

Food Policies and Sustainability



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PREFACE

The story of this document in many ways reflects the story of Slow Food.

The notion that being involved with food entails an involvement with politics can be traced back to the very outset of the Slow Food movement. From the beginning, perhaps without fully realizing it, the founders of Slow Food knew that their activities could not be limited to a close-knit group of people who shared goals and passions and that their efforts had to become a catalyst for the creation of a social matrix.

This vision began to take shape concretely in 2004, when two important milestones were achieved by Slow Food. The first milestone was the inauguration of the University of Gastronomic Sciences, a unique academic institution aimed at creating a new professional figure, the gastronome, through intensive, interdisciplinary teaching and research on the wide range of subjects related to food. Today's gastronomes will become tomorrow's managers, farmers, entrepreneurs, educators and innovators.

The second milestone was the first Terra Madre meeting, which united food communities from all over the world. Since 2004, fishermen, farmers, chefs, harvesters, academic researchers, food producers and all communities involved in promoting local, quality food are brought together every two years by the Terra Madre network meetings. Terra Madre welcomes all those who care about the quality of our food in its broadest sense, ranging from organoleptic characteristics to environmental and social dimension.

The common thread underlying all teaching, research, and activities carried out at the University involves the analysis of those policies guiding food production, distribution and consumption. The discussions, exchanges and networking activities which take place during Terra Madre provide the foundations for a new, interconnected and interactive approach to the development of food policies.

Against this backdrop, the idea of gathering and structuring existing reflections on food policies, as developed by Slow Food, the University of Gastronomic Sciences and Terra Madre emerged.

The present document is the outcome of an online summer course organized by the University of Gastronomic Sciences and the Slow Food Association in the Summer of 2010. A group of distinguished international experts contributed to the development of the course with insights from their disciplines, and their names can be found under the heading "Subject Leaders" in the Colophon. Lecturers and researchers from the University of Gastronomic Sciences and from other universities, Slow Food ---, and other experts prepared course lectures and activities and worked with 48 students of different nationalities in order to write the first draft of the present document.

The first draft was subsequently discussed with the Terra Madre Food Communities via an online forum and during seminars held at Terra Madre in October 2010. The amendments, comments, and improvements which surfaced during Terra Madre were incorporated in a second draft of the document, which was then presented to Slow Food's International Board of Directors.

This is how the document came to be. It is addressed to policymakers worldwide, ranging from village chiefs to heads of governments, from local administrations to international organizations. Serious thought must be given to food as the core of all human activity: food must be placed at the centre of environmental and health policies, as well as educational, economic, social and cultural policies and legislative efforts. The interconnected nature of such policies must be acknowledged by addressing their common denominator, which is food.

The present document seeks to take up this challenge in the hope that policymakers will find new insights, ideas and possibly even practical solutions. It is also our hope that the document may serve as a springboard for fresh ideas which are not included in the text, in order to contribute to the creation of a new future founded on sustainability, justice, health and peace.



A SYNTHESIS

Biodiversity and Ecosystems

Biodiversity and ecosystems constitute the very foundations of human existence and contribute in a variety of ways to human well-being. However, biodiversity is in a state of decline worldwide. The key factors contributing to the loss of biodiversity include unsustainable farming, fishing and forest practices which lead, inter alia, to natural resource consumption, habitat loss and fragmentation, soil deterioration, water and atmospheric pollution, and genetic pollution. Moreover, global climate change threatens biodiversity by altering habitats and modifying the equilibria of key species, while the narrow spectrum of products traded from agriculture, forestry and fisheries make ecosystems increasingly vulnerable.

In this changing global scenario, the conservation of biodiversity and the restoration and protection of ecosystems must become clear priorities. Such efforts, which should be viewed as an investment, require fundamental changes in the models and practices of economic development worldwide as part of a broader effort to achieve sustainability. At a more immediate and practical level, however, two important methods of conservation can be identified as in-situ (and on farms) and ex-situ practices. The first is carried out in conditions that allow a natural and continuous process of evolution and co-adaptation through cultivation or breeding, while the second entails a process of protection of endangered species and genetic resources (plant varieties and animal breeds) outside their natural habitat, for example by transferring members of a species to zoos or preserving seeds in a special bank. All action should be planned and implemented on a scale determined by ecological and social criteria with special focus placed on densely populated areas and protected natural areas. The conservation of biodiversity calls for the development of different modes of governance at the global, national and local level.

One successful model for protecting biodiversity is the Slow Food Presidia project, which aims at safeguarding native breeds and local plant varieties, at promoting sustainable practices, as well as protecting traditional techniques and knowledge.

Energy and Systemic Production

The current model of energy production – made up primarily of oil, nuclear, solar and wind energies, hydroelectric, biofuels, and hydrogen – raises a multitude of problems and concerns in the context of a global economy founded on the unconditional use of resources. What is needed is an interrelated and holistic methodology—systemic design—joining economic, social, cultural and environmental demands to structure the relationship between human beings and nature, energy production and the environment. When the linkages between materials, energy, people and their knowledge are mapped out clearly, efficient pathways towards sustainable ways to use and re-use resources will become apparent. The systemic approach questions the present industrial model which influences consumer choices negatively and proposes a new paradigm of the productive process that focuses on man in a natural context, in which real biological needs and ethical, cultural and social values emerge.

Against the backdrop of such a paradigm shift, in order to ensure the supply of energy and food security to an ever-growing population, decision makers need to adopt a set of priorities. One priority is the promotion of a local, inclusive approach that would encourage participation of all sectors of society and create new energy and material opportunities tailored to local contexts and the real needs of a given geographical area. Another priority involves the combination of different resources for the overall energy supply, which could lead to a dynamic equilibrium. The setting up of energy communities alongside food communities would give a chance to farmers and anyone else acquainted with the dynamics of the sun, of water and of the earth to become the main players in the distribution of energy processes. An energy system that does not depend on other countries and regions, but is based simply on what an area has at its disposal, is as strong as it is flexible and may be easily and rapidly modified as initial local conditions change. There is also the need to reduce and use more efficiently material resources, as this would allow a resource to perform multiple functions, thus reducing the need for further inputs and losses due to transport. Another priority is to decentralise information relating to energy and the production of goods and services and establish a dialogue between experts and local populations.

Traditional Knowledge, Gender Issues and Immaterial Values

Traditional knowledge is in the process of re-emerging as a priority concern at the global level, and is increasingly being recognized as constituting the tangible and intangible heritage of humanity. However, the significance of traditional knowledge needs to be critically reassessed against the backdrop of a complex modern world shaped by the onset of globalization and the profound societal changes it entails. Local and global communities are

experiencing a loss of traditional knowledge and values, which goes hand in hand with a decline in cultural diversity and the dilution of a sense of community. This process of impoverishment of traditions is reflected in the present global food system which, hinging on the idea that local agriculture must serve the global market, transforms food into a mere commodity and compels people to conform to a single way of producing and consuming food. In this scenario, cultural, social and environmental costs are extremely high.

In order to counter such phenomena, it is essential to undertake projects aimed at gathering, reinforcing, preserving and promoting traditional material and immaterial heritage, which must be perceived as the founding element of any community. It is also vital to recognize the importance of combining the concept of biodiversity with ethnodiversity, the precious local heritage which distinguishes every human group and which can only be enriched through exchanges among traditions and cultures. Local food production must be appreciated as a form of both cultural and physical nourishment for any community, and for this reason must be supported and promoted. Although women make an indispensable contribution to local food production, in many settings they are still the weakest link due to their lack of access to economic resources, education and healthcare. In this regard, policies grounded on the recognition of women as the founding elements of every community and co-players in community social, political and economic life must be developed.

Social Systems and Transformation

Our world is currently undergoing a period of radical social change. Unregulated market forces have gone astray, new forms of intolerance are splitting society and the environmental condition of our planet is of greatest concern. Many policy makers seem to advocate approaches involving radical public intervention, a path which does not significantly differ from the policies adopted in response to the collapse of the free market in the 1920's. In Europe, such an approach generated policies based on exclusion, racism and xenophobia.

A new food policy founded on principles and values such as democracy, inclusion, participation, and cultural sensitivity can provide a fresh angle for the development of solutions to the present times of crisis and pave the way towards economic, ecological and social sustainability. In order to achieve such a goal, the current forces underlying the global food system, such as international speculation, climate change, and neoliberal economic policies, are to be challenged with tools and means which differ from the "false solutions" policy makers have advanced in the past. The latter solutions merely reinforced existing approaches that triggered crises in the first place and, consequently, failed to provide a clear and effective way of overcoming them.

The principle of food sovereignty must be embraced as a principle capable of providing a much needed direction to the development of food policies, thus leading towards sustainable food production, to economic sustainability and democracy. At the heart of food sovereignty lies radical egalitarianism. The attainment of such an objective entails building a society in which the equality-distorting effects of sexism, patriarchy, racism and class power have been eradicated and in which democracy can truly operate. Specific policies must be inserted in international, national and local agendas in order to make these demands more concrete, the most relevant being: the removal of agriculture from the World Trade Organization's competences, a reduction of the power of multinational corporations, debt cancellation, the protection of human rights, namely of the right to food, the enactment of a comprehensive agrarian reform, the promotion of investment in sustainable agricultural research and support, the recognition and promotion of female labor, the development of new parameters to measure community wellbeing and the provision of venues for democratic participation in the development and enactment of food policies.

Goods, Common Resources and Exchanges

The present global food system is characterized by a complex web of economic activities, exchanges, and human behaviours that have a severe impact on the living conditions of our planet and its inhabitants. Against the backdrop of the two agricultural revolutions of the twentieth century – the Green Revolution and the Gene Revolution – it could be stated that the world does not need another revolution but, rather, a "re-evolution" based on the principles of good, clean and fair; a re-evolution that seeks the common good.

An important player in this process of re-evolution is the "conscious consumer", a new kind of responsible consumer who is increasingly concerned with ethical sourcing, traceability, sustainability and corporate social responsibility. The conscious consumer does not purchase food on the basis of price but is influenced by a combination of social, economic, and environmental conditions of food production and distribution. New consumers, however, cannot bring about change alone and public institutions, which purchase a large portion of final goods and services, must commit to the provision of "good, clean and fair" food in hospitals, schools and communities. Public procurement should, in other words, follow sustainable standards. Furthermore, food policies must be developed with a view to shortening the supply chain and identify new ways to draw consumers closer to producers. Food should be

valorised and not reduced to a mere commodity. Hence, it is important to promote a locally based artisanal food system founded on ecological and socio-economic sustainability. This can be achieved if policymakers support sustainable agriculture, end patenting of life forms and critically analyse the technology of genetic modification. As the future of agriculture lies in the hands of young farmers, it is vital to address the difficulties they are facing and help them to start their own business. In addition, microfinance must be encouraged as a powerful tool in order to help small farmers and producers combat poverty. Overall, a new definition of efficiency, which takes into account all the possible externalities (whether negative or positive) of food production, is required.

Law, Rights and Policies

The development of sustainable food policies and the enactment of legislation in this sphere must be firmly rooted in a human rights-based approach, which envisages the right to food as a predominant component. In addition, the concepts of food security and food sovereignty must be guiding principles for state action at all levels.

Legal systems should be transformed by means of a comprehensive and holistic strategy aimed at ensuring that every individual enjoys the right to food. For this reason, states are urged to ratify all relevant international and regional instruments and to explicitly include the right to food in their national Constitution. In addition, the justiciable character of the right to food at the national and regional level has to be recognized. Furthermore, states should entrench the right to food in national law, by drafting a framework law or by enacting sectoral legislation in order to build a legal structure for the right.

As legal solutions in a vacuum are insufficient to implement the right to food, there is also the need for legislative and policy interventions. Hence, states are urged to improve access to, the sustainable use, and allocation of resources. States must ensure that all food is safe and consistent with food safety standards. Furthermore, states are urged to shift the structuring, measurement, allocation and disbursement of subsidies towards local, small scale food productions. States are also encouraged to increase their capacity to produce food locally in order to avoid a complete dependence on international trade. Food aid should enhance the capacity to achieve national food security in recipient countries. Furthermore, International Financial Institutions are urged to act in compliance with human rights principles and refrain from adopting any policy that violates the right to food. Plant genetic resources should not be subjected to commercial patenting, and should be shared among farmers worldwide. Finally, targeted action is needed to support vulnerable groups, to enhance accountability and monitoring systems and to raise awareness on the rights of individuals and communities.

Pleasure and Well-being

The ongoing debates concerning sustainable diets and food policies have centered mainly on health-related and environmental implications of sustainability, while little attention has been devoted to social aspects of food choices. However, this somewhat reductionist perspective does not take into account the important consideration that food embodies culture, values, and identity. An approach to food policies founded on ethics and sustainability must consider the cultural, social and political factors that influence food choices. These factors can be summarized with the terms pleasure and taste. There are several studies that demonstrate how taste may be crucial in shaping a consumer's preferences. The pleasure of eating should be perceived as involving not only the taste for food but also knowledge of its properties and origins. It is argued that sustainable eating brings more pleasure because a causal relationship exists between a person who appreciates a certain food and his or her knowledge that it has been produced with respect for the natural environment. Two case studies are presented against the backdrop of the foregoing considerations. The first involves meat consumption, a complex and highly controversial subject which must be addressed when defining sustainable food policies in terms of the dilemma of whether meat is a natural pleasure to be pursued at an environmental cost or an important aspect of pleasure and sustainability. The definition of what constitutes a "good diet" constitutes the second case study. A proper diet does not only involve eating nutritiously: generally respecting one's own pleasure and well-being is also an essential, often neglected, aspect of healthy living.

It is recommended that the social values of pleasure and well-being become integrated in food policies. Furthermore, sustainable dietary guidelines should be developed to help consumers make more informed food choices. A focus on diet regulations in schools, workplaces and hospitals is required. In addition, food processes that help consumers understand and identify with the food they eat should be recognized. Sustainable products should be promoted to show consumers that the food they are purchasing complies with ethical criteria.

Sustainable Education

There is a need for a new model of education founded on understanding, participation, dialogue, free expression and mutual exchange, where different viewpoints are encouraged and creative thinking is fostered. Such a model, which hinges on the role of teachers as facilitators of the learning process, involves learning through direct experience, entails a critical approach and recognizes the importance of local knowledge and traditions. Education must be inclusive and equip individuals with the tools to tackle complexity. Moreover, education must be “sustainable”, thus promoting respect for the environment and common goods.

Starting from the premise that food and people’s relationship with food may be the engine for change in the shift towards such a sustainable society, it is recommended, first and foremost, that local and national governments introduce sustainable food education in schools, from primary school to university. Criteria must be developed in order to identify what counts as “good, clean and fair” in order to guide food purchases by schools. Moreover, relationships between schools and local producers must be encouraged and supply chains must be shortened in order to allow opportunities for knowledge exchange. The promotion of sustainable education must also extend its reach beyond the school remit, and activities such as community gardens, cooking lessons, sensory explorations and environmental observations must be encouraged, as they facilitate the construction of more inclusive learning communities. Food related activities, such as agricultural projects, which help reintegrate marginalized or vulnerable groups in society must be supported. The overall approach to education must be characterized by a “learning by doing” or experimental perspective, which is especially needed in universities. Another important facet of the proposed model involves the importance of sharing teaching methods and experiences among educators, for example through national and international didactic networks. There are numerous examples of initiatives that reflect sustainable educational practices and which provide a source of inspiration for the development of new educational policies.

1. BIODIVERSITY AND ECOSYSTEMS

1. Introduction: sustainability, ecosystems and biodiversity

Sustainability can be defined as the characteristic of whatever is ecologically sound, economically viable, socially fair and culturally acceptable.

Biodiversity and ecosystems are the very foundations of human existence and contribute to human well-being in three fundamental ways: through the production of goods (food, fibers, water, air, medicines and recreational spaces); provision of services (cultural, religious, aesthetic and spiritual); and the processes that balance and regulate the above (pollination, prevention of soil erosion, microclimate control and nutrient cycling and transfer).

Cultural and natural biodiversity are the basis of agrobiodiversity, which is preserved, like nutrition and health, by traditional farming practices and cultural identities. These practices also make long-term sustainable use of natural resources and the environment, increasing productivity and ensuring food security and sovereignty.

Many of our rites, social rhythms, oral knowledge, literature, songs, poetry and religious ceremonies are directly related to agricultural activities. Biocultural diversity thus represents the bridge between social and natural sciences, and leads to a more integrated understanding of the functioning of life on earth.

Two distinct components of biodiversity can be recognized in agroecosystems.¹ The first component is planning, meaning biodiversity associated with the crops and livestock the farmer decides to include in agroecosystems, which vary according to methods of managing inputs and crops. The second component, association, includes all soil flora and fauna, herbivores, carnivores, decomposers and the like that colonize the agroecosystem and thrive in it. In this case, we speak of associated biodiversity.

In healthy agroecosystems, the components of the cultivated land interact constantly with the wild biodiverse components that surrounding them.² Planned biodiversity can be achieved by using methods such as grazing, crop rotation and establishing semi-natural habitats with field borders and hedgerows. As a result, the complexity of the components of associated biodiversity is enhanced. This leads to a positive effect on the environment, which increases productivity and thus favors food security.³ Studies have, in fact, found that almost 35 percent of the global food supply depends on the pollination of crops by wild animals.⁴ It is thus evident how agroecological and organic farming practices promote the interconnection and coexistence of planned and associated biodiversity in agroecosystems.⁵

When we speak of genetic resources for food and agriculture (GRFA), we refer to biodiversity created by man. It is thus necessary to remember that they are an integral part of the cultural identity of people. Given that they supply most of the food for human consumption, they are fundamental for the creation of sustainable agriculture and food safety. Yet we are losing them at an alarming rate. It is estimated that, since agriculture began to develop, about 15,000 years ago, some 10,000 species have been used for human food. Currently no more than 120 cultivated species provide 90 percent of the human food supplied by plants, and only four plant species (potatoes, rice, maize and wheat) and three animal species (cattle, pigs and chickens) provide more than 50 percent of all human food.

Within the so-called main food species a tremendous loss of genetic diversity has occurred in the past century: hundreds of thousands of heterogeneous plant varieties and landraces that existed, for generations, in farmers' fields have been replaced by a small number of modern and highly uniform commercial varieties.

¹ Vandermeer e Perfecto, 2005; Altieri, 1999.

² International Assessment of Agricultural Knowledge, Science and Technology for Development, 2009.

³ Clergue et al., 2005; Smuckler et al., 2010.

⁴ Klein et al., 2007.

⁵ Smukler et al., 2010; Bosshard, Reinhard and Taylor, 2009.

It is estimated that 97 percent of the varieties of plants available in 1900 are now extinct.⁶ In the US alone in the last century there were over 7,000 varieties of apples and 2,500 varieties of pears. Today two pear varieties occupy 96 percent of the market. It is estimated that the varieties of potatoes in the world today are more than 5,000, while those grown for commercial purposes are only four. From 1903 to 1983, we lost 80.6 percent of the varieties of tomatoes, 92.8 percent of the varieties of lettuce, 90.8 percent of corn and 86 percent of apples.

The best way to conserve cultivated plants and raised animals is to utilize them. It is interesting to note that the main cause of the loss of GRFA would appear to be underutilization as opposed to overexploitation. Given the high interdependency of countries on GRFA, international cooperation in this area is not an option but a must. This cooperation has led to intergovernmental negotiations and the adoption of the legally binding International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA).⁷

If we want to see how all life on earth, including us human beings, depends on the components and functions of a complex network of interactions, it is necessary to move from a mechanistic view of the world to a systemic one. Biodiversity is currently in state of decline in all parts of the world.⁸ In 2005 the Millennium Ecosystem Assessment⁹ guidelines were defined to direct a global action and introduce policies to stop damage to biodiversity and ecosystems. However, the Millennium Development Goal targets¹⁰ were not met by 2010 as planned and ecosystems are still in danger. Let us see some of the reasons and mechanisms that have contributed to this situation:

- Natural resource consumption by unsustainable farming, fishing and forest practices cause habitat loss and fragmentation, deforestation, soil deterioration and water and atmospheric pollution, desertification and genetic pollution due to the introduction of alien species.
- Global climate change is altering habitats, modifying the equilibria of key species and jeopardizing access to water for many populations.
- The narrowing spectrum of products traded from agriculture, forestry and fisheries is making ecosystems increasingly vulnerable.
- Economic policies that only take into account financial returns, not the environment and its resources, have spread worldwide.

2. The conservation and promotion of biodiversity and ecosystems

Biodiversity conservation should be seen as an investment. Agenda 21 (UNCED, 1992)¹¹ already spoke of the need to internalize the cost of conservation in production costs. Conserving biodiversity requires fundamental changes in the models and practices of economic development worldwide as part of a broader effort to achieve sustainability. Before thinking in terms of more sizable fund allocations, policy and institutional reform are needed to create the conditions under which they can be effective. Priorities for biodiversity conservation differ when viewed from the local, national, and global perspectives; all are legitimate points of view and all should be taken into account.

Biodiversity conservation can be effective only if public awareness and concern are substantially heightened

⁶ Shiva, 1988.

⁷ Esquinas-Alcazar, 2005.

⁸ Biodiversity loss is defined by the 1992 United Nations Convention on Biological Diversity as "the long-term or permanent qualitative or quantitative reduction in components of biodiversity and their potential to provide goods and services, to be measured at global, regional and national levels".

⁹ The Millennium Ecosystem Assessment (MEA) – which involved the work of more than 1000 experts worldwide – was launched in 2001 with the support of the United Nations: the MEA sought to identify the changes affecting ecosystems worldwide and provide guidelines for action to protect and use such ecosystems in a sustainable manner.

¹⁰ The Millennium Development Goals are eight objectives that all UN Member States – through the adoption of the 2000 Millennium Declaration - have agreed to achieve by 2015; they include eradicating extreme poverty, reducing child mortality rates, and achieving worldwide sustainability.

¹¹ Agenda 21 – adopted by the 1992 United Nations Conference on Environment and Development (UNCED) - is a comprehensive plan of action aimed at guiding the transition to sustainability in the 21st century. The priorities identified by the program are climate-related and environmental emergencies as well as socio-economic emergencies.

and policy makers have access to reliable information upon which to base their choices. Actions to conserve biodiversity must be planned and implemented on a scale determined by ecological and social criteria. Initiatives must be focused on the most densely populated areas (awareness-raising and education) and protected natural areas (interventions for biodiversity).

Humanity's collective knowledge of biodiversity and its use and management resides in cultural diversity. Conversely, conserving biodiversity often helps strengthen cultural integrity and values. Increased public participation, respect for basic human rights, better popular access to education and information and greater institutional accountability are, in many cases, the result of biodiversity conservation (see the chapter on Traditional Knowledge, Gender Issues and Immaterial values).

Two important methods of conservation are in-situ (and on farms) and ex-situ. The first is carried out in conditions that allow a natural and continuous process of evolution and co-adaptation through cultivation or breeding. The second entails a process of protection of endangered species and genetic resources (plant varieties and animal breeds) outside their natural habitat, for example by transferring members of a species to zoos or preserving seeds in a special bank.

3. Governance of biodiversity and ecosystems in relation to sustainable food systems

3.1. Governance at global level

Biodiversity conservation has to become an absolute priority if we wish to meet the challenge of food safety and climate change. At global level, a variety of ways exist to promote sustainable development and foster biocultural diversity:

- Application of an integrated approach to biodiversity conservation using economic, legislative and technical tools.
- Intensification of international cooperation and coordination among stakeholders, including policy makers, scientists, NGOs, farmers, consumer organizations and so on;
- Development of policies regarding or including cultural diversity on the basis of the Universal Declaration on Cultural Diversity by UNESCO (2001);
- Monitoring of the effective application of international legal agreements on biodiversity conservation, especially the Convention on Biological Diversity (CBD) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA);
- Development of systems that oblige multinational companies to conserve biodiversity, with provisions for sanctions whenever commitments are not respected or biodiversity damaged;
- Revision of the WTO's multilateral agreements on trade-related intellectual property rights (TRIPS), first of all the right of all countries to exclude plants and animals from patentability;
- Reinforcement of land rights, especially for indigenous people and in developing countries;
- Empowerment of farmers and their communities (Farmers' Right Art. 9 of ITPGRFA);
- Provision of scientific, technical and legal assistance to farmers and their communities, organizations, governments and other stakeholders in developing countries, adapting technologies to local socio-economic and environmental conditions;
- Enforcement of the rights of women's and indigenous communities;
- Increase in fund allocation for biodiversity conservation, renewable energies and organic agriculture and abolition of subsidies for conventional intensive farming;
- Promotion of ecological and sustainable tourism;
- Promotion of sustainable fishing and sustainable aquaculture practices;
- Linking of biodiversity with food safety and climate change problems (according to United Nation Framework Convention on Climate Change).

3.2. Governance at national level

Governments hold responsibility for biodiversity in their single countries. National governments should thus work to:

- Speed up the consistent and synergic implementation at national level of the provisions international agreements

on biodiversity (for example, CBD and the ITPGRFA);¹²

- Reform existing public policies that promote the degradation of biodiversity (forest, marine and agricultural ecosystems), and review economic subsidies that have negative consequences for biodiversity (see the chapter on Laws, Rights and Policies);
- Increase stakeholder participation;
- Incorporate biodiversity conservation in the management of biological resources;
- Include biodiversity conservation in the national planning process and support of biodiversity conservation initiatives in the private sector;
- Prioritize research and training on agrobiodiversity;
- Include agricultural biodiversity as a key component of the “Wealth of Nations”.¹³

3.3. Governance at local level

The involvement of local communities in the policy making process is a crucial point. International agreements can only be implemented at local level. There is an urgent need to support local agroecological approaches recognizing farmers’ rights and the key role of women. When local farmers meet local demand, local economies are in a position to thrive.

The four main categories involved are producers, educators, consumers and local authorities. New food policies should promote virtuous behavior by each of the four.

Producers must be encouraged to promote agrobiodiversity and cultural diversity. It is recommended that they:

- Encourage crop diversity and the use of local varieties;
- Leave areas for native vegetation and conservation of riparian forests, which play an important role in conserving fresh water;
- Select and self-produce seeds;
- Cultivate local varieties and introduce rare or endangered species;
- Save seeds and exchange them as part of a Farmers’ Seed Trust
- Introduce ecological infrastructure (hedgerows, strips of grass, woods and so on) to divide fields;
- Promote local knowledge, protect its repositories and ensure that it is passed on to future generations;
- Facilitate the access of local populations to the specific products and services of the region;
- Involve producers in the decision-making process
- Guarantee access to natural resources at local level.

Educators can act as a link between farmers and consumers. Education may be performed at all levels, from primary to secondary schools, with specific disciplines or concepts common to a variety of disciplines. Here are some of the ways in which educators can create the link and lay the bases for an alliance between producers and consumers:

- Supplying information on the extent of biodiversity loss and the repercussions thereof;
- Teaching others how to prepare foods that are new to them;
- Celebrating diversity in local communities through demonstrations, exhibitions and local media;
- Encouraging chefs to prepare dinners with local products;
- Encouraging farmers to adopt practices that favor biodiversity
- Documenting local food traditions through oral histories and other media (see the chapter on Traditional Knowledge, Gender Issues and Immaterial Values);
- Encouraging a critical view of the whole food chain to train conscious consumers;
- Defending local biodiversity as part of local identity.

Consumers also play an important role in increasing biodiversity at a local level. They can do the following:

- Cook with local plant and animal species;
- Attend lectures, films and exhibitions about their local food traditions;

¹² United Nations, 2010.

¹³ An Inquiry into the Nature and Causes of the Wealth of Nations – generally referred to as Wealth of Nations – is one of Adam Smith’s best-known works and one of the founding texts of modern economic theory.

- Learn how to cook the dishes of their regional cuisine;
- Attend seed exchanges and grow native plants at home;
- Shop directly at farms or farmers' markets;
- Encourage and support resource management programs with local authorities.

Local authorities play a crucial role in introducing change at local level. Here are some of their responsibilities:

- Creating participatory processes, supporting an integrated, transparent approach and fostering the commitment and participation of local communities;
- Organizing education and training for farmers on ways to conserve biodiversity in agricultural environments;
- Identifying and protecting areas that are important centers of cultural or biological diversity;
- Supporting the local research and development programs of farmers seeking ways to achieve sustainability through various means, such as low-input crop systems, renewable energy and organic pest control;
- Introducing a system of monitoring and documenting the status of biodiversity;
- Incentivizing local biodiversity initiatives (markets, fairs, exhibitions, specific producer-support projects) with regard to food products, seeds and traditional animal breeds.

3.4. Strengthening the collaborative management of common resources is based on the social integration of different groups in the following ways:

- Promotion of the local, regional, national and global ambitions to favor the co-management of natural resources involving different social actors;
- Fostering of a dialogue among policy makers at all the various levels to develop a sustainable food policy;
- Promotion of an economy based on human and natural capital and social justice as opposed to maximum monetary return.
- Development of an educational program suitable for local conditions and designed to supplement sustainable food consumption and production;
- Ensuring the sustainability of protected areas and their contribution to biodiversity conservation.
- Promotion of ex situ, in situ and on-farm genetic diversity conservation;
- Strengthening of the role of museums, schools and other educational facilities in promoting biodiversity and educating people about sustainable development;
- Protection of traditional and local knowledge associated with biodiversity;
- Enhancement of the genetic bases of our crops and farm animals.

3.5. Development of human capacities

The following steps can be taken to develop the capacities of stakeholders, especially farmers:

- Diagnosis of the state of agricultural biodiversity and ecosystems (for example, through FAO's, MYPOW, or Multi-Year Program of Work);
- Recognition of the complexities of the system and the role of individuals;
- Use of an inclusive design and planning process and making information available and understandable;
- Integration of traditional and scientific knowledge;
- Outlining of clear obligations and rights;
- Setting up of interdisciplinary and intersectoral bodies to enact and monitor;
- Creation of a dialogue between scientific bodies and civil society;
- Informing local authorities about projects and their progress.

Slow Food and Biodiversity

Slow Food began to take an interest in biodiversity in 1996, when it focused its attention on:

- Wild species tied to traditional harvesting, processing techniques and customs;
- Domestic species, plant varieties, ecotypes, native animal breeds and populations;
- Traditional processed products (bread, cheese, cured meats, wine and so on).

Since then many associations and organizations have approached biodiversity, generally concentrating their attention on wild species and devoting only marginal interest to domestic diversity (selected by man in the course of the centuries). Only rarely has the subject of food diversity—namely of processed products—been addressed. Processing is an important heritage of local communities. Its techniques were developed to preserve food (meat, milk, fruit, vegetables, leaves of flowers) and are the fruit of knowledge handed down from generation to generation. The work of artisans has created special food products capable of recounting local culture, freeing producers from seasonal cycles and market fluctuations. It is often only possible to protect local ecotypes and breeds by accompanying raw materials with a selection of processed foods.

In 1999, Slow Food launched its most important biodiversity production project: the Presidia.

The Presidia involve the main custodians of domestic biodiversity (small-scale farmers, shepherds, artisans). Their aim is to save native animal breeds, plant varieties and quality artisan food products by organizing producers, raising the profile of their places of origin, preserving traditional techniques and knowledge, promoting sustainable practices to maintain soil fertility, hydrographic ecosystems, traditional agrarian landscapes and excluding the use of synthetic chemicals, monocultures and intensive breeding.

The Presidia are founded on communities of producers prepared to collaborate and decide production rules and forms of product promotion together.

Slow Food promotes Presidium products by speaking about the producers, their knowledge, their land and their techniques. Through its network (event organization, the involvement of cooks and the organization of forms of direct marketing, such as farmers' markets and joint buying groups), it connects producers with consumers.

There are now 350 Presidia (200 in Italy and 150 in another 40 countries) involving 15,000 small producers. Economic and social research conducted by universities, such as the Bocconi in Milan, and many single students, graduate assistants and researchers have demonstrated the effectiveness of these projects.

The results can be measured in numbers (increased production, more producers, better prices), but also in environmental terms (more sustainable businesses) and social terms (better organization of producers, improved relations with institutions, higher self-esteem).

For more information on this project and Slow Food's activities to protect biodiversity: www.fondazione Slow Food.com.

2. ENERGY AND SYSTEMIC PRODUCTION

4. Preliminary remarks

On the planet in which we live, energy comes, abundantly and regularly, from the sun. In the last 200 years, however, we seem to have forgotten that this flow of energy follows precise, unchanging rules, which we have to obey if we wish to preserve the biochemical conditions necessary for the survival of the human species. These rules refer to entropy, the second law of thermodynamics, whereby the energy used to perform the process of conversion of matter becomes progressively less available, irreversibly losing part of its order and qualities and generating pollution.

In what way does nature transform matter through energy from the sun? Nature burns nothing, but works through thermochemical processes such as photosynthesis. Man instead has introduced a system of energy production based on combustion as opposed to thermochemical mechanisms, thereby accelerating entropic processes on the planet and risks for the health of humans and the ecosystem. In power stations, the processes of methane, coal, oil and nuclear combustion produce radioactive isotopes, in other cases carbon dioxide, nitrogen and sulfur oxides: all are based on limited resources.

International equilibria depend on the management of energy resources. Recently we have suffered the results of wrong economic choices and research strategies that have invested huge sums of money in fossil fuels as opposed to clean technologies.

If we had respected the law of entropy, flexible, efficient solutions would be available that everyone could afford, especially in the Global South, where solar rays are stronger. The time has come to make energy decisions centered round social and environmental values: a new humanism that, through suitable technological choices and reasonable policies, leads us to produce energy compatibly with ecosystems.

5. Overview

We live in an era in which the economy is founded on the unconditional use of resources, in which space seems to know no bounds and time no seasons.

The phase of expansion has ended in the rich countries where a saturation of demand is determining a boom in “substitution-in consumption”. Needs are produced to ensure the continuity of production and man is merely the means to permit the metabolism of goods.

This “unreal economy”—which contrasts with the real one, rich in values inherent to human nature—leads to financial speculation, which eliminates the production phase and generates higher profit without the limits imposed by matter and energy.

If “product” and “production” are the fulcrum of a paradigm of values and behavior that influences the present system, then competition will force us to further delocalize production, to automate it, to create new “false needs”, to “live in a society of workers without work”.¹⁴

It is thus necessary to change the paradigm that assigns priority to real human needs and not to a product’s exchange value. It is necessary to build a “real economy” that places at the heart of every decision-making process the needs of man in an ecological context of interdependencies, acting locally and making a number of subjects co-evolve in a given area: a real economy with a reduced use of matter and energy, in which waste becomes a resource (from output to input), low capital-intensive and sustainable from a sensory, environmental, social and economic point of view.

“The time has come for societies to move from the romance with nature to a pragmatic redesign of our economic system inspired by ecosystems”.¹⁵ Through this lens, we analyze the main complications of the present-day model of energy production from finite or renewable sources, in any case centralized in the hands of a few subjects who define the rules of this monopoly.

We need to develop an interrelated and holistic methodology—systemic design—joining economic, social, cultural and environmental demands to empower the relation between human beings and nature, production and the environment.¹⁶

¹⁴ Anders, 1956.

¹⁵ Pauli, 2010.

¹⁶ Bistagnino, 2009.

5.6. Oil

Though we do have more natural, less destructive models at our disposal, we continue to produce energy through combustion processes.¹⁷

The value of oil as a source of energy, transportable and easy to use as a base for many industrial chemical products, makes it one of the most important commodities in the world at the start of the 21st century.

Data supplied by the International Energy Agency in 2010 reveal the unsustainability of this model:

- From 1999 to 2010 the price of crude oil rose by more than 40 percent, from \$18 to \$80 a barrel;
 - It is estimated that the maximum production peak will be reached in 2030 (the Hubbert peak);
 - The turnover connected with oil use amounts to about 28 billion dollars with annual increases of 2.5 percent;
 - New reserves discovered have been equal for many years to about ¼ of oil consumed, hence reserves are decreasing at an annual rate of 3/4, 28 billion barrels a year;
 - Though the technology of oil extraction has improved, reserves are situated in areas that are increasingly difficult to reach and in ecologically delicate, “extreme” environments, such as sea beds and polar areas;
- It is thus urgently necessary to structure our economies independently from oil because dependence on this resource has made the use of other alternative technologies expensive and not widespread.

5.7. Nuclear energy

Champions of nuclear energy claim it is a sustainable energy source that reduces carbon emissions and increases energy security by reducing oil-dependence. But the option this source represents is limited by unsolved problems:

- Relatively high costs (\$2,000/kW);
- Ineffectiveness (inadequate for transition);
- Limited resources used;
- Security risks for the ecosystem resulting from the disposal of radioactive waste;
- Considering the entire nuclear fuel supply chain, nuclear energy is not a low carbon emission energy source.

The propaganda approach to energy wavers when we take into account the life cycle and the total entropic impact of the energy process, not only an isolated phase thereof.

5.8. Solar energy

Many technologies exist which are capable of capturing solar radiation and converting it into electricity. Nonetheless, in view of the lack of strategic regional planning and installations supplemented by human architectures, the development of solar technology may lead to:

- The removal of farming land, hence a reduction in the production of food commodities, especially at local level;
- The loss of the soil's permeability to rainwater;
- A decrease in biological activity due to the constant loss of solar radiation in areas shaded by panels;
- The acceleration of desertification which, in turn, generates an increase in phenomena of hydrological imbalance.

We would be wrong to think that farming land, which for centuries produced the energies we needed to live, can produce energy simply by annulling itself, forgetting it is alive and becoming a surface on which to place photovoltaic panels that drastically modify the aesthetic and architectural structure of the landscape.¹⁸

5.9. Wind energy

Wind energy is the product of the conversion of the wind's kinetic energy into other forms of energy (electrical or mechanical).

¹⁷ Consoli, 2010.

¹⁸ Petrini, 2010.

With this technology the land may be used for agriculture and livestock breeding but critical points do exist. They include:

- noise;
- visual impact;
- deforestation;
- danger for birds if plants are situated on migration routes, though research¹⁹ shows that the number of birds killed by wind blades is negligible compared to that killed by traffic, hunting, electric cables, skyscrapers and so on.

5.10. Hydroelectric energy

This form exploits the conversion of the gravitational force of water falling from high altitudes into kinetic energy, which an alternator combined with a turbine transmutes into electricity.

The main problem of hydroelectric power stations is the maximum “capacity” of a region, since their construction involves an alteration of the area round the dam, which has to be evacuated to permit the flow of water.

Moreover:

- The food chains of many organisms are disturbed and this sometimes leads them to extinction;
- Water changes its physical characteristics since the average temperature increases and the oxygen content decreases, all of which creates unsustainable conditions for fish;
- Reservoirs of hydroelectric power stations in tropical regions may produce sizable amounts of methane from stagnant water.

5.11. Biofuels

Produced from biomass, biofuels may be used by autotraction, both blended with fossil fuels and, in some cases, in a pure state.

The process that connects agriculture to biofuel production is now globalized and is now referred to as “agroenergy”.²⁰ Raw materials—mainly maize, soya and grain—are now being increasingly converted into bioethanol and biodiesel, which are produced in very poor places and consumed in very rich ones.

According to one section of the scientific community, the growing demand for first-generation biofuels should be considered one of the prime causes of the 2008-2009 food crisis, which was characterized by a sizable increase in the price of foodstuffs. These biofuels also involve the recourse to monocultures, with a consequent loss of global biodiversity.

We are thus called upon not only to denounce this state of affairs, but also to promote any initiative that seeks to identify alternative models. Recently, to avoid using potential foodstuffs to produce fuel, second-generation biofuels (produced from crop residues and waste) and third- and fourth-generation fuels (produced from algae and thermochemical bioprocesses) are being tested, along with energy produced from waste timber through combustion, gasification and other clean processes.

5.12. Hydrogen

Albeit the most abundant element in the rest of the universe, on planet earth hydrogen in a free and molecular state is scarce and must therefore be produced at a very high cost. Hydrogen-based technologies are currently being perfected with an eye to research on the use of less noble raw materials and natural processes.²¹

At the moment, the most economic way of producing hydrogen requires the use of fossil fuels, such as oil, coal and methane. An alternative way does exist, however; it consists of biological production (hence the term “biohydrogen”), which exploits processes involving red bacteria, cyano bacteria and microalgae, and the use of energy from renewable sources.²²

¹⁹ Langston and Pullan, 2003; Kingsley and Whittam, 2005.

²⁰ Petrini, 2010.

²¹ Hasslberger, 2003.

²² Rifkin, 2010.

6. New approaches

6.1. A systemic approach to change our way of considering efficiency and technological innovation.

“In our society we face situations, analyse cause-effect phenomena, solve technical problems, study strategies “per spot”, using a linear approach. This is not innovation.”²³

Innovation consists of the way we look at problems. We have to be aware that we are working within a system in which it is necessary to devote special care not only to products, but also to the system they are part of and in which they are created: a system made up of social, cultural and ethical values. On an industrial level, the process and the development of a logical, linear process and development affect the perception of reality insofar as they are based purely upon cause-and-effect relationships, which generate an enormous amount of waste. It is necessary to recover the cultural and practical capacity of outlining and planning the flow of materials and energy from one system to another. For example, the imbalance between food supply, excessive in the West, and the unsatisfied food demand in developing countries reveals an inefficient allocation of energy within the system, which translates into the problem of inequality in the distribution of food and waste. If, instead, we were to think of the food system as unique and not as separate, based on criteria such as food miles, the short supply chain, organic and fair production in a balanced, holistic way, we could create a situation in which the right amount of food is produced with the right amount of energy.²⁴

It is thus necessary to redesign our industrial productivity and consumer habits through a systemic lens to:

- Reduce and optimize the flow of matter and energy from one system to the other;
- Plan an incessant metabolization of waste (output) with a view to converting it into resources (input);
- Consider all the constituent parts of an ecosystem and their interrelations;
- Allow the actors in all the development phases of the product/service to co-evolve;
- Encourage local development, the cultural dialogue between different sectors and the virtuous collaboration between productive processes, natural realms and communities.

From this viewpoint, the systemic production of energy would involve the creation of “energy communities” in parallel with “food communities”, thanks to which producers and consumers (of energy and food) share small-scale productive processes distributed over local areas.

The main result is an exponential growth in the productive capacity of an area, thanks to which it is able to produce new goods, offer new services to citizens and increase the number of jobs. In this way, local economies can become self-sufficient in terms of energy, production and food procurement.

7. Guidelines

Decision makers assume a number of priorities to ensure energy and food security for growing populations, implementing an interdisciplinary approach that avoids creating a “fragmented” political agenda.²⁵

These priorities can be summed up as:

- A local approach favoring the transversal participation of people from all sections of society, hence the various socio-economic groups present in each given area. On the basis of the opportunities offered by the local context and the real needs of an area, it is possible to create new energy and material opportunities, reducing the problems of adaptability created by “global” solutions and increasing popular participation: energy is a human right and, as such, has to be decentralized.
- A combination of different resources for the overall energy supply: solutions may vary from one region to another and according to the local context. The setting up of energy communities alongside food communities would give

²³ Bistagnino, 2009.

²⁴ Tecco and Fassio, 2008.

²⁵ Wijkman, 2005.

a chance to farmers and anyone else acquainted with the dynamics of the sun, of water and of the earth to become the main players in the distribution of energy processes.

The plurality of sources may lead to autopoiesis, namely a dynamic equilibrium, tolerable by nature and capable of preserving its own independence. An energy system that does not depend on other countries and regions, but is based simply on what an area has at its disposal, is as strong as it is flexible and may be easily and rapidly modified as initial local conditions change.²⁶

- A reduction in and an efficient use of material resources requiring systemic planning and coordination systems that allow a resource to perform multiple functions, reducing the need for further inputs and losses due to transport. As in nature, what is not used by a system becomes a raw material for the development and survival of something else, so in production processes the waste from a system becomes an opportunity, creating new economic development and new jobs. To achieve this objective, governments must encourage “active investment” by the private sector, especially in eco-innovations and the transfer of green technologies.
- Making information more accessible and decentralizing it: thanks to global computer networks, knowledge about energy and the production of goods/services should create a synergic link between experts and local populations. A shared project helps to create awareness and increases the level of commitment of those who, besides protecting and enhancing cultural biodiversity, have helped e• Creation of a network of relations: more generally, it is important to consider all the factors that combine the system analyzed, including raw materials (resources) and energy, which are used and accumulated in the various phases of the life cycle of a product/service. Investment and consequential economic development must be distributed among the various members of the network since the total value of small interrelated realities is higher than the sum of single non-interacting elements.
- Development of new social and cultural values: the systemic approach questions the present industrial model which influences consumer choices negatively and proposes a new paradigm of the productive process that centers round man in a natural context, in which his real biological needs and ethical, cultural and social values emerge. Citizens consume energy and matter, sometimes in the form of social and collective intelligence.

8. Conclusions

The systemic approach generates the conceptual base and the analytical capacities to direct economic change. It becomes crucial to develop a multidisciplinary vision to give rise to a new culture of innovation inspired by the dynamic activity of nature, the system par excellence.

The connection of raw materials, energy, people and their knowledge generates sustainable ways of using and reusing resources.

We must move towards more conscious, more pleasurable and wiser consumption. We realize of course that like bacteria and oranges, like sharks and mangroves, like plumbers and their families, we are all links in a single energy network. It is up to each of us to do nothing that might diminish the beauty that surrounds us, nothing that can waste common health, nothing, in short, that might lower the level of “good, clean and fair” quality of the energy in circulation.²⁷

²⁶ Barbero, 2010.

²⁷ Petri, 2010

3. TRADITIONAL KNOWLEDGE, GENDER ISSUES, AND INTANGIBLE VALUES

1. Introduction

Oral and gestural knowledge formed the basis of cultural and human evolution until modernity and mass-industrialization overturned traditional values. Today traditions are seen once more as an important form of cultural heritage, arguably as significant as academic knowledge. This is why traditional knowledge needs to be critically reassessed within the vast, complex society of today, by many defined as post-modern. This process of recovery, reinvention and re-functionalization of traditions is obviously most evident in those areas of the world, such as metropolises, deeply marked by global cultural change (it may appear less present and evident in places where the economic and social phenomena connected with globalization have occurred only partially).

As UNESCO has suggested, tradition is increasingly recognized as the tangible and intangible heritage of humanity. It needs to be protected and sustained insofar as it encompasses values and resources that help us to address the most complex issues of our time—such as gender issues, one of the main subjects of this document. Moreover, the reinvention and re-functionalization of tradition show how the contemporary individual feels the need to recover the rhythms and values of the past insofar as he or she is part of a broader process of globalization, which is not always predictable or translatable even for those who experience it daily. To cope with the difficulties that arise from the need to address an intricate, complex world of increasingly wide space and less time, the individual seeks to rebuild spaces of proximity and time for analysis. In other words, he or she subjectively invents and reinvents the community, a place of affection, memory and identity, a protected space-time denied by the vastness of the world. In this “game” of re-invention, tradition is a central element. Oral and gestural knowledge is, by definition, a community event. It is in the village, in the place where everybody knows everybody and everything that tradition finds its natural setting.

If this is so, tradition may be considered a product of a short supply chain, insofar as it develops within communities where it is constantly created and recreated. Tradition is also a cultural expression of natural cycles, of the seasons the circular time of the farmer’s calendar, the sacred time of the eternal return. It is thus closely connected to the concept of seasonality and local consumption. In tradition, we can rediscover and recognize the resources, the affective and cognitive values that make us active participants in the world that surrounds us and respond to the changes brought by modernity.

2. Ethnodiversity and biodiversity

Today we are witnessing a profound, complex debate about the protection of biodiversity, which appears to be increasingly drawing a dividing line between the world of tradition, characterized by complex biodiversity, and today’s world, in which the agrifood system in particular experiments with and increasingly imposes mass industrial crops. In this context, biology, economics, ethics, politics and other disciplines confront one another in a project of development and life in which the unsolved problems of innovation are disturbing and dramatic. Even the transmission of knowledge and memory building are aimed essentially at furthering globalization.

Production, the market and culture would appear to be assuming characteristics that inevitably seem destined to eradicate the diversity and specificity that enrich ethnic, local and community knowledge. One of the ultimate ends of this world process seems to be the building of a single identity in which we all have to recognize ourselves, with one increasingly vast mass of people sharing codes of expression, monotonous for all.

For some decades now, efforts have been made to impose genetically modified organisms which tend to simplify and impoverish the biodiversity that the peasant world have cultivated, preserved and reproduced through ritual and empirical seasonal experimentation (without disdaining to dialogue with myth) and with care and self-sacrifice. In parallel, efforts are also being made to simplify and impoverish the ethnic traits that characterize traditional cultures.

In order to operate a cognitive and holistic operation of synthesis and alliance, it is thus useful to set the concept

of ethnodiversity alongside that of biodiversity and make the two dialogue fruitfully and critically. It is necessary to open a profound discussion and reflection involving civil society, institutions, and politics, because, insofar they are an integral and inalienable part of the world's collective and personal memory, the protection of ethnic cultures, knowledge and rhythms concerns everybody.

Over the past decade, whenever the international scientific and political debate addressed the subject of “diversity”, the concept of ethnodiversity was often connected with recognition of the differences among the local communities that populate the world. Here, however, the term “ethnodiversity” is used not only to evidence these differences between communities, but also to acknowledge that we can find the resources we need to elaborate alternatives, sometimes structural, to the dominant cultural system in this plurality of knowledge. By “ethnodiversity” we mean the precious local heritage that distinguishes every human group, achievable—let this be clear— not through isolation and xenophobia, but through exchange and interweaving of traditions and cultures. In other words, ethnodiversity consists of recognizing, embracing and, at once, stressing diversities, linguistic specificities, traditions, knowledge, gestures and words, figures of speech, formularities and proverbs that are the precarious but, at the same time, solid constitutive elements of the world's oral memory, in order to construct, among other things, what interests us most here: namely a new eco-sustainable and democratic agrifood system.

3. The agrifood system and traditional knowledge

The present global agrifood system effectively compels people all round the world to conform to a single way of producing and consuming food—to follow a single model for being people. The system is essentially associated with the idea of the global market, of the control of nature, of the pursuit of efficiency and scale production and consumption, without any consideration for connected social and environmental costs. It is rooted in the belief that local agriculture has to serve the global market. This is the system embodied by the imposition of cash crops over subsistence crops; it has also been one of the causes of the extreme price fluctuations on the world cereal market over the last decade. Food has thus been transformed into a commodity without any regard for the cultural and social implications of this transformation: one such has been the impoverishment of value and knowledge systems based on the pursuit of wellbeing through a more holistic approach.

As local communities risk losing their traditions and resources, the recognition of ethnodiversity and the values that it underpins begin an important and democratic cultural strategy for a reassessment of food consumption and production practices in the light precisely of those community traditions. Ethnodiversity constitutes an alternative whose pluralist model permits a reappraisal of the multiplicity of values, products and knowledge handed down by tradition, and which originates in the organic integration of ethnodiversity with biodiversity that the world of tradition expresses.

Generation by generation, each traditional community has elaborated its own particular and productive strategy to manage the specific anthropized environment in which it lives. Each has developed empirical and mythical strategies developed to tame the natural environment and draw from it all the resources—environmentally sustainable—needed to enhance local life.

Each community has a system of rituals and production system— equal to yet, at once, different from others— designed to protect the life of its members. Each system is the fruit of a mediation, of a wise alliance between Man and Nature. In each, people eat food and not vice versa.

In recent decades, local food systems have been endangered by globalization, which has forced people to abandon and forget their immaterial and material heritages and their knowledge, and adapt, for example, to the dominant new agrifood system. Traditional knowledge was on the verge of oblivion but, fortunately, it has not been totally uprooted. The ethnic rhythms that still, albeit now perfunctorily, mark the time of the community calendar, speak of diversity: in the food we eat, in the recipes we use, in the seeds we plant, in the livestock we raise. Traditional knowledge is thus a key element for rebuilding local food systems and making them grow, above all as an alternative to the global food system, to provide the foundation for a new, fair society.

4. Gender and food system

Housekeeping, horticulture, farming and animal husbandry, artisanship and small-scale rural trade are the activities

that form the basis of community life and that are responsible for producing and processing most of the world's food. Yet the value of these activities goes publicly unrecognized in present-day society. More precisely, the true worth of the people who carry out these tasks is seldom appreciated, especially that of women who, in traditional systems, often seem to enjoy autonomy, authoritativeness and creative and procreative participation in the holistic development of community life.

Women have always been vital to the community and food system. They play a leading role by feeding and caring for their families. Yet despite their fundamental contribution, women are still socially and economically marginalized. They have only limited access to economic resources, education and healthcare, and they are thus the weak link in the chain of the present food system, the most exposed to risk and insecurity. The ongoing globalization process has failed to protect the female condition sufficiently and uniformly; on the contrary, in some parts of the world the subordination of women ensures increased profits.

It is undeniable that the active role of women must have priority in the management and development of community resources and the rebuilding of community memories. Particularly important is the third of the United Nations' Third Millennium Development Goals: to promote gender equality and the empowerment of women. This seeks to acknowledge the importance of the activities of women, even when they are not remunerated, to reaffirm that no single model exists for being a person and to fully acknowledge the importance of women as mothers, as guardians of the community keepers and as leading players in the food system.

In this perspective, the recovery and promotion of ethnodiversity is not only a means for recognizing differences among communities, but also for critically recovering and promoting gender issues by calling upon governments, individual organizations and single individuals to ensure and guarantee equal gender rights, workplace conditions, pay and access to resources, education, health, technologies and opportunities.

5. Conclusions

If, for bio-ethnodiversity, the dimensions of generative space-time and cognitive synthesis are the community, then we deem it indispensable to protect them.

Insofar as it seems to be one of the few places capable of generating the material and immaterial resources for the pursuance of bio-ethnodiversity, the community is the instrumental and affective refuge for modern man. It is thus necessary to preserve and promote these local realities, if need be by simple actions aimed at safeguarding and sustaining the network of essential services, such as workshops, family farms, post offices, churches, schools and social clubs. This network keeps alive the immaterial, narrative, symbolic fabric that gives life to the constitutive features of the active collective memory, capable of narrating and renarrating the past to define the present and represent the future.

An essential contribution to the restoration of memory to weakened communities—in some cases at risk of disappearing on account of the most recent phenomena of extreme globalization—, resides above all in the recovery and reactivation of the knowledge tradition conveys and embodies. To this end, complex scientific projects are being developed to recognize, gather, archive and critically redistribute these cultural legacies. One such is “Granaries of Memory”, promoted by the University of Gastronomic Sciences and Slow Food. This high-level, scientifically ambitious project aims to re-build the memories of the world. It is a utopian leap forward that sets out from the premise that, as Marguerite Yourcenar suggests in *Memoirs of Hadrian*, present-day society must build “granaries” in which oral and gestural knowledge can be stored and protected from the adversities of a modern world that feeds on oblivion. The project is part of a new humanism that places man and his values at the center of society, especially at the center of the community, the place where people play an active role in shared memory every day and, as such, is rethinking and shaping the future.

With the advance of globalization, the experience of local communities has been endangered. Today it seems clear, however, that it is only by recognizing the value of these local experiences and their ethnodiversity, by protecting these local realities, by rediscovering the traditional, material and immaterial knowledge that they have generated and by responding to gender issues that we can build a “good, clean and fair” world.

To do this, it is necessary to:

- Start a process of formal and informal recognition of traditional knowledge as a cultural heritage of humanity;
- Undertake projects aimed at gathering, reinforcing, preserving and promoting that traditional material and immaterial heritages that are the founding element of the existence of any community;
- Promote synthesis between the two pillars of traditional critical knowledge: biodiversity and ethnodiversity;
- Recognize and sustain the importance of local food production as the cultural and physical nourishment of any community;
- Organize and pursue projects to strengthen local communities by sustaining and improving the local services network and good practices;
- Implement policies for the recognition of women as the founding elements of every community and co-players in community social, political and economic life.

The «Granaries of Memory» Project

Since its inception in 2004, the University of Gastronomic Sciences has hosted and developed an ambitious research project that Slow Food had been elaborating for two decades. It concerns the memory of the world and the recovery of gestural and oral knowledge as a constitutive part of human evolution. It is necessary to start collecting the testimonies of rural communities to prevent them being lost forever. In the past, it was oral memory that ensured that this heritage was handed down. Today veritable “granaries” are needed to fight the present dearth of ideas and the dominant mass culture that has silenced the voice of the precious knowledge of generations. We have to protect the ethnodiversity of cultures. Ours is a very ambitious scientific enterprise and can be undertaken only if we can trust the younger generations to continue it. It is a project as vast as vast are the memories of the world.

www.granaidellamemoria.it

4. SOCIAL SYSTEMS AND TRANSFORMATIONS

6. Introduction

The enduring constants in the world’s food systems are exchange and change: what appears permanent is forever in flux. Take, for example, Italian cuisine and its foundations. Pasta was imported from the Arab world a thousand years or so ago, but its marriage with the tomato, an American fruit imported as part of the Columbian exchange, dates back to the mid-19th century. The “traditional” regional cuisines of Italy would not exist without other American plants such as potatoes, corn and pepper, all of which had been reluctantly accepted as foods only well into the 18th century.

Despite relatively organized attempts to resist them, it is thus hard to imagine contemporary transformations—spurred by the global travel of people and commodities, ethnic cuisines and foods—not leading, in turn, to a thorough transformation of food supply and consumption. What interests us most here, however, is to glean from the gigantic and history-making social change currently underway lessons about the sustainable food systems most likely to lead to more convincing and effective food policies than the conservative ones designed to react against ongoing radical change. Looking at identities as the products of continuing exchange and transformation—as history helps us do—means considering the positive and progressive features of globalization, not only its consequences in terms of environmental and human exploitation, wars and repression.

On one thing there seems to be general consensus: the unregulated forces of the free market have gone astray, as witnessed by the recent food crises in the world’s South and the preoccupation for the future of food, even in the context of unprecedented productivity. Again history can help. The way in which the predominance of the economic and financial dimension is regulated and the scars of market excess are healed are not always the same. Historical periods in which the self-regulating market overreaches itself have been countered by moments of public intervention and “social protection”. In some cases, as in postwar Scandinavia and western Europe, when the creation of the free market provoked great poverty and displacement, social safety nets were spread out and

extensive social welfare systems were built. In others, as in 1930s Europe, responses to free-market collapse and subsequent economic crises took the form of policies based on exclusion, racial and xenophobic prejudice, nationalism and militSome policy makers seem tempted to take that path again. Yet there are alternatives, and it is precisely an enlightened food policy that can light the way towards social sustainability: meaning a development model that promotes social equity by supporting the most vulnerable and poorest members of the community; that ensures quality of life in terms of universal access to safety, health, education, housing and employment; that respects and promotes cultural diversity; that fosters transparent democratic systems of representation and public participation.

7. Current forces within the food system

The recent outbreak of food rebellions is a prism through which we can see the failures of the current food system. In Mozambique, for instance, the price of bread has increased by 30 percent in 2010-2011, while the price of utilities has also undergone double-digit increases. The rise in the price of wheat might be traced, among other reasons, to Russia, where the combination of a once-in-a-century heatwave, poor land management, the privatization of the timber industry and cuts in firefighting resources led to wildfires in the country's "bread-basket" in the summer of 2010.²⁸ Vladimir Putin thus announced a ban on cereal exports and international speculators pounced on cereal futures. The Mozambican government, taught by the World Bank to depend on international markets for its wheat, lacked the foreign exchange to pay its import bill, but the government took a gamble and decided that the people, particularly the urban population, would be prepared to stomach a price increase. It played its cards badly, as people took to the streets and the police resorted to extreme violence in an attempt to subdue them.²⁹

Many elements intertwine in this sad story: international food speculation, the lack of local capacity to protect citizens from external market traumas, climate change, neoliberal economic policies, the gulf that exists between the haves and have-nots and the legacy of deep historical scars, such as the colonialism which spread bread consumption in cultures where bread had never been consumed.³⁰ We also see class disparities. The protesters were the urban poor: not the poorest, rural Mozambicans, but those sufficiently organized to demand change from their government, and close enough to it to make their voices heard. The people who drew most benefit from the increased volatility of prices were thousands of miles away, doing business at the Chicago Board of Trade, insensitive to the hunger that their actions were causing.

In the case of the acute food crisis of 2007-8, of which today's food rebellions are the consequence, the international community met the news of hunger with false solutions. The International Monetary Fund, the World Bank, the World Trade Organization, and the US Department of Agriculture all fail to address the root causes of the food crisis. By accepting the paradigm of the dominant industrial food system, they prescribe "solutions" that merely reinforce the approach that triggered the crisis in the first place: more food aid, deregulated global trade in agricultural commodities and a greater use of technological and genetic means. All of these are measures that do nothing to challenge the status quo of corporate control over the world's food, and thus fail to provide a clear and effective way of overcoming the crisis. Nor has there been any informed public debate about the real reasons why the number of hungry people is growing or what we can do about it. The future of our food systems is being decided de facto by unregulated global markets, speculators and global monopolies.³¹ It is in their interest that genuine change should never take place in the food system.

Another emerging phenomenon that provides cause for concern is land grabbing. In 2008, when the global food crisis set off an alarm over supplies in import-dependent countries such as China, Saudi Arabia and South Korea, the latter responded by buying up farmland from poorer nations richer in this resource: Brazil, Cambodia, and especially some African countries, where the term "land grabbing" is now used tout court to define one form of neo-colonialism.

28 Kagarlitsky, 2010.

29 The Guardian, 2 September 2010.

30 United Nations Special Rapporteur on the Right to Food, 2010.

31 Holt-Giménez, Patel, con Shattuck, 2009.

Yet change is necessary and may be achieved through globalization itself. In 2050, when nine billion people demand more food than ever before, our current food system will be unable to provide it. Water resources are already a source of conflict and are likely to become more precious as climate change further disrupts access to them. The fossil fuels that run our agriculture are finite and bound to become increasingly expensive. Genetically modified crops, often touted as a panacea and funded by millions of dollars' worth of public and private investment, have failed to show that they can meet the challenges ahead. We are experiencing "the greatest market failure the world has ever seen",³² yet all our governments have offered are rehashes of the market-driven mechanisms that failed so spectacularly over the past few years.

Any policy that seeks to address the challenges of the food system needs to clear the three hurdles of economic viability, ecological sustainability and social acceptability. In other words, it has to be a policy that is democratic, based on the best science available and capable of meeting high future demand through optimal use of the scarce resources available. The most widely accepted peer-reviewed study of the problem, the 2008 IAASTD Report, found that agroecological³³ approaches to food systems meet all of these criteria, being more productive than conventional agriculture, embedded in community relations and involving far more complex ecological interactions than could be encompassed by industrial agricultural science.³⁴ But arguably what is most important is that the policy mechanisms to arrive at more sustainable agriculture are themselves the means to arrive at a more sustainable economy and a more open democracy. The flagship of these mechanisms is food sovereignty.

8. Food sovereignty for sustainable change

Food sovereignty isn't the same as "food self-sufficiency". Policy makers are not asked to close down borders and prevent trade or exchange; the idea is that the terms of exchange should not be dictated exclusively by the rich and powerful. This means that everyone should take part in the process of policy formulation. The definition of "food sovereignty", presented in La Via Campesina's Declaration of Nyéléni, a village in Selingue, Mali, in 2007, is a useful point of departure for policy makers, whether their concern is to promote sustainability or to banish hunger: Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers. Food sovereignty prioritises local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just income to all peoples and the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage our lands, territories, waters, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social classes and generations.³⁵

If food sovereignty is to prevail, if all groups are to participate on a "level playing field" in policy formation, then serious inequalities in power need to be addressed. At the heart of food sovereignty is radical egalitarianism. To speak of food sovereignty is to stress the need for social change so that the capacity to formulate food policy can be exercised at all appropriate levels. To make the right to formulate food policies meaningful, it is important for everyone to be able to contribute to them. This demands a number of prerequisites: meaning a society in which the equality-distorting effects of sexism, patriarchy, racism and class power have been eradicated.³⁶ In other words, a society in which democracy can operate much better than in one of systematic inequality. This may sound a little

³² The Guardian, 2007.

³³ Altieri, 1987.

³⁴ International Assessment of Agricultural Knowledge, Science and Technology for Development, 2009.

³⁵ Via Campesina, 2007.

³⁶ Patel, 2009.

abstract, but specific policies do exist at the international, national and local levels to make these demands more concrete.

8.1. International level

The architecture of the international food trade was designed in a context in which poor countries had little choice but to accept the terms presented to them. At the international level, this calls into question the legitimacy of a series of agreements. Specifically, in a move toward sustainable food policy, we should see:

The removal of agriculture from the World Trade Organization's competences. This is a demand not to put an end to trade in food, but to cancel the terms of trade established by the WTO, as well as the intellectual property norms that have allowed the theft of knowledge from some of the world's poorest farmers.

A reduction of the power of the multinationals. Among the most powerful forces in the food system today are multinational corporations. Whether supermarkets, seed producers or trading companies, they are in a position to decide the fate of farmers and bring a negative influence to bear on the world hunger situation. Policies already exist to restrict their power. Many countries have anti-monopoly legislation in place, but it is enforced inadequately against these large corporations. Instead, we have seen public bail-outs and consolidations within them. Particularly when it comes to food, the rights of corporations ought to be subordinated to others. Recent data from the American Pediatric Association suggests that children younger than eight years of age "are cognitively and psychologically defenseless against advertising". Severely restricting food advertising aimed at children is one way of allowing them to develop the critical faculties that enable them to make their own food choices free from corporate influence.³⁷

Compensation/Debt cancellation. The Global South is the Global North's creditor. The most recent damage it has suffered is climate change, to which it makes no contribution but of which it suffers the consequences. More generally, we refer to the dire consequences for the Global South caused by the consumer habits and lifestyles of the North. According to a recent study, the debt rich countries owes poor ones dwarfs the so-called "third world debt".³⁸

8.2. National Level

The protection of human rights, especially the right to food. The present food system represents the triumph of the right to property over all the others in the Universal Declaration of Human rights. Olivier De Schutter, the UNO Special Rapporteur on the Right to Food, reminds us that the human right to food is met "when every man, woman and child, alone or in community with others, has physical and economic access at all times to adequate food or means for its procurement. The right to adequate food shall therefore not be interpreted in a narrow or restrictive sense, which equates it with a minimum package of calories, proteins and other specific nutrients. The right to adequate food will have to be realized progressively. However, States have a core obligation to take the necessary action to mitigate and alleviate hunger even in times of natural or other disasters".³⁹ Recognition of the human right to food leads to the recognition of food sovereignty, and a number of countries—among which India, Ukraine, Ethiopia, Brazil, Cuba, Colombia, South Africa, Pakistan, Iran, Congo, Nigeria, Guatemala, Bangladesh and Uganda —have already adopted it as an explicit policy goal, some also including the right to food among their constitutional rights.⁴⁰

Comprehensive agrarian reform. Historically, many countries, particularly in the Global South, have suffered from an unjust distribution of land and resources. Some countries, such as South Korea, Taiwan and Japan, that challenged inequalities of this kind democratically have since found more equitable and sustainable development models than others in which agrarian reform remains incomplete.⁴¹ In contrast to these state-led development

³⁷ American Academy of Pediatrics Committee on Communication, 2006.

³⁸ Shapely, 2008.

³⁹ Committee on Economic, Social and Cultural Rights, 1999, at par. 6.

⁴⁰ United Nations Special Rapporteur on the Right to Food, 2010.

⁴¹ Borras, 2008.

models, more recent attempts at “market-led” agrarian reform, such as those carried out in Brazil, Guatemala, El Salvador, the Philippines, South Africa and Egypt, have been deemed largely unsuccessful.⁴²

Investment in sustainable agricultural research and support. A great deal of public and private funding is geared towards promoting research and investment in agricultural techniques we know to be unsustainable. Sustainable agricultural research receives a tiny fraction of the support that industrial agriculture does, yet without scientific research, we will be ill-equipped to meet the demands of a changing climate, declining soil quality, and other chronic and acute ecological crises.

The recognition, promotion and redistribution of female labor. The present-day food system is founded, almost everywhere, on the unpaid or underpaid work of women; in the fields, in research, in processing companies and in professional or family kitchens. One of the unequivocally modern features of food sovereignty is that it recognizes the need to center the debate round the inequalities in social and economic power that women have to suffer. One of the slogans at the Via Campesina meetings in Maputo in 2008 was “food sovereignty is about an end to all forms of violence against women”. This violence takes many structural forms, but is evident in all the supply chains of the food system. Any sustainable food policy has to fight for the recognition and improvement of female labor throughout that system.

8.3. Local Level

The development of new parameters to measure community wellbeing. The primacy of Gross Domestic Product as a parameter of economic growth and national wellbeing has been both a means and an outcome of unsustainability. The United Nations is making moves to develop new forms of national accounting,⁴³ but to arrive at the logical conclusion of the setting aside of GDP it will take more than a new package of standard indicators. What are needed are community-driven indicators, which may or may not be the same for all communities.⁴⁴ Such indicators will track both qualitative and quantitative measurements of community wellbeing.

The provision of venues for democratic participation in food policy. Food Policy Councils are proving a successful tool for fostering and encouraging local democracy in the fight against hunger in North America. By bringing together the representatives of underprivileged communities, local government, unions, farmers and farm workers, educators, civic activists, local retailers, chefs and others, Food Policy Councils have created a forum through which real change can be achieved in food systems.

It should be stressed that there is nothing intrinsically enlightened about local democracy. These political choices offer no guarantees, but insofar as they seek to respect human rights, the likelihood of their leading us astray is reduced to a minimum.

9. Conclusions

We are currently experiencing a period of inevitable social transformation. Markets have crashed, our societies are being split by new forms of intolerance, the ecology of planet earth is at a tipping point. But the sharing of meals and cultural traditions, ingredients and techniques, tastes and traditions offers one of the best consolidated ways of bringing people together. It is only through an inclusive—not exclusive—and emphatically democratic food policy that we will be able to weather the dark days ahead of us.

To obviate today’s market failures it is necessary to put the market in its place. Food sovereignty does not imply the abolition of markets, but it does require that exchanges be conducted with an eye to human rights, justice and ecology. It involves a drastic limitation of corporate power and the building of a much more egalitarian society in which everyone, not just the rich, has access to food and can contribute to food policies. The food policy born

42 Kay, Lahiff e Borras, 2008.

43 Stiglitz, Sen and Fitoussi, 2009.

44 Aslaksen, Flaatten e Koren, 1999.

of food sovereignty will not be based on a unilateral vision, but will demand an ecology of many utopias and will encourage us all to create a food system capable of benefiting the cultures of all: it will create a system through which we shall live thanks to diversities, not despite them.

5. GOODS, COMMON RESOURCES AND EXCHANGES

1. Introduction: food production and the common good

The present world agrifood system is a complex set of economic activities, exchanges and human behaviors that sharply affects the living conditions of the planet and its inhabitants. Today the agrifood production is closely tied to the main points on the agendas of the major international institutions: food riots, trade wars, climate change, environmental consequences, urbanization and so on.

The agrifood system provokes international tension even between allies, such as USA and UE and popular riots in relatively stable nations such as Mozambique, as has been the case with the food price crisis of 2010/2011.

Due to its international diffusion and political implications, the agrifood system has attracted many government-led initiatives involving major multinationals. Such initiatives have strongly influenced food production and consumption.

The second half of the 20th century, for example, was characterized by the so-called Green Revolution, most prominently in Asia and Latin America. Though it brought benefits such as increased productivity, it also had dire consequences. The increased use of oil-derived or oil-based inputs (fertilizers, pesticides, fuels for machinery) and the choice to produce only a few plants, mainly to feed animals, caused damage to the environment, biodiversity, economic survival of small farmers, as well as to the social cohesion of rural communities.

At the end of the 20th century, another revolution burst onto the scene, born of the previous one, but arguably more insidious: the so-called “Gene Revolution”, which is seeking to transform the agrifood system through genetic engineering. New seeds, a different way of managing the supply chain designed to favor patent holders, no principle of precaution—these seem to be bases of the new revolution.

But maybe the world doesn’t need more revolutions, maybe it needs a re-evolution, namely an evolution based on different principles with a minimum common denominator: to use Slow Food’s fortunate slogan, a “good, clean and fair” vision of the agrifood system.

What is the aim of this re-evolution? Is it efficiency? Is it cost cutting? Probably the best answer is that the aim of the re-evolution is the pursuit of the common good: the good of our planet, unable to sustain the present agrifood system; the good of consumers, who are above all citizens; the good of producers, who need a fair price for quality food; the good of all the countries, today divided into the “stuffed and starved”, but in the future, hopefully, part of a world free from starvation and malnutrition.

2. The conscious citizen

Consumers are becoming increasingly discerning when it comes to food products, demanding more and more ethical sourcing, traceability, sustainability and corporate social responsibility.

The conscious citizen is an individual who has a broad view of his or her surroundings, a responsible consumer and his responsibility originates in a value system born of education received in a given social context. Our social context is formed by various institutions which, through a set of rules, sometimes referred to as a social pact, determine the ways in which we organize ourselves to live in society. The rules are born of the needs of the group that has to organize its activities. Cyclically, these rules and this pact undergo modifications and determine a new social representation.

Since society has changed so much, the current socio-political system has the job of drawing up new rules to regulate the food production system.

Today more people live in cities than produce food on farms. Many natural resources are being or about to be depleted. One section of society is living better and longer, but the other is still a long way from achieving this condition. Technology has brought us closer to different realities and we are thus now more conscious of them. This is why we need to redefine rules and reorganize ourselves to continue our evolution— as has happened for generations.

The new rules conscious consumers aspire to embrace three ambits: namely the social, economic and environmental conditions of food production and distribution. The conscious consumer does not decide only on the basis of price. Public awareness campaigns ought to consider cultural and emotional aspects of the consumer's decision-making process. Here are some of the initiatives that might be undertaken:

- The linking of food to local culture. Every community has food that generates cultural and emotional links. Such links help us to understand the sustainable production process and the consumption it leads to.
- Enhancement of the conscious consumer's self-esteem. In some cultures, this type of consumer may be tied to rural habits that do not enjoy great prestige in post-industrial society. Campaigns that connect conscious consumption to a progressive vision may capture the attention of young people.
- Improved knowledge of food production: describing the price composition of food is a way of letting everyone know how the production chain works.

3. New forms of supply: producers closer to consumers

Provision of access to healthy and safe food that will provide food security to all nations should be a priority. To reach this goal, we need to develop policies that will address the unequal distribution of food and unstable prices of goods.

To tackle these problems, it is important to consider new ways of bringing producers closer to consumers. Due to the long supply chain, the price a farmer actually receives is lower than the one paid by the consumer in proportion to how far a product travels (in terms of kilometers and/or passages) from the farm to the shop shelf. Long supply chains need to be shortened so that consumers can share the economic risk with producers, thus assuring a premium price to farmers and higher quality to consumers. Consolidated short supply chains that might serve as models already exist in different countries. Farmers' markets permit direct sales to consumers and allow farmers to increase their earnings. Community Supported Agriculture (CSA) is an agreement between a farm and a group of supporters on the basis of which the latter purchase a share of the farm harvest in advance. Another is the Slow Food Presidia, an example of how the global community can protect unique regions and ecosystems, recover traditional processing methods and safeguard native animal breeds and local plant varieties (see the chapter on Biodiversity and Ecosystems).

On the other hand, it is important to consider that some farmers depend strongly on food exports, hence shortening the supply chain and distances their produce travels would have a negative impact on their business. In such cases, it is necessary to devise policies that support and prioritize producers who use fair trade practices for all products that cannot be produced locally.⁴⁵

In developing countries, legislation should be concentrated on supporting small sustainable farms and promoting the consumption and production of local crops as opposed to encouraging them to specialize in cash crops or import cheap grains.⁴⁶ In some developing countries, the import of cheap grains from richer countries and food aid have prevented farming from being competitive and made it financially unstable, thus forcing farmers to abandon their land. In addition, there is a high risk of food scarcity, especially if the countries that these farmers depend on change the destination of agricultural products, as has been the case of corn grown for biofuel.⁴⁷

⁴⁵ Seyfang, 2006.

⁴⁶ Young and Mitthal, 2008.

⁴⁷ Mitthal, 2009.

The priority in policy decisions should be given to the alliance between farmers and consumers to make food security an achievable goal.⁴⁸

4. Food procurement in public institutions: good practices

The wealth of a country, usually measured by its Gross Domestic Product (GDP) is determined not only by the final consumption of citizens and firms, but also by the purchases made by public institutions. These expenses are constituted by all the procurement for schools, hospitals, the armed forces and so on. Food is thus an extremely important part of public expenditure. Since public institutions ought to be the first bodies to aspire to the common good, public procurement should follow sustainable standards. Sustainability is measured by three criteria—economy, society and environment—but we prefer to use the slogan “good, clean and fair”. The basic elements of this kind of procurement are: local and organic food, wherever possible, and other tenets (fair trade, for instance) for products imported from abroad.

The main (economic) benefits for society are:

- A multiplier effect on the economy of small farms that improves their viability and the general prosperity of rural and periurban areas
- An improvement in the availability of fresh food for students that helps to limit obesity, and hence entails a decrease in health costs
- Improved food procurement in hospitals, especially during rehabilitation long term care, hence a reduction in the average length of stays in hospital, hence in costs
- A reduction in fuel consumption and agricultural inputs in farming activities (less dependence on the international volatility of input prices).

5. Not food “commodification”, but food valorization

We believe that food, like clean water, clean air and housing are essential basic rights for all human beings. We thus urge policy makers to ensure that economic systems, agricultural systems and trade policies are designed to ensure the availability of clean, good, and fair food to the population, rather than promote the profits of the few, be they developed nations, corporations or stockholders. We suggest that the production and processing of food for consumption be valorized as essential parts of human culture, founded on the blending of art and science, and not reduced to a mere amoral economic transaction. We thus promote a locally based artisanal food system founded upon sustainability in both the ecological and socio-economic senses. We suggest policy makers do as follows:

- Favor sustainable as opposed to chemically-dependent agriculture. Public institutions, such as universities and national and international research institutes, must perform research, in a transparent manner, to preserve the best of traditional forms of agriculture and accompany these techniques with the knowledge of agroecology, livestock breeding and food technology.
- End the patenting of life forms. The plant, animal, and microbial varieties selected over thousands of years are part of the common heritage and must not be the property of entities that might use them for profit. The temporary protection of varieties and denomination of origin are legitimate ways to ensure that creative farmers and researchers are rewarded for their work.
- Analyze the technology of genetic modification with the utmost scrutiny. All research on genetic modification and its effects should be carried out by objective public institutions entrusted with ascertaining what is in the best interest of the population in general.

6. A new idea of efficiency: costs (and prices) must include social and environmental externalities

One definition of economic efficiency is “Economizing behavior. When applied to a community, it implies that a) an activity should be undertaken if the sum of the benefits to the individuals exceeds the sum of their costs and b) no activity should be undertaken if the costs borne by the individuals exceeds the benefits”.⁴⁹

In this definition, the individual is trying to obtain the largest possible slice of the cake, not the efficiency of the

⁴⁸ Zamagni, 2010.

⁴⁹ Gwartney and Stroup, 1987.

economy as a whole. According to this definition, an activity should always be beneficial to an individual, but not to all the individuals affected by the action of that single individual.

Externalities are “The side effects of an action that influence the well-being of non-consenting parties. The non-consenting parties may be either helped (by external benefits) or harmed (by external costs)”.⁵⁰ Thus, all the effects on other individuals and the environment resulting from that action are externalities. Politics should seek to increase external benefits, or positive externalities, while decreasing external costs, or negative externalities.

Farming subsidies in rich countries are an example of negative externality. They are a major cause of overproduction, which depresses global prices, determining a reduction in economic functionality and the destruction of small-scale agriculture, in both developed and developing countries.⁵¹

True, due to the unpredictability of the market perversity as a whole, the reduction or elimination of subsidies alone will not make an economy more efficient. Hence policy and trade agreements should opt for business inspired by fair trade as opposed to a model with higher negative externalities.

Fair Trade principles seek to foster sustainability by tackling the problem of poverty and empowering producers, thus reducing negative externalities.⁵² This objective may be achieved, for instance, by: ensuring that living wages are paid to producers; remembering that environmental sustainability is crucial for production; and fostering direct sales.⁵³ These fair trade principles are currently being used primarily in developing countries, but only their adoption in all economically productive regions would increase the efficiency of our entire economic system.

Alongside incentives for renewable energy and energy efficiency, governments can also provide incentives such as grants, microcredit and tax relief to businesses that already adopt the criteria of fair trade or are preparing to do so.⁵⁴

A more careful analysis of environmental externalities reveals that it is not only production processes that pose a threat to the environment. Likewise, food transport causes negative environmental externalities. To reduce them, governments should act at all levels to promote local food purchases. “Food miles”, a parameter that deserves more detailed discussion, are certainly useful as an indicator of the degree of “localism” of food: they refer to “the distance between the place where food is grown or made and the place where it is eaten”.⁵⁵ It might be possible to impose a tax structure correlated to the quantity of food miles traveled by each product.

This system should be supplemented by increasing incentives for activities which offset negative externalities of production: for example, reducing emissions by using alternative energy sources such as photovoltaic and wind power, leaving land fallow to preserve biodiversity, using sustainably produced biodegradable packaging and/or taking part in one of the existing third party certification programs for sustainability.

7. The agriculture of tomorrow: policies to support land for young farmers and farm incubators

The concept of a sustainable agrifood system that centers our food systems round high quality, sustainability and fairly produced foods, cannot be explained or supported without focusing on the future of farming. A forward-looking food policy must, above all, support young farmers and the idea that they are also young entrepreneurs. It is necessary to find tools to facilitate the start-up of small-scale businesses, some of which experimental from the point of view of economic, energetic and environmental sustainability.

A forward-looking food policy must also take into account the many difficulties facing young people who wish to devote themselves to agriculture. It is necessary to promote the values of local food and sustainable agriculture to

⁵⁰ Ibidem.

⁵¹ Database of State Incentives for Renewables and Efficiency, 2010.

⁵² Beitel, 2005.

⁵³ Ibidem.

⁵⁴ Vincentini and Bruno, 2008.

⁵⁵ Cambridge Dictionaries Online.

make agriculture a desirable and respected life choice and profession once more.

Government policies and incentives can contribute in several ways to the attainment of this objective. Below we highlight some of the main difficulties encountered by would-be young farmers, and offer suggestions on how to overcome them and allow what is often generically referred to as “slow food” to become an increasingly engaging and sustainable means of feeding our communities.

a. The cost of land

- Provide credit facilities to young farmers for the purchase of urban and peri-urban land.
- Develop “agricultural parks” and create leasing or ownership opportunities on public land, merging farming with recreation and public education.
- Connect young farmers looking for land with elderly or retired farmers seeking someone to farm all or a portion of their land.
- Create land trusts and banks to shift demographic pressure from agriculturally significant areas to more densely populated areas, increasing the area of land given over to crop cultivation. In this way it would be possible to reduce development pressure, thus bringing down the cost of land.

b. Lack of experience and agricultural knowledge

- Support and encourage study programs for farms.
- Support and encourage educational policies that include agricultural studies, school gardens and partnerships between farmers and schools.
- Introduce incentives for farms willing to provide apprenticeships and farm training to youngsters.
- Create an e-learning hub and information exchange for young farmers seeking advice, in need of training or keen to exchange goods or services.
- Allocate funding for free or low-cost agricultural training opportunities for young people through community centers, school clubs and recreational programs.

c. Risks

- Provide opportunities to test new ideas through the creation of pilot projects (business incubators for agriculture).
- Provide community facilities for the industrial and gastronomic processing of agricultural produce, provide greenhouses in which young farmers can test their new ideas and experimentation is encouraged.
- Enrol young farmers on agricultural programs at colleges and universities in which course projects can help them develop their ideas.

8. New credit for new agriculture: microfinance and slow money.

Microfinance is a proven tool for fighting poverty on a large scale. It provides very small loans, or micro-loans, to poor people, mostly women, to start or expand very small, self-sufficient businesses. Through their own ingenuity and drive, and the support of the lending microfinance institution (MFI), poor women are able start their journey out of poverty.⁵⁶

MFI as they are today create not a few concerns about their viability. However, with preference being given to economically and socially sustainable institutions, they can truly help small farmers and producers in both developing and developed countries alike.

MFI must accompany its savings and loan programs with a series of services that help the professional development of borrowers. They should do so much along the lines of small business development centers in the US. Assistance in drawing up a project and money management and general business advice should be compulsory.

Public policies must facilitate cooperative MFIs through financial development incentives. Governmental bodies at all levels must also develop programs, directly or through NGOs that use grants to help the poorest of the poor, those who have not been served successfully by MFIs to date.⁵⁷ Local authorities should regulate the interest rates

⁵⁶ Sapienza, 2010.

⁵⁷ Harper, 2010.

of MFI loans to prevent the lenders from acting improperly.

Consumers are investors too. Many people, especially in the developed countries, keep their money in bank accounts or other financial tools. Nobody knows where their money goes before returning to their small “local” banks. Ethical banks and investors must be included as stakeholders in the building of a new agrifood system. Charities, hedge funds and wise investors should be involved and sustained with all the fiscal tools (incentives etc.) to promote a virtuous financial system that funds sustainable food supply chains.

It is precisely consumers who become the funders of the virtuous producers, who not only exchange goods, but also share a part of the economic risk.

6. LAW, RIGHTS AND POLICIES

1. Introduction

The development of sustainable food policies and the enactment of legislation in this sphere must be firmly rooted in a human rights-based approach, which envisages the right to food as a predominant component. A human rights-based approach goes hand in hand with the recognition of human rights as universal, interdependent, indivisible and correlated.

The right to food can be defined as the right of every person to have regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensures a physical and mental, individual and collective, fulfilling and dignified life free of fear.⁵⁸ This definition recognizes the corresponding obligations of states, which are called upon to respect, protect and fulfill the right to food. The concepts of food security and food sovereignty must be guiding principles for all state action at the community, local, national, regional and international levels.

Legal systems should be transformed by means of a comprehensive, holistic strategy aimed at ensuring that all individuals and communities enjoy a legally sanctionable, effective right to food. In this respect, the first set of recommendations contained in this document centers on the basic forms of legislative action that states have to undertake (sections 1-4).

But since legal solutions in a vacuum are insufficient to implement the right to food, the second part of the document (section 5) identifies and makes recommendations with regard to a number of areas requiring both legislative and policy interventions.

a. Ratification of international instruments

The right to food is recognized by a wide range of international human rights documents⁵⁹ that states are urged to ratify and observe. States are also urged to adopt and implement the FAO Voluntary Guidelines on the Progressive Realization of the Right to Adequate Food in the Context of National Food Security, and to join regional human rights systems and ratify regional human rights documents.

b. Inclusion in national constitutions

At the national level, the most effective, and basic, form of recognition and protection of the right to food is its explicit inclusion in the national constitution, bill of rights or analogous instruments. This imposes on all branches of the

⁵⁸ United Nations Special Rapporteur on the Right to Food, 2008.

⁵⁹ The relevant international instruments include the International Covenant on Economic, Social and Cultural rights and its Optional Protocol; the UN Convention on the Rights of the Child; the International Convention on the Elimination of All Forms of Racial Discrimination; the Convention on the Elimination of All Forms of Discrimination against Women.

state an obligation to respect, protect and actuate the right to food by passing adequate laws and/or implementing policies designed to actuate it progressively. Recognition as a constitutionally protected right empowers individuals by making them active right-holders rather than passive beneficiaries. States that fail to explicitly recognize the right to food in their constitutions are thus urged to do so.

c. Justiciability

The justiciable character of economic, social and cultural rights, including the right to food, must be promoted first of all by acknowledging their equal standing with civil and political rights. States are thus urged to ensure that the right to food be adjudicated by courts of law. Victims of violations of the right to food must possess the instruments to bring their case before national courts to seek an effective remedy or redress to the violation suffd. Entrenchment of the right to food in national legislation

States are advised to entrench the right to food in national law as a fundamental step in making that right effective. To this end, countries ought to either consider drafting a framework law on the right to food or, following a thorough review of existing legislation, enact sectoral legislation combined with specific laws in order to build a legal structure for the right.

Framework laws have the advantage that they address inter-sectoral issues (food certainly falls under this category), thus facilitating a coordinated and holistic approach. The framework law should define the scope and content of the right to food, set out the obligations of state authorities and private actors, establish institutional mechanisms and provide the legal basis for subsidiary legislation and other necessary measures to be taken by state authorities.⁶⁰

e. Laws and Policies

In the process of enactment of the right to food, the development of laws and policies at the local, national, and international levels must be founded on the principles of food security and sovereignty.

2. Food Security

The 1996 World Food Summit drew up the following definition of food security: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life".⁶¹

To achieve food security, states must fulfill the following conditions simultaneously:

- Food availability: an adequate supply of sufficiently nutritious and appropriate quality food must be available at all times.
- Food access: food availability does not necessarily guarantee access to food at the household, local, or national levels. Individuals must be able to gain physical and economic access to nutritionally, culturally and environmentally appropriate food and food resources.
- Food utilization: namely the body's ability to use the nutrients and other vital elements contained in food in order to meet their physiological needs. and reach a state of nutritional well-being. Food utilization may also depend on factors such as access to clean water, sanitation and food preparation and storage techniques.
- Food stability: access to adequate food must be guaranteed at all times in a stable manner.

Ensuring food security must become a top priority for governments. To this end, it is necessary to create a mechanism to coordinate government ministries and agencies, by setting up an interministerial body or committee, for example.

States should adjust national laws and policies to provide greater support to farming and other food-related practices capable of providing long-term and viable solutions for the many factors that affect food security.

In the short term, it is necessary to endorse the Special Rapporteur's recommendations on the five most basic and economically viable steps States can take immediately to address food security at the local level: nutritional education programs; school meals; encouragement of maternal breastfeeding; family gardens; monitoring of groups vulnerable to food insecurity; ensuring land title, microcredit, local cooperatives and access to water.

⁶⁰ Food and Agriculture Organization of the United Nations, 2009.

⁶¹ World Food Summit, 1996.

3. Food Sovereignty

Though there has been no unanimous agreement among states, multilateral institutions, NGOs and other stakeholders on the definition or principles of food sovereignty, we can refer to the definition elaborated by the 2002 Rome NGO/CSO Forum for Food Sovereignty Political Statement:

The right of peoples, communities, and countries to define their own agricultural, labor, fishing, food and land policies, which are ecologically, socially, economically, and culturally appropriate to their unique circumstances. It includes the true right to food and to produce food, which means that all people have the right to safe, nutritious and cultural appropriate food and to food-producing resources and the ability to sustain themselves and their societies.⁶²

The following prerequisites for food sovereignty derive from the above definition: i) the right of communities to determine their food and agricultural policies democratically; ii) priority to domestic or local production; iii) fair pricing including protection of local markets; iv) access to resources to produce food; v) recognition of the role of women in food production; vi) community-based control over food resources; vii) protection against patents on life or other potential restrictions on the free exchange and use of seeds by farmers, and viii) public investment in support farmers; ix) the right of communities to protect themselves from food or agricultural laws or policies that might provoke distortions or upheavals.

The guiding principles which can be extracted from the foregoing elements can be summarized as follows: States and the people within those states have the ability to democratically determine their own food and agricultural policies; the right to food security; viable and sustainable local and/or small scale agro-ecological food production; and, States and the people within those states have the right to protect themselves from potentially disruptive or distortive food or agricultural laws or policies of other States or people.

4. Specific Areas for Legislative and Policy Review

To ensure the right to food, food security and food sovereignty the following areas have been identified as crucial with an eye to a legislative and policy review.

a. Access to resources

In light of the fundamental role of resources such as land, water, fisheries, forests, genetic resources and seeds in ensuring food security and sovereignty to all peoples, states are asked to respect and protect the rights of individuals with regard to these resources. States must improve access to and the sustainable use and allocation of these resources among all segments of the population, within particular regard to vulnerable groups within society, such as indigenous peoples, women, the urban and rural poor and so forth.

States are urged to consider implementing an agrarian and land reform consistent with their human rights obligations in order to secure efficient, non-discriminatory and sustainable access to and utilization of land, with particular regard to vulnerable and marginalized groups and to those, such as rural communities, who depend on land for their livelihood. It is necessary to discourage excessive concentration of land ownership and encourage respect for traditional collective properties wherever they exist.

In places where communities, such as indigenous tribes, have been dispossessed of their land, states are asked to enact redistributive land reforms in their favor.

As a basic and immediate measure, states and local governments are urged to make land available for family gardens in both urban and rural areas, as this would help improve local food security from the domestic level.

Everyone should have equal access to drinking water on equal terms. States must ensure citizens the minimum quantity of safe drinking water and the minimum quantity of irrigation water to farmers. The privatization and commodification of water must be fought insofar as such processes have proved hard to apply and may provoke greater inequality in water access among vulnerable populations.

⁶² NGO/CSO Forum for food sovereignty, 2002.

States are called upon to adopt the legal instruments and supporting mechanisms to prevent the erosion and ensure the conservation and sustainable use of genetic resources for food and agriculture, including the development of measures designed to safeguard relevant traditional knowledge and non-discriminatory participation in the benefits resulting from the use of such resources.

b. Food safety

On the basis of the adequacy criterion in the right to food, states must ensure that all food is safe and consistent with national and international food safety standards. In view of the negative impact food safety standards may have on access to food and availability, states and the international community should adopt measures, such as giving small producers access to technologies for and providing support for investments to prevent or minimize such effects while facilitating compliance with safety criteria.

The defense of human health must be a crucial consideration so that all technological interventions in the production and preparation of food that have proved to be inconsistent with food safety standards must be opposed until it is scientifically demonstrated that they do not pose a risk for human and animal health. Analogous criteria should apply to the feeding of animals.

c. Subsidies and support for small-scale food production

Subsidies and other forms of economic support may be a tool for states ensure food security and promote food sovereignty. However, food and agricultural subsidies often favor large-scale agro-industries that produce large quantities of commodity crops, and are well removed from the practices of small local family or community farms. This creates barriers to market access by local or small-scale producers through the artificially low pricing of agro-industrial products, often the fruit of incentivized overproduction.

States are called upon to change the structure, measurement, allocation and disbursement of subsidies from the current preference for commercial and industrial agriculture to local, small-scale, sustainable food production. In addition, forms of indirect financial support, from national food coupons to collective catering, school meals in particular, should rely on this type of production. States should also consider the possibility of adopting other systems designed to support local and sustainable food production. For example, Geographical Indications (GI) could be a potentially matchless tool for numerous regions. Implemented consistently and systemically, they reflect and protect local traditional, cultural and agroecological features, and may be useful to local and regional governance insofar as they offer differentiation traceability, and respect for various standards, in line with the market's recent demand for food quality and safety.

d. International trade and transnational corporations

While recognizing that international trade may be a powerful and effective tool in contributing to the achievement of food security, current rules governing the international agricultural trade may have severe repercussions on the right to food. Countries may become dependent on international trade, for example, to the detriment of small-scale producers, whose participation is necessary to achieve food security.

States are called upon to comply with their international human rights obligation and to review trade agreements accordingly. New undertakings within the framework of bilateral, regional and multilateral trade agreements must not be accepted if they prove incompatible with the obligations resulting from the right to food.

States are further encouraged to increase their capacity to produce the food they need locally and nationally to avoid depending totally on international trade. In doing so, they should support small-scale local food production. Interventions might include measures such as credit support, crop insurance programs and support to public goods, such as environmental protection programs. Where necessary, in view of local food security needs, states should shift subsidies from large to small-scale farms thus lowering prices of local, healthy and sustainable food.

States must avoid adopting improper commercial practices (such as the dumping of subsidized food; that is, selling it cheaply on foreign markets to the detriment of local producers) that affect their enjoyment of the right to food.

States must assess the negative impact on the right to food of the action of private actors, such as transnational corporations, especially in view of their growing control over the production and provision of food and water.

Governments have the obligation to protect people against any negative impact that the activities of transnational corporations may have on the right to food. This, in turn, means that governments must monitor and regulate corporations at home and outside their borders. In addition, transnational corporations ought to have a direct obligation to respect the right to food, thus refraining from any form of behavior that might, whether directly or indirectly, give rise or contribute to violations of this right.

e. Food Aid

In view of the long-term negative consequences it may have on the right to food in recipient countries, food aid must be used with caution. It may in fact augment dependency in such countries, destabilizing local production, local markets and the national trading structure.

States are called upon to direct their aid in such a way as to improve national food security in recipient countries. They should limit the provision of food aid in kind as much as possible and recognize that other forms of aid—such as the encouragement of the production and purchase of food from small, local producers—may be preferable. Aid should therefore be used to increase local capacity, the most effective means for ensuring the long-term local food security of recipient-countries.

f. International financial institutions

The economic reform projects and programs promoted by bodies such as the World Bank, regional development banks and the International Monetary Fund can have direct and far-reaching consequences on the right to food and food security, especially in indebted countries. International financial institutions are urged to act in compliance with human rights principles and refrain from adopting policies or programs that violate or have negative repercussions on the right to food.

g. Genetic resources, intellectual property rights and the protection of biodiversity

Biodiversity is vital for human survival and food security and constitutes a global public good. Concerns over the potentially negative effects of the International Convention for the Protection of new Varieties of Plants and similar instruments, which include, but are not limited to, limitations on access to seed, the promotion of monocultures at the expense of biodiversity, and the restriction of farmers' rights, are therefore legitimate. States are called upon to ratify and implement the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and state authorities should demand an expansion of the list of crops subject to the Multilateral System of Access and Benefit Sharing envisaged by the treaty to enhance fair and equitable sharing of the benefits resulting from the use of such resources. Positive developments are the almost universal ratification of the Convention on Biological Diversity and the adoption of the Nagoya Protocol.

Farmers and indigenous communities have always played a vital role in the development and conservation of biological resources. National legislation must recognize the rights of farmers to save, use, exchange and sell seeds deriving from past, present and future selections, as well as farmers' rights to participate in the national decision-making process with regard to the management of agricultural biodiversity.

States must further ensure that the development of intellectual property rights regimes is compatible with and instrumental to the realization of the right to food. The introduction of intellectual property laws on plants and seeds may have severe repercussions on food sovereignty and security. If temporary monopoly privileges are granted to plant breeders, namely patent-owning corporations, the protection of the intellectual property in relation to seeds may lead to the decline of small-scale farming, make farmers in developing countries dependent on expensive seeds in order to ensure their means of subsistence, and endanger biodiversity through the spread of uniform commercial varieties.

Plant genetic resources constitute a common heritage and hence should not be subject to patenting for commerce but shared among farmers throughout the world.

States are urged to perform human rights impact assessments of intellectual property laws and policies especially in relation to seeds, both at the national level and when negotiating and implementing international trade agreements. States are further called upon to adopt sui generis systems for the protection of plant varieties, which allow farmers to continue exchanging and resowing seeds, as well as protecting the traditional knowledge and genetic resources of food communities. In this regard, governments should refrain from entering into trade or intellectual property-related agreements that restrict their ability to develop national sui generis systems to protect their plant varieties.

h. Vulnerable groups and non-discrimination

All the laws and policies recommended above must pay specific attention to vulnerable groups, such as indigenous peoples, women, children, the elderly and the sections of the population most subject to food-insecurity.

i. Accountability and monitoring

States are urged to establish an Authority on the right to food or extend the mandates of national human rights institutions, therein including the right to food. The Authority should perform independent monitoring functions, assist the government in the formulation and review of national laws and policies, and collect and disseminate information.

j. Education, information, awareness raising

Information is an essential prerequisite for people to be aware of their rights and be able to enjoy them effectively. States and all responsible authorities must also be aware of the rights of individuals and communities as part of their duty to protect the right to food. Sufficient information about the law and institutions entrusted with the task of protecting rights must be available, accessible and disseminated. Rights holders must, moreover, be informed that they may make recourse to judicial mechanisms and about how to do so.

7. PLEASURE AND WELL-BEING

5. Introduction

The ongoing debates around sustainable diets and food policy have centered mainly on the health and environmental implications of sustainability, while little attention has been devoted to the social aspect of food choices. However, insofar as food embodies culture, values, and identity, understanding the social dimension of food is equally important. Simply put, if food is not culturally acceptable it won't be eaten, hence the social dimension is highly relevant. An approach recognizing the perceived quality of food, made up of social values and health and environmental concerns should be taken into account when drawing up sustainable food policies.

Historically, governments have concentrated their attention on production and supply as opposed to ways of eating. Yet the food industry has long used the techniques of social science to understand changes in eating behavior and use them to their advantage. Among the factors that influence food choices, pleasure and taste have a priority importance, which affects questions most directly connected with sustainability.

6. Pleasure and Taste

Pleasure and taste are characterized by different values, so that determining whether a link exists between pleasure and sustainability is essential in strengthening the social dimensions of sustainable food policy. If we consider the concept of "good", it may possess or display moral virtues in terms of ethics and culture, or it may be geared to a particular purpose, such as nutrition and health, or it may entail giving pleasure and an enjoyable or satisfying taste. Whether pleasure can be experienced insofar as a food is perceived as "good" might be crucial key in shaping the food preferences in a sustainable diet.

It is thus important to underline how ethics, nutrition and aesthetics proceed apace, how food can be both healthy and respectful of the environment and society. The relationship between good and pleasure raises the question of whether taste and pleasure are objective or subjective and, above all, the difference between recognizing a quality and appreciating it as such. Many factors allow us to discuss and view pleasure from different points of view. This is sufficient to reflect upon social and cultural conditions, ethics and moral issues, education and knowledge and political considerations, which lead to questions central to the cognitive experience of pleasure, among which the following: how can pleasure and sustainability be linked?

What is "taste for food"? This is a very controversial question. Taste is connected to pleasure and, in a certain sense, may be regarded as a "tool" for food pleasure. Yet this kind of definition is too reductive, since tasting something means expressing values, and values are part and parcel of a society and a cult

Taste is often relegated to a purely physiological ambit. Nonetheless, though a pleasant taste may seem natural and immediate, it is important to point out that things are much more complex than that. According to the ecological theory of perception elaborated by Gibson,⁶³ taste can be seen as a "whole complex perceptual

⁶³ Ibidem.

system” involving both the senses and their connections to the brain, in a biological and cultural sense. More precisely, a perceptual system is a system in which the senses are used and directed by an active dimension, involving a human being’s dispositional, cultural and physiological factors. More precisely, Gibson argued that human flavor perception is multisensory, and his research has since been followed up by many psychologists.⁶⁴ According to the ecological approach to perception, our senses are not really separated from each other and from the surrounding context. Multisensory perception of flavor is thus indicative of the fact that the taxonomy of human senses does not correspond to the “real” perception in that our sensory system has to be considered holistically. This fact, corroborated by scientific research, is confirmed by everyday language, in which the word “taste” is used to describe a complex system. When it comes to the act of eating, we are faced by a multisensory perception categories: a unification of the qualities of taste and smell, but also of sight, touch and hearing unified by the act of eating (the importance of which is often underestimated) into a single percept. Gustatory pleasure depends on the interaction of these qualities.

Taste is a process and may thus be modified through experience and culture. Food is connected to taste and the same applies to pleasure. According to Berry,⁶⁵ the pleasure of eating should be an extensive pleasure, which involves not only the taste for food but also knowledge of its properties and origins. Indeed, it is argued that sustainable eating brings more pleasure because a causal relationship exists between a person who appreciates a certain food and his or her knowledge that it has been produced with respect for the natural environment. But is education enough? To what extent does the relationship between pleasure and knowledge hold? Information and education help us understand what to eat and how, but is pleasure related to what we eat and what we know? If the senses and the brain can be trained to promote “the cause of sustainability”, then it is possible not only to be aware of what we are consuming, but also to appreciate it.⁶⁶

Scientific evidence provides a neurological basis for our preferences, tastes and, at the other end of the scale, distaste.⁶⁷ Distaste allows us to avoid finding ourselves in harmful situations, though we can learn to overcome our sense of distaste, in some cases transforming it into pleasure. Children show distaste when they first encounter blue cheese or drink coffee, whereas most adults enjoy such foods. Cultural and societal attitudes play an important role in disgust. There are many foods that could be eaten by people but are not, because they are considered disgusting. Many of the world’s populations are entomophagous and eat insects that are harmful to crops—something which would be unthinkable in other societies. The force of cultural distaste may limit our ability to replace unsustainable traditional foods with other foods that have a lower carbon footprint.

Berry⁶⁸ has also hypothesized by that we are no longer conscious of what we are eating, and questions whether a “consumer would find eating a hamburger from an animal that has spent most of its life standing in its own excrement as pleasurable an experience if they were not ignorant”. It is thus possible that our detachment from the process of how our food is produced has hindered our natural response to distaste, which is designed to protect our health. Restoring consciousness of how our food is produced is, according to Berry, fundamental not only for enjoying the pleasure of eating, but for protecting our health and that of the environment.

7. Meat

The consumption of meat is often analogous with wealth and pleasure, as most recently witnessed in the dietary transition of emerging economies, where there has been a shift in eating patterns to include more meat. Yet the reduction of meat consumption is considered one of the top priorities for sustainable food policy. Hence the dilemma of whether meat is a natural pleasure that should be pursued at the expense of the environment or an important aspect of pleasure and sustainability that must be carefully examined.

⁶⁴ Auvray and Spence, 2008; Berry, 1990.

⁶⁵ Berry, 1990.

⁶⁶ Korsmeyer, 2002.

⁶⁷ Chapman, 2009.

⁶⁸ Berry, 1990.

Meat consumption is a complex, highly controversial subject. The debate is being carried on at a number of levels and with different approaches, from the most elementary and fundamental (meat as a food commodity with inputs and outputs) to the one that focuses on animal rights.⁶⁹ In are controversial positions encompassing everything from the ethics and sustainability of meat consumption to the evaluation of the quality of life of farm animals prior to slaughter. Cultural, social and health issues regarding meat consumption also need to be considered before elaborating a comprehensive sustainability policy. Many of those who argue that we cannot eat meat sustainably call into question the morality of its consumption. They point out that meat is unnecessary in nutritional terms. Others are concerned, above all, about the future of the environment of the planet, and stress the dire effects of industrial livestock farming: namely pollution, massive water consumption and the amount of grain required. The environmental question intertwines with the economic one: not only deforestation and monocultures but also an increase in the prices of raw materials. Then there is the big problem of the quality of the meat produced on industrial farms, where animals receive antibiotics every day and excessive portions of corn.

One very interesting and stimulating approach is flexitarianism, the philosophy of semi-vegetarianism involving a largely vegetarian diet with the occasional consumption of meat. It is not a question of never eating meat but of eating it ethically, consuming only that produced on sustainable farms, where animals are given feed with a low environmental impact and respected as living beings. These farms respect the principle of transparency along the entire supply chain, develop food culture and promote the idea that the quality and wholesomeness of food are connected to ethical values. If ethical concerns about meat consumption may also be perceived as a luxury or something that has little to do with the subsistence levels of the world's populations, on closer examination we realize nonetheless that this is not the way things are. Meat raised according to an intensive industrial model is in contrast with the contemporary needs of a society that requires new production models designed to achieve overall sustainability. Meat from intensive farms presents no advantages from any point of view—neither environmental nor sanitary nor cultural nor economic.

8. Diet

The general daily life regime—is that what the ancient Greeks meant by the term *dieta*? The regime encompassed sexual habits, quality and quantity of sleep, physical exercise and choice of food: a holistic vision that has progressively disappeared in the modern concept of “diet”. Today the complex and comprehensive question of sustainability recovers the ancient, authentic meaning of the concept. What is a good diet and why is it so hard to define and maintain healthy eating habits?

In their essays on the subject, Pollan & Shapin⁷⁰ help us reflect on the general meaning of “diet”, highlighting its connection with concepts such as “act of faith”, “duty” and “morality”. A proper diet does not only involve eating nutritiously: generally respecting one's own pleasure and well-being is also an essential, oft neglected, aspect of healthy living.

In his *In Defense of Food*, Pollan declares that we are in charge of our own “dietary salvation”. He proposes specific guidelines based on “common sense”: only what effectively looks like food, avoid health claims, choose familiar food items, eat locally produced food. Such suggestions are, as Shapin points out, effective and popular because they bring food close to the ordinary, everyday experience of people. What the general public wants is specific advice about food, today, but the plethora of sometimes contradictory information—which sometimes changes in a matter of months—based on the research of nutritional science. Through historical analysis and sociological research, Shapin shows that nutrition is a science situated in a context, hence historically determined. It is necessary to understand that nutritional guidelines are useful, if they are interpreted within a social and cultural context. In this sense, taste and pleasure—the pleasure of food, but also of conviviality, sharing and symbolic values—are as important as nutritional factors for a healthy diet. Diet is a concept that includes both nutrition and pleasure, which should no longer be considered as antithetical but rather as two elements that have to be harmonized. It must combine scientific research, cultural context (social and individual backgrounds) and political issues. It is very important to emphasize that a survey of the Western European and North American world has identified taste and cost as the first two factors that determine food choices. The survey asserts that, “[...] nutritional concerns, per se, are of less relevance to most people than taste and cost. One implication is that nutrition

69 Regan, 1983.

70 Pollan, 2008; Shapin, 2007.

education programs should attempt to design and promote nutritious diets as being tasty and inexpensive".⁷¹ In other words, the pleasure of food is a fundamental factor which policy makers should take into account to formulate new strategies to make the food system more sustainable. Traditionally, policy makers use social campaigns and labeling systems to inform consumers about the nutritional and environmental characteristics of food products, but their effectiveness is still a source of controversy.⁷² It is necessary to rethink the dynamics of food commerce and relationships within the supply chain, even though policy makers and economists privilege the theory of "consumer sovereignty" (namely freedom to decide what to buy), a systemic approach undoubtedly provides an interesting and effective opportunity to give life to a sustainable food system.⁷³

9. Recommendations

- Pleasure and well-being are social values and must be integrated into food policy. Since they form part of a healthy lifestyle, any dietary guideline must thus take them into account
- Sustainable dietary guidelines should be developed regionally to help environmentally-conscious consumers to make informed food choices.⁷⁴
- Attention to dietary rules in schools, workplaces and hospitals. In particular, the diets of pregnant women must be regarded as the point of departure to create a lasting relationship between tasty food, mental and physical health and the sustainable sources of the diet. It is thus important to supply pregnant women in economic difficulty with the means to enrich their diets through sustainable sources such as Community Supported Agriculture (CSA), urban farms and farmers' markets.
- Identification of the process whereby food is produced/processed helps consumers to understand and identify with the food they eat, and may thus become a source of pleasure. It is thus necessary to make as much information as possible accessible with regard to food in commerce.
- The decision to promote sustainable products may be a way to let consumers know that the foodstuffs they eat fulfill given ethical criteria and hence feel satisfied by their food choices.
- Policy makers must intervene to regulate the promotional activities in order to promote the consumption of seasonal, local products.

8. SUSTAINABLE EDUCATION

10. Introduction

In a world in which the economy and production are at the service of people and nature and not vice versa, education is a key resource for a better food future.

To achieve this goal, it is necessary to rethink development processes through the holistic lens of human needs, seeking to understand how to satisfy the latter to contribute to general wellbeing.

This approach demands a profound cultural change and the adoption of different ways of behaving and understanding. These are goals that can be achieved through education, which presupposes a hefty political investment in the sector.

To facilitate the adoption of sustainable food policies, it is fundamental to develop a new model of education based on didactic approaches and educational experiences and policies that promote sustainability.

This chapter has been written bearing in mind people who wish to become involved in education policies to promote food sustainability, but also professionals in the education field.

71 Glanz et al., 1998.

72 Lang e Heasman, 2004.

73 Ibidem.

74 National Food Administration e Swedish Environmental Protection Agency (2009) The National Food Administration's environmentally effective food choices, proposal notified to the EU.

The focus is on the educational approach we believe to be the most suitable and worthy of being developed. Here we outline the activities, methods and good practices that characterize this approach, and present suggestions for policies to encourage and create opportunities for this kind of education.

11. What future do we want?

A world with healthy ecosystems achieves harmony in relationships among people and in the relationship between people and the natural environment. Nature is not a commodity to be taken for granted, but needs to be considered in all its magnificent complexity and delicacy. We are part of it and depend on it: which is why we have to protect and respect it. We have to work to create a future in which we are more prepared to collaborate than compete, in which values such as solidarity, complicity, empathy and interdependence are considered key factors of a coherent development.

In this future world, production and consumption, especially of food and energy, will be expressions of healthy cultures, of reconnections and interconnections, not inconsiderate or brutal exploitations of man and nature.

12. What we need to get there?

In *Small is Beautiful*, E. F. Schumacher argued (not that things have changed a great deal) that the dominant modern belief is that the soundest foundation for peace would be universal prosperity. This economic theory and practice is born of the belief that only wealth can create the conditions to satisfy basic human needs. Schumacher went on to distinguish between financial poverty and absolute poverty. Communities which are not part of the global market economy and are considered poor by its parameters may experience a higher standard of living than communities that suffer absolute poverty. Though economic parameters indicate that they are unable to fulfill needs through monetary transactions, these needs may be fulfilled through a transaction of alternative capital, such as social capital.

After a century of economic development, and despite the quantum leaps made by science, there are no signs to suggest that the prosperity a minority of the world's population enjoys might ever be universal. On the contrary, every day we witness the failures of a system that deluded itself into thinking there are no limits to growth or resources. There is no reason to affirm that this path will lead us to wellbeing, harmony and peace.

All this is being fully recognized today by society as a whole, but an alternative to the current development process has yet to be identified and fully embraced. One of the obstacles is the difficulty in establishing whether one development process is better than another, and which one can lead us to the sustainable world we want.

In many countries, the alternative, "ironic" concept of GNH (Gross National Happiness) has been created in opposition to the universally used and revered GDP (Gross Domestic Product), and an ecological version of the indicator is also being created. The GDP increases with negative episodes, such as car crashes or deaths, which do not improve the quality of life, but stimulate market responses. Insofar as it is a quantitative tool for measuring economic activity, a short-sighted indicator like GDP is unable to capture the quality of life within a nation. The GDP is "an indicator of quantitative growth of objects of sorts", but there is no indicator to measure the growth of the overall quality of life. The best development process is the one that allows the greatest improvement in people's quality of life, hence that sets out to improve the lives of individuals and societies, giving them the chance to satisfy their fundamental needs. What these needs are and how they should be satisfied is another matter to be defined and agreed upon.

Manfred Max-Neef has developed a matrix of human needs—which he argues are interrelated and interactive and need to be understood as a system within which no hierarchy exists, with the sole exception of the need of subsistence—and satisfiers. The choice of satisfiers in a given time and place may well be what we call culture, he says.

It is thus necessary, through education, to build cultural systems capable of creating the conditions for people to satisfy their fundamental needs with adequate means.

If we apply these ideas to the matter of food, we foster a culture of good, clean and fair consumption and production,

in which people are motivated to approach food in a way that satisfies many needs at once. For example, using M. Max-Neef's matrix, food could satisfy the following needs: subsistence (energy, physical and mental health); protection (the maintaining of the integrity of ourselves, our community and nature); affection (respect for food and nature, better relationships with others); awareness (critical spirit and curiosity about where food comes from); participation (responsibility for what we choose to eat); time (for ourselves and shared with others during the long lunches/dinners enjoyed with friends and or family); creation (getting acquainted with food products and learning to cook and produce food); identity (cultivating a sense of belonging and identity through local food and the culture associated with it); freedom (freedom of choice of food, provided the choice is an informed one).

Many aspects need to be developed to respond to such a challenge: for example, for small-scale local initiatives that give people greater independence from the industrial food system and better protection from global fluctuations.

It is necessary, in addition, to support behaviors and values, such as solidarity, strong if translated into practice, meaningless if they are mere abstractions. They have to be perceived as real, and this is only possible if the value and mechanisms of solidarity are first implemented at a community level, taking into account the specifics of each community, place and surrounding environment. Opportunities have to exist to listen and observe, to practice and understand empathy and acceptance.

We also need to build bridges and interdependences between young and old, rich and poor, practical and academic knowledge, between different cultures.

This scenario cannot come to life if it fails to develop creative thinking and interdisciplinary research and action.

13. The education we would like

Education is the tool that allows us to understand the world and our place in it, thus allowing us to participate in it consciously. It is a process that helps develop new skills and sensitivities: a matrix of change insofar as it generates new and more responsible thinking and behavior.

Since education is a collective growth process that is fostered through exchange and debate, the sharing and respect of rules, negotiation and dialectics, it is necessary to rethink education methods, orienting them towards learning as opposed to teaching.

What is needed therefore is a form of education with the following characteristics:

- The teacher (trainer, lecturer or educator) is recognized as the facilitator of the learning process and valued as such.
- The learning group (which includes the teacher) is the main subject of our attention, on which teaching activities are based and developed.
- The education process is set in a given context, by which it is fuelled and whose knowledge and cultures it promotes.
- Participation, dialogue and free expression, cooperation, listening and mutual acceptance are essential elements, hence fostered and stimulated.
- The classroom is an open space which interacts with its surroundings through mutual exchange, receiving testimonies, encouraging knowledge networks and visits to places of culture, cultivation and cognition, and creating an enduring learning relationship.
- Understanding and assimilation are allotted the time due to them, and the need for different times within the group are recognized. The education process has a rhythm of its own.
- Activities are enjoyable, recreational and light-hearted, alternating moments of study with direct experience, play and practical know-how.
- Different points of view are welcomed and encouraged because they train people to develop dialectics and vision, to grasp multidisciplinary and connections between different subjects, and to address complexity as a resource for understanding the world and the reality in which we live.
- It is a complex process that involves the cognitive, experiential and emotional spheres of each participant in order to develop self-awareness and a better understanding of his or her role and actions.
- Education must fuel creative and regenerative thinking, be accessible to all, from the plains to the hills to the mountains, and at all ages, to avoid delegating the job of making improvements we could help make today to the

next generation.

- Education must focus on respect for the environment, common goods and the values of solidarity and interdependence, noting and managing contradictions rather than denying them.
- Education must recognize a scale of priorities, evaluating the durable and enduring as opposed to the ephemeral and facile.

We believe food is the ideal tool for putting such a structured, complex and creative education program to the test.

14. Is this concept of education practicable and feasible?

There are many connections between the education we have described and the present-day reality, despite the fact that in many parts of the world compulsory schooling is not regarded as a resource worthy of investment, but as a cost. The same is true of many companies with regard to personnel training and in towns and cities with regard to cultural debate and growth.

Yet, many experiences reveal growing sensitivity to the matter of sustainable education. Many local institutions and agencies have managed to synergize and harness assets and resources into education.

Here is a summary of the best practices we think local and national governments should implement to promote sustainable education:

- Introduce sustainable food education into all syllabuses, from primary school through to university. Sustainable food education should engage parents as well as students.
- Promote the setting up of learning communities and support popular education schemes.
- Support educational activities and projects on food and agriculture and to reintegrate on the edges of society (the elderly, prisoners, the disabled, the homeless, drug addicts).
- Encourage sustainable education by diversifying activities: school gardens, cooking courses, sensory learning and nature observation courses.
- Facilitate exchanges of teaching methods and experiences among educators: by creating national and international commissions, for example,
- Promote bottom-up educational projects and schemes.
- Give preference to a “learning by doing” approach to food and agriculture in all educational contexts, especially in universities.
- Connect education policies to existing policies to make them more effective on the ground.
- Define criteria for the purchase of good, clean and fair food in school cafeterias and facilitate local distribution of local products.
- Incentivize a virtuous relationship between schools and local producers to foster exchanges of knowledge and know-how and promote short supply.
- Fight “individualistic” teaching and learning methods: by encouraging people to return to and reclaim their collective spaces, for example.

Here are a few examples of educational experiences supported by these policies.

- The promotion of “learning communities” round school garden projects. A multidisciplinary group of people living in a given locality educate pupils and themselves by making available their own skills and knowledge. A school garden is a veritable open-air classroom in which children learn about the life cycles of fruit and vegetables, respect for nature and the seasons, and the importance of cultivating with an eye to soil fertility and resources invested and the role of biodiversity. They also learn to appreciate the value of teamwork and interdependence, of listening and dialogue.

The garden welcomes farmers, seed growers, cooks, local companies, grandparents and parents to share and contribute to the education of the pupils. It also allows people to explore the area in which they live and discover its distinctive social, cultural and traditional features.

Guided by neighborhood artisans, some students might thus learn to bake traditional local biscuits, or how to grind flour at their local mill and bake bread at the local bakery. Others might learn to harvest grapes, or discover the role

of farm animals and the secrets of the land and the woods.

The learning experience starts in the garden, continues in the classroom, goes out into the local area and proceeds in school cafeterias and at home. Of particular importance is sensory taste education, which helps children to find out about the link between food and place, taste and culture, as well as to recognize, choose and demand good, clean and fair food every day.

School gardens are to be found all over the world: from the *orti di pace*, or peace gardens, of Italy across to Michelle Obama's White House gardens—an example of social and family school gardens—to the so-called “therapy gardens” that are currently springing up in hospitals, psychiatric clinics and schools.

Thanks to the far-sightedness passion of their headmasters, the passion of their teachers and the support of institutions, some schools also run courses on geography and history seen through the lens of food—an unusual and enjoyable way of finding out more about than area's landscape, economy and past.

- In Italy, agreement protocols have been signed by schools, universities, communes, associations (for example, Slow Food), foundations, rest homes and other local authorities to bring the garden experiences into schools. The economic resources available are often limited, but these protocols will nonetheless play a leading role in creating networks and exchanging knowledge at the local level.

- In 2010, *cibo e scuola*, food studies, was added to the syllabus of Italian primary schools, where teachers and headmasters organize a wide range of relevant activities. This is a functional way of initiating multidisciplinary courses to promote healthier food purchases and consumption and also to favor the integration of different cultures in the classroom. This is a national educational policy promoted by the Ministry of Education, and will be extended to universities over the next few years.

- The program entitled *Guadagnare salute: rendere facili le scelte salutary* (Gaining health: making healthy food choices easy) is another example of political planning and synergy among regional institutions and grassroots organizations. The program, promoted by the Ministries of Health, Education, Sport and Youth Policies, involved companies, associations and trade unions in capillary education activities designed to promote correct, healthy nutrition and physical fitness physical and to fight tobacco and alcohol abuse.

- The European Union's Food 4U campaign on the importance of informed food choices involves 16 countries and six million students of 14-19 years of age. It encourages them to play an active role in exploring the world of food by producing a short video on healthy food. The teacher facilitates the learning process and the approach is one of creative language; the regions are at the student disposal and European institutions reward the best works.

- The Maria Montessori Foundation in Chiaravalle, in the Marche region of Italy, was set up to disseminate the values Maria Montessori, an influential educator in the early 20th century, a follower of the activist thinking of Dewey. Montessori promoted an educational model for the development of the culture of peace, sustaining and consolidating dialogue and understanding among peoples. In a speech in Brussels in 1936, she declared that avoiding wars is the job of politics, but that building peace is the job of education. She aimed her message at children, whom she saw as being capable of developing creative energies. The Montessori Foundation in Chiaravalle spreads these values locally and worldwide (in Brazil, Russia and Scandinavia, for example) by organizing training courses for teachers, and theme conferences and workshops in schools, one such being a course to discover the local area and its agrifood production through sensory experience, a way of understanding and reflecting on what we eat and the intrinsic tie between food, place and cultures.

- A contemporary of Montessori was the Austrian pedagogue and philosopher Rudolf Steiner who, besides making a notable contribution to the development of anthroposophy, defined the educational foundations of the more than 8000 schools that take his name round the world. His educational theories flourished after World War I, accompanying the profound changes in social life then so necessary. They are based on the concept of learning throughout life from life itself, on the rhythm of memory and oblivion (what I forget is transformed into skill), on the harmonious development of manual, affective, emotional and rational skills, on the importance of stimulating at once individual and social to educate healthy, proactive generations. Steiner schools teach pupils the ability

to embrace and understand the outside world through the senses to develop rigorous reflective thinking, motorial activities, the development of the imagination, expressivity and creativity to stimulate initiative and activity.

Policies that promote sustainable education create synergy and a shared vision and raise the profile of the regional heritage and cultural exchange. They promote a hands-on, not virtual, education, a pleasant and collective experience that helps people build and shape the environment in which they live. They are designed to fight social disaggregation, inequality, conflict and psychophysical unease, individualism and solitude in learning and living.

Through sustainable education we can facilitate the cultural and social change needed to live more sustainably and harmoniously, ensuring that the right to good, clean and fair food is effective and respected.

LIST OF ABBREVIATIONS AND ACRONYMS

CBD: Convention on Biological Diversity
CSA: Community Supported Agriculture
CSO: Civil Society Organization
FAO: Food and Agriculture Organization of the United Nations
GDP: Gross Domestic Product
IAASTD: International Assessment of Agricultural Knowledge, Science and Technology for Development
GI: Geographical Indications
GMO: Genetically Modified Organism
ITPGRFA: International Treaty on Plant Genetic Resources for Food and Agriculture
MFI: Microfinance institution
NGO: Non Governmental Organization
TRIPS: Trade-related aspects of intellectual property rights
UN: United Nations
UNESCO: United Nations Educational, Scientific and Cultural Organization
WTO: World Trade Organization

BIBLIOGRAPHY

- Altieri, M. A. (1987). *Agroecology: the scientific basis of alternative agriculture* (2nd ed.). Boulder, CO: Westview Press.
- Altieri, M. A. (1999, June). The ecological role of biodiversity in agroecosystems. *Agriculture, Ecosystems & Environment*, 74(1), 19-31
- American Academy of Pediatrics Committee on Communication (2006) "Children, adolescents, and Advertising", *Pediatrics*, 118, 6, pp. 2563-2569
- G. Anders (2003). *L'uomo è antiquato. Considerazioni sull'anima nell'epoca della seconda rivoluzione industriale*. Torino: Bollati Boringhieri (Original version published in German in 1956)
- Aslaksen, I., Flaatten, A., & Koren, C. (1999). Introduction: Quality of Life Indicators. *Feminist Economics*, 5(2), 79-82.
- Augé, M. (2009). *Che fine ha fatto il futuro? Dai non luoghi al non tempo*. (G. Lagomarsino Trans.). Milan, Italy: Eleuthera. (Original work published in French 2008)
- Auvray, M., & Spence, C. (2008, September). The multisensory perception of flavor. *Consciousness and Cognition*, 17(3), 1016-1031.
- Barbero, S. (2010) "Systemic Design In The Energy Sector: Theory And Case Studies", in *Management of Technology Step to Sustainability Production*, Conference article (Rovinj, 2-4 giugno 2010)
- Bauman, Z. (2007). *Homo consumens. Lo sciame inquieto dei consumatori e la miseria degli esclusi*. Trento, Italy: Erickson. (Original work published in English, 2005)
- Beitel, K. (2005). US farm subsidies and the farm economy: myths, realities, alternatives. *Backgrounder*, 11(3).
- Benjamin, A. (2007, November 29). *Stern: climate change a «market failure»*. *The Guardian*.
- Berkes, F., Folke, C., & Gadgil, M. (1995). Traditional ecological knowledge, biodiversity, resilience and sustainability. In C. A. Perrings, K. Mäler, C. Folke, C. Holling, & B. Jansson (Eds.), *Biodiversity conservation: problems and policies*. (pp. 281-299). Dordrecht, Netherlands: Kluwer Academic Publishers.
- Berry, W. (1990). *What are people for?* San Francisco, CA: North Point Press.
- Bistagnino, L. (2009). *Design sistemico: progettare la sostenibilità produttiva e ambientale*. Bra, Italy: Slow Food Editore.
- Borras, S. M. (2008). *Competing views and strategies on agrarian reform*. Quezon City, Philippines: Ateneo de Manila University Press.

- Bosshard, A., Reinhard, B. R., & Taylor, S. (Eds.), (2009). Guide to biodiversity and landscape quality in organic agriculture. Bonn, Germany: IFOAM
- Bravo, G. L. (2005). La complessità della tradizione. Festa, museo e ricerca antropologica. Milan, Italy: FrancoAngeli.
- Bravo, G. L., & Tucci, R. (2006). I beni culturali demoetnoantropologici. Rome, Italy: Carocci.
- Brown, L. R. (2009). Plan B 4.0: mobilizing to save civilization. New York, NY: W. W. Norton & Company.
- Bruner, J. S., Jolly, A., & Sylva, K. (Eds.). (1976). Play: its role in development and evolution. New York, NY: Basic Books.
- Buiatti, M. (2010) "Biodiversity and ecosystems", lecture at the Advanced School in Sustainability and Food Policies, Università di Scienze Gastronomiche (www.unisg.it)
- Caillois, R. (2001). Man, play and games. (M. Barash, Trans.). Champaign, IL: University of Illinois Press. (Original work published 1958)
- Caldicott, H. (2006). Nuclear power is not the answer. New York, NY: The New Press.
- Capra, F. (2000). Ecology, Community, and Agriculture. Berkeley, CA: Center for Ecoliteracy.
- Capra, F. (2005). Ecoalfabeto. L'orto dei bambini. Viterbo, Italy: Stampa Alternativa. (Original work published in English, 2000)
- Chapman, H. A., Kim, D. A., Susskind, J. M., & Anderson, A. K. (2009, February 27). In bad taste: evidence for the oral origins of moral disgust. *Science*, 323(5918), 1222-1226.
- Clark, J. E. (1998). Taste and flavour: their importance in food choice and acceptance. *Proceedings of the Nutrition Society*, 57(4), 639-643.
- Clergue, B., Amiaud, B., Lasserre-Joulin, F., & Plantureux, S. (2005). Biodiversity: function and assessment in agricultural areas: a review. *Agronomy for Sustainable Development*, 25(1), 1-15
- Committee on Economic, Social and Cultural Rights. (1999, May 12). General Comment 12, in *The right to adequate food (Art.11)*, E/C.12/1999/5.
- Consoli, A. (2010). "Advancing the third industrial revolution: a new sustainable model for food and energy." *Terra Madre*. Turin, 22 Oct. 2010
- Counihan, C. (1999). *The anthropology of food and body: gender, meaning, and power*. New York, NY: Routledge.
- Database of State Incentives for Renewables and Efficiency (DSIRE), www.dsireusa.org, 2010
- Dewey, J. (1997) *Democracy and Education: An Introduction to the Philosophy of Education*, The Free Press, New York
- Eide, A., Oshaug, A., & Eide, W. B. (1991). Food Security and the Right to Food in International Law and Development. *Transnational Law and Contemporary Problems*, 1(2), 415-467.
- Esquinas-Alcázar, J. (2005, December). Protecting crop genetic diversity for food security: political, ethical and technical challenges. *Nature Reviews Genetics*, 6, 946-953.
- Food and Agriculture Organization of the United Nations. (1999). "Agricultural biodiversity." *Multifunctional Character of Agriculture and Land Conference*. Maastricht, 12-17 Sept. 1999
- Food and Agriculture Organization of the United Nations. (2006). *The right to food in practice: implementation at the national level*. Rome, Italy: FAO.
- Food and Agriculture Organization of the United Nations. (2007). *Right to food: lessons learned in Brazil*. Rome, Italy: FAO.

- Food and Agriculture Organization of the United Nations. (2009). Guide on legislating for the right to food. Rome, Italy: FAO.
- Food and Agriculture Organization. (n.d.). The right to food: fact sheet. In World Food Summit: 5 years later. Retrieved from www.fao.org/worldfoodsummit
- Federal Ministry of Food, Agriculture and Consumer Protection. (2010). Improving governance for food security and nutrition. Policies against Hunger VIII International Conference. Berlin.
- FoodFirst Information and Action Network (2010), Improving Governance for Food Security and nutrition - Policies against Hunger VIII (International Conference, Berlin 9-11 June 2010)
- Fröebel, F. (2001). The Education of man: the origins of nursery education: the Frobelian Experiment (history Of British Educational Thought). New York, NY: Routledge. (Original work published 1826)
- Gibson, J. (1966). The senses considered as perceptual systems. Boston, MA: Houghton Mifflin.
- Giovannucci, D., Josling, T., Kerr, W., O'Connor, B., & Yeung, M. T. (2009). Guide to Geographical Indications: linking products and their origins. Geneva, Switzerland: ITC.
- Gips, T. (2010). Sustainability and the natural step framework: creating a win-win-win for business, communities and the earth. In Alliance for Sustainability. Retrieved from <http://www.afs.nonprofitoffice.com/>
- Glanz, K., Basil, M., Maibach, E., Goldberg, J., & Snyder, D. (1998). Why Americans eat what they do: taste, nutrition, cost, convenience, and weight control concerns as influences on food consumption. *Journal of the American Dietetic Association*, 98(10), 1118-1126.
- Goody, J. (1977). The domestication of the savage mind. Cambridge, UK: University of Cambridge.
- Grimaldi, P. (1993). Il calendario rituale contadino. Il tempo della festa e del lavoro fra tradizione e complessità sociale. Milan, Italy: FrancoAngeli.
- Grimaldi, P. (1996). Tempi grassi tempi magri. Turin, Italy: Omega.
- Gwartney, J. D., Stroup, R. L., & Studenmund, A. H. (1987). *Microeconomics: Private and Public Choice* (4th ed.). San Diego, CA: Harcourt Brace Jovanovich.
- Harper, M. (2010). Microfinance and the preservation of poverty. *Spanda Journal*, 1(2), 7-14.
- Harris, M. (2006). Buono da mangiare: enigmi del gusto e consuetudini alimentari. (P. Arlorio Trans.). Turin, Italy: Giulio Einaudi editore. (Original work published in English, 1985)
- Hirst, P. H., & Peters, R. S. (1970). The logic of education. London, UK: Routledge.
- Holt-Giménez, E., Patel, R., & Shattuck, A. (2009). Food rebellions: crisis and the hunger for justice. Cape Town, South Africa: Fahamu Books & Pambazuka Press; Oakland, CA: Food First Books; Boston, MA: Grassroots International
- International Assessment of Agricultural Knowledge, Science and Technology for Development. (2009). Agriculture at a crossroads: a global report. Washington, DC: Island Press.
- Jackson, T. (2008). The challenge of sustainable lifestyles. In The Worldwatch Institute, State of the world 2008: innovations for a sustainable economy (pp. 45-61). London: Earthscan Publications.
- Jackson, T. (2009). Prosperity without growth: economics for a finite planet. London, UK: Earthscan Publications.
- Kagarlitsky, B. (2010, July 19). A burning wake-up call. *The Moscow Times*.
- Kay, C., Borras, S. M., & Lahiff, E. (Eds.). (2008). Market-led agrarian reform: trajectories and contestations. London: Routledge.
- Kingsley, A., & Whittam, B. (2005, May). Wind turbines and birds: a background review for environmental assessment. Retrieved from <http://www.energy.ca.gov/>
- Klein, A., Vaissière, B. E., Cane, J. H., Steffan-Dewenter, I., Cunningham, S. A., Kremen, C., & Tscharntke, T. (2007, February 7).

- Importance of pollinators in changing landscapes for world crops. *Proceedings of the Royal Society*, 274(1608), 303-313.
- Korsmeyer, C. (2002). Delightful, delicious, disgusting. *The Journal of Aesthetics and Art Criticism*, 60(3), 217-225.
- Lang, T., & Heasman, M. (2004). *Food wars: the battle for mouths, minds and markets*. London, UK: Earthscan.
- Langston, R. H., & Pullan, J. D. (2003). Windfarms and birds: an analysis of the effects of windfarms on birds, and guidance on environmental assessment criteria and site selection issues. Retrieved from www.birdlife.co.za
- Latouche, S. (2008). *Breve trattato sulla decrescita serena*. (F. Grillenzoni, Trans.). Turin, Italy: Bollati Boringhieri.
- Le Féon, V., Schermann-Legionnet, A., Delettre, Y., Aviron, S., Billeter, R., Bugter, R., ... Burel, F. (2010, April 15). Intensification of agriculture, landscape composition and wild bee communities: a large scale study in four European countries. *Agriculture, Ecosystems & Environment*, 137(1-2), 143-150.
- Loh, J., & Harmon, D. (2005). A global index of biodiversity. *Ecological Indicators*, 5, 231-241.
- Luft, J. (1984). *Group processes: an introduction to group dynamics* (3rd ed.). Palo Alto, CA: Mayfield Publishing.
- Max-Neef, M. (1991). *Human scale development: conception, application and further reflections*. New York, NY: The Apex Press.
- Millennium Ecosystem Assessment (2005) *Ecosystems and Human Well-being: Biodiversity Synthesis*, World Resources Institute, Washington
- Mintz, S. (1986). *Sweetness and Power: The Place of Sugar in Modern History*. New York, NY: Penguin.
- Mitthal, A. (2009, June). The 2008 food price crisis: rethinking food security policies (G-24 Discussion Paper Series). United Nations conference on Trade and Development. Retrieved from <http://www.unctad.org/>
- Montanari, M. (2005). *Il cibo come cultura*. Bari, Italy: Laterza.
- Morin, E. (2001). *I sette saperi necessari all'educazione del future*. (S. Lazzari, Trans.). Milan, Italy: Cortina Raffaello Editore. (Original work published in French, 1999).
- Munjeri, D. (2004, May). Tangible and intangible heritage: from difference to convergence. *Museum international*, 56(1-2), 12-20.
- Nas, P. J. (2002). Masterpieces of oral and intangible culture: reflections on UNESCO world heritage list. *Current Anthropology*, 43(1), 139-148.
- Livsmedelsverket. (2009). The National Food Administration's environmentally effective food choices. Retrieved from <http://www.slv.se/>
- Nestle, M. (2007). *Food politics: how the food industry influences nutrition and health*. Berkeley, CA: University of California Press.
- Odum, E. P., & Barrett, G. W. (2005). *Fundamentals of ecology*. Belmont, CA: Thomson Brooks/Cole.
- Ong, W. J. (1982). *Orality and literacy: the technologizing of the word*. London, UK: Methuen.
- Patel, R. (2008). *Stuffed and starved: the hidden battle for the world food system*. New York, NY: Melville House.
- Patel, R. (2009, July). What does food sovereignty look like? *The Journal of Peasant Studies*, 36(3), 663-706.
- Patel, R. (2010). *The value of nothing: how to reshape market society and redefine democracy*. New York, NY: Picador.
- Pauli, G. (2010). *The Blue Economy: 10 years, 100 innovations, 100 million jobs*. Taos: Paradigm Publications.
- Perret-Clermont, A., Pontecorvo, C., Resnick, L. B., Zittoun, T., & Burge, B. (Eds.). (2003). *Joining society: social interaction and learning in adolescence and youth*. Cambridge, UK: Cambridge University Press.

- Petrini, C. (2005). *Buono, pulito e giusto. Principi di nuova gastronomia*. Turin, Italy: Einaudi.
- Petrini, C. (2009). *Terra madre. Come non farci mangiare dal cibo*. Florence, Italy: Giunti Editore; Bra, Italy: Slow Food Editore
- C. Petrini (2010), "Pannelli solari via dalle campagne, stanno meglio in città", *La Repubblica*, 17 April.
- Piaget, J., & Inhelder, B. (1972). *The psychology of the child* (2nd ed.). New York, NY: Basic Books.
- Polanyi, K. (2001). *The great transformation* (2nd ed.). Boston, ME: Beacon Press.
- Pollan, M. (2008). *In defense of food: an eater's manifesto*. London, UK: Penguin Press.
- Porporato, D. (2002). *Archiviare la tradizione. Beni culturali e sistemi multimediali*. Turin, Italy: Omega.
- Regan, T. (1980). Utilitarianism, vegetarianism and animal rights. *Philosophy & Public Affairs*, 9(4), 305-324.
- Regan, T. (1983). *The case for animal rights*. Berkeley, CA: University of California Press.
- Reijntjes, C., Haverkort, B., & Waters-Bayer, A. (1992). *Farming for the future: an introduction to low-external-input and sustainable agriculture*. London, UK: Macmillan.
- Rifkin, J. (2009). *The empathic civilization: the race to global consciousness in a world in crisis*. New York, NY: Tarcher.
- Rogers, A. K. (1919). The place of pleasure in ethical theory. *The Philosophical Review*, 28(1), 27-46.
- Sapienza, S. (2010). Microfinance: yesterday, today and tomorrow. *Spanda Journal*, 1(2), 29-31.
- Schumacher, E. F. (1973). *Small is beautiful*. London, UK: Blond & Briggs.
- Sen, A. (1982). *Poverty and famines: an essay on entitlement and deprivation*. Oxford, UK: Clarendon Press.
- Seyfang, G. (2006). Ecological citizenship and sustainable consumption: examining local organic food networks. *Journal of Rural Studies*, 22(4), 383-395.
- Shapin, S. (2007). Expertise, common sense, and the Atkins diet. In J. Porter and P. W. B. Phillips (Eds.), *Public science in liberal democracy*. (pp. 174-193). Toronto, Canada: University of Toronto Press.
- Shapley, D. (2008, February 28). Rich nations running up ecological debt. *The Daily Green*.
- Shiva, V. (1988). *Development, ecology and women*. In V. Shiva, *Staying alive: women, ecology and survival in India*. New Delhi, India: Kali for Women
- Smith, G. A., & Williams, D. R. (1999). Introduction: re-engaging culture and ecology. In G. A. Smith & D. R. Williams (Eds.), *Ecological education in action: on weaving education, culture and the environment*. (pp. 1-21). Albany, NY: State University of New York Press
- Smith, L., & Natsuko, A. (2009). *Intangible heritage*. London, UK: Routledge.
- Smukler, S. M., Sánchez-Moreno, S., Fonte, S. J., Ferris, H., Klonsky, K., O'Geen, A. T., ... Jackson, L. E. (2010, October 15). Biodiversity and multiple ecosystem functions in an organic farmscape. *Agriculture, Ecosystems & Environment*, 139(102), 80-97.
- Staccioli, G. (2008). *Il gioco e il giocare. Elementi di didattica ludica*. Rome, Italy: Carocci.
- Steiner, R. (2009). *Arte dell'educazione. Vol. 1: antropologia*. (L. Schwarz Trans.). Milan, Italy: Editrice Antroposofica (Original work published
- Steiner, R. (2010). *Insegnamento e conoscenza dell'uomo*. Milan, Italy: Editrice Antroposofica
- Stiglitz, J. E., Sen, A., & Fitoussi, J. (2009). Report by the commission on the measurement of economic performance and social

progress. In Commission on the Measurement of Economic Performance and Social Progress. Retrieved from www.stiglitz-sen-fitoussi.fr

Technical Advisory Committee-Consultative Group for International Agricultural Research. (1989). Sustainable agricultural production: implications for international agricultural research. Rome, Italy: Food and Agriculture Organization.

Tasch, W. (2008). *Slow Money*. Hartford, VT: Chelsea Green Publishing.

Tecco, N., & Fassio, F. (2008). Il kilometro del giudizio: la distanza ed altri parametri per un quadro agricolo sostenibile. *Slowfood*, 37, 160-164.

Reuters. (2010, September 2). Mozambique bread riots spread as police shoot protesters dead. *The Guardian*.

Tudge, C. (2007). *Feeding people is easy*. Pari, Italy: Pari Publishing.

United Nations Educational, Scientific and Cultural Organisation. (2005). *Masterpieces of the Oral and Intangible Heritage*. Paris, France: UNESCO.

United Nations Special Rapporteur on the Right to Food. (2008, January 10). Report of the special rapporteur on the right to food (Jean Ziegler), A/HRC/7/5. In *Right to Food*. Retrieved from www.righttofood.org

United Nations Special Rapporteur on the Right to Food. (2008, September 8). Report of the Special Rapporteur on the right to food submitted in accordance with resolution S-7/1 of the Human Rights Council (Mr. Olivier de Schutter), A/HRC/9/23. In Olivier De Schutter United Nations Special Rapporteur on the Right to Food. Retrieved from www.srfood.org

United Nations Special Rapporteur on the Right to Food. (2009, February 4). Mission to the World Trade Organization, A/HRC/10/5/Add.2. In Olivier De Schutter United Nations Special Rapporteur on the Right to Food. Retrieved from www.srfood.org

United Nations Special Rapporteur on the Right to Food. (2010, May). Countries tackling hunger with a right to food approach. Significant progress in implementing the right to food at national scale in Africa, Latin America and South Asia, Briefing note 01. In Olivier De Schutter United Nations Special Rapporteur on the Right to Food. Retrieved from www.srfood.org

United Nations Special Rapporteur on the Right to Food. (2010, September). *Food Commodities Speculation and Food Price Crises. Regulation to reduce the risks of price volatility*, Briefing note 02. In Olivier De Schutter United Nations Special Rapporteur on the Right to Food. Retrieved from www.srfood.org

United Nations World Commission on Environment and Development. (1987). *Our Common Future*. Oxford, UK: Oxford University Press

Vandermeer, J., & Perfecto, I. (2005). *Breakfast of biodiversity: the political ecology of rain forest destruction*. Oakland, CA: Food First Books.

Vincentini, R., & Bruno, L. (2008, July). Design and new horizons of systemic internations: technology and application innovation for a holistic approach to problems. *Changing the Change: Desing visions proposals and tools proceedings*. Turin: Umberto Allemandi.

Vygotskij, L. S. (1997). *Educational Psychology*. Boca Raton, FL: St. Lucie Press.

Watson, J. L., & Caldwell, M. L. (Eds.). (2005). *The cultural politics of food and eating. A reader*. Oxford, UK: Wiley-Blackwell.

Wiemken, V., & Boller, T. (2002, August). Ectomycorrhiza: gene expression, metabolism and the wood-wide web. *Current Opinion in Plant Biology*, 5(4), 355-361.

Wijkman, A. (2005) "Insights in Policy making to support systems", Conferenza (Torino, 10 novembre 2005)

Woodley, E., Crowley, E., Dey de Pryck, J., & Carmen, A. (2006, September). Cultural indicators of indigenous peoples' food and agro-ecological systems. In *SARD News*. Retrieved from www.fao.org/sard

Young, S., & Mittal, A. (2008, May). Food price crisis: a wake up call for food sovereignty. In *The Oakland Institute*. Retrieved from www.oaklandinstitute.org

Zamagni, S. (2010) "Fast Consumerism, Slow Philosophy, and Food Policies", lezione alla facoltà di Economia dell'Università di Bologna

ADDITIONAL DOCUMENTS

Convention on Biological Diversity. (1992, June 5). Rio de Janeiro.

Convention on the Rights of the Child. (1989, November 20). New York.

International convention on the elimination of all forms of racial discrimination. (1965, December 21). New York.

Convention on the elimination of all forms of discrimination against women. (1979, December 18). New York.

Declaration on the role of agricultural biodiversity in addressing hunger and climate change. (2010, September 16). Cordoba.

Food and Agriculture Organization of the United Nations. (2001, November 3). International treaty on plant genetic resource for food and agriculture. Rome.

Food and Agriculture Organisation of the United Nations. (2004, November). Voluntary guidelines on the progressive realization of the right to adequate food in the context of national food security. Rome.

Forum for Food Sovereignty. (2007, February 23-27). Nye 'le 'ni Declaration. Selingue.

International convention for the protection of new varieties of plants. (1961, December 2). Paris.

Millennium Summit. (2000, September). United Nations Millennium Declaration. New York.

Food sovereignty: a right for all. Full Political Statement of the NGO/CSO Forum for Food Sovereignty. (2002, June 8-13). Rome.

International Covenant on Economic, Social and Cultural Rights. (1966, December 16). New York.

WEBSITES

Alliance for Sustainability: www.afs.nonprofitoffice.com

Association for the Advancement of Sustainable Education in Higher Education: www.asshe.org

BirdLife South Africa: www.birdlife.co.za

Buck Institute for Education: www.bie.org

Cambridge Dictionaries Online: dictionary.cambridge.org Efficiency: www.dsireusa.org

Center for Ecoliteracy: www.ecoliteracy.org

Chattahoochee Technical College: www.chattahoocheetech.edu

Collaborative for Academic, Social, and Emotional Learning: www.casel.org

Energy Information Administration: www.eia.doe.gov

Food and Agriculture Organization: www.fao.org

Fondazione Slow Food per la Biodiversità Onlus: www.fondazioneSlowfood.it

Grameen Foundation: www.grameenfoundation.org

Granai della memoria: www.granaidellamemoria.it

Jean Ziegler's website: www.righttofood.org

Oakland Institute: www.oaklandinstitute.org

Second Nature: www.secondnature.org

Slow Food: www.slowfood.it

Sustainable Food Policy Project: www.sustainablefoodpolicy.org

Terra Madre: www.terramadre.info

The Promise of Place: www.promiseofplace.org

United Nations Special Rapporteur on the Right to Food: www.srfood.org

Yale Sustainable Food Project: www.yale.edu/sustainablefood

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