Changing the change
DESIGN VISIONS PROPOSALS AND TOOLS

The *Roots of Change** embraced by *local food system*

Design visions, from the sustainable food system to the prospect multidisciplinary key-principles for a sustainable food development

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Abstract

The current paper intends to define the scope of the food sustainability concept. The idea of food sustainability carries a multidisciplinary vision of the problems that are inherent to the foodstuff production and their consumption, in a unique dimensional view composed by a network of complex relations, connections and natural inter-dependences.

Hence, the food sustainability vision is based on a series of principles, transversal to the several areas of knowledge and which have constituted the roots to a new paradigm of food consumption. Here, the design perspective is to contribute to the promotion and implementation of the sustainable food community, based on specific key-criteria. This food community is structured on the reflection of new well-being and ethical values, thus, being a model that is possible to insert in a concrete landscape and cultural reality.

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Introduction: sustainable food system

What are we talking about when we talk about food sustainability? Does food sustainability mean the consumption of organic products? Is it better to consume organic products even when, these, travel long distances issuing great quantities of carbon dioxide to the environment? Is biodiversity always related to the methods of organic production? Is food sustainability limited to environmental criteria? Does food sustainability include social issues and community-related aspects? Should food sustainability take agricultural issues into account, or simply consumption issues? Should we consider supporting small organic producers and regional food producers, so that they do not surrender and continue dedicating themselves exclusively to conventional agriculture? What benefit can we rip from a system of re-approximation between consumers and producers? What about our health? Do we protect it while consuming food, whose origin and production methods are unknown? How about our landscape? Are we preserving it, while insisting on food systems based on importation? And what becomes of traditional flavours? Are those who produce them a part of our gastronomy? If these producers give up on their fight, don't we risk losing part of our cultural heritage with them? And what happens to the small local producers, when we prefer the specialised consumption of the multinational monopoly-held systems? What happens to economic development?

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Sustainable food communities

A sustainable food system is one that is sustainable, composed of people with knowledge of the food system, locally based, as economically lucrative for farmers and farm-work, as off-farm labour, participatory, relational, fair and ethical, regulated, sacred, healthy, diversified, culturally nourishing, seasonal, and more concerned with sustainability and equity than profit (Kloppenburg and others Cit. Allen 2004, 80).

The first principle of sustainability will be to think of sustainable development as a complete system of relationships and inter-dependence. This concept of sustainability comprises the establishing of links of a network in itself, composed of several complex systems. This unique dimension of the agricultural food system is interpreted by Jonathon Porritt as "one planet agriculture" (The Ecologist 2007). This provocative sentence, by the Chairman of the biggest British association for sustained agricultural development, the Soil Association, prospects a non-retail dimension of the big problems inherent to agriculture. This means that if the agricultural food system were to be considered one only, probably the planetary benefits would be more than many.

Another statement, which symbolises a harmonious vision embracing the agricultural food problems, was made by Carlo Petrini, chairman of the Slow Food movement, when referring to the *comunità del cibo* (Petrini 2005, 234). This vision involves the understanding of the food system as one only, made by people for people. The *comunità del cibo* refers to the sharing of transversal knowledge of food-related issues, in which the communication channel gives privilege

to social relations, which are inherent to the productive universe and food consumption. Speaking of "one planet agriculture", or of "a food community" is the same as saying that the agricultural food system is one only, composed of a complexity of relations and connections, based on the several aspects of human life: nature, economics, social and cultural aspects. These several dimensions of the system are often enunciated as the three big pillars: economic, ecological and social sustainability (Mulier, 2), or as the *trinità* (University of California Sustainable Agriculture Research and Educational Program, Cit. Allen 2004, 83) of the agricultural food sustainability. These three big areas of sustainable food development are described as follows,

... Economic, by providing producers with a profitable route market; environmental, by cutting down on the pollution associated with food transportation, and by raising interest in consumers as to how the land around them is farmed; and social, by encouraging a sense of community between buyer and seller, town and country (The Policy Commission on Farming and Food, Cit. Sustainweb 2002, 3).

If we are to consider cultural factors as part of the social/human production, then the parameters of sustainable community and sustainable agricultural food community end up being based on the same key-factors. An example of this is illustrated by the following definition, subscribed by several authors,

A sustainable community is one that has a long-term capacity to regenerate itself socially and economically, and that has the capacity of reproducing itself and being economically, socially, culturally and ecologically involved (Scott, Park et al. 2000; Kline 1995, Cit. Mirata 2005, 3).

This definition can be contested by the concept presented by Allen, which introduces a significant change in the sustainable agricultural food scenario. This author defines a de-codifying matrix of the sustainable agricultural food community, designated by the 3 E's: "environmental, economic and equity" (Allen 2004, 82). This definition introduces a subtle interpretation of equity, i.e., in this specific food context, the values of justice are emphasised as a means of structuring the social dimension. For Sonnino (2007), *equity and justice,* are the key principles for sustainable development, in the sense that it attempts to meet the basic needs of all human beings while also acknowledging the potential for imposing cost onto future generations. In the agro-food system, this idea of justice refers to the social relations, which involve production and food consumption. This means that, in the scope of food production, social sustainability can be an equation in two ways: (Mulier, pg. 5) one, by including internal factors inside the agricultural community; and the other, by including external factors. Internal factors comprise workers' rights and treatment of animals in the farm. External factors refer to the benefits that these production units can bring to the surrounding community, by being an opportunity and support to individual farming structures (Gips, 1988, Cit. Allen 2004, 86).

The idea of justice can also be interpreted as a principle of solidarity. The communities which are external to the agricultural community express solidarity. They support the latter by means of conscious consumption and knowledge of the above-mentioned social conditions.

To sum up, the quality of the social environment is determining for sustainable food

production and consumption. However, this aspect cannot be understood externally to the wide economic context. This means that social and economic structures of the agricultural food system, undoubtedly, affect the environment's quality. In a general way, we can say that the interaction between the wide social, economic, environmental and cultural systems, in which the agricultural food system is inserted, influence agricultural production, its distribution and consumption. In more restricted terms, agro-food sustainability system will be possible within a balanced perspective, which can be achieved through understanding the community, where the connection and support amongst members will be the fundamental factor to its operation.

Designations for a sustainable food system

Sustainable food(…) refers to food which matches a number of criteria, including: Proximity(…); Healthy(…); Fairly or co-operatively traded(…); Non-exploiting(…); Environmentally beneficial(…); Accessible(…); High animal welfare standards(…); Socially inclusive(…); Encouraging knowledge and understanding(…)(Sustainweb 2002, 2).

Throughout the times, there have been several definitions to the concept of unconventional agricultural food system. Many of them correspond to diversified trends in the scope of the sustainable agricultural food system; others emerge in the midst of more specific areas of knowledge. The most meaningful terminology is:

_community food security (Anderson and Cook 1999; 2000; Pelletier et al. 2000; Bellows and Hamm 2003, Cit. Feagan 2007, 24);

_alternative food regimes (Friedmann, Cit. Allen 2004, 64);

_alternative food systems (Gottlieb and Fisher, Cit. Allen 2004, 64);

_integrated food system (Clancy, Cit. Allen 2004, 64);

_alternative food streams (Grey, Cit. Allen 2004, 65);

_alternative food networks (Marsden, Cit. Allen 2004, 65);

_alternative geography of food (Whatmore and Thorne, Cit. Allen 2004, 65);

_alternative agro-food networks and systems (Goodman 2003; Watts et al. 2005, Cit. Feagan 2007, 24); alternative or shortened food chains (Rending et al. 2003; Ilbery and May, 2005, Cit. Feagan 2007, 24);

_the 'quality turn' (Ilbery and Kneafsey 1998; Morris and Young 2000; Goodman 2003, Cit. Feagan 2007, 24);

_local food systems (Herderson, Cit. Allen 2004, 64; Feenstra 1997, Henderson 1998, Lacy 2000; Hunrichs 2003, Cit. Feagan 2007, 24; Feagan 2007, 24; Pretty 2001, 1).

Our interpretation perspective of the sustainable food system is one of linking the several areas of knowledge, providing a global vision of it. Therefore, we interpret the food system as a whole, as a system composed by an intricate set of networks, in which some levels of relationship gather, simultaneously, establishing several types of connections. In other words, the idea of food sustainability carries a multidisciplinary vision of the problems that are inherent to the production of food goods and their consumption.

We foresee a planetary vision, where the main point is the quality of human life. This

humanitarian perspective of the food system presupposes co-operation from Man to Nature. This co-operation can become effective through mechanisms that may contribute to the construction of a close relationship between urban and rural communities, between the field and the city.

The building of a food system based on this idea of physical proximity, matches in every way with the presuppositions of sustainable development, in which the resolution of problems begins by spotting them, adding value to local economy and territorial landscape, empowering social interaction. The nearness concept connotes the re-locating of food consumption to a limited geographical area, through social interaction; in which, producers and consumers have a face.

Therefore, a sustainable food perspective presupposes a shortening of the food chain. This means that the smaller the distance is between "from the fields to the table", the bigger the degree of food sustainability. Ultimately, we can say that direct trade between producers and consumers provides the shortest circle, which can be established.

In this sense, we adhere to the denomination of *local food system* to define sustainable food system. This terminology carries a dimension of nearness and the concept of system. Proximity is inserted within the perspective of local sustainable development. The notion of *food system* includes all the aspects related to food production phases, distribution, consumption and food waste.

The roots of change

(Founders agriculture working group 2001, Cit. Pinderhughes 2004, 187)

Organic farming[2]

Organic agriculture is a holistic production management system, which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices, preferentially to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system (FAO/ WHO Codex Alimentarius Commission 1999, Cit. King, 2006, 3).

The principles and techniques of organic agriculture promote an improvement in human, animal and environmental health and establish a relation of respect for the planet.

Organic agriculture is based on ethical principles and brings about harmony between Man and Nature. Human beings are a part of this natural environment and they should be co-operative with Nature, and not compete with it. Organic agriculture systems produce food items, similarly to natural eco-systems (Quinta da Serradinha 2008), considering the farm as a whole-farm system. The organic farm emphasizes multidiscipline and often develops specific research approaches

[2] Organic agriculture also known as "agricultura biológica" in Portugal, as well as, in Italy "agricoltura biologica", "agricultura orgânica" in Brazil and "ecologic agriculture", in Spain and Denmark, or "natural agriculture" in Japan.

(Allen, 2006, pg. 39).

At an environmental level, the advantages of organic agriculture are of several types. Within the scope of ecological practices, we highlight *bio-dynamics* and *permaculture*, because they incorporate the concept of a complete life cycle in a more effective manner, using renewable energy sources, as far as possible, thus, reducing the dependence on external energetic sources. This way, organic agriculture saves an average of 30 per cent of fossil fuel, when compared to the conventional agricultural system (Steffen 2006, 52). In a general way, it also reduces the quantity of inputs.

This type of agriculture does not use chemicals in food, nor does it use pesticides, antibiotics, or genetically modified food. Organic agriculture harvests using *green compounds*, organic compounds to fertilize the soil, adding nutritive and mineral substances, which preserve the humus. These techniques enable the improvement of the soil, avoiding its exhaustion. Additionally, while practising the principle of seed rotation, organic agriculture contributes to the production of a richer soil, caring for its health, maintaining biodiversity and the capacity of retention of a bigger quantity of water. Last, but not least, because this type of agriculture does not use chemicals, it helps preserve the quality of drinkable water.

Organic practices improve animal quality of life, thus, contributing to a healthier food chain. They promote biodiversity in roughly 30 per cent, as opposed to conventional agriculture, which invests on "specialization and mono-culture as essential to efficiency and productivity" (Allen 2006, 37). In organic agriculture, pest control is done through encouraging predatory insects.

The beneficial action of organic agriculture is extended to the preservation of gastronomic culture and protection of landscape, promoting the variety of plants that are produced in syntony with productive systems, adapted to the diversified locations. Understanding the natural world implies harvesting within seasonal rules, which means production and consumption of fresh products that are produced and preserved in a natural way.

The development of organic agriculture makes up for a scenario of food quality, where the final consumer of any agro-food system contributes to the planet's health and, ultimately, eats better, when preferring products that originate from organic agriculture[3].

Biodiversity

In conventional agriculture, the alternative to the process of specialisation has been promoted by organic agriculture and by several other initiatives that promote food biodiversity, such as, the Slow Food and Nayakrishi Movements (Mander 2006, 22), and many other organizations that dedicate themselves to the preservation of seeds through the production of deposits.

[3] Products of organic agriculture contain a "bigger quantity of dry matter, minerals and vitamins. On average, organic products contain more Magnesium (29.3%), Vitamin C (27%) Iron (21%), Phosphorus (13.6%), Calcium (26%), Copper (11%), Manganese (42%) Potassium (9%) and 15 % less nitrates; their content is richer in fito-nutrients, such as Flavonoid, which have anti-oxidation, anti-cancerigenous effects and protect the cardiovascular system, amongst other effects in human health" (Agrobio 2006).

Organic agriculture increases biological diversity in several ways: firstly, through the type of production, which by itself is based on a wider diversification of plantations. Secondly, it protects regional and traditional productions. Finally, harvesting through organic techniques produces an increase in the amount of living organisms[4].

Lastly, the organizations of seed deposits have helped preserve traditional agriculture, by actively supporting farmers to promote diversity through the prevention of local varieties, guaranteeing abundance and the re-introduction of traditional culture seeds[5].

Sovereignty

The principle of self-sufficiency is based on the creation of a food community that can supply itself without needing to import, i.e., a community that knows to manage its food resources within its regional or national geographical boundaries "as a people's right to decide about its own agricultural and food policy" (Social justice and human rights network 2008). The application of this principle implies a macro vision of sustainable community.

All local, national and regional entities and communities have the inherent right and obligation to protect, sustain and support all necessary conditions to encourage production of sufficient healthy food in a way that preserves the land, water and ecological integrity of the place, respects and supports producer's livelihoods, and is accessible to all people (Mander 2006, 12).

This concept is widely promoted by Vanada Shiva, in defence of the farmers of the southern part of the planet; it is one of the leading policies of the *Via Campesina*, an international movement that co-ordinates organizations of small and medium farmers. The idea of sovereignty is also practised by the Japanese food consumption cooperative: the *Seikatsu Club*.

The principle of food sovereignty promotes the national local consumption, only resorting to the supply of imported products when a certain food variety does not exist in the country. This attitude protects local farmers, their economy and food culture.

Fair trade

The concept of *fair trade*[6] is applied to food products for consumption, imported from long distances, especially from southern countries. The *fair trade* initiative is particularly important to food goods that do not exist in the North of Europe, which have long been introduced in our food system. Initially, such products were coffee, tea, cocoa, and banana. Presently, a lot more food

[4] Around 30 per cent in the number of species and 50 per cent (King, 2006, pg. 4), when compared to conventional agriculture.

[5] It's the case of the Bangladeshi Nayakrishi movement, which has supported around 100.000 farmers in the sense of re-taking organic methods and implementing traditional crops in their areas, using the slogan *freedom zone* (Mander 2006, 22).

[6] Translated into Portuguese as *comércio justo* and into Italian as *mercato equo-solidale*. The *fair trade* movement began in Europe, in the 80's, and it has been supported by 47 countries (Mander 2006, 23).

goods are included in this basket of importation, coming from distant countries. The *fair trade* label defends dignity in what concerns working conditions of workers from far-off agricultural plantations; it promotes the right price, without exploiting those who produce it. The initiatives carried out by this movement are meritorious for implementing this principle of social justice, acting as a means of commercial support.

The promotion of this concept, supported by several associations and institutions that are exclusively dedicated to the activity, and the acknowledgement of its values, by the general public, have enabled the expansion of the concept into the short food chain. Herein, the focus is on social development at local and regional levels, with quality, justice and solidarity towards the rural community.

The *fair trade* symbol seeks to alert consumers to the issues of solidarity and respect for agricultural work. The *fair trade* label sensitizes consumers and makes up for a consumption alternative. While shortening the distance between producing and consuming communities, they make the system of agro-food consumption fairer and more transparent.

From the consumer's part, the acknowledgement of this movement can make consumption become more conscious, both in terms of importation of long distance products, and trade of local food products.

Food links
(F3 2000, 22)

Promotion of the simple concept of link, between consumer and producer, as the starting point for a more sustainable food economy (Local Food and Sustainable Development 2000, 6).

The proximity between producers and consumers promotes a relation between those who harvest and those who eat. The interconnection between these two extremes of the food chain enables the creation of a healthier system at the social and environmental levels and, particularly, it improves food quality.

The establishment of direct contact increases the degree of dependence, through the paving of efficient co-operation ties, thus, contributing to social and agro-food balance. The mutual support, the trust relation and the values of transparency that are built between the intervening parties, enable the increase and re-qualification of quality of life.

The initiatives, which are based on this close relation, make communication easier. This direct contact enables the obtaining of a quick feedback from the system, the perception of satisfaction or dissatisfaction of its partners, thus, allowing the introduction of changes that may improve the system of distribution and consumption.

"From the fields to the table" helps to adjust demand to supply, especially when agreements for supply are established between producers and consumers. On the one hand, this

close relation benefits the consumers, who can gain access to a continuous quality food system; on the other hand, the producers, who sell their products and see them valued.

Participation model

Under the perspective of the agro-ecology movement, participation is a key topic. It means the possibility of the consuming community - external to the rural community -, getting involved in issues of agricultural production. This participation moves towards a system, where the consumers support and improve rural communities, thus, helping to preserve their cultural identity. Participation through the mechanism of sharing information and experimenting becomes fundamental to encourage knowledge and understanding of the cultural food system.

Capra (2005, pg. 20) adds that direct participation in agricultural activity allows the learning of sustainability values.

Buy local

The improvement of individual and public food health depends on the easiness of access to organic products of local production. The enhancement of local food can bring about economic, environmental, nutritional and social benefits.

The access of local food farmers allows the consumption of seasonal products and a great amount of fresh products, with higher levels of nutrients, as opposed to industrially processed food items.

In environmental terms, the consumption of local products minimises food transportation costs and can contribute to the reduction of packaging. Finally, local food trade implies a smaller emission of carbon dioxide onto the atmosphere, thus, improving the quality of the air.

The fundamental consequence of access to local and organic products will be the change in food consumption behaviours.

Plugging the leaks
(F3 2000, 12)

Plugging the leaks refers to the retention of money within the local area. The promotion of local economy can be stimulated through the structuring of a local consumption network, specially, by developing direct systems of consumption between producers and consumers. This network of local and direct consumption networks retains the circulation of money and promotes the creation, or maintenance, of jobs and gives dynamics to local economic development. Keeping the money on a certain territory represents its bigger circulation in that area, whereas consumption through the international food circuit contributes to the production of much less wealth in the local scope[7].

[7] This situation can be illustrated with the Cornwall case (Plugging the Leaks), which compares the result of buying locally originated food and

Apart from developing the local economy, a network of local and direct consumption, brings economic advantages to producers and consumers. A system of direct consumption eliminates the need for intermediate agents. The suppression of the *middleman*, such as freight operators, processors, packaging companies and retailers (Vijoen 2005, 45), means paying a fairer price for food. This type of trade also minimises the cost of transportation, which is also part of the final price that consumers pay for food. It also reduces the environmental cost.

In the social scope, the relation of proximity between producers and consumers favours agricultural stability, this being a particularly important factor for small farmers, thus, promoting dignified working conditions and incomes.

Local landscape

The local landscape suggests the widening of the boundaries of urban perimeter of cities, including their *greenbelt*. Therefore, taking cities 'embedded' in their own *hinterland* into account brings environmental, landscape-related, educational and nutritional benefits. In strategic terms - bearing ecological and economical concerns in mind -, the inclusion of the city in its *greenbelt* can satisfy some of the food needs of urban areas, namely, at the level of fresh products.

Concerning the sustainable food system, from the environmental quality viewpoint, there are good examples of harmony between the city and the countryside, as is the case of Adelaide[8]. It recycles its residual water to supply it to the agriculture in the periphery of the city. It is also the case of Bristol[9], which recycles sewage, transforming it into soil conditioner and fertiliser.

The widening of the city's urban perimeter boundaries to its surroundings, being an integral part of it, can provide for a better relation between the urban area and the countryside. In the peripheral space of the city, named *greenbelt*, leisure activities to benefit from the green areas can be stimulated. Urban population is further and further away from the rural universe, both at a physical level and that of memoir of the countryside. This interconnection of urban spaces with rural ones, provide a gathering between cultivation and food harvesting. Nowadays, there is a growing demand for these green spaces from the urban citizens, thus, materialising this proximity in several ways. In this type of interaction, we highlight pick your own, "le agriculture hobbistiche – in particolare frutteti e alevamenti – le fattorie pedagogiche" (Donadieu 2006, 58).

buying in supermarkets: "every £1 spent in a local organic box scheme generates a £ 2.58 for local economy, compared to just £ 1,40 each £1 spent in the supermarket".

[8] In this Australian city, tens of thousands of hectares of land on the edge of the city are cultivated using the city's wastewater for irrigation, growing vegetables, as well as, grapes and fruit. There is some concern about trace quantities of heavy metals that could accumulate in the soil, but it would take decades to cause any problem. Adelaide's wastewater crop irrigation system is regarded as one of the great success stories of urban agriculture (Viljoen 2005, 38).

[9] Another case illustrated by the same author is that of Bristol, Wessex. Water has developed its own system for turning sewage into a soil conditioner and fertiliser. It dries the city's entire sewage output and turns it into small pellets called Biogran, which are then sold to farmers and land reclamation companies. Again, trace amounts of heavy metals have been quoted as problematic. But this is becoming less of a problem, because cars no longer run on leaded fuels in the UK, and in Bristol, de-industrialisation has led to a great improvement in the quality of Bristol's sewage sludge (Viljoen 2005, 38).

In this context, the preservation of local landscape makes a lot of sense, as Viljoen (2005, 35) refers. This author notices that some cities of Italy and France still have a very strong relationship with their immediate *hinterland*, with *peri-urban* agriculture still much in evidence. This is the case of Florence, which is still surrounded by orange and olive groves, vineyards and wheat fields, where a large portion of its food requirements are grown.

Conclusion: Food network dimensions

We can define food networks as the (physical or virtual) links between different types of actors, that exist for the purpose of carrying out activities associated with the production/ exchange of food, and the development of food related knowledge (Meroni 2006, 52).

Food sustainability involves the creation of a network of systems that promote interpersonal relationships and the shortening of distance between individuals.

This network has a global dimension, in a macro vision of the understanding of sustainability principles, and has the merit of gathering people around fundamental values, enforced by a relation of communication, support and syntony, in what concerns food system problems.

The web unites several communities, using technological instruments to develop connection. These relationships create a circle of influence to the social and environmental issues of organic and regional agriculture. In the scope of agro-food, there are several examples of this type of networks. Due to their dimension and international reputation, they are often named movements, such as the Via Campesina, Urgenci and Slow Food[10].

The micro dimension network acts locally, valuing the economy, the social relations, the food goods produced within, the environment and local landscape. Therefore, this local vision, promote systems a community of food bases on the participation model, considering within the proximity between the intervening food partners: farmers and consumers.

Most principles of sustainability are based on the relation of proximity, through the development of local actions. The development of local consumption and the concept of food community, involve the construction of relationships amongst producers, between producers and consumers, and amongst consumers. This network of relationships can be the key to food sustainability, based on a solid food community, where there is trust, interdependence and promotion of mutual comprehension. It should also feature good communication amongst individuals, co-operation towards nature and provide environmental and nutritional, cultural, economic and social dividends, based on the proximity network.

[10] The Slow Food movement and its 80.000 members, distributed through 45 countries, has been protecting the diversity of species, thus, promoting a renewal of interest for local and regional specialities (Mander 2006, 22).

To conclude, a healthy food community can work, if it is aware of itself and its role in economic and environmental development. Maintenance and spreading of the food community is based on education and participation, thus, stimulating knowledge of food sustainability principles.

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