

# Global agricultural debates and permaculture responses

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08 - 2014



The current global debates on agriculture are comprehensive and can be grouped in four main topics: Its challenging multifunctional role in the economic, social, cultural and political spheres. Simultaneously, the intervention and adjustments of trade regulations which inspire a more participatory debate generating multileveled responses. A third emerging challenge comes from the necessity to understand agriculture as a system, rather than an isolated economic sector. In this sense the participation of every actor becomes relevant for its optimal functioning. Finally, the agricultural activities are now seen as an ideal space to generate social empowerment and resilience, facing the climate change and transforming economic principles. How does permaculture contribute to these debates? What can the practical experiences teach us?

## GLOBAL AGRICULTURAL DEBATES AND PERMACULTURE RESPONSES

By Luisa Trujillo P<sup>\*\*</sup>.

The current debates on agriculture and its role are deeply rooted in a wider and more comprehensive concern on the sector. Agriculture has historically represented the basis of the economic production for every society, and even if modernization consisted on setting a distance from what is known as *rural*, increasing number of actors from urban societies return to it looking for well-being. The current debates include then the articulation of diverse spheres: environmental, societal, political, commercial, human rights, property, security, health and even in some cases, cosmology that defines the relation between the human settlements and the soil –for some-, *mother earth* or *gaia*<sup>1</sup>.

Agriculture is for human development as breath is for spiritual development: it is a bridge that works voluntarily and involuntarily, even if humans decide to withdraw their attention from the agricultural processes, the nature takes its own course, and the production of resources can continue, evolve in different ways and re-establish the fragile natural balance where it came from. The current debates can be more or less formal, scientific, tested, proved, analyzed and discussed. However, they all coincide in the necessity to transform the way we observe and participate of agriculture, locally, regionally, nationally and globally, even if the role extends only to the consumption of the agricultural products.

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<sup>1</sup>The use of an ancient Greek goddess responds to the *Gaya hypothesis* developed first by James Lovelock who considers and explains the earth as a complex self-regulating entity with all *her* contained beings (Lovelock, 2000)

This paper groups the current debates in four sections: First, the required multifunctionality for agriculture (and agricultural practices); Second, the urgent need to adjust the trading policies in a way that the benefits of agriculture can be equally distributed and more sustainable practices become widely implemented; Third, the systematic vision of agriculture that induces the transformation of production practices as a whole; Fourth, the possibility to contribute to social transformations through the empowerment of community and societal networks.

The debates will be explained from a theoretical and policy perspective and more importantly, practical responses to these concerns will be given from *permaculture* initiatives that have been effective or are promising to provide the tools for a progressive transformation of the agricultural sector.

In 2013 the UNCTAD<sup>2</sup> report presented a multidisciplinary approach to the agricultural sector explaining the urgency of deep transformations. Due to the agricultural practices based on non-renewable energies, the result can contribute to the climate change, and simultaneously suffers its consequences. Population growth and food demands stemming from such growth, place the sector as key for the emission of green house gases (GHG), among other effects – water use and pollution; land use and dietary transformations. The recommendations given in the report were summarized in:

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<sup>2</sup> United Nations Conference on Trade and Development.

“a fundamental transformation towards climate-friendly agriculture, consisting of a mosaic of agro-ecological production practices, [becoming] the new paradigm [comprising] very important development objectives: addressing the equality challenge, notably food security and farmer livelihoods; enhancing sustainable productivity, based on a new, systemically different definition that focuses on total farm output instead of productivity per unit of labour; strengthening resilience to resource and energy scarcity and climate change” (UNCTAD, 2013 p. 10)

There are now higher possibilities of individual and collective resonance with the recommendations. The flow of information denouncing the misuse of land and the dark side of food security, have been shortly exposed. Likewise, important political programs like the *Green Revolution*<sup>3</sup> have also been critically assessed. The interest on agriculture is growing, since it is not difficult for the regular consumer to observe the prices fluctuating by the emergent crisis (like it happened in 2008 in Europe) and the consequent nascent and expanding seek for more independent and sustainable ways to cover basic nutritional needs.

Among the emergent solutions, permaculture has been gaining space in the agricultural sector

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<sup>3</sup> The term refers to a series of research, policies, programs and technology transferences starting in the early 50's to mitigate food risks and undersupplies. The process extended towards the developing countries and positioned large-scale farming as the most productive and effective solution, not only for hunger, but also for poverty reduction. Recent critics and ex-post analysis has shown its devastating effects on the environment and sustainability. See Vandana, 1991.

since it was first coined by Bill Mollison and David Holmgren in 1978. Permaculture are the “consciously designed landscapes which mimic the patterns and relationships found in nature, while yielding an abundance on food, fibre and energy for provision of local needs” (Holmgren, 2002). It searches for improving the long-term material wellbeing of people; it is a holistic integration of eco-social issues rather than a utilitarian focus on agro-production.

As an alternative practice permaculture can be categorized as a counter culture that questions and re-defines the principles of the capitalist model that has ruled society for the last two centuries. It also requires a systemic thinking and the inclusion of ecology and even cosmology into the dynamics of allocation, design and development of crops.

### 1. Multifunctionality of agriculture

The idea of a multifunctional agriculture became well known in the European countries with the 2014 implementation of the latest Common Agricultural Policy (CAP) in the Union. As the policy insists, the sector must respond not only to the necessity to cover the nutritional needs of the European population, but also raise awareness about the bi-directional relation with the environment.

The multifunctional dimension observes comprehensive agricultural production understanding the sector as a whole. A vision of agriculture as multifunctional is expected to understand the limited resources and access to them, specially water and energy. It has to cover the nutritional necessities while providing dignifying jobs, contribute to landscape, forests, water preservation, and soil. The sector must also observe its impacts on health, given the use of agrochemicals and its two main effects: the

long exposure of farmers and labour and the consumption of the exposed products.

One of the main objectives of the new policy is *food security*, understood as the right to access to food, a right that has to be granted by the state securing the minimum amount of food for every child, women and man. The concept of security became problematic after the implementation of the agricultural policies with the green revolution. Even if the access to food was granted in quantities, the nutritional facts provided with it were not necessarily covered and in many cases the production increase represented a shift on traditional diets that attempted against traditions, development and health (Spitz, 2009).

The food now is not only object of securitization but goes further to *sovereignty*. If access to food is considered a right, the possibility to decide what the better diet for each society is must be also granted as part of the *self determination* of nations (Golay, 2010).

This new integral vision of the *right to food* was one of the achievements stemming from the widespread critics that took place with the 2008 food crisis. Increasing the amount of production proved to lead to nutritional problems. While the rapid growth was the strategy of the agricultural policies after the WWII, the main goal was to hastily avoid any possible scarcity. It was followed by a series of measures including the promotion of monocultures, the diversification and multiplication of genetically modified organisms (GMO) and chemically dependent seeds and the industrialization of agricultural production.

Malnutrition was first seen in the 90's as a consequence of the *Green Revolution*. By that time 840 million people were undernourished and 115 were suffering from hunger (Christoplos

et. al. 2004). Some of the causes are listed in the Box 1.

**Box 1. Some of the causes for malnutrition**

- The increase of agribusiness and dependence on agrochemicals for a sustained production
- The intensification of monocultures using improved seeds and foreign cultures (rise varieties, maize and soya beans as the *panacea* for hunger).
- The irregular access to food supplies given the limited resources and insufficient infrastructure.
- The lack of capital and land that undermines the open participation in the production chain and restricts the access to the market (Bebbington, 1999).

While some of the products were placed as commodities in the market (Meyers et. al. 2012), the price fluctuations stroke directly the most vulnerable populations in developing countries and the discussions about a more inclusive system that could provide and distribute better access to capital for its allocation started (Bebbington, 1999).

After the food crisis, the expectations for transformations over the sector did not stop. Agriculture is also expected to contribute to build *resilience*<sup>4</sup>, tackle poverty issues and diversify the economic activities in the urban areas, also closing the gaps between the producer and consumers. Thus, if industrialization and maximization of efficiency were the *panacea* for hunger and scarcity issues in the sector, agriculture became in the recent years the key solution for global challenges, from poverty to climate change.

*How to translate unlimited ambitions into practical solutions?* If the main goal is to avoid scarcity and the complementary objectives include tackling poverty, granting employment

<sup>4</sup> The concept will be explained in the last section.

and contribute sustainably to the protection? Preservation? Environment, observing the core and practical principles of permaculture makes it possible to respond to the wide multifunctional definition of the transforming agricultural practices (Holmgren, 2002).

Care for the Earth: It is important to bring closer those gaps between social ambitions of 'environmental care that could exceed people's real possibilities of intervention. There is an urgent necessity to understand nature in its more complex way and this is possible by observing the local and surrounding rhythms and natural regulations.

Care for the People: There must be a shift of values that locates well-being in the centre of productive actions. As it happened with the transformation of *development* into *human development*, the understanding of agriculture requires a global perspective that goes further from economic growth and productivity to a comprehensive collective construction of well-being. Permaculture is about permanent culture, is about caring about the connections and awareness that contribute to well-being as a whole.

Set limits of production and consumption and redistribute the surplus: It is needed to redefine the quantities and qualities of the products we consume and how to return the surplus to the source. The creation of interdependent distribution channels also facilitates the access to food for people who actually need.

Observe and interact: It is important to recognize the patterns and details of every context. These details are historically collected in the collective memory of traditions and practices that should not be ignored when designing agricultural policies and production plans. By preserving these contextualized traditions it is possible to reduce the

dependency on foreign knowledge and technologies.

Catch and store energy: One of the problems that agriculture faces is its dependency on fossil fuels. The design of permaculture landscapes integrates the growing use of solar and wind energies, as well as biomass and run-off water. Permaculture also encompasses the concept of 'natural capital': "Living storages such as soil and trees are largely self-maintaining and continue to grow over time. The quality of the water in dams and even tanks can be self-maintaining through the living system they contain. Vegetable species which self-seed and stay true to type are a self-maintaining genetic resource" (Holmgren 2002, p. 44)

Obtain a yield: One of the most relevant contributions of permaculture for poverty alleviation is the consequent transformation of production relations. It is more efficient to select self-reliant species that demand no further interventions avoiding dependencies and allowing the farmers to build their own self-reliant production. In small scale, designers can respond to fundamental and resource-hungry needs by producing food, preserving clean reliable water supply, shelter and providing with complex but passive ecosystem services (like forestry and wildlife habitat preservation).

For this purpose the relations are based in the cooperative potential, not only between the participant actors, but also with nature. The allocation of crops based on permaculture looks for the low and sustained yields from renewable resources, instead of the opportunistic yields from non-renewable resources.

“In future, after the fossil fuel energy subsidy to agriculture has declined, the mineral fertility and balance of our farmlands and entire catchment landscapes will become one of the most important issues in resource management and economics, and yet the powerful means that are currently available to achieve this on a large scale will be very costly or simply unavailable. In this situation we will once again be dependent on the slower, low-energy processes of building and balancing fertility”  
(Holmgren 2002, p. 28)

Integrate rather than segregate: As it is precisely defined by the principles, permaculture observes the relevance of every participant organism in the production process. The relationships built in this context are comprehensive and inclusive where each and every particular element performs many functions and each function is supported by many elements. Permaculture landscapes, gardens and plots are rather mixed granting the interaction between complementary organisms. The space allows a natural cooperation that includes human beings, and therefore actions required to be performed consciously of the related impacts.

## 2. Is it all about trading?

Among the topics of current debate, trading stands as the most challenging. Having an international economic system based on the market fluctuations and its ongoing liberalization over the last 30 years, the trade policies that regulate agricultural products and

practices tend to be unequal and even threat -as it was denounced by the special rapporteur for Human Rights at the United Nations- the access to food. They are also founded on certain schemes of support and promotion of loans inaccessible for small farmers.

One of the economic principles on the foundations of the World Trade Organization regulations is the idea of *competitive advantage*. According with the theory, by producing more of those products where each country is more competitive, and opening the market to a free flow of these goods, each country will access equal levels of profits and social benefits. However, the vast differences in size, capital and resources twisted the expected ‘equal results’ into a perfectly unequal system, where poor countries tend to take on the worst consequences – hunger, poverty, environmental degradation, land conflicts, evictions, and dependency on imports (Clapp, 2014).

Under the Uruguay Round for multilateral trade negotiations that spanned from 1986 to 1994, certain food products and inputs for production are subject of tax exceptions and subsidies to: improve the living conditions of the producers; guarantee their distribution; establish tariffs to access the market and allocation of production in the green, blue or amber boxes<sup>5</sup>. These measures intended to regulate a widely open market by securing the yields of farmers regardless of the externalities on small-scale producers and despite the consequent unequal competition around same products (WTO, Doha Agenda on Agricultural Trade).

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<sup>5</sup> The green box includes unlimited support schemes considered not to distort trade. The blue box contains support schemes linked to production setting some limits and minimal trade distorting. The amber box contains the support schemes considered to distort trade and subject of reduction commitments.

Following the advocacy of diverse peasant movements (Via Campesina, Zimbabwe Farmers Union and Asian Farmers Association), and the foremost arguments from the UNCTAD (2013) and UN Human Rights (2011) the Box 2. synthesizes the problems and challenges that small and medium scale farmers currently face:

*Beyond the ‘think globally, act locally’ in permaculture.* “Although complementary to many top-down approaches [...] it is not primarily about lobbying government to change policies instead, it is concerned with facilitating individuals, households and locals communities in increasing self-reliance and self regulation” (Holmgren 2002, p. 80).

A well known example of a practical solution for the disastrous trading effects took place in Cuba in the 90’s when the oil pike shocked the oil dependent agricultural production. Unable to sustain the dependency on big machinery and large-scale production, the government had to intervene directly the sector by supporting collective and community-based agricultural projects.

The experiment known as ‘the special period’, welcomed the participation of every citizen, turning urban youth and young professionals into small-scale farmers. The small scale production had two effects: it allowed households to cover their nutritional needs and encouraged the recovery of agricultural traditions that, far from being dependent from agrochemicals and imported seeds, made it possible to build a more inclusive agricultural system in the country. It also inspired the diversification of crops, since the consumers were producers at the same time. Who, contributing to the substitution of imports, could decide how diverse their vegetable garden wanted to be (Morgan, 2006).

### **Box 2. Problematic trading for farmers**

- There are contradictions---contradiction but also opposing interests, no? between the trade law (liberalizing) and human rights law (where food is considered a right).
- Small farmers and poor consumers in developing countries (only in developing countries? Poor consumers in developed countries are also vulnerable, no?) are more vulnerable to undernourishment as a result of the instability of commodity prices.
- Land is a non-mobile capital: therefore land is increasingly captured by the Northern consumers to produce those, not only need, but luxury products coming from agricultural sectors. It puts into competition products needed by the local people and commodities depending by the purchasing power from the North (hmmmm...but not only from the north...I don’t know...I just think of certain elites capturing the products needed by the locals...no?).
- The measure of diversification of agriculture happens when the demand for the traditional local products is not growing. The diversification of agriculture in the ends leads to the embedment to more industrialized production and crop and dependency on imports. Crop dependency? And crop and dependency?
- Local production has been undermined by international trade. Trade is shaping agricultural policies at the expense of local systems of production. Investment is stimulated by trade and at the same time is substitutable by trade.

Another example is the now growing local food systems (LFS), particularly what is known as ‘alternative’ or ‘local’ markets. The commercialization of agro-products at local levels is one of the main objectives of permaculture production. This is a practical application of the “think globally, act locally” where awareness on the global challenges of permaculture incentives consumers to search

and support solutions in their closest proximities (which are defined based on the distance that has to be covered to access a good or the administrative-territorial divisions in each country).

The modern movement for LFS as an alternative to the conventional agricultural system started in Japan in the 1970s with the *teikei*, which means ‘putting the producer’s face on the product’. The *teikei* were organized around consumer cooperatives, whose members would link up with producers and even helped with the work on the farm. Similar innovations in alternative marketing soon appeared in several European countries, including Switzerland, whose communitarian farming model was eventually exported to the state of Massachusetts in the US in 1985 to become ‘community supported agriculture’ or CSA (Irshad, 2010).

“The recognition of corporate globalism as a new enemy can stimulate the more self-reliant but locally interdependent ways of living that we call permaculture. Fear and loathing of an enemy can provide enormous motivation for action, but that does not of itself create alternatives to alienated dependence on the global economy” (Holmgren 2002, p. 181)

In the realms of trade the agricultural transformation requires then a clear definition of accountable actors that cooperate together in a sustainable system. This leads to the following debate: by understanding agriculture as a system, it is possible to identify the natural and artificial flow of inputs and outputs that can cause positive and negative effects.

### 3. More comprehensive agricultural systems

The notion of *agricultural system* refers to the set of relations that include the allocation of land, its use, crops, agricultural techniques and

practices, knowledge, market chain, transformation of products in the value chain, rural infrastructure, and socioeconomic relations in the sector –markets, cooperative, and associations-, among others (Petersen et. al. 2009).

The agro-ecosystems, on the other hand, are defined as fundamental units for rural and agricultural sustainable development. In these units, considered socio-cultural units, take place energetic, biologic, mineral and environmental transformations working together with socioeconomic relations giving shape to a *locus* where the agro-ecology offers, further than a productivity increase, an optimization of the agro-system balance. The system includes the relations between the people and the crops and also the animals, water and soil (FAO, 2008).

The system works based on chains. Chains can be organized by territory; scope of the products linked to the market; type of organization –if it grows spontaneously or through the intervention of a third actor -; and by product. In these chains, known also as *value chain*, the know-how performs a relevant role, as well as the possibility of locally added value to each stage of the process.

*Besides the inputs and outputs, what matters is the transparent box.*

The system approach to agriculture facilitates a deeper understanding of the ongoing relations between each of its elements and defines the permaculture perspective. Two experiences show better how this approach can respond to the current challenges.

Going back to the LFS, the *IPES* (Permaculture Institute in El Salvador) has developed a comprehensive program that integrates the diverse actors of the agro-system. After years of ‘modern agricultural’ practices, the project started by re-educating the farmers in

sustainable practices. To start, the farmers were encouraged to save their traditional seeds and reduce the dependency on imported and modified seeds.

The starting point led to transform the dependency on external inputs, “families learn to plant a diversity of food crops and use local materials like chicken manure, the waste of leaf cutter ants and dried leaves to fertilize their land. They learn how to prevent and control pests by planting insect repellent plants such as marigold and making pesticides with plants such as neem. Next we help them to make semi-organic weed killers to use alongside semi-organic fertilizers and native seeds” (IPES, 2013).

The project also transformed the traditional slash and burn method –frequently used in South American farming practices- that destroyed the soil leaving no trees to protect the vegetal cortex. By recovering and enriching the soil the farmers could diversify and sustain the production to tackle and prevent undernourishment issues, particularly in children.

The interaction with other actors of the agricultural system is equally relevant. The institutions and urban sector found a way to cooperate through the Urban Gardens developed by the Reading International Solidarity Center in UK. The project started allocating gardens using permaculture designing in neighboring lots to grant access to food for families. Later their activities extended to schools by inserting gardening as part of the curriculum and diverse practical projects involving the community.

“In recent years the school garden has received a great deal of attention and support from both the Department for Children, Schools and Families (DfCSF) and gardening charities. This reflects increased interest in growing fruit and

vegetables throughout the country – local authorities are creating new allotments to reduce waiting lists and in 2008 sales of vegetable seeds overtook flowers – as well as a recognition of the educational value of the outdoor classroom”(RISC, 2013)

This allocation of urban gardens enriches the functioning of traditional agricultural systems by granting access to food locally and reducing the use of pesticides, herbicides and oil-dependent production. The gardens also raise awareness among youth about food production and its contributions to climate change.

#### **4. Empowering the agricultural sector by preparing more resilient peasants**

Empowerment in agriculture is directly related with access to capital. Bebbington explains how ‘people with significant endowments of land (natural capital) or financial resources (produced capital), or strong social networks (social capital) and university degrees (human capital and social capital) are in general better able to gain access to the institutions of the state and market and thus influence their subsequent effects on patterns of access, in short they are more powerful’ (1999, p 2035). Empowerment builds upon both: the improvement of self-perception and reinforcement of the capacity to influence

Complementary, adapted from psychology, the concept of *resilience* consists on the capacity of the society to adapt to new conditions, product of abrupt or progressive transformations. Civil society is then more and more responsible for correcting market failures on distribution and equal access to the inputs required for the function of the agricultural system. Also, the responsibility to adapt agricultural practices to climate change and more environmentally challenging contexts lay on the hands of the farmers and consumers.

Between empowerment and resilience, the agricultural sector faces the challenging task to contribute to community building, civil society support and reinforce the participation of active citizens in the agro-system. The current debates place agriculture in a political position, where the changing roles of the actors can contribute to democracy reinforcement through governance. Governance refers to a multidirectional system of political relations, where decisions are taken through a more inclusive process. Civil society is considered as capable of self-regulation and to directly interact with authorities at different levels. Through governance people can openly advocate for their causes through participative means, responding to a bottom-up vision rather than the top-down implementation of programmes and policies (Hufty, et. al. 2006).

Additionally, there is a crescent understanding of environmental resources and agricultural products as *commons*. When talking of *commons* the management lays on their *governance*, and for that is indispensable to count with an open participation that allows communities to share the benefits of these resources, but also the loses.

*Community building and resilience are possible through the implementation of permaculture practices.*

A good example of *resilience* through permaculture practices is showcased in the project-program-initiative of Midwest Permaculture in Detroit, United States. After facing a serious financial crisis in 2013 the city was declared in bankruptcy. To face the challenging situation the community organized through community land trusts that grants low income buyers access to ownership and with that, investment in organic and permaculture projects.

*“If our personal and community relationships are only based on powerful but shifting emotional benefits and we lack the experience of more practical and concrete ‘yields’, then it is difficult to sustain and strengthen those relationships over the long term. If, on the other hand, we actually depend on our family, friends, and relations to maintain the house, fix the car, supply our food and so on, we are more likely to resolve the difficulties that arise in these relationships. This is more obvious in rural communities where everyone understands the realities of interdependence.  
(Holmgren 2002, 76)*

As part of the *Detroit needs abundance* principle, the Midwest Permaculture project brings training programs for citizens and enables them to produce collectively their food and cover some of their needs.

The project includes an intentional community, Stelle, founded in 2007 and now supporting participative process to re-establish the local community. The community “started as an intentional community in the early 70’s and is located in the NE portion of Illinois, about half way between Chicago and Champaign/Urbana. As with most beginning-intentional communities, the vision of creating an ideal community and talking about it proved to be much easier than the actual creation of it. After 10-years of much work and some struggle (some fabulous experiences and times as well), we as a community decided to end the closed, intentionality of our community and in 1982 we opened our doors to anyone who wanted to live here. Our governing body is a board of directors elected from the residents. Our community is

now a simple homeowners' association” (Midwest Permaculture, 2013).

## Conclusions

The current debates on agricultural practices and policies place the sector in a complex scenario having to respond efficiently to diverse expectations. From multifunctionality to a more fair and democratic trade; passing through the comprehension of agriculture as a system that has diverse sociocultural characteristics and contributing to social empowerment and resilience building, the work to do appears to be endless and very engaging.

The key to make these transformations possible is engagement. The field is favorable, the interest on food, access to food, agriculture production, environment and sustainability is growing. This interest must be now translated into regular and sustained practices, increasing participation and setting principles to tackle the problems of poverty, hunger, climate change, and resource detriment.

Permaculture is not a *panacea*, the idea is not to place it as the irrefutable answer for all the challenges faced by the agricultural sector. But permaculture can contribute setting certain

principles that, appropriated and adapted to each particular cultural and environmental context, could transform the current practices into more sustainable and inclusive ones.

It is also important to mention that one of the common critiques on permaculture questions its productivity and costs. Indeed, after observing some permaculture practices it is common to find complementary projects that make it possible to make the ends meet. Nevertheless, the reason why the expenses tend to be higher at the beginning of a permaculture project implementation is because the organic and sustainable production requires a higher investment in infrastructure and soil recovery, due to the impact of decades of modern agricultural practices highly based on pesticides and agrochemicals.

Permaculture has to respond by diversification the activities and the allocation of every actor potentialities, and for that reason opening diverse development activities within one project complies with its own multifunctionality and systemic structure, making of this alternative agricultural practice a counter-development option and a coherent transformation process.

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