considered agroecological, such as animal traction, landrace seeds or artisanal irrigation (Nagayets, 2005; Kremen, Iles and Bacon, 2012; Altieri and Toledo, 2011). This suggests that over a billion people are currently engaged in some degree of agroecological farming, whether or not they consider themselves to be doing so, and that this same part of the global human population is providing a

major share of the food calories consumed on the planet. Traditional, indigenous agriculture has been estimated to provide between 30 and 50% of the world's food (Altieri, 2004).

Although it produces a relatively small portion of the global food supply, industrial monoculture has moved very aggressively to control land and water in the rural world, especially since the economic crisis that came to a head in 2008 (McMichael, 2010; White et al. 2012; Grain, 2016). This encroachment, both into peasant landscapes and into tropical forestland (DeFries et al. 2010), has made export-oriented monoculture the greatest agent of deforestation today (Kremen, Iles and Bacon, 2012). On the other hand, mixed landscape patchworks of diversified, agroecological farms surrounding forestland may create vital migration corridors for endangered species and thus provide the fundamental ecosystem service of conserving biodiversity (Perfecto and Vandermeer, 2010). In this sense, redistributive land reform may be the best option for biodiversity conservation, because the mixed, diversified farming systems that smallholders create are much more beneficial than the conventional monoculture systems that mostly serve financial capital (Perfecto, Vandermeer and Wright, 2009). Integrated, popular land reform is an important component of food sovereignty.

LVC member organizations have increasingly been engaged in a process of documentation, analysis, presentation and sharing of the experiences in each continent and the best practices for practicing agroecology as a broad, social process of learning, education and transformation. This TOOLKIT represents a new opportunity for reaching rural producers, development practitioners and functionaries throughout the world to share the best practices developed by the global peasant movement, LVC. Never before has the proposal for Agroecological Schools reached so many continents and countries, nor has it enjoyed such approval by FAO<sup>1</sup>. For the first time, public servants, farmers, movement leaders, technicians, and decision-makers will hold in their hands an instrument, collectively constructed through the dialogue-based processes of La Via Campesina, for scaling-up agroecological farming.

<sup>1</sup> This Toolkit, contributing to the strengthening of the strategic partnership between LVC and the Food and Agriculture Organization of the United Nations (FAO) has been produced with the financial assistance of FAO. The contents of this Toolkit, as LVC's contribution to the implementation of FAO's Strategic Objective 2 and 3, are the sole responsibility of LVC and can in no way be taken to reflect the views and policies of FAO.



## Agroecology and why it matters.

What is agroecology?

Agroecology is becoming mainstream. But what exactly does the term mean? To begin with, agroecology is a science that focuses on the ecological processes that take place in agriculture, especially sustainable, renewable, organic or regenerative agriculture. As a science, agroecology developed the concept of an *agroecosystem*, which is any type of farm unit, seen and analyzed as an ecosystem. Agroecosystems are themselves comprised of various sub-systems, or components, which interact with one another to produce outputs. In more sustainable agroecosystems, these outputs include both *food products* for harvest, as well as *ecological services* that contribute to maintaining and enhancing the productive capacity of the system, such as soil fertility, water retention capacity, biodiversity, and favorable microclimates.

**Table 2. Key concepts within agroecology as science.**

| Agroecosystem  |
|--|
| The basic unit of analysis. Any type of farm unit, understood as an ecosystem with inputs, outputs and internal subsystems or components.  |
| Inputs   |
| These include everything that enters the agroecosystem, including both purchased farm inputs, such as fertilizers, electricity, and pesticides, as well as unpurchased inputs like sunshine and rain.  |
| Outputs  |
| In an agroecosystem, these include yields which are removed from the systems, as well as waste products, and mineral losses in runoff, erosion or leaching. Outputs also include ecological services such as water quality, biodiversity, pollination, and carbon sequestration, among others.                                     |
| Components   |
| Parts of the overall agroecosystem that interact with inputs and other components. For example, the soil component interacts with the seed component and the water component. Each component is in turn made up of sub-components (in the case of soil, this includes minerals, organic matter, ecological decomposers and roots). |

One of the guiding principles of agroecology is that the more that the interactions between agroecosystem components resemble those that occur in natural ecosystems, the more likely the agroecosystem is to be sustainable over time. In natural ecosystems, components such as plants (primary producers), herbivores (primary consumers), predators (secondary consumers) and soil fungi (decomposers) engage in highly complex, reciprocal interactions. The complexity of these interactions helps ensure that energy (which enters the ecosystem as sunlight), nutrients (which generally enter by tree root uptake) and water (entering as precipitation) are recycled over and over within an ecosystem. This is called ecological efficiency. Agroecological design refers to the creation of agroecosystems with complex, circular flows of energy, nutrients and water, in order to maximize total system productivity (food products + ecological services) using a minimum of external inputs like fertilizer or irrigation water. By following nature's lead, agroecologists look to produce a sustainable yield that can be ecologically maintained over time and prove resilient even in challenging conditions, such as droughts, hurricanes or economic crisis.

Another guiding principle of agroecology is that the whole system is more than the sum of the parts. This means that an agroecosystem is not just, for example, the total amount of farm animals, crops, and infrastructure. Rather, the key to understanding an agroecosystem is found in the kinds of interactions that take place between components. For example, do the farm animals eat from what is grown on site, or are they fed a purchased feed? Does their manure go back to the soil and

lead to greater fertility, or is it washed away, leading to possible water pollution? Are the seeds locally adapted varieties that require few additional inputs, or are they commercial seeds that require high doses of nitrogen, phosphorus and potassium, along with irrigation? Are trees used to draw nutrients from the subsoil and add them to the system as leaf litter, as well as offering other ecological services such as temperature moderation, erosion control, and windbreaks? Or are trees seen as a problem for maximizing the production of one or another cash crop? Are insect herbivores dealt with using toxic insecticides that indiscriminately kill predators as well as prey? Or are host plants established to increment the population of the natural enemies of pests? As becomes clear, when each agroecosystem component (trees, water resources, seeds, animals, plants, labor, etc., plus the diversity within each component) is organized in such a way as to interact with the other components, many more ecological processes can take place. The complexity of the whole system tends to create ecological checks and balances, leading to greater overall stability of yields.

One of the most important aspects of agroecology is the crucial role of human beings, who both manage the system and benefit from the outputs of the system. In indigenous agricultural systems, land produces many goods: diverse, year-round nutritious food, several types of fuel, fodder, medicines and materials for building shelter and clothing. Ecological land management also produces clean water, moderate temperatures, resistance to natural and human-made disasters, and conditions favorable to community function. This is important because it leads to the next meaning of agroecology: less as science and more as sustainable practices implemented by people in harmony with land.

Agroecology as practice should be ecologically sound, socially just and economically viable. In agroecological farming, a set of productive, ecological and ethical principles are applied, not as a “technical package” but as guiding ideas, to be creatively adapted to each biophysical, climatic, social, cultural and political context. A fundamental difference exists between agroecological principles, and the practices that people carry out in agroecosystems (see Table 3). Agroecological principles are universal, because they are pillars necessary for ecosystems to function. All ecosystems must cycle nutrients, because nobody will apply urea to a forest! In contrast to principles, agroecological practices are context-specific and depend on local conditions. For example, oxen ploughs may be appropriate in one agroecosystem that is largely flat or lightly undulated, but inappropriate for applying to a neighbor’s sloped agroecosystem.

**Table 3. Key principles for applying agroecology as practice.**

|   |
|---|
| Agrobiodiversity  |
| The use, management and conservation of both planned and unplanned biodiversity in farms, |

|   |
|---|
| including crops and animals as well as tree and bird species, arthropods and soil organisms. Practices may incorporate agrobiodiversity over time (as rotations, relay crops and/or succession) and in space (as intercropping, hedge rows, contour strips, home gardens, etc.), in either case, resulting in <i>facilitation</i> , or one component's creation of better conditions for another component. |
| Nutrient cycling  |
| The flows, captures, and exchanges of nutrients among agroecosystem components. This takes place fundamentally through decomposition of organic matter and nutrient intake through roots, but it also can include the use of on-farm sources of animal feed, composts, and legume species.  |
| Energy efficiency   |
| The ability of an agroecosystem to effectively harness solar energy through photosynthesis, and then manage biomass in order to maximize ecological processes and nutrient cycling. Also refers to the minimum use of fossil fuels, and their replacement by renewable, animal or human energy.   |
| Water efficiency  |
| The ability of an agroecosystem to harness and cycle water among components. This may have to do with managing shade and temperature, as well as capturing rainwater, improving soil water retention capacity, and switching to drought resistant varieties.  |
| Conservation of genetic resources   |
| The activities that people do in order to maintain available stock of the seeds, stalks, bulbs and/or animal races that are adapted to local conditions, especially those conserved for generations. This includes seed saving, local plant and animal breeding, seed exchanges among farmers and active protection of local varieties from genetic contamination or replacement.                           |

Again, indigenous and traditional peasant agricultures provide crucial examples and knowledge systems for agroecological practice (see Table 4). The relationship between people and the land is more complex in indigenous and peasant culture than in the modern, market-based real estate model of land relations. Many indigenous peoples and nations understand the concept of Mother Earth as being more accurate than simply saying land, because Mother Earth implies a relationship of belonging, rather than ownership. Agroecological practice, then, becomes a long-term relationship between Mother Earth and human beings who belong to Earth. In this sense, agroecological production implies reciprocity, care, nurture, stewardship, and protection of nature.

**Table 4. Examples of agroecological production systems.**

| Name                      | Description  | Agroecological principles at work   |
|---------------------------|--|---|
| <i>Milpa</i> intercropped | <i>Milpa</i> is a traditional Mesoamerican polyculture | <u>Facilitation</u> = beans fix nitrogen, benefiting maize; maize provides structure for climbing |

|                              |  |   |
|------------------------------|--|---|
| with fruit trees             | usually including maize, bean, squash, tomato, chile peppers, melons, and various flavorful herbs.   | bean; squash prevents weeds and reduces soil temperature.<br><u>Soil conservation</u> = root systems of fruit trees prevent erosion.  |
| Fish-duck-rice paddy systems | Traditional Chinese rice paddies include fish, ducks, and diverse vegetables planted on borders of terrace fields.   | <u>Facilitation</u> = fish eliminate weeds and pests, benefiting rice; rice leaf shade cools water.<br><u>Nutrient cycling</u> = ducks and fish oxygenate water and provide nutrients for rice.   |
| <i>Quesungal</i>             | Mesoamerican system of accommodating forest species and annual crops by applying heavy pruning of trees before planting annuals.                           | <u>Nutrient cycling</u> = heavy pruning provides thick layer of organic matter.<br><u>Energy efficiency</u> = allowing more light to reach soil during peak seasonal need.<br><u>Water efficiency</u> = organic matter layer cools and shades soil, improving water retention.  |
| Shade coffee                 | Agroforestry system in which coffee bushes are underneath a canopy of diverse tree species, providing habitat for forest species, especially birds         | <u>Facilitation</u> = trees reduce weeds by reducing sunlight and adding leaf litter<br><u>Nutrient cycling</u> = deep roots extract nutrients from subsoil, then cycles them into system<br><u>Energy efficiency</u> = coffee plants receive needed sunlight, and trees pick up enough to provide ecosystem services |
| Diversified home gardens     | Ubiquitous ancient system of herb, spice and medicine gardens under shade near the home  | <u>Water efficiency</u> = shade trees cool soil temperature, intercropped plants share water<br><u>Conservation of genetic resources</u> = seeds, culinary and medicinal knowledge are saved  |
| Dehesa                       | Mediterranean agrosilvopastoral system producing cattle, goats, sheep, pigs and forest products on communal land forested with oaks that also provide cork | <u>Nutrient cycling</u> = grazing animals fertilize grasses and trees<br><u>Conservation of genetic resources</u> = wild game, honey bees, mushrooms and other traditional food sources are maintained  |

Just as the notion of agroecosystems includes cultural, economic and social criteria to broaden the ideas around land, agroecology also broadens the thinking about people who take care of the land. A simplified way of understanding this is by thinking about squeezing value of out of things, or *exploitation*. Rather than the classic argument for land reform, ‘exploit land, not people’, agroecology proposes to ‘exploit neither land nor people’ in opposition to monoculture agribusiness, which ‘exploits both land and people’. The vastly different stance of agroecology signifies that it has a strong ethical-political component. To practice agroecology is to take a stance against all forms of exploitation. The global agroecology movement has very clear political dimensions, because it is based on popular control over seeds and genetic resources, water, land and territory (see Table 5).

**Table 5. Key concepts for the movement form of agroecology.**

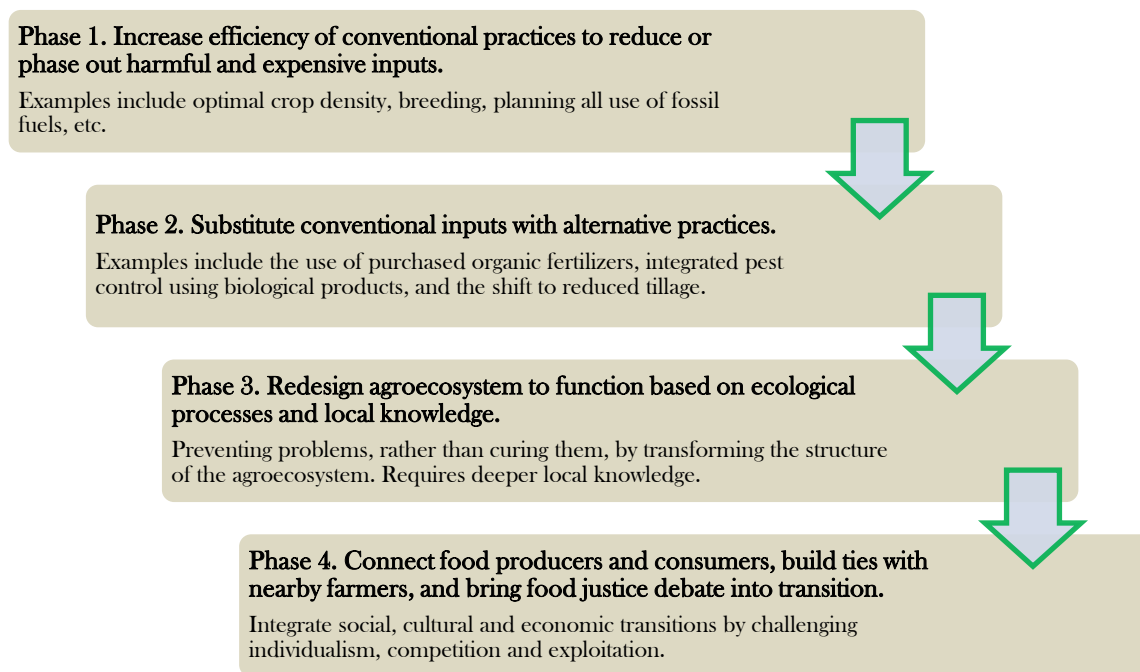
|  |
|--|
| <b>Redistributive land reform</b>  |
| A political process that facilitates access to physical spaces where agroecology can occur, based on the criteria of social justice and ecological sustainability. An urgent need for the agroecology movement, since land grabbing has limited availability of farm land for local food systems.  |
| <b>Territory</b>   |
| Area of land or place pertaining to, or combined with, a specific people, history, culture, language, knowledge, agriculture, food, sovereignty, tradition and the sense of belonging. Often legally recognized for indigenous peoples but rarely respected in practice.   |
| <b>Peasant and indigenous knowledge</b>  |
| Accumulated experience, practice, philosophy, cosmovision and know-how applied to agroecological production. Agroecological knowledges are diverse and they can be shared but are not for packaging and selling as ‘climate-smart agriculture’ or ‘sustainable intensification’.   |
| <b>Food sovereignty</b>  |
| The collective right or authority of peoples to govern, protect, or defend food systems, recovering knowledge, promoting local economies and preventing corporations from controlling food systems. A political-historical model of popular participation to replace capitalist agribusiness with democratization of food system, complete rights for women and agroecological production. |

For global movements that advocate agroecology, such as La Vía Campesina, agroecology without food sovereignty runs the risk of being a purely technical solution, as were the green revolution technologies that preceded it. At the same time, food sovereignty without agroecology is an abstract framework that provides working people with little in terms of tangible strategies for developing alternatives. This is why both agroecology and food sovereignty are best together, as a combined approach of theory and practice that includes both daily actions as well as global, historical solutions to the hunger-amidst-plenty model of corporate, chemical agriculture and food.

### The need for amplifying agroecology

One of the fundamental differences between agroecology and other alternative forms of agriculture, such as organics, is that rather than using a set of minimum standards and certification, as exist for organics, agroecological farming is based upon a process of transition. The agroecological transition has been theorized as consisting of several progressive steps, or phases, at the farm level (Gliessman, 2010). The first phase has to do with minimizing the use of conventional farm inputs, such as synthetic fertilizers and hazardous pesticides. By reducing their

chemical dependence as much as possible, producers can save money and focus on only the most efficient uses of inputs. The second phase of the agroecological transition is the substitution of inputs. In this phase, conventional purchased farm inputs are replaced by organic or ecological purchased farm inputs. This may be a more expensive phase, especially if producers encounter a yield decline in their first trials with organic inputs. Once conventional inputs are replaced, the problems that they masked become apparent, such as low soil fertility or a monoculture system that invites pest infestations. Unfortunately, much organic agriculture never proceeds beyond this second phase of transition (see Figure 1).



**Figure 1. Phases of agroecological transition at the level of agroecosystem (adapted from Gliessman, 2010)**

The third phase of agroecological transition is a gradual redesign of the production system upon new ecological processes. This is also known as agroecological integration (Machín et al. 2010; Rosset et al. 2011). For example, rather than relying upon external fertilizers (whether they be synthetic or biological) producers begin to use on-site processes, such as manure production or cover crops, to manage soil fertility. At the third phase, it becomes impossible to maintain the structures of monoculture, so farms start to look dramatically different. Diversity is fundamental; not only species richness but also functional diversity, and the total number of interrelated farm processes become highly important. Agroecological redesign requires a long-term vision and significant knowledge of ecological processes that are likely to take place in the local conditions of the farm.

The fourth phase of transition is about making sure that social, political, cultural and economic processes of transition keep pace with the changing agroecosystem. In phase four, the context becomes very important: how does the agroecosystem engage with the world around it? Food justice, or the movement to remove structural inequalities from food and economic systems, means that farm workers, consumers, and nearby producers are part of the transition process. A shift in values, away from competition, individualism and exploitation, and towards community, solidarity and social justice, is the essence of phase four.

### Agroecological schools and territorial methods

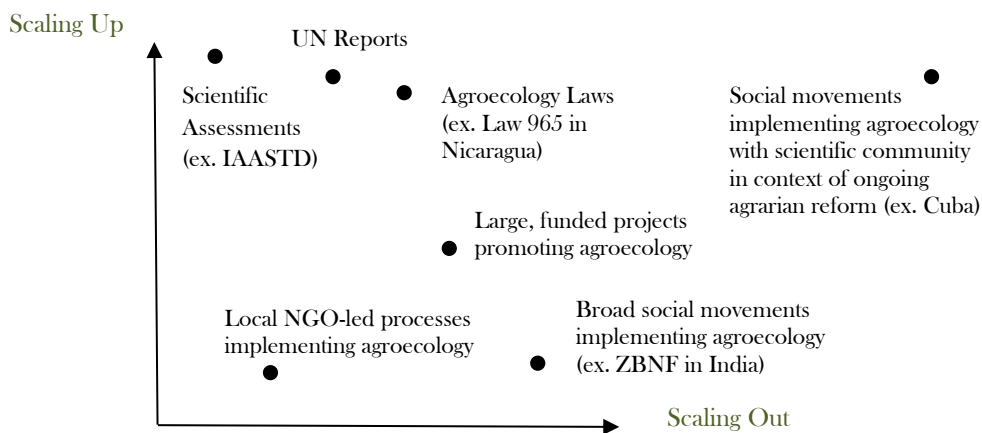
While agroecological transitions have been well theorized at the farm level, there is a lack of knowledge about how to amplify agroecology, from isolated experiences by dedicated farmers to landscape-level transformations supported by smallholder-friendly public policy and broad processes of agroecological education. Agroecology has consistently out-performed monoculture in producing locally relevant, positive ecological, social and economic impacts (de Schutter, 2010). The question then becomes how to broaden agroecological transitions to greater geographic and social scales, beyond individual experiences by committed small farmers. This is all the more difficult in a global context dominated by neoliberal governments under the sway of transnational capital, which is irreparably bound to the monoculture model of profit-focused agriculture.

Despite increasing recognition of agroecology as a key element of just, healthy, sustainable food systems, there is continuing debate on the political economy and methods for scaling out agroecological farming, which favors the interests of small producers, rural communities and consumers, but not private capital accumulation (IAASTD 2009; Declaration of Nyéléni 2015). Researchers, advocates and social movements look for methods for transforming isolated experiences into state-supported, landscape-wide processes of agrarian change (Rosset 2006; Altieri and Toledo 2011; Gliessman 2013). Rural social movements like LVC are looking to use their extensive territorial structures and trained cadres to accelerate the transition to agroecological farming, while also pushing for enabling state supports for small farmers and an end to government subsidies to socially and environmentally destructive agribusiness ‘empires’ (Van der Ploeg 2008; LVC 2013).

In order to amplify agroecology, it is helpful to imagine a horizontal and vertical dimension of agroecological scale. Horizontally, it is necessary for agroecology to reach out from the existing ‘lighthouse farms’ and engage many thousands and millions more small farmers across the continents of the globe. This horizontal growth is called ‘scaling-out’ because it involves a process of taking agroecology to a greater geographic and productive scale based on the accumulation of farm-level transitions. On the other hand, agroecology cannot change global food systems without



simultaneous major changes in the structures that currently favor agribusiness. For example, market-based land governance tends to put small producers, women and youth—all sectors inclined to implement agroecology—at a distinct disadvantage compared to large corporate owners linked to the banking sector. Political change—such as land reform and public policy that supports domestic markets—is necessary for agroecology to provide solutions to the environmental and food crises. As such, the vertical dimension of taking agroecology to scale involves transforming institutions. This can include the creation of new ministries or the transformation of old ones, ending subsidies to corporate, export-focused agriculture and support for local food systems, farmers’ markets and agroecological curriculum integrated into all levels of education.



**Figure 2. Different ways of transforming agroecology from isolated local experiences into the predominant model of food production. Vertical axis is institutional change; horizontal axis is landscape change.**

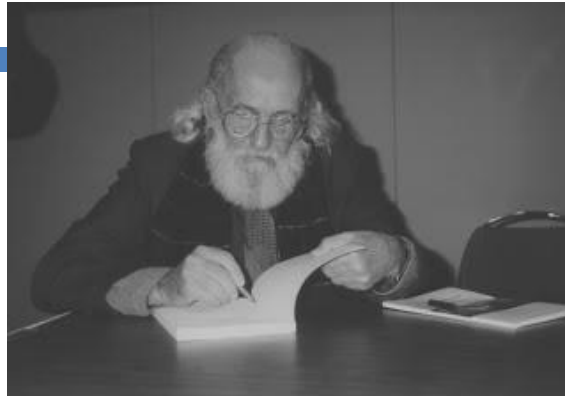
Rural social movements play very important roles in both scaling-out and scaling-up agroecology. Horizontally, the massive geographic radius of action of social movements and their territorial organizational structures, such as peasant cooperatives, provides a means for scaling-out agroecology. The social justice focus of many social movements in practice becomes a multitude of actions and spaces for sharing ideas in a horizontal manner, from one peasant to another. Farmers understand farming and share their agroecological methods with other farmers. Vertically, social movements put pressure on governments and institutions to recognize the need for a social transition to agroecological food systems. This happens through organized protests and mobilizations, as well as participation in institutional spaces. In order to be able to amplify agroecology both vertically and horizontally, rural social movements are developing diverse processes of agroecological education and socialization.

La Via Campesina operates a Collective on Agroecology, Seeds and Biodiversity that brings together leaders of the peasant movement from all the continents of the world to discuss strategies

for advancing agroecology. One of the responsibilities of this collective is to maintain information about the global network of agroecological schools being run by LVC member organizations. Another responsibility of the collective is to document the best cases of agroecological socialization, through fact-finding missions and systematization processes. Through these processes, LVC's Agroecology Collective has documented two of the world's most important examples of agroecological scaling, namely the PtP Agroecological Movement (MACAC) led by Cuba's National Association of Small Producers (ANAP) and the Zero Budget National Farming (ZBNF) movement developed in India (see Machín et al. 2010 and Khadse et al. 2017). The next section of this toolkit explores the Peasant Agroecology Schools (PAES) being developed by LVC organizations across the world.

## **The case for peasant agroecology schools.**

In order to promote agroecological farming as a legitimate option for family and peasant farmers, social movements and member organizations of LVC have begun to create peasant agroecology schools (PAES) across the globe, currently operating some 65 such schools (Rosset, 2015; Khadse et al. 2017). These schools are founded, run and organized by social movements, and used to develop a microcosm of the world they wish to see. In Mali, Mozambique, Niger, Zimbabwe, Chile, Colombia, Haiti, India, Thailand, South Korea, Spain—and many more countries in five continents—LVC member organizations are founding agroecology schools based on both formal and informal educational approaches. Indeed, the Coordination of Latin American Rural Organizations (*Coordinadora Latinoamericana de Organizaciones del Campo—CLOC*), continental expression of La Vía Campesina in Latin America, has even created a series of peasant universities called the Latin American Agroecological Institutes (*Institutos Agroecológicos Latinoamericanos—IALA*) in Brazil, Venezuela, Paraguay, Argentina, Nicaragua, Colombia and Chile, with several more in development. These popular universities are ‘sovereign spaces’ for social movements of CLOC-LVC to develop their own curriculum and organizational structures, based on their original pedagogical theories and methodologies. In many cases, PAES are inspired by popular education and the pedagogical conceptions of famed Brazilian educator Paulo Freire (see Box 2).



This famous educator is credited with having created the philosophical and ethical basis for popular education. This approach criticizes the conventional education for assuming students are ignorant (‘empty’) and must be ‘filled’ with knowledge.

In contrast, popular education creates dialogue in which educators and educated are considered as equals. By posing difficult questions about reality and social inequality, educational processes raise consciousness and develop people to become more fully human.

Only by combining reflection and practice can the oppressed gradually come to understand their oppression and transform society. The purposeful combination of learning and doing to change reality is called praxis, and takes place in dialogue with others.

This section provides tools for understanding and implementing peasant agroecology schools (PAES). The vast diversity of rural situations and the differing situations of the many LVC organizations leads to PAES being different in every context—there is no ‘cooker-cutter’ approach

to agroecological schools. Within LVC, three overarching kinds of schools are coming to make up the majority of PAES:

- 1) *Peasant technical schools* that help to bridge historic gaps in access to education for youth from the countryside;
- 2) Less formal, *peasant training schools* focused on sharing agroecological practices, in which students and teachers are peasant farmers;
- 3) *Peasant movement schools* (or peasant movement universities) that integrate agroecology into a political-ethical education focused on forming cadres who can lead organizations and movements for food sovereignty.

The next several pages will include some case studies of each of these types of PAES, so that it will become clear how diverse they are, despite sharing common principles.

### **Peasant Technical Schools**

Each kind of school can be especially important for overcoming the obstacles to taking agroecology to scale. The first kind of school, technical PAES, are most useful in situations where rural youth need access to education. Peasant, indigenous and farmworker youth are among the sectors most inclined to practice agroecology, but they face significant difficulties in doing so. On one hand, many young people do not have access to their own land, although they may farm on others' land. By gaining a technical degree, they have a greater opportunity to earn a stable income and eventually access land, either through purchase or a land reform mechanism. On the other hand, even when young people do have land access, they often don't know where to begin with agroecological farming—accessing seeds and animal races, technical advice, and governmental programs is quite difficult in many cases. For these young peasant farmers, their access to technical-agroecological schools is also a way for them to learn about peasant organizations, credit programs, government support for small farmers, as well as access necessary germplasm and know-how to get started on an agroecological path.

In most countries, not all rural young people will enter farming. Despite the best efforts of social movements, young people are subject to changing economic structures, a lack of land access, and, often, prejudices against becoming a peasant farmer. For the many young people who are unable to become farmers, their access to agroecological education sensitizes them to the needs of the countryside and prepares them to work with farmers and exchange their technical knowledge with farmer's deep empirical knowledge. This dialogue among ways of knowing is a major component of all LVC member organizations' PAES.

## Case Study #1: Peasant Technical Schools

### 'Rodolfo Sánchez Bustos' Agroecological Technical Institute of the North Matagalpa, Nicaragua

**Organization:** Rural Workers' Association (ATC) Nicaragua (LVC Central American Region)

**Description:**

The school is named for a ATC farmworkers' union leader who was killed in the 1980s Contra War in Nicaragua. Today, Nicaragua has a population boom and nearly half the population is under 18 years of age. In the mountainous Matagalpa region, large coffee estates employ tens of thousands of people during several months of the year. The labor migration and very low wages lead to many thousands of young people without adequate access to education.

At the ATC school, young coffee workers can study secondary school on Sundays. Once they complete their third year of secondary school, they may apply to the Technical School which meets Saturday and Sunday twice a month. The Technical School is accredited by the Nicaraguan National Technological Institute, so upon completing the three-year program, youth receive diplomas as Agronomical Technicians. This helps them find employment in local farms, or employ themselves through the cooperatives that the ATC promotes throughout northern Nicaragua.

Students learn soil science, management of coffee, cacao, basic grains, vegetable and fodder species, organic fertilization and pest management, animal husbandry, and smallscale agro-industry, through practical lessons in the fields surrounding the school.



The second kind of schools, namely informal training PAES, are more practice-oriented and skip much of the technical content of the peasant technical schools. Rather than listen to a technician describe a practice with great detail in technical language, the training PAES are based on peasants sharing what they have learned. Often peasant training schools do not include a diploma, nor do they have accreditation from institutions such as education or agriculture ministries. Instead, they rely upon the motivations of peasant farmers to engage in endogenous development and rediscover traditional knowledge. This makes peasant training schools especially important for scaling-out agroecology: by putting peasant knowledge in the driver's seat, the learning is centered on collective work and instead of exams, food abundance and diversity are the markers of success. In this sense, peasant training schools are special because they eliminate the differences between learning agroecology and doing agroecology.

One of the pedagogical principles of peasant training schools is the learning-by-doing approach. This has much in common with the PtP method. The Shashe Agroecology School in Zimbabwe is a good example of this kind of school (see Case Study 2). In choosing to favor practical, field courses instead of theory-heavy classes, the Shashe educators say, "You cannot eat paper. We learn in the farmer's field where we grow nutritious food." The advantage of this kind of school is that it is self-propelling; as peasants recover, practice and share ancestral knowledge, more are inspired to do the same. Very little infrastructure is necessary—the most important physical need is land upon which to experiment, innovate and train. Additional infrastructure can include seed libraries, rotating fields for students to learn upon, and areas for making manure fertilizers.



**Silvopastoral systems at the peasant agroecology school of the Popular Peasant Movement (MPP) of Haiti.**

This kind of school works best in places where there are many peasant farmers with land access who are eager to learn how to produce with as few external inputs as possible. While it does not address the lack of formal education in the countryside, it creates its own form of education, more relevant to peasant reality than the urban-focused curriculum of most public school systems.

## Case Study #2: Peasant Training Schools

### Shashe Agroecology School Masvingo, Zimbabwe

**Organization:** Zimbabwe Smallholder Organic Farmers Forum (ZIMSOFF), Zimbabwe

**Description:**

Shashe is a community of peasant farmers who gained their land first through a land occupation, and were then benefitted by the Fast Track Land Reform Program implemented by the Government of Zimbabwe in 2000. The land that they now farm was formally the landholdings of absentee cattle ranchers, and today this land produces far more food than ever before, food produced largely through ecological farming practices.

Before the Zimbabwe Land Reform Program, smallholder farmers were crowded in the rural areas scrambling for resources whilst degrading the environment. Members of the future Shashe Agroecology School were working in these rural areas and experienced that soil degradation was undermining food production in those areas. In the year 2000, 12 smallholder family members of ZIMSOFF were officially allocated 184ha through the Land Reform Program. On the land that they received, they decided to showcase their vision for endogenous development.

Reviving their traditional knowledge, the families at Shashe began using practices such as organic manure, mulching, minimum tillage, multiple cropping, soil and water harvesting, agroforestry, exchanging and using traditional peasant seeds, integrating livestock into household activities, and use of traditional medicines. All the trainings are led by farmers who have experience and have set up examples to show case the good practices. ZIMSOFF and the Agroecology School support staff help the individual farmer to design the content of the courses. The School teaches leadership and organizational governance to strengthen the ground-up leadership structures of the groups and smallholder farmer organizations. A lot of emphasis is also on the seed laws and protocols that are impending on the smallholder farmer rights.

The pedagogical approach for the Shashe Agroecology School is learning through practicing on farm. At some point the practicing smallholder farmers are given some time to share experiences. As educators say, "Seeing is the best teaching." The farmer-to-farmer movement at the School "walks on two legs: innovation and solidarity, and it works with two hands: protecting the environment and producing diverse nutritious healthy foods. As such, the School contributes immensely to food sovereignty.

ZIMSOFF has some 19,000 smallholder farmers organized in four large groupings, namely the western, eastern, northern and central clusters. Since 2000, over 3000 people have benefitted from the innovations and initiatives of the Shashe Agroecology School farming families. The exchange visits and seed and food fairs organized and held within the School have contributed to other ZIMSOFF clusters initiating such ideas for farmer to farmer training and exchanges. The formal trainings organized through ZIMSOFF led to amplifying the movement for agroecology and food sovereignty in Zimbabwe.

## Case Study #2: Peasant Training Schools– CONTINUED

### Shashe Agroecology School Masvingo, Zimbabwe



The differences between the first two types of AES are clear: peasant technical schools can correct historical wrongs that have denied education to young people from the countryside. They are



important for helping youth reflect on the path they wish to take in life, and gain a technical diploma. They work well in places where there are a great number of youth, and most do not have land access. They are expensive due to needing computer labs, libraries, laboratories, classrooms and dormitories, and generally require close coordination with public education, technological or agricultural ministries or government institutions in order to function. In contrast, peasant training schools are practice-based and do not include as much complex language or academic rigor as technical PAES. Peasant training schools are relatively inexpensive and often produce most or all of their own food. Infrastructure is minimal, and teachers are often voluntary promoters. While technical PAES are often connected to the State, training PAES are much more autonomous. The third kind of school, namely movement PAES, are also autonomous and coordinated by social movements. The next section examines this third kind of PAES.

### **Peasant Movement Schools**

Despite the collective nature of the struggle for food sovereignty, LVC organizations recognize that it is necessary to have individuals with technical, political and professional formation, to carry out the tasks of mediation between popular movements and existing political and economic powers (Román and Sánchez 2015). Many movements have discovered that, in practice, it is more convenient to educate their own technicians than to depend on individuals trained by the dominant, monoculture-focused educational system (Sevilla Guzmán 2013; Barbosa 2015, 2016). The conscious creation, by the movement, of a version of the sociocultural category of ‘trained’ person or professional, is a way to carry out actions and incursions into new terrain, such as negotiations with institutions, articulations with universities and participation in social media.

In Latin America, a continental process of exchange among organizations has led to the creation of a network of movement agroecology schools, in which agroecology cannot be separated from the political conflict between peasant agriculture and corporate landgrabbing. In these schools, both younger and older educational subjects are trained not only in farming, but also in political-organizational aspects of the collective struggle for land reform, food sovereignty and agroecology. This makes for a rich learning environment, as learner-educators and educator-learners embark on dialogue-based processes of action and reflection, using popular education as a guide for developing critical consciousness. In the Latin American Agroecological Institutes (IALAs), social movement members are selected by their organizations to study for long periods of time (3-5 years) so they can return and play a leading role in building agroecology as a historical replacement to the capitalist agro-food system. The philosophical principles of the IALAs are shown in Table 6.

**Table 6. Philosophical principles of the Latin American Agroecological Institutes. Source: Múñoz et al. 2014**

|  |
|--|
| <b>Education through and for Social Transformation</b>   |
| The development of women and men with new values as well as new emotional linkages to others, resulting in actions directed at social transformation, opting always for the people and rejecting lifestyles promoted by neoliberalism. Included here are the most elevated of human values needed for subjects taking on their own agroecological education, including solidarity, humility, equality, justice, honesty, internationalism, and respect for nature, among others.   |
| <b>Education through and for Diversity</b>   |
| Neoliberalism promotes a sole culture in which all people are expected to reproduce the anti-values of consumerism, domination, and egoism. Agroecological education, on the other hand, recognizes and promotes the indigenous, African, feminist, anti-colonial and anti-imperialist struggles that have accompanied our people for over 500 years. Agroecologists stand opposed to that dominant culture, defending instead the enormous amounts of cultural diversity found in popular human systems as well as the biodiversity used by Mother Earth to organize our planet.  |
| <b>Education through and for Work and Cooperation</b>  |
| Work is understood as a means by which women and men dignify their existence. Work is considered a form of liberating action instead of a commodified need of working people. Studying is directly linked to productive efforts through work and volunteering, with both these actions considered a means by which the world can be better understood. Cooperation is used so that new citizens educate themselves collectively, developing the capacity to collaborate through a democratic dialogue. Cooperation becomes an ethical necessity in both work and study and is present in processes between students themselves, between students and popular educators, and between, students, popular educators, and communities. |
| <b>Education through and for Rebellion</b>   |
| Citing Paulo Freire, “we struggle for an education that teaches us to think – not one that teaches us to obey”. Agroecological education in this context openly questions and confronts social injustice, while at the same time directing students’ efforts into collective processes of social transformation that have at their heart humanity’s pending humanization. Rebellion is promoted so that a better world becomes reality.  |

Movement agroecology schools are motivated by the recognition that structural change is necessary for agroecology to solve hunger, water scarcities, and climate change. Rather than only teach the productive aspects of agroecology, these schools develop critical thinkers. ‘Teach me how to think, not what to think’ could be an abbreviated version of the critical approach to agroecological education. An integral education means that people understand the ethical, civic, political, economic, ecological and social basis for agroecology. This helps them become collective actors, in the form of rural social movements, capable of moving forward the agenda of structural change so that food sovereignty can be a reality.

Recovering historical memory is another strategic objective of LVC peasant movement schools. Due mass media bombardments, superficial stereotypes and consumerism, it is common for young people to know little about their roots. In movement schools, educators retrace the histories of popular struggles, such as indigenous resistance to displacement, Black resistance to slavery, peasant resistance to modernization schemes, and women’s resistance to objectification and violence, to put social movements’ current efforts within a historical frame. Historical memory is necessary for constructing collective identity, and, in many cases, developing the self-esteem of students. The pedagogical principles of the IALA system of PAES are shown in Table 7.

**Table 7. Pedagogical principles of the Latin American Agroecological Institutes. Source: Múñoz et al. 2014**

|  |
|--|
| <b>Practice-Theory-Practice</b>  |
| For popular education to exist, acts of praxis are constantly taking place based on a reciprocal relationship of dialogue between action, reflection, and matured action. As Freire said, “there is not a word in the world that isn’t the unbreakable bond between action and reflection”. True education takes place when society is being transformed.  |
| <b>Teaching-Learning</b>   |
| A dialectical and horizontal relationship exists between educators and learners, with both teaching and learning in a constant dialogue free of hierarchy. Educating and learning come together in one single act of education, “forming” collectives of people committed to their social responsibilities. Every member of the educating community commits themselves to each other’s learning, taking full advantage of the time and space available to harvest the greatest amount of education possible. |
| <b>Dialogue Among Ways of Knowing</b>  |
| Convinced that only through a diversity of visions, perspectives, and proposals do people come to truly understand the world around them, a real communication is built between participants that allows for the free flow of knowledge, ideas, feelings and awareness, recognizing the conceptual legitimacy of all those who struggle for a better world.  |
| <b>Action-Based, Participatory, and Contextualized Research</b>  |
| Investigations that take place are directly related to the real needs of students, their families and communities. Never are people, peasants in this case, considered the objects of academic research. Rural people and their organizations, with special attention paid to the youth, are the protagonist subjects of all inquiry developed to achieve both education and liberation. In addition, all research has an overriding strategic objective - contributing to food sovereignty.                 |

Movement schools are about creating social situations in which learners can transform their way of thinking and doing, so that together they can create the microcosm of the society they wish to live in. This means that each person is responsible for building the school community, rather than leaving everything to a group of administrators. Decisions are made collectively and learner-educators become accustomed to taking responsibility for their actions. Human qualities such as humility, honesty, integrity and solidarity are considered as important to the learning process as are composts, intercropping, and seed saving.

One of the major characteristics of movement schools is their organicity, a term meaning that people are connected to one another in bonds of reciprocity, communication, planning and follow-up of tasks that are defined collectively. Learner-educators work in permanent small groups that share productive, academic and managerial duties within the school setting. Additionally, working groups are established by topic to make sure that all the needed actions at the school are carried out. This form of direct democracy is reflected and improved upon over time through the actions of the Political-Pedagogical Coordination, a body made up of leading cadres from the social movements. Coursework is transdisciplinary, combining several academic disciplines with long homestays in peasant communities near the schools, allowing learner-educators to learn from the ‘chalkboard of reality’ as they develop skills related to rural assessments and participatory community work (See Table 8). This principle of itinerant education considers school time to be only one part of learning; community time is just as important for learners to analyze using the same categories as they use to understand their learning process at the school.

### Case Study #3: Peasant Movement Schools

#### **‘Paulo Freire’ Latin American Institute of Agroecology Barinas, Venezuela**

**Organizations:** Member organizations of the Latin American Coordination of Rural Organizations

**Description:**

After years struggling to secure publicly-financed institutions that meet the educational needs of rural families and their social movements, in late 2005 La Vía Campesina signed a groundbreaking agreement with late Venezuelan President Hugo Chavez Frías. Elaborated in the context of the Bolivarian Alternative for the Peoples of the Americas (ALBA) - a regional alliance dedicated to social, political, and economic integration - this historic agreement between an international social movement and a national government laid the foundation for the LVC’s Paulo Freire Latin American University Institute of Agroecology (IALA-PF). Named after Brazil’s renowned popular educator, the LVC’s first continental agroecological university includes the physical structures (classrooms, dorms, eating areas, etc.), farmlands, and state support (salaries, scholarships, and academic recognition) required to host food sovereignty student-activists for a five-year period.

IALA-PF is the first international peasant university, a place where the daughters and sons of peasants and indigenous people are trained to be future leaders and cadre of their organizations, with political organizing and agroecological skills. Chosen by their social movements to both study in, and build, IALA-PF, its first set of students came from a diverse array of LVC affiliate organizations including the Landless Workers’ Movement (MST/Brazil), the Rural Workers’ Association (ATC/Nicaragua), the Ezequiel Zamora National Campesino Front (FNCEZ/Venezuela), and the Organization of Struggle for the Land (OLT, Paraguay), to name just a few. These young land activists, over 100 when the institute was first established, were accompanied by a much smaller group of LVC cadre (5-7 adults) tasked with guiding both the political and pedagogical development of the institute. Coursework during the first year at IALA-PF includes basic university-level content such as mathematics, chemistry, biology, and ecology, as well as courses in social science on the complexity of small-scale family farming, biocultural diversity, and social ecology. In year two, students study statistics, physics, and botany while taking additional classes on ecoregions, campesino cosmovisions, and agriculture in the social history of the Americas. With agroecology, sustainable agroecosystems, and food sovereignty as the permanent point of reference, this integration of the physical and social sciences continues throughout the time they study, live, and work in IALA-PF.

To achieve the overall objective of forming cadre capable of facilitating complex rural transformations through collective thought and action, students at IALA-PF distribute their time more or less evenly between the classroom, experimental agroecological production, and community organizing for food system transformation. To ensure the university is a reflection of their own education praxis, the entire student body works through collectives of 10-12 students per group known in Portuguese and Spanish as *núcleos de base* (NBs). Borrowed from the MST’s experience with land occupations involving hundreds of landless families collectively managing production, consumption, health, education, and culture, the NBs of IALA-PF meet to discuss everything from classroom content to agroecological production, and the distribution of members into different working groups based on specific needs and or initiatives. Working groups have been created, for example, to manage seed saving and sharing, to critically assess the university’s academic personnel, and to create procedural guidelines to be followed by the entire IALA-PF community. Designed so that students develop practical experience in collective decision-making, the results of discussions within NBs are taken to university-wide assemblies for ratification, thus strengthening the collective’s overall commitment to the IALA-PF process.

Case Study #3: Peasant Movement Schools (CONTINUED)

'Paulo Freire' Latin American Institute of Agroecology  
Barinas, Venezuela



**ESTUDIO; LUCHA Y ORGANIZACIÓN:  
!CON LA AGROECOLOGÍA EN LA  
REVOLUCIÓN!**

¡GLOBALICEMOS LA LUCHA; GLOBALICEMOS LA ESPERANZA!



**Table 8. Simplified, schematic version of IALA Paulo Freire’s study plan.**

| <u>Year</u> | <u>Semester 1</u>  | <u>Semester 2</u>   |
|-------------|--|---|
| 1           | Mathematics 1<br>Chemistry 1<br>Principles of Biology<br>Ecology<br>Introduction to Peasant Agriculture<br>Formative Project 1: Agroecological Assessment of a Family Production System  | Mathematics 2<br>Physics 1<br>Chemistry 2<br>Epistemology, Colonialism and Decolonization of Knowledge<br>Biosocial Diversity<br>Peasant Agriculture 1  |
| 2           | Agricultural Statistics<br>Physics 2<br>Biochemistry<br>Social Ecology<br>Peasant Agriculture 2  | The Living Soil<br>Applied Botany<br>Ecoregions<br>Formative Project 2: Community-level Agroecological Assessment   |
| 3           | Climatology<br>Biosocial Diversity 2<br>Plant Physiology<br>Ecological Soil Use<br>Agriculture and Social History of the Americas<br>Peasant Cosmogonies of the Americas<br>Genetic Diversity and Breeding<br>Integrated Agricultural Systems 1<br>Plant Propagation<br>Animal Anatomy and Physiology<br>Peasant Productive Administration 1 | Cooperatives and Cooperative Movements in Agricultural Work and Production<br>Ecological Pest and Disease Management 1<br>Integrated Agricultural Systems 2<br>Animal Reproduction<br>Peasant Productive Administration 2<br>Irrigation and Drainage<br>Topography and Surveying<br>Formative Project 3—Intercommunity production plan for food sovereignty |
| 4           | Ecological Construction<br>Agricultural Machinery, Alternative Implements and Animal Traction<br>Ecological Pest and Disease Management 2<br>Integrated Agricultural Systems 3<br>Alternative Animal Nutrition and Forage Plants<br>Political Economy 1<br>Formative Project 4: Design and plan a regional food system.                      | Animal Rearing<br>Peasant Productive Administration 3<br>Pedagogy and Politics 1<br>Political Economy 2<br>Agroecological Planning<br>Formative Project 5—Design of Public Policy for Food Sovereignty  |
| 5           | Latin American and Caribbean Political Thought 1<br>National and International Certification Systems<br>Ecological Economy<br>Technical Norms Adapted to Social Processes  | Latin American and Caribbean Political Thought 2<br>Pedagogy and Politics 2<br>Quality Control<br>Social Economy<br>Thesis  |

La Vía Campesina has accumulated a fair amount of knowledge about peasant agroecology schools, their diversity, and their importance, through periodic exchanges amongst agroecological processes in South, Central and North America, the Caribbean, Africa, South, Southeast and East Asia, and Europe. The interrelated nature of peasant training, agroecological education, and social movements has led to diverse strategies and territorial impacts.

Among the most important steps currently underway by LVC's Collective on Agroecology, Seeds and Biodiversity is to connect all the LVC peasant agroecology schools to one another and to diverse territorial processes in peasant and indigenous agroecology. The next section analyses a horizontal method of learning that has also transformed into a movement of its own—peasant to peasant.



Artwork. Landless Peasants. (Chile)

# The case for the peasant-to-peasant method of horizontal learning.

We learn:

- 10 % of what we read
- 20 % of what we hear
- 30 % of what we see
- 50 % of what we see and hear
- 70 % of what we discuss with others
- 80 % of what we experiment with
- 95 % of what we teach to others

William Glasser, 1986

A persistent debate in the literature on agroecological farming, and on the impact of agricultural research in general, has been the question of scaling-out (broad adoption over wide areas and by many farmers) and scaling-up (institutionalizing supportive policies for alternatives) successful experiences (Holt-Giménez 2001; Pachico and Fujisaka 2004; Altieri and Nicholls 2008; Rosset et al 2011). This is paralleled in the literature concerning the effectiveness and appropriateness of conventional agricultural research and extension systems for reaching peasant families in general (Freire 1973), and more specifically for promoting agroecology rather than the Green Revolution (see, for example, Chambers 1990, 1993; Holt-Giménez 2006; Rosset et al. 2011).

While conventional top-down agricultural research and extension has shown a negligible ability to develop and achieve broad adoption of the practices of agroecological diversified farming, social movements, and socially dynamizing methodologies appear to have significant advantages (Rosset et al. 2011). Social movements incorporate large numbers of people—in this case large numbers of peasant families—in self-organized processes that can dramatically increase the rate of innovation and the spread and adoption of innovations.

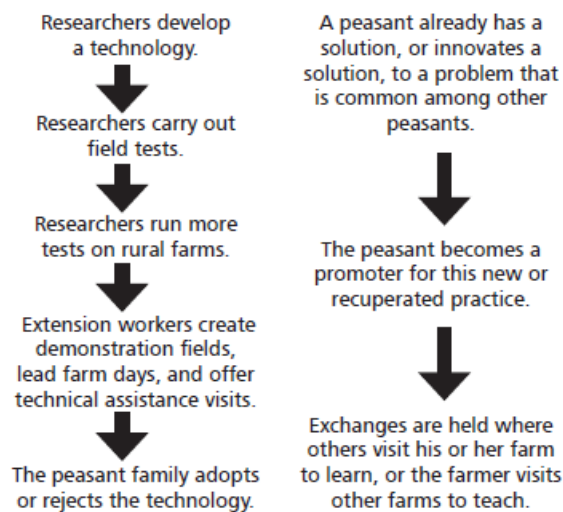
The fact that agroecology is based on applying principles in ways that depend on local realities means that the local knowledge and ingenuity of farmers must necessarily take a front seat, as farmers cannot blindly follow pesticide and fertilizer recommendations prescribed on a recipe basis by extension agents or salesmen. Methods in which the extensionist or agronomist is the key actor and farmers are passive are, in the best of cases, limited to the number of peasant families that can be effectively attended to by each technician, because there is little or no self-catalyzed dynamic among farmers themselves to carry innovations well beyond the last technician. Thus these cases are finally limited by the budget, that is, by how many technicians can be hired. Many



project-based rural development NGOs face a similar problem. When the project funding cycle comes to an end, virtually everything reverts to the pre-project state, with little lasting effect (Rosset et al. 2011).

The conventional extension approach, called Technology Transfer, displaces peasants from decision-making processes throughout the development of technology, and only gives them the option of accepting or rejecting the finalized, commercial version of the technology (Figure 3). In contrast, the Peasant-to-Peasant method relies upon peasant knowledge and ingenuity from the beginning to the end of the technological development process. This gives peasants the opportunity to apply all their cultural advantages, such as deep local knowledge, informal networks of solidarity, and endogenous learning practices.

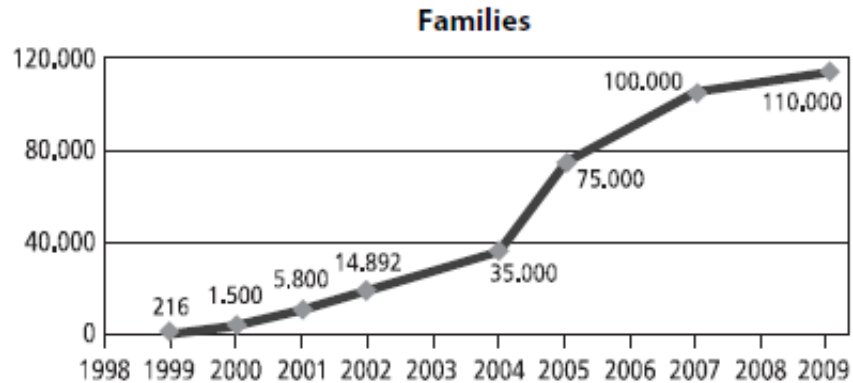
Technology Transfer vs. Peasant-to-Peasant



**Figure 3. Classic extension compared with the peasant-to-peasant method.**

The historically unique success of agroecological production in Cuba has been the source of global inspiration (Rosset and Benjamin, 1994; Machín et al. 2010). The main driving factor for Cuba’s transition to agroecological farming was undoubtedly the “Special Period in Time of Peace” which began in the early 1990s as agricultural chemicals formerly imported from the Socialist Bloc suddenly dropped out of sight, and all sectors, including the large state farm sector, were forced to make due with less inputs. However, compared to the state and collective sectors, the peasant sector in Cuba has displayed unique characteristics in rebounding back and exceeding pre-Special Period production levels, through the application of ecological principles (Rosset et al. 2011; Reardon and Aleman, 2010; McCune et al. 2011). The Peasant-to-Peasant Agroecological Movement (MACAC) has been the fundamental tool for transforming isolated experiences by

diligent ecological farmers into widespread, massive agroecological learning processes with strong social momentum (Machín et al. 2010), making Cuba’s food system increasingly resilient and self-sufficient despite ongoing challenges (Chan and Freyre Roach, 2010).



**Figure 4. Growth in number of Cuban peasant families in MACAC. Source: Machín et al. 2010**

However, before ‘arriving to stay’ in Cuba, PtP had already crisscrossed Mesoamerica for some twenty years, transforming local food systems and building self-confidence in peasant farmers in all the places it set root. The next section reviewing the method’s history and evolution, from a local program in Guatemala to a national program in Nicaragua with certain characteristics that made it more movement-like, to a national peasant movement within the Cuban Revolution. The section after that examines the technical side of PtP, including the main roles within a PtP process and an explanation of how PtP can simultaneously be horizontal and exponential. Finally, the document takes a look at PtP from a human perspective, as a process full of social and cultural content.

Much of the content of the following pages can also be found in video documentaries of the Multimedia Peasant School, accessible online in English, Spanish, French and Portuguese. Look for it at: <http://agroecologia.espora.org>.

### **Where does peasant-to-peasant come from?**

The first well-known experience with the horizontal, person-to-person method that would later come to be known as peasant-to-peasant comes from Chimaltenango, Guatemala, in the 1970s. In 1972, a group of Kaqchikel Mayan 78 peasant farmers graduated from a course on ‘social promotion’ from the Rafael Landivar University, and began a sustainable agriculture program in 14 communities of the municipality of San Martín Jilotepeque, in Chimaltenango, with the support of the US-based non-governmental organization Global Neighbors. Of this initial group, the vast

majority were catechists, active in Catholic Action, and thus already recognized as community leaders. These people were trained in agriculture, health, cooperativism, social work, leadership and self-esteem (Camposeco Cruz, 2011). In the sustainable agriculture program, they began to carry out soil and water conservation practices in very small areas of their land. Once they felt comfortable with a few practices, they began to show other, nearby farmers, by working with the other farmers on their patches of land.

The notion of farmer promotion in the San Martín version of PtP was linked to the Mayan concept of *chuchubal*, or mutual aid, and also to the Catholic notion of service to society. Two fundamental kinds of exchanges were developed: visits by groups of local farmers to the parcel of the promotor, and exchanges of experiences—visits by promoters to other communities to follow up on the trainings they have led. Each promotor was responsible for anywhere between ten and twenty farmers who learned on the parcel of the promotor. The program created mobile schools of soil and water conservation (*Escuelas Móviles de Conservación de Suelo y Agua*) in all 14 communities of San Martín. One parcel of land was chosen to apply simple technologies, where the farmer was able and willing to teach his or her practices. Parcels in which at least five systems of practice (such as soil conservation, organic fertilization, crop association, distance between plants) were applied by the farmer became known the method's training centers (*Centros Articulados de Capacitación*).

Tragically, beginning in the late 1970s, Guatemala's military government committed genocide upon the indigenous peasant population, implementing a 'scorched earth' policy of indiscriminate killings in areas thought to be sympathetic to the guerrilla rebel armies fighting to found a new Guatemala based on racial and social equality (García, 2012). The monumental violence quickly arrived to the municipality of San Martín Jilotepeque, where the military saw the well-organized peasant farmers as representing a national security threat. About half the peasant promoters were murdered by the State, while the other half was able to flee to less violent parts of Guatemala or to neighboring countries. The Guatemalan promoters who arrived in Mexico were able to connect with indigenous peasant farmers in Tlaxcala and their work promoting sustainable practices began anew (Holt-Giménez, 2006).

The Tlaxcalan farmers, organized in the Vicente Guerrero Union, incorporated the method with enthusiasm into their indigenous peasant social practice of sharing knowledge. With support from local and international NGOs, the farmers of Vicente Guerrero were able to travel and share their methods in peasant communities of Honduras and Nicaragua. It was in Nicaragua, where the Sandinista Revolution had produced a climate of peasant activism and popular education, that PtP transformed into a massive, movement-style social process led by farmers themselves. When the

Tlaxcalan peasants began to work in Nicaragua, they discovered a peasant population used to extreme poverty, struggling to survive and cultivate crops despite the relentless attacks by the *Contra* troops<sup>2</sup>. The Nicaraguan peasants, meanwhile, discovered in the Mexicans a people whose decades of experience with agrarian reform had helped them to enjoy high levels of self-confidence, education and creative capacity. The method, which in Nicaragua became known as peasant-to-peasant, came to include popular theater, dozens of demonstrations and peasant-created metaphors, all used to teach sustainable agricultural techniques.

In Nicaragua, PtP reached more peasant families than ever before, including up to 4,000 promoters and 20,000 direct participants by the end of the 1990s. This is due to the method being promoted by and within a national farmer's union, the National Union of Farmers and Ranchers (UNAG). The mass membership and territorial structures of UNAG, along with its many organizational cadre, provided the conditions for PtP to become a social movement led by small farmers. This movement continued and even prospered in the difficult context of the 1990s, as liberal governments enacted legislation to enable absentee landlords to force peasants off the land they had received as part of the agrarian reform process of the 1980s.

In 1996, Leonardo Chirino, a leading cadre of the Cuban small farmer organization, ANAP (*Asociación Nacional de Agricultores Pequeños*, or National Small Farmers' Association), was traveling through Nicaragua to Honduras for a Continental Peasant-to-Peasant Encounter but was denied a visa by the Honduran authorities (Multimedia Peasant School, 2015). Looking to keep him busy for the unscheduled days he spent waiting in Nicaragua, UNAG personnel introduced Chirino to the PCAC experiences in Boaco. Upon returning to Cuba, his report on the vast potential for the method in Cuba led the ANAP to seek funding for a pilot PtP program in the central province of Villa Clara.

After showing exponential growth during two years, the national ANAP leadership decided to throw the political will of the organization behind the PtP method, and in 2001, ANAP president Orlando Lugo announced the creation of the Peasant-to-Peasant Agroecological Movement within ANAP, called the *Movimiento Agroecológico Campesino-a-Campesino*, or MACAC (Rosset et al. 2011). Once the ANAP decided to shed its dependence on international NGOs and, instead, make the movement's success an 'organic task' of every cadre of the Cuban peasant organization,

2 The *Contra* were a number of 'Counter-revolutionary' armies, created and armed by the government of the United States, that created internal war in Nicaragua during the 10 years of the Sandinista Revolution, from 1979 to 1989.

the method began to create a self-catalyzed, mass movement in the grassroots cooperatives of the ANAP.

**Table 8. Characteristics of PtP in several countries**

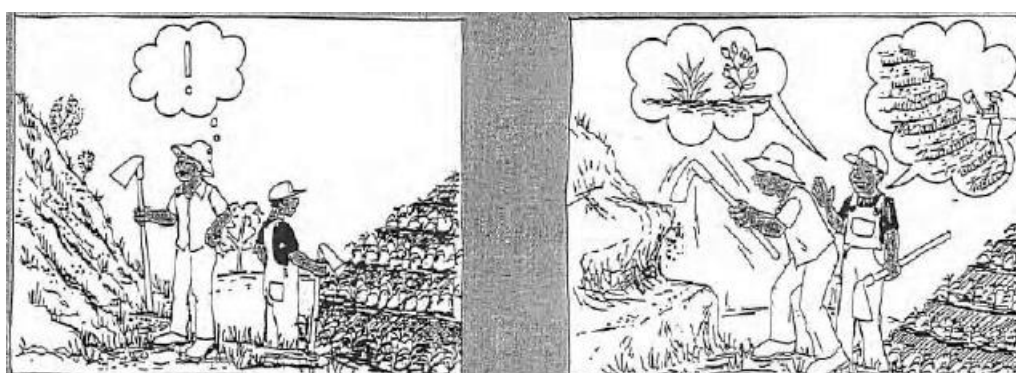
| Organization—Country                      | Global Neighbors—Guatemala   | UNAG-- Nicaragua  | ANAP—Cuba   |
|---|--|---|---|
| Time period                               | 1972-1979  | Since 1987, but height of 'movement form' from 1989 to 1999                             | Since 1999, but taken 'movement form' since 2001  |
| Type of organization                      | US-based NGO connected with Catholic base communities in Guatemala                                     | National organization of small, medium and large producers                              | National organization of small producers, mostly beneficiaries of agrarian reform processes   |
| Political-historical context              | Civil war, polarization of society   | Revolutionary and neoliberal eras   | Special period, food crisis   |
| Type of PtP process                       | Small, local program funded by international NGOs  | Large, national program funded by international NGOs                                    | Large, national movement (independent of NGO funding) within ANAP and Cuban Revolution  |
| Promoters                                 | Local experimenters who covered large areas, travelling to train farmers through practice              | Local experimenters who mostly receive other farmers in the parcel of promotor          | Local replicators (experimentation is less emphasized) who receive other farmers on the parcel of promotor  |
| Participation and motivation of promoters | Voluntary, based on Mayan mutual aid; Catholic concept of service to society                           | Voluntary in first decade, recently paid. Combination of moral and material motivation. | Strictly voluntary; based on patriotic and revolutionary concept of the peasant's role in society, as well as Cuban system of social recognition.     |
| Facilitators                              | Almost not mentioned, but could include the trainers at Rafael Landivar University as well as GN staff | Clearly defined role for UNAG cadres  | Clearly defined role for ANAP cadre or locally recruited cadre of each cooperative  |
| Schools                                   | Mobile schools of soil and water conservation, in each community                                       | Not part of the method  | Deep connection with local primary schools; coordinators and cooperative leaders are trained at the Niceto López National Training Center in Artemisa |

### Why is peasant-to-peasant a social process?

The social method of PtP stems from the creation of two differentiated roles: the promoter and the facilitator. The promoter is a peasant with land access who is interested in continuing to improve their agroecosystem using agroecological principles and willing to freely teach peers aspects of agroecology. Peasant farmers who are already practicing several principles of agroecology in their parcels study pedagogical methods for teaching agroecology from their own

parcels, as local ‘multipliers’ of agroecological practices using the *lighthouse farms* concept developed by Miguel Altieri (see Montenegro 2014).

Later, by carrying out experiments and workshops out on their own land, these peasant-promoters help expand the use of agroecological principles in the territories where the peasant movement is active. Rather than offering a theoretical explanation, or even demonstrating a couple of agroecological techniques, the social movement facilitates an opportunity for peasant farmers to travel to a farm and feel the soil, taste the fruits and speak with the farmer who is putting agroecological principles into practice. Without using technical language or creating a hierarchical teacher-student relationship, these exchanges motivate would-be agroecological farmers and facilitate learning. As newly integrated farmers begin to show positive results from agroecological techniques, they can become promoters and teach others.



**Figure 5. The PtP method, explained. Source: Krugman, 1995**

The production practices carried out through the method tend to start from simple agronomical or structural improvements, such as building erosion control works such as horizontal ditches planted with permanent grassy species, using cover crops and green manures to recover soil nitrogen levels, associating crops, and recovering native seeds. Guatemalan promoters created a model of learning-by-doing that would be the major methodological feature passed along to other Latin American contexts. The rule was that 80% of classes take place on the parcel, using hoes, shovels and machetes, while 20% could take place in the shade of the porch and focus on theory. The promoter was expected to lead by their own example, by maintaining the parcel that could guide the planning, design and implementation of sustainable production by nearby farmers. Promoters participated fully in the agricultural work they recommended.

As the method migrated to Honduras, Mexico, and Nicaragua, it evolved. The original Guatemalan promoters tended to carry out frequent visits to the farms of those they trained, in order to give hands-on follow-up trainings. This changed, as visits by trainers became less frequent

in other countries. Instead, other techniques were integrated into the PtP method. The Rapid Rural Appraisal (RRA) became a means for quickly identifying needs of newly integrated peasant farmers. Once RRAs were carried out, it became easier to pick from a small number of 'key techniques' which were known to cause a rapid, visibly positive difference in yields. By choosing one new technique intended to create an immediately recognizable impact, the introduction of technology was limited, as maintaining the enthusiasm of newly integrated peasant farmers became the priority of the method. The **principles of the PtP method** (Bunch, 1982; Machín et al. 2010) are at the core of its success:

1. **Start slowly and at a small scale.** This principle allows for evaluation, reflection, and the rectification of errors. It diminishes the magnitude of risks. It also allows farmers both great participation, as well as time to manage their work on the farm. *'Dress me slowly, because I'm in a hurry.'*

2. **Limit the introduction of technologies.** It is not necessary, in agroecology, to introduce many new techniques all at one time. It is more efficient to gain command of new innovations one by one, and stabilize and integrate them little by little. It is best to begin by introducing those techniques that have low initial investment needs, yet aim to resolve the biggest production issues. This way, new techniques are easier to implement and achieve quicker results. Later, one may continue introducing other more complex techniques. *'One idea in the mind of a hundred is more valuable than a hundred ideas in the mind of one.'*

3. **Attain quick and recognizable success.** Enthusiasm is a generator of new ideas, and success is the most effective motivator. This principle seeks to be the moral engine during development, recognizing the advances made by daily tasks. *'The word may convince, but the example prevails.'*

4. **Experiment on a small scale.** Experimentation is nothing more than testing, sharing, adapting, and adopting new techniques or solutions, based on needs. By this principle, the farmer becomes an active and innovative experimenter and the farm, his or her rich and permanent laboratory. The farmer can test which technologies may or may not work on the farm. This principle definitively separates us from the general recipes and technological packages that are designed to work for all people in all regions. *'You have to crawl before you walk.'*

5. **Develop a multiplier effect.** Sharing information between peasants about results and lessons learned is the only way by which one can achieve extension and growth of this new production system that has a real impact on the environment and favorable economic results. This way, farmers who become promoters or share their experiences, become more skilled in both production and communication. Teaching is the best way to learn a subject in depth, and much of this teach lies in creating a living example, and communicating from farmer to farmer. *'For the farmer, seeing is believing.'*

To help understand the principles of the PtP method, it is worth sharing a long quote from the book *We Are the Solution* by Erna Kruger (1995):

“The hands-on, learning by doing approach to learning is important to the Farmer to Farmer principle of sharing and developing a Multiplier Effect. Farmers who are sure of

their innovations through direct experimentation can show them to other farmers, using their own fields as a living example of the innovation in question. Contrary to what is usually believed about peasants, farmers who have gone through the process of small-scale experimentation are usually greatly motivated to share their discoveries. These farmers become 'promoters' and teach through living example. This has a profound impact on those farmers learning and teaching the innovations. For the learners, being taught by other farmers is often easier because both parties share a rich array of cultural concepts and expressions which aid in communication.

By seeing that another farmer like themselves has successfully tested and implemented an innovation, the learners will have greater confidence that they will be able to do it themselves. They are often inspired to innovate and share as well. For the teachers, being able to teach innovations to others raises their self-confidence and usually confers respect, admiration and prestige on them in the eyes of other farmers. This encourages them to innovate more and share more. The resulting enthusiasm for developing their own agriculture is basic to developing the multiplier effect.

Once an innovation has been tried and established the farmer may begin experimenting with other innovations. At the same time, he or she may teach the innovations already implemented to others. When technology is introduced slowly by overcoming limiting factors one by one, farmers have a chance not only to test, implement and share the innovations, they also build up strong "circles of knowledge" amongst themselves. These energized, peasant knowledge systems are much more important than the innovations themselves. Once the limiting factors are overcome, many innovations can become obsolete. Further, agriculture is always changing: crops change with respect to markets, seeds degenerate, new inputs come and go... For agriculture to be dynamic, farmers must have the capacity to respond to change. Therefore, it is much more important to develop the local capacity for innovation than to concentrate on the innovations themselves. If farmers are capable of innovating and sharing, they will always be able to respond to change and crisis."

### **How does the peasant-to-peasant model amplify agroecology?**

Cuba's ANAP has synthesized the experience of the PtP Agroecological Movement, to share it with peasant organizations from around the world, in the interest of making agroecology a massive, generalized movement for transforming food systems. The book *Agroecological Revolution*, by Machín et al. (2010) as well as the Peasant Multimedia School, available online at <http://agroecologia.espora.org>, are very important resources for helping build PtP processes.

In the Cuban case, the **steps for building a PtP process** are as follows:



1. **Start by building a participatory process.** The method of participatory appraisals is useful because it gets everybody involved in deciding what the most important problems are that face the community.
2. **Sharing experiences.** Knowledge is shared between a group of farmers and a promoter who is likely to have solutions to the problems of the former, by having tested them on his or her farm. Those farmers experiencing a certain problem begin a small-scale experiment, to test whether the technique also works on his or her farm. They note the achievements and then make commitments. It is important to maintain a reciprocal relationship, and continue with follow-up after this exchange.
3. **Workshop on methodological tools.** Before beginning to have workshops on productive techniques, it is important for farmers to begin to appropriate the method of PtP. Understanding how to teach through practice, dialogue, and example, is the key to avoiding the kinds of problems found in other methodologies.
4. **Workshop on agroecological techniques.** These workshops focus on one technique, but they also sensitize farmers to the existence of agroecological principles—and prepare them for the process of agroecological conversion.
5. **Reinforcement meetings.** These meetings are the space where all actors convene for evaluation and making adjustments to the social method.

### **Actors in the peasant-to-peasant process**

Before arriving to Cuba, PtP involved two basic actors: promoters and facilitators. Promoters are peasants with a vocation to learn about agroecology and teach what they have learned through practical experience. While promoters are peasant farmers with access to land for experimentation and demonstration, facilitators are generally thought to be organizational cadre of the peasant organization who are convinced of the need for farmers themselves to lead the learning process. Rather than the traditional role of agronomists as “experts” who tell farmers what they should do, facilitators only play a secondary, supportive role, helping farmers feel comfortable until they are willing and able to control the process themselves (Multimedia Peasant School, 2015).

The Cuban version of PtP added a new role: the coordinator of the movement at the municipal, provincial and national levels. Having a coordinator supported the development of the movement

immensely, because this person is responsible for the overall success of the movement and its interactions with the peasant organization as a whole. Having a coordinator linked to larger areas, the facilitators were able to be more closely linked with specific territorial organizational structures, such as a peasant cooperative, where they became part of the long-term transition to agroecological production.

**Table 9.** Roles in the PtP Agroecological Movement of Cuba. Source: Machín et al. 2010

|  |
|--|
| <b>Peasant families</b>  |
| Together they make up the target group of the Movement. They are gradually attracted voluntarily through the methods of CAC, and are further encouraged by the various degrees of agroecological practices they have implemented on their farms.   |
| <b>Promoter</b>  |
| He or she is the basic actor – a farmer from a cooperative with good productive results that come from agroecological practices. The promoter is not paid for his or her work. They identify other participants by their willingness to stand by their interests and commitments, and their love of service to the community, and to nature and the environment. The training of a promoter is complete when he or she is equipped with methodological elements, particularly with the ability do agroecological advocacy through popular education. |
| <b>Facilitator</b>   |
| This is a person of the cooperative and/or contracted by the cooperative, who is selected according to their abilities, such as communication skills and time available for work. In the Cuban context, the facilitator works under the farmer leadership of the cooperative to facilitate the process of promoting and multiplying ecological agriculture practices using the principles, activities, and method of the Peasant-to-Peasant program. Many facilitators work voluntarily and some are paid by their cooperative.                      |
| <b>Coordinator</b>   |
| Is a cadre of the peasant organization, ANAP. He or she must have technical skills and be trained to assist the ANAP directors in forming the working groups of MACAC in various municipalities, provinces and in the national authority, in response to the needs of the Movement that demand attention, so that it may continue functioning. They are paid by ANAP.  |

### Structure of the peasant-to-peasant process

The PtP method works in great part due to the social content of the interactions and dialogue between participants, specifically between peasant farmers facing similar problems. To maintain this dynamic, promoters are trained in groups, rather than individually. As the movement grows in an area, the original promoters train groups of peasants, some of whom in turn become promoters and create their own groups for training and experimentation.

A ‘tree’ of trainers and trained is eventually formed, as hundreds of peasant farmers may use practices that can be traced back to a handful of the most experienced peasant promoters. In this hypothetical case, the peasant promotor ‘Marcos’ teaches 18 peasant farmers, organized into three groups, about two different techniques: green manures or cover crops (GM/CC), and contour ditches using a filter grass (CDwFG). At the same time, Pedro experiments with two other techniques, the use of chicken manure (CM) in his fields and planting fodder trees (FT) for his hens.

#### Year 1

| Type of promotor | People |                                   |  | Practices |       |       |    |
|------------------|--------|-----------------------------------|--|-----------|-------|-------|----|
| Less experience  |        | 18 peasants organized in 3 groups |  |           | GM/CC | CDwFG |    |
| More experience  |        | Marcos                            |  | CM        | GM/CC | CDwFG | FT |

By the next year, five peasants of the 18 have become voluntary promoters. Each takes responsibility for training three groups of six peasants in the same techniques they learned from Marcos, green manures and contour ditches with a filter grass. Between the five new promoters, they are training a total of 90 peasant farmers. Meanwhile, each of the new promoters is still learning from Marcos. This year, they are experimenting with what he learned last year: integrating chicken manure into the soil and planting fodder trees to feed hens. At the same time, Marcos continues to experiment, this year with a worm bin (WB) and a couple terraces (T).

#### Year 2

| Type of promotor  | People |                                    |  | Practices |       |       |       |    |   |
|-------------------|--------|------------------------------------|--|-----------|-------|-------|-------|----|---|
| Less experience   |        | 90 peasants organized in 15 groups |  |           | GM/CC | CDwFG |       |    |   |
| Medium experience |        | 5 new promoters                    |  | CM        | GM/CC | CDwFG | FT    |    |   |
| More experience   |        | Marcos                             |  | WB        | CM    | GM/CC | CDwFG | FT | T |

In this way, by limiting the introduction of new technologies, experimenting at a limited scale and focusing on the interaction between peasant farmers, from the ‘trunk’ of one promotor, the PtP method creates a broad social process of dialogue and experimentation.

### **Building peasant-to-peasant processes: essential tips**

#### **Tip #1: Involve farmers and peasant families from the beginning**

As practitioners of PtP make very clear, it is important to limit the scale of new techniques as the method emphasizes the *social process* behind agroecology. Agronomists and extension agents often feel that they already know what needs to happen in a certain place for the farming to be more sustainable and generate more stable income for local farmers. PtP teaches the importance of technicians taking a step back and NOT giving broad recommendations to farmers. Rather, the role of the technician is to promote small-scale experimentation with only one or another key technique. The important thing is not to solve all the local problems at once, but rather to facilitate a problem-solving mindset, which begins with very small-scale trial and error. It is very important for the PtP method to limit the introduction of new technologies. Again, the technicians needs to show respect for local knowledge and tradition, while promoting small-scale experimentation with a very limited number of agroecological techniques. The first step can be just identifying some families in your area who very successfully use one or more agroecological practices, and organize visits by other peasants to see them. This can be a very simple way to start.

#### **Tip #2: Engage with local structures of decision-making**

Generally, the context will determine the means of approaching a peasant community. Social movements or peasant organizations with membership in a community have an obvious advantage, because they can call a meeting or drop by the home of a member, due to their ongoing presence in the community. Even government workers and NGO workers can often approach the leadership of a rural community and ask for the opportunity to explain an idea. The important thing is to try to include as many men and women as possible from the outset. Cooperative assemblies, community meetings, and even social events such as fairs, are great opportunities to begin to motivate peasant farmers to experiment with agroecology, but all actions by outside practitioners should go through local leadership and authority structures. In as much as possible, relying on the leadership of peasants, whether from the community or, for example, a promoter from a nearby community, increases the likelihood of beginning the PtP process on the right note.

### Tip #3: Prepare well for the participatory rural appraisal

Getting the appraisal right is fundamental to the PtP process. An appraisal is a process by which a group, like the full community of a group of peasant farmers, become aware of their context and the problems they face. Using some of the methods described below, the appraisal can play a basic role in shaping the PtP process. However, it is important to keep in mind that the appraisal should only be carried out once enough members of the community have decided to participate that the appraisal's results will be recognized and appropriated by the majority of people in the community. Women should participate in the appraisal, as should elders and youth. The day and time of the appraisal and related meetings should be selected in order to guarantee that most people can participate.

Appraisals should include field surveys and the gathering of information related to the productive history of the community's agriculture. This includes discovering when, and how, agrochemicals like pesticides, treated seeds, and synthetic fertilizers came to dominate the productive system. One of the best ways to carry out participatory field surveys is to divide into groups. Sometimes, facilitators divide the appraisal collective into two groups, one of men and the other of women, in order to discover the differences in what each group finds in the fields. Other times, mixed groups are preferable. Each group picks a typical field and carries out field soil tests at two depths, as well as noting the surrounding natural vegetation, slope, topography, crops, rotations, notable pests, evidence of agrochemical use, and any obvious production-related problems, such as heavy erosion. Each group makes a short time-line of the farm, including the soil history, the way by which the peasant family gained access to the land, their original production patterns, and the evolution of these patterns over time.

**Table 9. Dimensions and indicators for the participatory rapid rural appraisal. Source: Kolmans (2004)**

| (Agro)Ecological Dimension  |
|---|
| <ul style="list-style-type: none"><li>• Soil type and basic productive capacity</li><li>• Soil management and relative fertility</li><li>• Dependency on agrochemicals</li><li>• Presence of earthworms and soil organisms</li><li>• Crop diversity and complementarity</li><li>• Productivity and health of crops and animals</li><li>• Incidence of pests, diseases and weeds</li><li>• Level of agricultural intensification</li><li>• Water use and management</li><li>• Seed saving</li><li>• Management of forestland</li><li>• Relationships between farm components</li></ul> |
| Social Dimension  |
| <ul style="list-style-type: none"><li>• Agrarian structure (absentee landlords, small-scale family farming, communal landholding)</li></ul>   |

|   |
|---|
| <ul style="list-style-type: none"> <li>• Roles of men and women, youth and elders in the productive process and in the family</li> <li>• Level of ownership/alienation of family in regard to work</li> <li>• Physical and psychological health and well-being of family</li> <li>• Relationship of family to larger community or organization, and vice-versa</li> <li>• Diet and health issues</li> </ul>   |
| <b>Economic Dimension</b>   |
| <ul style="list-style-type: none"> <li>• Ability of production system to meet basic needs (food, shelter, education, health)</li> <li>• Land use compared to other possible uses</li> <li>• Diversification, risk and economic dependency of productive system</li> <li>• Role of off-farm labor for family income</li> <li>• Use of hired labor on the farm</li> <li>• Relationship to local, domestic and international markets</li> <li>• Savings</li> </ul> |
| <b>Cultural Dimension</b>   |
| <ul style="list-style-type: none"> <li>• Knowledge, application and valuing of traditional or ancestral knowledge systems (including cosmovision)</li> <li>• Social and community consciousness</li> <li>• Recreational customs</li> <li>• Interest in learning, discovering and innovating</li> <li>• Tradition of solidarity exchanges</li> </ul>   |

Once the results of the appraisal are gathered, their interpretation and analysis becomes fundamental. It is important to try to always connect each *problem* with a likely *cause* and a possible *solution* (see Annex 1 for a sample worksheet for the field survey). Once the problems, causes and possible solutions are identified, the participants can use the idea of a *limiting factor* (see Annex 2) to decide what intervention is needed.

It is important for rural appraisals to highlight differences between farms and farmers that can become entry points for the PtP method. For example, you can create a roster of peasants families in your area, for each list their major problems for production (ie a pest, a weed, lack of animal feed, erosion etc) and the AE practices they use well (if they do so). Also use workshops with the people to make lists of all the common problems, and all the common agroecological solutions that some farmers in the area already use successfully. And they start planning cross-visits.

**Tip #4: Use various criteria to determine the first technology to be introduced**

Defining the first agroecological techniques that should be used to generate farmer enthusiasm and help create a social process is probably one of the most important aspects for successful implementation of a PtP process. Across the world, the successful cases of PtP used techniques that shared certain characteristics: techniques should be simple and inexpensive, and should

generate a rapid, recognizable success. Tables 10 and 11 give an idea about how to select the right technique at the beginning of a PtP process.

**Table 10. Criteria for selecting a key technique. Source: Kolmans (2004)**

|  |  |
|--|--|
| <b>Rapid Impact</b>                    | If not, the process can be lost and the results don't animate people to continue |
| <b>Responds to a Concrete Need</b>     | Only this way will those affected be interested                                  |
| <b>Easy</b>                            | Difficult things don't inspire people to try and replicate                       |
| <b>Inexpensive</b>                     | The situation of most peasants doesn't allow for additional costs                |
| <b>Appropriate to Local Conditions</b> | Climate, geography and culture vary widely from one place to another             |

A persistent debate within PtP is whether or not to question the idea of bringing any external techniques into a productive system. Some argue that external “key” techniques can make the critical difference by delivering rapid, recognizable results that motivate farmers to begin experimenting and innovating, ultimately contributing to their self-development. Others think that in most settings, there is no need for external technical solutions. Instead, the effort should be to find local solutions that are already working. For example, discovering the one or two older farmers in the zone who maintain landrace or heirloom seeds, or finding the legume species that are native to the area, might be better than bringing seeds from an external source. In the Cuban case, only local technologies are considered or shared until a PtP process is up and running. Once a critical threshold of peasant interest and multiplication has been reached, then new technologies can be introduced. What is important to remember is the need for peasant appropriation, not only of the techniques but, above all, of the PtP process.

As is clear in Table 11, all the suggestions of agroecological practices are linked to a concrete place where that practice is being applied. This means that once the community determines which practices are a priority, it can arrange a field visit or exchange so the group of peasant farmers can learn and appropriate the practice.

**Table 11. Example inventory and selection of techniques for the problem of degraded soil. Source: Kolmans (2004)**

| Technical solution          | Place to visit examples | Rapid Impact | Responds well to problem | Easy | Cheap | Corresponds to real conditions | Total points | Ranking |
|-----------------------------|-------------------------|--------------|--------------------------|------|-------|--------------------------------|--------------|---------|
| Buy cow manure              | San Jacinto             | Yes          | Yes                      | No   | No    | Yes                            | 3            | 3rd     |
| Plant <i>Macuna</i> between | Corral Quemado          | Yes          | Yes                      | Yes  | Yes   | Yes                            | 5            | 1st     |

|   |                |     |     |     |     |     |   |     |
|---|----------------|-----|-----|-----|-----|-----|---|-----|
| rows of maize                                 |                |     |     |     |     |     |   |     |
| Plant <i>Canavalia</i> between cassava plants | Corral Quemado | Yes | Yes | Yes | Yes | Yes | 5 | 1st |
| Make worm compost                             | Buena Vista    | No  | Yes | Yes | Yes | Yes | 4 | 2nd |
| Buy chicken manure                            | San Jacinto    | Yes | No  | Yes | No  | Yes | 3 | 3rd |
| Make liquid fertilizer                        | Santa Rita     | Yes | No  | Yes | Yes | Yes | 4 | 2nd |
| Alley cropping                                | Loma Verde     | No  | Yes | Yes | Yes | Yes | 4 | 2nd |
| Let land fallow                               | Juan's parcel  | No  | Yes | Yes | No  | No  | 2 | 4th |
| Make a compost of leaf litter and manure      | Loma Verde     | Yes | Yes | Yes | Yes | Yes | 5 | 1st |

Once a technique is chosen, the principle of starting slowly and at a very small scale should be applied. Allow sufficient time for the farmers who are applying the technique to see results, make adjustments, and, finally, feel ready to share their knowledge.

The Cuban version added an important tool to the repertoire of PtP. This tool is known as the Banes method, because it began in a PtP process in the municipality of Banes, in the Cuban province of Holguín (Machín et al. 2010). In cooperative or community assemblies, peasant farmers are asked to mention the agroecological practices they use, and the information is noted on a chart like the one shown in Table 12.

**Table 12. The Banes method of community assessment of agroecological integration and needs. Source: adapted from Machín et al. 2010.**

|  | Worm compost | Rotations with legumes | Use of native seeds | Rainwater harvesting | Use of mycorrhiza | Inter-cropping | Rotational grazing | Total # of practices |
|--|--------------|------------------------|---------------------|----------------------|-------------------|----------------|--------------------|----------------------|
| Allie                                    | X            |                        | X                   |                      |                   | X              |                    | 3                    |
| Abdul                                    |              | X                      | X                   |                      | X                 | X              |                    | 4                    |
| Sandra                                   |              | X                      |                     |                      |                   | X              |                    | 2                    |
| Tomás                                    | X            | X                      | X                   |                      | X                 | X              | X                  | 6                    |
| Yesenia                                  | X            |                        | X                   |                      |                   | X              |                    | 3                    |
| Franklin                                 | X            |                        |                     |                      | X                 |                | X                  | 3                    |
| Elvira                                   |              | X                      | X                   | X                    |                   | X              |                    | 4                    |
| Total # of people applying each practice | 4            | 4                      | 5                   | 1                    | 3                 | 6              | 2                  |                      |

Notes: Agroecological integration is occurring unevenly in the community, with Tomás applying six agroecological practices and Sandra only two. He could be considered to have a lighthouse farm, and she (along with Yesenia and Franklin) should be invited to more exchanges. As far as practices, intercropping is the most common practice in the community, with six peasant farmers already applying it. By contrast, rainwater harvesting is scarce (only Elvira harvests rainwater). Future exchanges could focus on rainwater harvesting, use of mycorrhiza and rotational grazing.



The horizontal axis includes agroecological practices, the vertical axis is made up of peasant farmers. Once the information is organized this way, it becomes clear how to effectively arrange peasant-to-peasant exchanges in order to save time and share knowledge as widely as possible. It also lets the community know which practices are locally present, and which are absent and thus would require exchanges with other communities.

**Tip #5: Let peasant wisdom employ the widest possible set of methods for animating and sharing knowledge**

Some of the tools used by promoters to share agroecological techniques, teach agroecological principles, and, above all, share culture, can include the following:

- **The parcel.** The piece of land worked by the promoter is the most eloquent explanation of his or her agroecological knowledge, and the fundamental tool for helping other farmers believe that it is possible to change their own production practices.
- **Testimonials.** The living experience of the promoter, explained in his or her own terms, is part of the developmental learning process. The testimonial provides a temporal dimension to the promoter's experience, by explaining how things were before and how they have changed.
- **Didactic demonstrations.** In a practical, visual manner, didactic demonstrations can illustrate some of the ideas behind agroecology, especially when accompanied by an explication and, especially, by a field visit to a parcel where the same principles are at play.
- **Popular theater.** This tool engages people at the level of social problems and decision making. By performing the roles of themselves or neighbors, peasant families can enjoy themselves and open minds to new ideas.
- **Games.** Research shows that people learn the most when they are at play, and have lowered their guard against new ideas. By playing, people gain cooperation and communication skills, and often can connect ideas by participating in small groups.
- **Photos, drawings, maps.** Images of agroecosystems and agroecological practices, are second only to field visits for illustrating ideas. Drawing maps and sketching one's one agroecosystem is also a powerful way to develop planning skills, an essential component of agroecological transitions. Especially useful in this sense are the drawings that illustrate the past, present, and future of a farm.
- **Poems and songs.** Peasant knowledge and culture has been shared for centuries through poems and songs. These also serve to help bring in people who are less excited by the more technical aspects of agroecology, but want to share their sense of the process at a more human level.

- **Fairs and exhibitions of seeds, practices and products.** Social recognition is one of the main motivators of peasant experimentation and innovation. Being able to share seeds, tips, practices, and fruits of their labor, peasant families gain enormously from fairs.

## Putting it all together: peasant-led education for food sovereignty.

Agroecology, we recall, is a science, a set of productive practices, and a movement to transform food systems. La Vía Campesina and its member organizations are working to strengthen the global movement for agroecology as a solution to the climate crisis, hunger, and inequality. Sharing success stories is a way to shed light on the path forward, building from what has already been accomplished, consolidating alliances, growing a consensus, and putting it into practice. The next case studies provide ideas of how to connect agroecological learning and territorial processes with food sovereignty.

### Case 1: India's Zero Budget Natural Farming Movement

*"I had 5-6 loans during my chemical farming days- a loan for my daughter's marriage, others for seedlings, stems, and fertilizers. Now my farm expenses are so low, and everything I get is an income for the family. I owe nothing to anyone."*

*ZBNF farmer, Bijapur*

Zero Budget Natural Farming (ZBNF) is a set of farming techniques and also a grassroots peasant movement in various states in India. It has attained wide success in southern India, spreading from the state of Karnataka to several nearby states. An estimated 100,000 peasant families practice ZBNF in the state of



Karnataka alone, while ZBNF leaders estimate that some two million farmers are applying these techniques across India. This has been achieved without any formal movement organization, paid staff or even a bank account. ZBNF inspires a spirit of volunteerism among its peasant farmer members, who are the main actors of the movement.

### **ZBNF as a practice**

The basic “toolkit” of ZBNF methods was put together by Subhash Palekar, a former agricultural scientist, disillusioned by the ill effects of the Green Revolution on his own family farm, who drew from extensive research to recover traditional Indian farming practices, carried out during the early 1990’s (see Palekar’s website: <http://bit.ly/1Pk3a8p>).

Palekar has published a series of books - more than 60 in various Indian languages, where he explains the ZBNF practices in great detail<sup>3</sup>. Here we briefly list out some of the main practices of ZBNF.

### **Agroecological principles of ZBNF**

1. **Intercropping** - This is primarily how ZBNF gets its “Zero Budget” name. It doesn’t mean that the farmer is going to have no costs at all, but rather that any costs will be compensated for by income from intercrops, making farming a close to zero budget activity. Palekar explains in detail the crop and tree associations that work well for the south Asian context.
2. **Contours and bunds** - To preserve rain water, Palekar explains in detail how to make the contours and bunds, which promote maximum efficacy for different crops.
3. **Local species of earthworms.** Palekar opposes the use of vermicompost. He claims that the revival of local deep soil earthworms through increased organic matter is most recommended.
4. **Cow dung-** According to Palekar, dung from the *Bos indicus* (humped cow) is most beneficial and has the highest concentrations of micro-organisms as compared to European cow breeds such as Holstein. The entire ZBNF method is centered on the Indian cow, which historically has been part of Indian rural life.

### **ZBNF techniques**

1. **Jivamrita/jeevamrutha** is a fermented microbial culture. It provides nutrients, but most importantly, acts as a catalytic agent that promotes the activity of microorganisms in the soil, as well as increases earthworm activity; During the 48 hour fermentation process, the aerobic and anaerobic bacteria present in the cow dung and urine multiply as they eat up organic ingredients (like pulse flour). A

<sup>3</sup> His books can be ordered from his website (<http://palekarzerobudgetspiritualfarming.org/home.aspx>).

handful of undisturbed soil is also added to the preparation, as inoculate of native species of microbes and organisms. Jeevamrutha also helps to prevent fungal and bacterial plant diseases. Palekar suggests that Jeevamrutha is only needed for the first 3 years of the transition, after which the system becomes self-sustaining.

2. **Bijamrita/beejamrutha** is a treatment used for seeds, seedlings or any planting material. Bijamrita is effective in protecting young roots from fungus as well as from soil-borne and seed-borne diseases that commonly affect plants after the monsoon period. It is composed of similar ingredients as jeevamrutha - local cow dung, a powerful natural fungicide, and cow urine, a strong anti-bacterial liquid, lime, soil.
3. **Acchadana - Mulching.** According to the ZBNF method, there are three types of mulching:
  - a. **Soil Mulch:** This protects topsoil during cultivation and does not destroy it by tilling. It promotes aeration and water retention in the soil. Palekar suggests avoiding deep ploughing.
  - b. **Straw Mulch:** Straw material usually refers to the dried biomass waste of previous crops, but it can be composed of the dead material of any living being (plants, animals, etc.). ZBNF's approach to soil fertility is very simple - provide dry organic material which will decompose and form humus through the activity of the soil biota which is activated by microbial cultures.
  - c. **Live Mulch (symbiotic intercrops and mixed crops):** It is essential to develop multiple cropping patterns of monocotyledons (monocots; Monocotyledons seedlings have one seed leaf) and dicotyledons (dicots; Dicotyledons seedlings have two seed leaves) grown in the same field, to supply all essential elements to the soil and crops. For instance, legumes are of the dicot group and are nitrogen-fixing plants. Monocots such as rice and wheat supply other elements like potash, phosphate and sulphur.
4. **Whapasa - moisture:** Palekar challenges the idea that plant roots need a lot of water, thus countering the over reliance on irrigation in green revolution farming. According to him, what roots need is water vapor. *Whapasa* is the condition where there are both air molecules and water molecules present in the soil, and he encourages reducing irrigation, irrigating only at noon, in alternate furrows ZBNF farmers report a significant decline in need for irrigation in ZBNF.

### **ZBNF as a movement**

Neoliberal reforms of the Indian economy led to a deep agrarian crisis, making small scale farming an increasingly unviable vocation. Privatized seeds and inputs are inaccessible to peasants, forcing them into a vicious cycle of debt, because of the high production costs, high interest rates for credit, and volatile market prices of crops. More than a quarter of a million farmers have committed suicide in India in the last two decades. Various studies have linked farmer's suicides to debt. Debt is a problem for farmers of all sizes in India. Under such conditions, ZBNF promises to end a reliance on loans and drastically cut production costs, ending the debt cycle for desperate

farmers. The word 'budget' refers to credit and expenses, thus the phrase 'zero budget' means without using any credit, and without spending any money on purchased inputs. 'Natural farming' means farming *with* Nature and *without* chemicals.

Agronomist Subhash Palekar, who put together the ZBNF practices, is often referred to by farmers as the “guru” of the movement. In Karnataka state, the ZBNF movement was born out of collaboration between Palekar and the farmers’ association Karnataka Rajya Raitha Sangha (KRRS), a member of La Via Campesina. KRRS was instrumental in mobilizing farmers at the grassroots level and organized many massive ZBNF training camps with the help of other allies. One might say that the organizational fabric of KRRS was like the fertile soil upon which the ZBNF movement grew.

At the state level, the ZBNF movement has a loose network of volunteer coordinators – drawn from the many local leaders of KRRS, community leaders, and progressive representatives of political parties. Many members of KRRS are also members of the ZBNF movement, which is a broader entity and includes many other, non-KRRS farmers. At the local level, the movement has a self-organized PtP dynamic and runs in an informal way. Most practicing ZBNF farmers are informally connected to each other and carry out both organized and spontaneous learning exchange activities. Leaders tend to emerge naturally from the grassroots, and all activities are carried out on a voluntary basis. Each district has its own style of organization, carries out its own activities in an autonomous fashion, and does not depend on any central control.

The main centrally organized activity at the state level are the training camps, taught by Palekar. The training camps last up to 5 days, with about 8 hours of classes each day. Attendance ranges from 300 to 5000 farmers. Arrangements are usually made for housing and meals. The attendance fee is very affordable – about 4 USD for an entire camp. Those that cannot afford to pay are usually allowed to come for free and others are asked to pay for them. Volunteers carry out all logistical work, like cooking and cleaning. These massive logistical feats are typically organized by volunteer effort and support from allies. The training workshop usually covers a wide range of issues from philosophy, to ecology, ZBNF practices, to successful farmer experiences.

Allies play a strong role in the movement at both the state and the local level. Allies include some Hindu religious institutions called “mathas,” that often provide accommodation, food and space for training camps, local businesses, supportive local politicians, media, organic shops, and urban people who carry out media and promotion online.

## Case 2: Cuba’s Peasant-to-Peasant Agroecological Movement

The Peasant to Peasant Agroecology Movement (MACAC) is a grassroots movement inside of the Cuban National Association of Small Farmers (ANAP), which is a member of the international peasant movement, La Via Campesina (<http://viacampesina.org>).

MACAC is a mass-based movement in which the *campesino* (peasant farmer) members of ANAP have been transforming their productive systems by applying the principles of agroecology. Through MACAC, the small farm sector in Cuba is achieving ever higher levels of production with lower costs, particularly foreign exchange costs, as compared to conventional chemical-intensive monoculture farming systems. This sector is contributing an increasing proportion of total national food production, and is better able to withstand the adverse effects of climate change (such as hurricanes).

During the Special Period, which is the extended period of economic crisis that began in 1989 ensuing on the collapse of the Socialist Block in Europe, the government and farm families, ANAP, and Cuban scientists promoted and implemented a series of measures to maintain agricultural production in the absence of imported chemicals and machine parts. These included the recovery of traditional farming practices with low levels of external inputs, as well as the use of ecological methods developed by Cuban researchers.

While by that point no true agroecological transformation had occurred, Cuba managed to survive the hardest times through the return of the people to the land, the use of animal traction, biological pest control methods, and input substitution, in which alternative inputs are substituted for farm chemicals.

At the same time, important changes were put in place with respect to land tenure and the organization of farmer cooperatives. By the end of this period, though Cuba was surviving, ANAP still saw the need for to go farther into agroecological farming with greater diversification and integration of ecological practices. However, it was clear that widespread transformation would be impossible without a method to build a social process to accelerate adoption of agroecology. Though agroecological techniques abounded, Cuba needed to develop a process by which to better disseminate them and foment their adoption among the nation's farm families. Thus, during the Special Period, the stage was set for the arrival of the PtP method from Central America to Cuba.



## Description of the agroecological system

Certain characteristics of ANAP favoured the generation of a mass movement, particularly its highly organized membership base, many of whom had a high level of political-ideological preparation. At this point, the entire structure, leadership and cadre of ANAP began to work toward the development and implementation of an agroecological vision and practice among the campesino membership. This was achieved with a great deal of success; since 1997, more than 100,000 families – over a third of all Cuban farmers – have joined the agroecology movement and are transforming their production systems (Machín et al. 2010).

MACAC is based on the horizontal transmission and collective construction of knowledge, practices, and methods. It tries to blend traditional peasant knowledge and farmer innovation together with the science of agroecology. This process has stimulated the rapid generation, diffusion, and adoption of agroecological practices at the farm level.

Agroecological integration means building systems with synergy among the components (between crops and livestock, among complementary crops, etc.). When farmers increase their level of agroecological integration, production levels rise – both per unit of land area and per amount of farms labour invested. The rapid growth of the number of families who participate in MACAC partially explains the continual increase of both the absolute and the relative contribution of the peasant sector to the nation’s total food production.

## Outcomes of the practices

Figure 6 contains data on chemical use and food production in Cuba before the Special Period and more recently (2008). It reveals a drop in production in 1994, a critical year during the Special Period, as a result of decrease in availability of imported inputs required for conventional agriculture. Since that time, the campesino sector has greatly recovered productive levels, due to the consolidation of agroecology, as can be seen for the

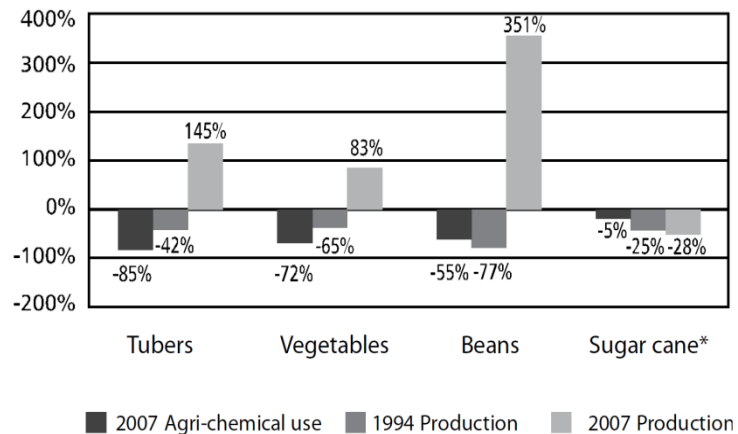


Figure 6. Dynamics of agrochemical use (compared to 1988) and production of sugarcane and other basic foods in 1994 and 2007. Data for sugar cane represent yield, not production. Source: Machín et al. 2010

largely campesino-produced food items in the graph. This has

been possible despite a massive reduction in agrochemical use from 1988 levels, when the Green Revolution was at its peak. The data is telling with respect to sugar cane, a crop that is still largely cultivated in Cuba according to the precepts of the Green Revolution, and which is not known as a campesino crop, for which yields have been continually decreasing.

The years from 2004 to 2009 have been marked by the consolidation and strengthening of MACAC. This may be attributed to a variety of factors, among which the most important has been its transformation into a mass movement that is constantly forming new cadres. Furthermore, Cuban farmers have developed methodological innovations. For example, the Banes Method classifies farms according to their level of agroecological integration. It offers a way to rapidly identify new practices and potential promoters, and efficiently direct and coordinate exchanges and trainings. It is also designed to highlight the most successful agroecological farms as role models for other farmers.

Throughout its history, MACAC has grown more rapidly in Cuba's Credit and Service Cooperatives (CCS), where land is farmed on an individual family basis, than in the Agricultural Production Cooperatives (CPA), where land is farmed collectively. It has been difficult to integrate agroecology into the CPA for a variety of reasons. However, ANAP has now successfully incorporated a number of innovative practices which facilitate the functioning of MACAC in CPAs.

The greater biological and human resilience of agroecological systems to the effects of climate change is, without a doubt, another important factor to the success of MACAC. Resilience is the capability of an agroecosystem to maintain productivity when subject to perturbation.

Due to Cuba's geography, it is susceptible to declines in agricultural production as a result of constant natural disasters. Therefore, resilience is a particularly important factor for the island. Cuban farmers have already witnessed the



benefits of agroecology in the face of hurricanes: farms with a greater level of agroecological integration have suffered less in the face of such phenomena (Rosset et al. 2011). This may be partially explained by the fact that agroecological systems suffer less from erosion and landslides due to greater implementation of soil conservation practices (contour planting, gully control, greater use of cover crops, etc.). Fewer crops are lost when multiple strata of vegetation exist.



Aside from the fact that agroecological farm losses in the face of hurricanes (unlike those of conventional monoculture) are not total, farms with greater levels of agroecological integration recover much more quickly. It is demonstrated that the initial damage from the hurricane on the most agroecological farms ranged from 30% to 60%, which is below the average for all the farms in the CCS (75%). Furthermore, the movement has stimulated farmers' ability to constantly innovate and experiment; once their creativity was unleashed, they began to show results.

### **Agroecology and the Peasant family**



Rural areas of all countries have confronted the disintegration and atomization of the peasant family. Traditional monocultures do not offer interesting roles which remunerate family members other than the man. Thus, they reinforce a patriarchal structure.

By contrast, agroecological diversification as promoted by MACAC in turn diversifies the roles available to the entire family. Agricultural work becomes more interesting and pleasurable, captivating the imagination and offering opportunities for all family members. As a result, a greater number of youth remain in rural areas, and other extended family members return to the family farm. This undoubtedly contributes to retaining young people on the farm - key to generational sustainability of farming, and reduces the exclusive power of the man within the family unit.

Furthermore, ANAP's ambitious gender strategy permeates the movement's structure. MACAC generates spaces for women to participate as promoters, facilitators, and coordinators. Nevertheless, the movement has a way to go to achieve true gender equality.

### **Alliances**

Part of MACAC's success in Cuba lies in the fact that ANAP has managed to build an effective strategy of alliances. For example, it has taken advantage of and influenced governmental policies and programs, while also working with a variety of external actors, without sacrificing campesino protagonism. Furthermore, the movement has generated programs with multiplier effects and effectively exploits educational opportunities offered by exposure in the mass media.

## **MACAC: a path to food sovereignty**

In sum, through MACAC's farmer families, agroecology offers Cuba a more efficient way to produce its food than conventional monocrop agriculture - per unit of land area as well as per worker. Furthermore, it does not depend on imported inputs, which are costly and toxic to people and the environment. Finally, agroecology better resists droughts and hurricanes, not to mention other internal and external factors which should be taken into account, such as depletion of natural resources, particularly soil degradation, which affects 70% of Cuba's agricultural land. While conventional agriculture further contributes to land deterioration -threatening future food sovereignty of the Cuban people- agroecological systems have demonstrated their ability to restore fertility to degraded soils. It is likely that what today is invested in toxic agrochemicals tomorrow will be paid in negative health effects. Agroecology produces healthy food without toxic agrochemicals.

The increase in food prices in the international market, as well as the price of inputs indispensable to conventional agriculture, obliges us to consider an alternative model which creates less dependency. It's not a matter of academic arguments in favour of this or that agricultural model, but rather of sustainability and sovereignty. Agroecology does not depend on imports. It is sovereign and sustainable.

Despite adverse economic and climatic conditions, in just over a decade, the campesino family which practices agroecology has attained the greatest levels of productivity and sustainability in Cuba. Agroecology has achieved what the conventional model has never accomplished in Cuba or any other country: more production from less (less foreign exchange, fewer inputs, and less investment).

In summary, compared to the conventional model, agroecology offers Cuba food sustainability, sovereignty, and security, assuring:

- Greater resilience in the face of climatic adversities which are frequent to the island (hurricanes, droughts, floods, etc.);
- Restoration of soils degraded by intensive agrochemical use;
- Healthy food;
- Greater productivity;
- Savings in foreign exchange, inputs, and investments.

Throughout the documentation process, we have seen how agroecology and MACAC offer the path to food sovereignty in Cuba, while also providing an example, source of ideas, and inspiration for other countries. This represents a true agroecological revolution.

### Case 3: Not Just for Peasants: The Farmworker Agroecological Movement in United States

*“The Florida experience is unique in that, women form a majority of the FWAF leadership and are predominant among the rural labor force in Central and South Florida’s produce and ornamental plant production. Many of these women leaders have had the opportunity to share in previous Agroecology Encounters organized by La Via Campesina in Guatemala, Nicaragua, and Cuba among others. The U.S. Agroecology Encounter reflected this - with women leadership at each garden, mixed gender workshops on feminism in agroecology, and child-care for families so more women can participate in panels and debates. These are just some ways the Encounter reflected our core values for equity and sustained the environment needed for women’s leadership to flourish and feed our movement” - Angela Adrar, Rural Coalition*

The first LVC North American conference on agroecology was held from 12 to 16 February 2015, at the *Campesinos’ Gardens* in Fellsmere and in Florida City, Florida. Entitled “Campesino-a-Campesino Agroecology Encounter: A Collaborative Learning Exchange for Promoters of Agroecology, Traditional Wisdom and Respect for Mother Earth,” the Encounter marked the culmination of several years of collaboration and exchange among members of La Via Campesinas’ North American Region, the Farmworker Association of Florida and the Rural Coalition. In addition, other U.S. and international allies participated, notably the Landless Workers Movement (MST) of Brazil.

In the United States, the Spanish word “campesino” which elsewhere means peasant, is more often used to refer to landless or migrant farm workers. Thus the “campesino-a-campesino” in the Encounter’s name refers not only to PtP processes, but also to farmworker-to-farmworker processes. During the five days, both young and older organizers and campesino peer trainers

provided “hands-in-the-earth” workshops to help participants to embrace place-based agroecology in theory and in practice. Sessions were imparted by member organizations of La Via Campesina such as Rural Coalition, FWAF, Boricuá, and other allies. Peer led-workshops were offered to transfer practical knowledge for sustainably cultivating organic produce, while enriching and healing the soil. Included were topics such as: natural pesticides; disease and nutrient control; composting and ecological fertilization techniques; companion planting; polycultures; seed conservation and optimizing local resources.

There were also many workshops, small group opportunities and political and social discussions where local community members and allies shared perspectives on the local, regional and international contexts of exploitation, destruction, the poverty and hunger created and maintained by the dominant model of corporate controlled agriculture and food production. Participants explored the ways that a political and social movement can promote agroecology, the establishment and expansion of worker controlled cooperatives, and community gardens that demonstrate a concrete and successful alternative to conventional agriculture across the North American region.

Special attention was given to hearing the voices of migrant farm workers themselves, to learn firsthand about the obstacles and socio-economic challenges faced by them and other farm worker families in the Southeastern United States. They shared harsh stories of peasant workers and producers and their long term fight for the elimination of pesticides in their work fields and communities. Reina Lemus, from Farm Workers Association in Apopka, shared that “*The super exploitation and oppression that we have lived, here in the plantations of Florida, where we work like machines for wages based on the amount we are able to pick, and not any type of hourly fixed wage, has been worse than anything we experienced before in our home countries. Even though we organize to fight for better wages it is a long and a very slow struggle. It does not change the basic working conditions. We realized that we need to find things that give us hope, like these agroecological community gardens. We work together even when we are tired but we can see the fruit of our labor for ourselves and we can better feed our families.*”

One of the overriding themes of the Encounter was the need for redistributive agrarian reform. Delegates noted that the topic of land reform by non-market means is a taboo in the United States. However, structural racism by the United States Department of Agriculture, banks and notorious “redlining” policies have denied African-Americans fair access to credit for decades, effectively destroying millions of Black family farms and pulling tens of billions of dollars in wealth from Black communities. Ben Burkett, is a Southern, African-American Farmer leader of the National Family Farm Coalition and Rural Coalition, as well as a representative of the Federation of

Southern Cooperatives. He told us about their long-term experiments with cooperative structures as a strategy, developed since the 1960's, as a means to reduce and prevent land loss among African-American farmers across the southern United States. There are now 75 family farmer based cooperatives across the South that are a part of the Federation of Southern Cooperatives. *"You see, here in the South we struggled in the civil right movement in the 1960's, fifty years ago, for our right to vote. But when we won that, we looked around and realized that we had no guaranteed right to our land, to be able to feed ourselves and make a living. So we organized again to fight for our land",* said Ben Burkett.

Tirso Moreno, director of the 32-year-old Farmworker Association of Florida, spoke about the myriad strategies that have been developed to defend laborer rights, health and safety, and the socio-economic and political rights of their newer immigrant members: Africans, Mexicans, Haitians, Central Americans. These strategies range from collective bargaining, cooperative organizing, fighting wage theft, advocacy and training for health and safety protections, fighting legal battles to gain redress for workers who have been poisoned by toxic chemicals while working in the fields, among others. Tirso shared that *"We are working on building worker-controlled cooperatives of pickers who can interface with cooperatives of small scale producers, who are our friends, for better working conditions, better wages, better production and better prices. We are using the principles and values of collective organizing and cooperative work in our community gardens that we have organized on public land claimed for these gardens in 4 out of the 7 communities where the Farm Workers Association is organized across the state of Florida. "*

The Encounter served as a catalyst to lay the foundation for building a strong peasant-based, people's agroecology movement across North America that links to the struggles of our international brothers and sisters. Such a movement can inspire local communities and their allies with practical examples of the transformation needed to heal Mother Earth and to begin to confront the destruction caused by industrial agriculture. Young and new immigrant farmers shared inspiring stories from about the potential for economic opportunities using agroecological techniques, organizing cooperative efforts between new immigrant small scale producers and immigrant farmworkers, working together and developing direct marketing relationships with allied consumers in rural, suburban and urban communities. One young participant shared, *"Campesino-a-Campesino Agroecology is about planting people on the land to grow food, grow community-cooperation, grow consciousness and respect for Mother Earth with Food Sovereignty at its heart."*

Several workshops provoked reflections that helped share a deeper understanding and reaffirm the importance of farmers' and farm workers' organizations. Diana Garcia Padilla, from the New

Immigrant Farmers Initiative (NIFI) in Texas, said that agriculture and food production in collective community gardens is now becoming a “hot” topic of great interest to a wide variety of both urban and rural folk. *“I believe that organic, agroecological farming offers us new opportunities for generating some income, it offers opportunities to teach our children how to work and live well. It offers new ways of feeding ourselves and building community. At our community garden we organize a harvest dinner, and open up the garden as shared space, using whatever we have in our harvest - people of all ages, men and women, come and share and they love it.”* Together, participants explored the effects of gender-based discrimination and violence, and identified concrete ways that these undermine the strength of our families, communities, and organizations. Both women and men, elders and youth worked together to identify tangible steps that can be taken now in our efforts to reduce the marginalization of women and youth, and to increase their participation in all aspects of decision-making, as well as, in all types of organizing efforts.

This Encounter strengthened Via Campesina North America’s commitment to agroecology as a transformative process and as a foundation for building food sovereignty and for healing and protecting Mother Earth. It has also strengthened confidence in collective work as the basis of the struggle for social, ecological and environmental justice. When working with these concepts and principles, North Americans create changes through which the earth and the people can again be connected in harmony. Working in connection with sisters and brothers of the global social movement is the basis for transformative organizing in the United States and North America.

As products of the Encounter, delegates mentioned building deeper relationships between migrant campesinas in Florida and campesinas in Mexico, and continuing with another exchange of this type in Canada in Florida. Both the Rural Coalition and the Farmworkers Association of Florida will be hosting year-long exchanges with the MST (Landless Peasant Movement) of Brazil that will enrich the political and technical training in agroecology carried out at Campesinos Gardens. Finally, participants committed themselves to creating a united front of resistance against multinational agri-business companies like Tropicana, Dole, PepsiCo, and others that continue to exploit peasants for profit in the United States as well as in South America and other continents.

### **Further Resources for Agroecological Schools and PtP:**

**Multimedia Peasant School**—Dozens of videos and documents organized by Chiapas-based media collective Koman Ilel that clearly explain the PtP method in the Cuban context. All content is available in English, Spanish, Portuguese, French. Available at <http://agroecologia.espora.org>

**Agroecological Revolution!**—The book that emerged from the LVC systemization process about ANAP's PtP movement in Cuba. Excellent didactic structure! Available at [www.viacampesina.org](http://www.viacampesina.org)

**Campesino a Campesino: Voices from Latin America's Sustainable Agriculture Movement.** Book that tells the story of PtP. Available at [www.foodfirst.org](http://www.foodfirst.org)

## REFERENCES

- Altieri, M. A. (2004). Linking ecologists and traditional farmers in the search for sustainable agriculture. *Frontiers in Ecology and the Environment* 2(1):35-42. [http://dx.doi.org/10.1890/1540-9295\(2004\)002\[0035:LEATFI\]2.0.CO;2](http://dx.doi.org/10.1890/1540-9295(2004)002[0035:LEATFI]2.0.CO;2)
- Altieri, M.A. and C. Nicholls. (2008). Scaling up Agroecological Approaches for Food Sovereignty in Latin America. *Development* 51(4): 472-480.
- Altieri, M.A., and V.M. Toledo. (2011). The agroecological revolution in Latin America: rescuing nature, ensuring food sovereignty and empowering peasants. *Journal of Peasant Studies* 38(3): 587-612.
- Barbosa, L. P. (2015). *Educación, Resistencia y Movimientos Sociales: la praxis educativo-política de los Sin Tierra y de los Zapatistas*. Mexico City: LIBRUNAM.
- Barbosa, L. P. (2016). Educação do Campo [Education for and by the countryside] as a political project in the context of the struggle for land in Brazil. *Journal of Peasant Studies*. doi:10.1080/03066150.2015.1119120.
- Bunch, R. (1982). *Two Ears of Corn: A Guide to People-Centered Agricultural Improvement*. Oklahoma City: World Neighbors.
- Camposeco Cruz, M. (2011). La Propuesta de Desarrollo Sostenible Denominada De Campesino a Campesino: Una Experiencia en San Martín Jilotepeque, 1972-1982. Tesis de Licenciatura, Escuela de Ciencia Política, Universidad de San Carlos de Guatemala.
- Chambers, R. (1990). Farmer-first: a practical paradigm for the third agriculture. In: Altieri, M.A. and S.B. Hecht (Eds.), *Agroecology and small farm development*, pp. 237-244. Boca Raton, Florida: CRC Press.
- Chambers, R. (1993). *Challenging the professions: Frontiers for Rural Development*. London: Intermediate Technology Productions.
- Chan, M. and E.F. Freyre Roach (2010). *Atando Cabos: La Agricultura Cubana*. Oxfam: Havana.

- DeFries, R. S., T. Rudel, M. Uriarte, and M. Hansen (2010). Deforestation driven by urban population growth and agricultural trade in the twenty-first century. *Nature Geoscience* 3(3):178-181. <http://dx.doi.org/10.1038/ngeo756>
- De Schutter O. (2010). Report submitted by the Special Rapporteur on the right to food, Olivier De Schutter, United Nations Human Rights Council, 16th session, agenda item 3.
- Declaración of Nyéléni (2015). Declaration of the International Forum on Agroecology. Nyéléni, Mali, 27 February, 2015.
- Ecobichon, D. (2001). Pesticide use in developing countries. *Toxicology* 160(1-3): 27-33.
- FAO (2014). The state of food and agriculture 2014: Innovation in family farming. Rome: FAO.
- Francis, C., Lieblein, G., Gliessman, S., Breland, T. A., Creamer, N., Harwood Salomonsson, L., Helenius, J., Rickerl, D., Salvador, R., Wiedenhoef, M., Simmons, S., Allen, P., Altieri, M., Flora, C. and Poincelot, R. (2003). Agroecology: The ecology of food systems. *Journal of Sustainable Agriculture* 22 (3), 99-118.
- Freire, P. (1970). *Pedagogy of the oppressed*. New York: Herder and Herder.
- Freire, Paulo. (1973). *¿Extensión o comunicación? La concientización en el medio rural*. Argentina: Siglo Veintiuno editores. 110 pp.
- García García, G. (2012). Las guerrillas y los mayas: una aproximación a las formas de interacción sociopolítica entre las insurgencias y los kaqchikeles de San Martín Jilotepeque (1976-1985). Pp. 73-130. In: Vela Castañeda, M. (Coord.), *Guatemala: la infinita historia de las resistencias*. Guatemala: Magna Terra Editores.
- Glasser, W. (1986). *Control Theory in the Classroom* New York: Harper & Row.
- Gliessman, S. (2009). *Agroecology: Ecological Processes in Sustainable Agriculture*. Boca Raton: CRC Press.
- Gliessman, S. (2010). The framework for conversion. In: Gliessman, S. and Rosemeyer, M. (Eds.), *The Conversion to Sustainable Agriculture: Principles, Processes, and Practices*. Boca Raton, FL: CRC Press.
- Gliessman, S. (2013). Agroecology: Growing the Roots of Resistance. *Agroecology and Sustainable Food Systems* 37(1): 19-31. Grain 2011,
- Graeub, B.E., M.J. Chappell, H. Wittman, S. Ledermann, R. Bezner Kerr and B. Gemmill-Herren, (2015). 'The State of Family Farms in the World'. *World Development*: 1-66.
- Grain. (2011). Food and Climate Change: the forgotten link. *Against the Grain* September 2011.
- Grain. (2017). *Grabbing the Bull by the Horns: It's time to cut industrial meat and dairy to save the climate*. Grain Report 5629, 12 pp. Barcelona.
- Holt-Giménez, E. (2001). Scaling up sustainable agriculture: lessons from the Campesino a Campesino movement. *LEISA Magazine* 3(3):27-29. [online] URL: [http://www.agriculturesnetwork.org/magazines/global/lessons-in-scaling-up/scalingup-sustainable-agriculture/at\\_download/article\\_pdf](http://www.agriculturesnetwork.org/magazines/global/lessons-in-scaling-up/scalingup-sustainable-agriculture/at_download/article_pdf).
- Holt-Giménez, E. (2006). *Campesino a campesino: voices from Latin America's farmer to farmer movement for sustainable agriculture*. Food First Books, Oakland, California, USA.



- IAASTD (2009). *Agriculture at a Crossroads, Synthesis Report*.
- Khadse, A., P. Rosset, H. Morales and B. Ferguson (2017). Taking agroecology to scale: the Zero Budget Natural Farming peasant movement in Karnataka, India. *The Journal of Peasant Studies*. doi:10.1080/03066150.2016.1276450
- Kolmans, E. (2004). Memoria del Taller de Técnicas y consideraciones agroecológicas llaves para los procesos metodológicos de Campesino a Campesino PIDAASSA PERU. Julio 2004.
- Kolmans, Enrique. (2006). *Construyendo procesos ‘de Campesino a Campesino’*. LIMA: ESPIGAS y Pan para el Mundo.
- Kremen, C., A. Iles and C. Bacon. (2012). Diversified Farming Systems: An Agroecological, Systems-based Alternative to Modern Industrial Agriculture. *Ecology and Society* 17(4): 44.
- Kruger, E. (1995). *We are the solution!* Oakland: Food First <https://foodfirst.org/wp-content/uploads/2014/12/Farmer-to-Farmer-We-are-the-Solution.pdf>
- LVC. (2013). Declaration of Jakarta. Declaration of the VI Conference of La Vía Campesina. June 2013, Jakarta, Indonesia.
- Machín Sosa, B., Roque Jaime, A.M.; Ávila Lozano, D., Rosset, P. (2010). *Revolución Agroecológica: el Movimiento Campesino a Campesino de la ANAP en Cuba*. La Habana: Asociación Nacional de Agricultores Pequeños y La Vía Campesina.
- McCune, N. Y. Ruiz-González, E. Aguila-Alcántara, O. Fernández-Martínez, C. O. Fundora, N. Castillo-Arzola, P. Cairo-Cairo, M. D'Haese, S. DeNeve and F. Guevara-Hernández. (2011). Global Questions, Local Answers: Soil Management and Sustainable Intensification in Diverse Socioeconomic Contexts of Cuba. *Journal of Agroecology and Sustainable Food Systems* (formerly *Journal of Sustainable Agriculture*) 35:6, 650-670
- McMichael, P. (2010). Agrofuels in the food regime. *Journal of Peasant Studies* 37(4):609-629. <http://dx.doi.org/10.1080/03066150.2010.512450>
- Montenegro, M. (2014). A lighthouse for urban agriculture: university, community and redefining expertise in the food system. *Gastronomica: The Journal of Critical Food Studies*, Vol. 14(1).
- Multimedia Peasant School (2015). Colectivo Koman Illel. <http://agroecologia.espora.org>
- Muñoz, A., N. McCune and J. Reardon (2014). Agroecological Formación For Food Sovereignty. Z Communications. March 6, 2014. <https://zcomm.org/znetarticle/agroecological-formacion-for-food-sovereignty/>
- Nagayets, O. (2005). Small farms: current status and key trends. Pages 355-367 in *Research workshop and information brief for future small farms*. International Food Policy Research Institute and Overseas Development Institute. [online] URL: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.146.4632&rep=rep1&type=pdf>
- Pachico, D. and S. Fujisaka. (2004). (Eds.), *Scaling up and out: achieving widespread impact through agricultural research*. Cali, Colombia: CIAT.
- Patel, R., 2009. 'Grassroots Voices: Food Sovereignty'. *Journal of Peasant Studies* 36 (3): 663-706.
- Perfecto, I., J. Vandermeer, and A. Wright. 2009. *Nature's Matrix: Linking Agriculture, Conservation and Food Sovereignty*. London: Earthscan.

- Perfecto, I. and Vandermeer, J. (2010). The agroecological matrix as alternative to the land-sparing/agriculture intensification model. *Proc. Natl Acad. Sci. USA*, 107, 5786–5791.
- Reardon, J.A. and Aleman, R. (2010). Agroecology and the Development of Indicators of Food Sovereignty in Cuban Food Systems. *Journal of Sustainable Agriculture* 34(8): 907-922.
- Román, R., and M. Sánchez. (2015). La Agroecología: Puntal de la Soberanía Alimentaria. América Latina en Movimiento 502.
- Rosset, P.M. (2006). Moving forward: agrarian reform as part of food sovereignty. In: P. Rosset, R. Patel and M. Courville, eds. *Promised land: competing visions of agrarian reform*. Oakland, CA: Food First Books, pp. 301-21.
- Rosset, P.M. (2015). Social organization and process in bringing agroecology to scale. In: Food and Agriculture Organization (FAO) of the United Nations, *Agroecology for Food Security and Nutrition*. Rome: FAO.
- Rosset, P.M., B. Machín Sosa, A.M. Roque Jaime and D.R. Ávila Lozano (2011). The Campesino-to-Campesino agroecology movement of ANAP in Cuba: social process methodology in the construction of sustainable peasant agriculture and food sovereignty. *The Journal of Peasant Studies* 38(1): 161-191.
- Rosset, P. and Benjamin, M. (1994). *The Greening of the Revolution: Cuba's Experiment with Organic Agriculture*. Oakland: Food First.
- Rosset, P., and M. E. Martínez-Torres. 2012. Rural social movements and agroecology: Context, theory and process. *Ecology and Society* 17(3): 17.
- Sevilla Guzmán, E. (2013). La formación en agroecología y sus diferentes niveles de territorialidad: pensando desde la aportación de José Antonio Costabeter. Presentation at VIII Brazillian Congress of Agroecology, Porte Alegre, 25-28 November, 2013.
- Tilman, D., K. Cassman, P. Matson, S., Naylor, and S. Polasky. (2002). Agricultural sustainability and intensive production practices. *Nature* 418: 671–677.
- UN Special Rapporteur on the Right to Food. (2017). Report of the Special Rapporteur on the right to food. Human Rights Council, Thirty-fourth session 27 February-24 March 2017, Agenda item 3. Promotion and protection of all human rights, civil, political, economic, social and cultural rights, including the right to development. 24 January, 2017.
- Van der Ploeg, J. D. (2008). *The new peasantries: Struggles for autonomy and sustainability in an area of empire and globalization*. Sterling: Earthscan.
- Wezel A., S. Bellon, T. Doré, C. Francis, D. Vallod, C. David (2009). Agroecology as a science, a movement and a practice. A review. *Agronomy for Sustainable Development* 29, INRA, EDP Sciences, 503-515
- White, B., S. Borras, R. Hall, I. Scoones and W. Wolford (2012) The new enclosures: critical perspectives on corporate land deals, *The Journal of Peasant Studies*, 39:3-4, 619-647, DOI: 10.1080/03066150.2012.691879
- Wittman, H. (2010). Reconnecting agriculture and the environment: Food sovereignty and the agrarian basis of ecological citizenship. In *Food sovereignty: Reconnecting food, nature and community*, ed. Wittman, Desmarais and Wiebe, 91–105. Oakland: Food First.

Annex 1.

APPENDIX I

*Field Survey*

A station is the place where the group stops to examine the soil, topography and vegetation in more detail.

| OBSERVATIONS   | STATION #1 | STATION #2 | STATION #3 |
|--|------------|------------|------------|
| Slope<br>Steep<br>Gentle<br>Flat   |            |            |            |
| Topography<br>Gullies<br>Undulating<br>Smooth  |            |            |            |
| Topsoil<br>Depth<br>Colour<br>Organic Material<br>(hi/med/low)                                   |            |            |            |
| Subsoil<br>Colour<br>Texture   |            |            |            |
| Soil Life<br>No of different worms,<br>insects and grubs in 1m <sup>2</sup><br>by 15cm deep hole |            |            |            |
| Vegetation<br>Density and types of trees,<br>grasses, weeds, shrubs and<br>crops                 |            |            |            |
| Problems<br>(Critical links and limiting<br>factors)   |            |            |            |
| Possible Solutions   |            |            |            |

