

# red sugar, green deserts



**Latin American report on monocultures and violations of the human rights to adequate food and housing, to water, to land and to territory**

*red sugar,  
green deserts*

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Doña María protesting against water pollution caused by a pineapple company in Comunidad de la Perla,  
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A few words on the term *campesino*.

In the translation of this Report, we have struggled with the proper translation of the term *campesino*. Small-holding farmer? Peasant? None seemed to capture the full richness of who the *campesino* is and all that he or she represents.

In Latin America as in other continents, the *campesinos* and *campesinas* are the rural residents dedicated to cultivation of a varying selection of staple crops and perhaps small livestock production on generally small plots, first and foremost for their own family and community subsistence, with any surplus and some complementary products directed to local or regional markets.

The crops are often planted with seeds gathered by each individual farmer from the best of the previous year's family harvest, in a selection process oriented to produce the best possible yield in the very particular conditions of each family's own piece of land. In many communities there is no need for fences between neighboring plots because the subtle difference in shade of green or leaf form leaves no doubt as to where one farmer's crop ends and his neighbor's begins.

Although many *campesinos*, in particular in the southern regions, may not have a legally-binding document that says so, the land is generally theirs. In many cases it is land handed down across decades or even centuries from generation to generation. In other cases, they are much more recently acquired plots. Possession or tenure regimes over these lands vary widely among countries and even among regions within the same country. It may be communal, common-property, or indigenous territory, or it may be land assigned with individual property deeds following an agrarian reform process, or it may have simply been purchased by the individual family. The *campesinos* y *campesinas* themselves also vary widely in their origin. In Latin America they are often *mezizgo* –mixed race– or may be indigenous, or in fact of European descent.

Alongside the severe loss of biodiversity documented in this report, it is also a chronicle of the rapid extinction of the Latin American *campesino*, active guarantor of biodiversity, and pillar of local, state, regional and continental food sovereignty. For this motive, we have chosen to preserve and use this irreplaceable term borrowed from Spanish throughout this Report.

Jodi Grabl



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# *Presentation*

## MONOCULTURES: ON THE FRONTIER OF HUMAN RIGHTS

What are the limits of human rights language? To what point can it be used as a tool for critical analysis?

The collection of texts gathered in this volume offers a rich panorama of situations to put these questions to the test. The scenarios documented here reflect a global trend: the concentration of resources and agrarian production in favor of a sole crop model: industrial monoculture. The diverse articles serve to identify ways in which this global trend specifically manifests itself in the different countries discussed. At the same time, they also have the merit of applying use of human rights language to critically evaluate these situations.

It is not a simple task. Human rights theory is heavily charged with the historic legacy of the Holocaust and the dictatorship model: it was formulated primarily in response to situations in which State agents, more or less openly, deprived persons of their lives or affected their physical integrity or freedom. In truth, human rights theory and norms go significantly beyond this model, but there is no doubt that the drama of said scenarios has determined that a large part of the intellectual and symbolic resources related to hu-

man rights are focused around these themes: forced disappearances, torture, extrajudicial executions, and illegitimate deprivations of freedom. In other areas, the certainties are less categorical, and the development of an adequate conceptual framework is relatively recent or incipient.

The key word to keep in mind when evaluating the situations illustrated in this volume is complexity. While cases in which an authoritarian State directly commits violations through its agents allow relatively simple categorization, the examples discussed in this book demand broader analytical criteria, capable of distinguishing situations, actors, obligations, and responsibilities. It is possible that the weight of the response may not be identical in each of the cases; rather than application of one black or white answer, their complexity appears to call for various planes of responses, as a texture in layers.

Let's take a closer look at these layers. In some cases, the traditional model of the authoritarian or co-opted State appears to function quite blatantly: several of the experiences documented here reveal the direct participation of State agents in dispossession of lands from poor *campesinos* in favor of a concentration that benefits the interests of the agroindustrial producers. Here we have the purely and simply illegal interference of the State, in violation of the rights -civil, political, economic, social, and cultural- of the most disadvantaged sectors of the population, in response to which the human rights language is most accustomed to operate.

However, the situations of dispossession are more complex in those cases in which two factors combine: the historic lack of attention by the State to recognition of the land rights of those who traditionally inhabit and work said land, and the use of formal legality to deny or suppress said rights. In these cases, the situation is trickier: it is no longer about State use of illegal force or violence, but rather the use of a vitiated legality, which generally favors those more accustomed to legalistic sophism and ends up officially consecrating the dispossession. There are also varying shades to be distinguished here: these processes of legalization of dispossession may respond to distinct combinations of factors, which may include the administrative incapacity or disorder of the State, or the complexity of situations of superimposition of regimens and property titles. Or they may include bureaucratic legalism, State centralism, technocracy, ignorance of local and traditional cultures, and corruption.

In particular, the issue of corruption invites exploration of other aspects, given that it supposes the collusion of interests of the State apparatus with those of private actors who yield the power to corrupt public authorities. While the connection is not new between corruption and violations committed by State agents along the lines of the Holocaust or dictatorship model - think here of the use of slave labor of Nazi regime prisoners by German industry, or the appropriations of the properties of the disappeared by the Argentinean dictatorship - traditional human rights theory places focus almost exclusively on the State subject, to the extent that it is still difficult to integrate the conduct of private subjects into the analysis, even when the purpose of said analysis is to uncover the motivation of the State agents. In this field, some transversal or procedural elements that characterize human rights language can be useful: transparency, access to information,

the consultation and participation of the groups involved, and respect for due process, are all cross-cutting axes that can provide a solid foundation for analysis and critique.

In any case, the theme of the role of legality -of the many faces of legality - is one that merits greater elaboration, given its own fuzzy borders. Several of the experiences described in this compilation denounce the blatant incomppliance by the government of its own norms - constitutional, environmental, sanitary, agrarian - such that, at least in these cases, legality would serve a role as guarantor, if it were not frustrated by State incomppliance. In these cases, the human rights approach would simply demand fulfillment of the law and adequate use of legal instruments and mechanisms capable of restoring its full rule.

In several other scenarios presented in this Report, the problems are of other natures. In some, it is an issue of lack of adequate legislation, such as legislation to implement an agrarian reform, or to duly regulate the use of fertilizers harmful to human health. In these cases, as I discuss below, human rights language may be useful to underline the incomppliance of specific State obligations that consist of adopting adequate measures to satisfy certain economic and social rights, such as the rights to food or to health.

In others, the issue is about the use of the law to in fact increase the vulnerability of the most disfavored population and to benefit the powerful, such as when barriers are erected to the regularization of land ownership for its traditional inhabitants, and in exchange facilities are opened to concentration of land in the hands of the powerful. Or when the law allows the knowledge and resources of indigenous and traditional communities to be despoiled and appropriated through copyright regimens that favor those familiar with the patent system. Thorough analysis is needed on the adequacy of State measures to satisfy certain rights in which legislative measures adopted by the State would be found not only inadequate, but also legally incompatible with the satisfaction of said rights.

Another point of entry that may be provided by human rights language to the analysis and assessment of these situations - and potentially to use of certain protection mechanisms - is application of the right to be free from discrimination. Analysis in this field should focus on the potential effect of certain measures on discriminated social groups recognized by international human rights instruments - including women, children, indigenous peoples, or the disabled - or on the lack of specific measures designed to protect them.

Other problems well-portrayed in several of the case studies are derived from the State monopoly of legality and force. When the protection offered by the law and State action for the defense of the rights of the most disadvantaged populations is weak, or when the law and State powers are partially used to favor the powerful, a common result is a spiral of protests and demonstrations that culminate in the use of State repression. The question of criminalization of protest and social conflict - which is a matter of the limits of the use and abuse of State violence and of penal prosecution - raises clear connections with the most classic approach of human rights language. In a similar sense, the problem may be addressed at least partially through another area of concern in human

rights matters, which is the situation of the human rights defenders. If the catalogue of human rights is broad and not restricted to civil and political rights, then those who struggle for the rights to housing, food, and health are also human rights defenders, and their persecution and criminalization can be seen as a threat against their right to defend their human rights.

As is evident here, much can be offered by human rights language to conceptualize and respond to many of the situations reflected by the diverse case studies included in this work. However, the primary challenge - and the greatest needs in the areas of theoretical elaboration and practical application - concern not the phenomena of illegality, corruption, or use of the State apparatus in favor of the interests of the most powerful, but rather the potential or limits of human rights language as adequate framework to properly identify the central problem addressed by this book, which is the expansion of a certain model of agroindustrial production - or of other forms of monoculture, such as forestry plantations - through market forces, defined as the aggregate of individual profit-motivated monetary decisions, provoking devastating effects on nature, and on the situation of social groups traditionally overlooked and today subjected to unbearable pressures to abandon their ways of life and their few resources.

In this terrain, the certainties are few, but at least some strategies may be sketched to approach the problem. To some extent, the lack of clear guidelines in this area is a direct effect of the conceptual abandonment long endured by economic, social and cultural rights, in particular in the concrete definition of those aspects in which positive State action is required, and not mere abstinence from prohibited actions.

Some specific rights may serve here as starting points: the right to food, the right to health, the right to housing, the right to water, or the right to work. The most important conceptual challenge involves the construction of a model that draws upon the obligations derived from these rights to produce guidelines for substantive public policy to regulate, control, or discourage the erred direction toward which the market is leading, in our case, in agrarian matters. Human rights language encounters certain limitations here: there is no recognized human right to be a *campesino*, or to unconditionally preserve a way of life, or even a universal right to land. Nor do international human rights instruments offer any type of absolute prohibition to concentration of lands or to market functioning in relation to grains or other inputs.

But human rights language does lend some important tools which can offer a guide for the formulation of public policies. I have already mentioned some important transversal aspects from the human rights approach in development matters or in public policy design and implementation: consultation and participation, transparency, access to information, respect for due process, legality, and access to denouncement procedures in case of violation.

However, the most important challenges are related to deriving public policy guidelines from the substantive content of rights such as those mentioned - to food, water, health, housing, and work - without getting bogged down in the margin of discretion that corresponds to each State, or in the general observation that these rights may be satisfied

through distinct means or policies. This requires taking very seriously the content of these rights: respect for the self-satisfaction of basic needs, protection against negative interference by third parties that threatens said self-satisfaction, and the State obligation to facilitate this self-satisfaction or to supplement its fulfillment when individuals are unable to satisfy said needs for reasons beyond their control.

This perspective entails a vigorous task of mapping of the social groups in situations of vulnerability or lack of satisfaction of their basic (food, health, employment, housing) needs; the use of instruments to evaluate the possible impacts of economic or technical measures on their rights, and the design of public policies that take into account the specific situations of these groups and correspondingly adapt their means and instruments to their protection. The inevitable consequence of protecting the rights of vulnerable groups is the re-vindication of the regulatory capacity of the State, with the correlated limitation or restriction of market freedoms to the degree necessary to avoid situations in which the economic benefit of the most powerful jeopardizes the conditions of the most vulnerable, or provokes irreversible damages to or the exhaustion of natural resources. The focus of prohibition of discrimination may be useful in this effort, although in some cases it may prove to be too narrow.

The content of some rights in particular may also offer important guidelines, through the definition of measures to adopt or goals to meet. For example: improvement of food production, conservation or distribution methods; adoption of agrarian reform systems to achieve the development and more efficient use of natural resources; eradication of endemic-epidemic illnesses; reduction of childhood mortality, or creation of conditions to guarantee universal access to health care. One point of progress in this matter, which facilitates clearer documentation of areas of State in compliance in relation to many of the rights identified here, has been the elaboration of qualitative and quantitative indicators as a framework through which to monitor rights satisfaction. These indicators also help reveal areas of stagnation or regression, which reflect in compliance with the so-called obligation of progressive realization of economic, social and cultural rights.

Another possible advantage of use of human rights language is the possibility to potentially habilitate the use of legal mechanisms of protection in case of presumed violation, in particular the possibility to defend human rights through the national courts and, as a final option, through international human rights bodies. But before encouraging social groups affected by the overwhelming trend toward industrial monoculture production to turn to the courts for solutions, it is important to be aware that the success of such legal mechanisms requires before all else the fulfillment of at least two conditions, barring which the possibilities of failure are high. Firstly, the existence of a judicial power that is impartial, independent, and technically qualified to resolve questions of certain technical complexity. Secondly, a solid legal platform that clearly identifies the violation being denounced, and the conduct which should have been adopted by the authorities, and that proposes a reasonable solution for the situation. In many of the countries whose cases are documented in this Report, the first condition is far from met, and the second would require an arduous undertaking of alliance-building among diverse social actors

(community base groups, campesino communities, university professionals, NGOs, and legal support) which is not always easy to consolidate. Recurring to the courts is not a simple task, and the best recommendation may be a call for prudence: experiment only with very solid cases in which the violations are more than evident. Some of the experiences presented in this Report do offer testimonies of successful instances of judicial protection of some of the rights in play. It is important to socialize these successful experiences to help generate their replication in other countries, and this Report provides a valuable opportunity to do so.

Many areas remain, of course, in which the certainties are far fewer, and in which human rights language offers only limited provisory speculations. The difficulties and high cost of producing irrefutable proof regarding the effects of new industrial products, such as agrochemicals and modified seeds, limit the possible use of rights language to extreme cases, and marginalizes it as a tool for the critique of the primary trends reflected in the cases documented here – the monopolization of agroindustrial production, which ties small producers to a “package” of free trade products to which they have few viable alternatives. Some yet-unexplored areas of the range of internationally-recognized human rights – such as the right of all persons to enjoy the benefits of scientific development and of its applications, which to date has received scarce attention – may open a door in this direction. Another possibility may be the cross-application of principles originated in the field of environmental rights, such as the precautionary principle. But we must be aware that what can be said in human rights terms on these issues is still modest.

In synthesis: it is a very worthwhile exercise to explore the potentials while being aware of the limitations of human rights language in the complex context of monopolization of agrarian production by a powerful agroindustrial model. The cases documented in this book offer a solid starting point from which to undertake this conceptualization effort and to evaluate its results and the defense strategies which may be derived from its use. There is certainly fertile ground here to plow.

Christian Curtis

Geneva, 17 October 2009

## *Introduction*

According to the FAO (The United Nations Food and Agriculture Organization), monoculture is the agricultural practice of cultivating a single crop over a whole farm or area. The conventional/productivist agricultural system, also known as the industrial model of agriculture, is characterized by its preference for monocultures and large-scale agriculture, using intensive production practices that rely heavily on capital, technology, and external petrochemical inputs. It orients itself toward the national market and increasingly more toward the global market due to the liberalization of commercial agriculture and food security policies based on international trade. The industrial agricultural model gained force in particular since the 1950s thanks to considerable State support, and currently enjoys massive backing from private investors. In recent decades, however, criticism of this agricultural system has increased as the following negative effects have become evident: concentration of access to and control over land, water, and natural resources, including the eviction of peasants and indigenous peoples from their places of origin and communities; alarming degradation of soils and water sources and destruction of natural ecosystems; deforestation and the resulting significant production of greenhouse gases responsible for climate change; destruction of rural economies and cultures, including forced displacement and migration to the cities; poor working conditions on plantations including intensive use of pesticides that affect the health of the workers and neighbouring communities, and, finally, the production of food with questionable



nutritional quality, appalling sanitary conditions, and the proliferation of diseases caused by this type of food.

In recent years, the production of agrofuels (ethanol and other fuels derived from processed corn, sugarcane, palm oil, soy, and other crops) has become a strategic area of investment for many countries. Large energy consumers like the United States and the European Union are heavily promoting the production of agrofuels in order to reduce their dependency on external fossil fuels and as a supposed form of clean energy to reduce greenhouse gas emissions and pollution worldwide. Meanwhile, other countries like Brazil, Malaysia, Indonesia and Colombia also advocate aggressively for agrofuels at the regional and international levels. This situation has aggravated and made visible the problems already known to be linked with agroindustrial production of monocultures. It is also a significant factor in rising food prices.

Numerous publications and studies have been elaborated in recent years on monocultures, agrofuels, and the problems and conflicts associated with them, some of which are mentioned above. But little has been written about monocultures from the perspective of human rights, and in particular the rights to food, to adequate housing, and to water, land and territory. Without overlooking the profound challenges posed by the human rights approach, as discussed by Cristian Curtis in the Presentation, the present Report was born from the above reflection and the pressing need to analyze monocultures from the human rights optic so that affected persons and communities may use human rights in their defense strategies, including, for example, effectively presenting and defending their numerous complaints within the national and international human rights protection systems.

We also decided that it would be useful to undertake this exercise from the Latin American regional perspective, with the purpose to once more expose the reality that the unmitigated development of monocultures and agrofuels responds to a sole production model, which provokes very similar impacts and human rights violations regardless of the country in which they are implemented. To achieve this regional vision and to gather the greatest possible number of pieces of the puzzle, we solicited the participation of a range of social movements, nongovernmental organizations, academics, and journalists, each of whom, from his or her own perspective, experience, area of expertise, and capacity, and in absolute solidarity, offered their own reflections, many of them published here for the first time. For organizational purposes, we have divided the distinct contributions into two parts: the first providing a general overview of cross-cutting issues, and the second addressing the reality of the distinct countries.

The first section opens with a broadly-focused article offering a panorama of the primary motives behind the boom of monocultures and agrofuels and of the more grave consequences they bring. The following texts focus on impacts (in the areas of biodiversity, climate change, housing, water, food, gender, etc.) and specific problems (agrottoxins, etc.) that are common to practically all the locations suffering the subjugation of monocultures. Among the very valuable participations in this section are some from the United States and Europe, favoring the necessary dialogue between South and North

on the various issues explored in this Report.<sup>1</sup> We would like to mention in particular the contribution of the United Nations Special Rapporteur on the Right to Adequate Housing, Ms. Raquel Rolnik, who enriches our analysis with an article summarizing the primary concerns and conclusions on climate change and impacts on the right to adequate housing, object of the 2009 Annual Report presented by the Rapporteur to the United Nations General Assembly. Although the article does not analyze the causes of climate change, and therefore does not explicitly refer to those related to industrial agriculture, the article is very relevant for our Report given the relation it constructs between this grave phenomenon, currently the object of intense debate, and the right to adequate housing.

The second part of this Report is composed of a variety of specific articles and cases submitted from a total of ten Latin American countries. To facilitate the mapping, identification, monitoring and documentation of cases of human rights violations provoked by monocultures, in early 2009, FIAN International and HIC-Latin America elaborated a “Guide for the documentation of violations of the right to food and the rights to adequate housing, water, land and territory related to monocultures for industrial agricultural production,”<sup>2</sup> which was distributed among numerous affected communities and their support organizations, many of whom subsequently collaborated in this Report.

The Report concludes with an article by Inge Armbrecht, who participated in the process of International Assessment of Agricultural Science and Technology for Development (IAASTD). This evaluation was fruit of a five-year multidisciplinary and intergovernmental process with the participation of a plurality of interested parties, in addition to all of the specialized United Nations agencies involved in food, agriculture, natural resources, the environment, and health. The resulting diagnosis concludes that it is not possible to continue with the agricultural-livestock-fishing production system that currently predominates across the planet, given the increasingly strong indicators of unsustainability. The IAASTD goes on to offer a series of action options, which coincide with and reinforce the food sovereignty vision as an integral approach to the realization of the human rights to food, water, land, and territory.

The numerous and varied voices participating in this effort help us to grasp the complexity and multiple facets of the issue at the center of this Report. Some approach the task from a human rights perspective, while others adopt a distinct angle. The human rights panorama you will find below serves to provide a common framework to all the ideas and experiences contained in the following pages.

## MONOCULTURES AS MEGA-PROJECTS OR DEVELOPMENT PROJECTS

We observe many comparable aspects, beyond simply that of size, between the implementation of monocultures and the construction of mega-projects or “development projects” (large-scale industrial or energy projects, massive hydrological dams, mineral

or other extraction industries, etc.), both of which are often planned and imposed under the pretext of “serving the common good” or simply “development,” while threatening and violating the human rights of the populations that occupy the territories in which they are carried out. Below we highlight some of these similarities and the relations that exist between monocultures and mega-projects.

The justification (if offered) for implanting monocultures usually recurs to the same arguments as in the case of mega-projects: job creation, the need to open investment opportunities in the countryside, development of poor rural areas, creation of wealth and increased incomes, the need for foreign exchange and integration into the world market, increased productivity and efficiency, and general economic development. As has been demonstrated in the case of large dams<sup>3</sup> or extraction industries, these justifications are rarely true for the local population: the jobs created are not as numerous as promised and rarely benefit the local population, and positions available to local residents tend to be very precarious. The local/regional treasury rarely benefits because investors receive tax exemptions. The regional economy does not develop because the projects operate as enclave economies, extracting all the wealth instead of feeding local circuits of production of goods and services.

The impacts of monocultures in social, environmental, and cultural terms are very similar to those produced by mega-projects. As will be seen throughout this Report, monocultures destroy biodiversity, pollute and deplete water sources and waterways, exhaust soils, provoke forced displacement, lead to dispossession of land, water, woods, and other natural resources from *campesino* and indigenous families, provoke grave health damages attributable to agrottoxins, destroy the social fabric of communities, and reorganize entire territories to be at the service of accumulation of capital by the most powerful social groups.

On the other hand, we also observe that investments in monocultures occupy increasingly more space in the investment portfolios of financial funds and of companies that invest in other fields such as mining, such as companies that extract potassium for the production of fertilizers,<sup>4</sup> or oil companies seeking to diversify their investments with incursions into the new “green” fuels, alongside the leading automotive industry companies (see Cerdas, page 49). Along a similar line, the need to control large amounts of water to assure the profitability of large plantations leads the owners of monocultures to promote the construction of or maneuver to secure control over large dams (see MAB, page 155 and Zapatta, page 211). On the other hand, the relation is well known between monocultures and large infrastructure projects such as ports and highways, necessary to export agrarian raw materials.<sup>5</sup>

Finally, in cases of both mega-projects and monocultures, the State frequently violates, among others, its mandate to protect (as further discussed in page 25 of this Introduction), which consists of the obligation to guarantee that companies do not violate the human rights of affected persons. In the case of monocultures, this includes the rights of the *campesino* and indigenous communities who own or hold usufruct rights over the lands on which the monocultures are planted or adjacent to the same. Violations com-

mitted by the State occasionally go even further, as documented in several of the cases presented in this Report, to include direct abuses of the human rights of those affected by monocultures by proffering the backing of official security forces to carry out forced evictions or repress protests, or other direct actions or overt omissions.

Particularly worrisome in this panorama is the fact that, unlike infrastructure and mining mega-projects, the expansion of monocultures is virtually silent and attracts much less public scrutiny, despite the fact that its impacts are equally devastating and widespread. While most local and national legislations require socio-environmental impact statements, environmental permits, and relocation and compensation plans for any displaced populations in relation to mega-projects, all of which should be available and public prior to project construction, monocultures are generally considered private ventures and therefore do not require prior public authorization, nor are they opened to consultation processes or even clearly identified as the cause behind evictions and displacements. Monocultures should of course comply with all applicable legislation, including, for example, environmental and water use norms, but there is no public discussion regarding whether they should be implemented in the first place, taking into account the real social and environmental costs. This decision is perceived as corresponding to private interests regarding their own private lands (even when they are illegally or semi-legally appropriated public lands).

While the human rights violations provoked by mega-projects have aroused the concern of numerous international and some national agencies dedicated to human rights, and experts on the matter have elaborated a series of specific documents with the objective to advance in the conceptualization of the issues and to favor their visibility and limit violations, such as the Basic Principles and Guidelines on Development-Based Evictions and Displacements (see page 24 of this Introduction), the same can not yet be said in relation to monocultures. States and specialized UN agencies tend to consider agriculture only in terms of economic and trade criteria. The human rights obligations that the States are obligated to fulfill in relation with food production or with the persons whose subsistence depends primarily on agriculture are unfortunately most often ignored. We feel, however, that the scale and the gravity of the violations often provoked by the implementation of monocultures make it urgent to establish broad and specific debate on this issue from the human rights perspective. This Report intends to serve as a first contribution and fundamental step in that direction.

## THE CONCEPTUAL AND NORMATIVE HUMAN RIGHTS FRAMEWORK

The States that have ratified the International Covenants on Human Rights – including the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the International Covenant on Civil and Political Rights (ICCPR), both originally adopted

in 1966 – have legal obligations connected with the realization of human rights, including the rights to food, to adequate housing, and to water. The States that have ratified Convention 169 of the International Labour Organization (ILO) adopted in 1989 concerning Indigenous and Tribal Peoples, have obligations regarding the realization of the rights of ethnic communities and indigenous peoples to land and territory and to the resources located there.

To begin to understand the monocultures issue from a human rights perspective, below we focus primarily on the previously mentioned rights, as some of those most closely related with agriculture, and because they pertain to the fields of expertise of our organizations. In the future, however, a human rights approach to the monocultures issue would need to also take into account several other rights, including: the right of peoples to freely access their wealth and natural resources and the prohibition against depriving a people of its means of subsistence; the right to health; the right to work, and central principles of the right to a healthy environment, including the precautionary principle.

### **The human right to adequate food (HRAF)**

According to General Comment (GC)<sup>6</sup> N° 12 of the ICESCR adopted by the UN Committee on Economic, Social and Cultural Rights (CESCR),<sup>7</sup> the HRAF is exercised when “every man, woman or child, alone or in a community with others, has physical and economic access at all times to adequate food or means for its procurement.” The CESCR has identified the basic elements that comprise the HRAF as:

1. **Availability** of food: directly from productive land or other natural resources.
2. **Availability** of food: through food distribution systems, processing and market systems that move food from its place of production to places where it is needed on demand.
3. **Economic accessibility** of food: implies that the financial costs associated with acquisition of food should be at a certain level so that basic needs can be met and are not threatened. Economic accessibility applies to any method of food acquisition.
4. **Physical accessibility** of food: implies that food should be accessible to all, including physically vulnerable people who cannot supply food for themselves, victims of natural disasters, and other groups that depend on their attachment to a specific area for their livelihood (indigenous, people, pastoralists, others).
5. **Sustainability** of the availability of and access to food: long-term food security (sustainable use of natural resources needed for food production). Economic sustainability: income and food prices.

## The human right to adequate housing (HRAH)

According to Article 11 of the ICESCR, “The States Parties participatory States in the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions. The States Parties participatory States will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international co-operation based on free consent.” According to General Comment N° 4 of the CESCR,<sup>8</sup> the right to adequate housing is the right to live in a location in security, peace and dignity.

GC N° 4 indicates that in order for housing to be considered adequate, it must comply with these seven fundamental characteristics:

- 1. Legal security of tenure.** Tenure takes on a variety of forms (rental, cooperative housing, lease, owner occupied, emergency housing, and informal settlements, including occupation of land or property). Whichever the type of tenure, all persons should possess a degree of security of tenure, which guarantees legal protection against eviction, harassment and other threats.
- 2. Availability of services, materials, facilities and infrastructure.** Must possess certain facilities essential for health, safety, comfort and nutrition. All beneficiaries of the right to adequate housing should have sustainable access to natural and common resources, safe drinking water, electricity for cooking, heating and lighting, sanitation and washing facilities, food storage, and disposal of waste, drainage and emergency services.
- 3. Affordability (cost appropriate to level of income).** The cost of housing should be at a level that does not impede or compromise the fulfilment and enjoyment of other basic needs. The States should adopt measures to ensure that the percentage of expenditure on housing is proportionate with income levels, and establish housing subsidies for those who cannot afford housing, as well as guarantee the natural materials that form the backbone of material for housing construction.
- 4. Habitability.** Adequate housing must provide adequate space and protect its occupants from cold, humidity, heat, rain, wind, or other threats to health, from structural hazards, and sources of disease, as inadequate housing is invariably associated with higher mortality rates.
- 5. Accessibility (without discrimination and by all social groups).** Adequate housing must be attainable by all. The disadvantaged groups should have complete and sustainable access to adequate resources for housing, and special needs should be addressed. Laws related to housing should ensure priority consideration for disadvantaged groups (the elderly, children, physically disabled, terminally ill, HIV-positive individuals, people with persistent medical problems, the mentally ill, victims of natural disasters, and other groups). States should support the right of everyone to a safe place to live in peace and with dignity, including access to land as a right.

6. **Adequate location.** Housing must be in a location that allows access to employment options, healthcare services, childcare, schools, and other social services. The financial and time costs to get to work and return home should not impose excessive demands on the budgets of poor families. Housing should not be located on contaminated sites or be vulnerable to natural disasters that threaten the right to health of the inhabitants.
7. **Cultural Adequacy.** The manner in which housing is constructed, the materials utilized, and the policies behind it, should allow for adequate expression of cultural identity and diversity of housing. Activities related to development or modernization in the housing sphere should be carried out without sacrificing the cultural dimension of housing, and should ensure, among other things, access to modern technological services.

Thanks to the labor of various civil society organizations<sup>9</sup> as well as the previous United Nations Special Rapporteur on the Right to Adequate Housing, Mr. Miloon Kothari, the established characteristics of adequate housing have progressively expanded to include: physical security; participation and information; access to land, water and natural resources; freedom against dispossession, damages and destruction; relocation, restitution, compensation and return; freedom from violence against women, and others.<sup>10</sup>

### **Forced evictions – legal framework**

According to GC N° 7 of the CESCR,<sup>11</sup> forced eviction is defined as the permanent removal of individuals, families, and/or communities from the homes and/or lands they occupy, on either a permanent or temporary basis, without offering appropriate measures of protection, legal or otherwise, or allowing access to these protection measures. Evictions may stem from conflicts over land rights, from development and infrastructure projects, as a result of violent situations, or they may occur in relation to the implementation of monocultures, among other causes. The same GC establishes that cases of forced evictions are *prima facie* (in principle) incompatible with the requirements of the ICESCR and are only justifiable in the most exceptional circumstances, and in accordance with relevant principles of International Law, which establishes legal obligations, in particular for the States, and rights for those people threatened with eviction. Forced evictions are always attributed to decisions, laws, or policies of the States, or to State failures to impede third parties (individuals, companies, etc.) from carrying them out.

Forced evictions constitute gross violations of a number of internationally recognized human rights, in particular the right to adequate housing. The right to food is also often severely affected, since in many cases the evicted persons also lose access to their source of livelihood, whether land or a job. In the same manner, the right to water can be affected, given that evicted persons frequently face difficulty in accessing water.

Forced evictions from their homes and lands leave many people homeless and destitute, without the means to make a living, and often without effective access to legal

recourse or other supports. Forced evictions in many cases are also associated with physical and psychological injuries among those affected, with impacts particularly felt by women, children, those living in extreme poverty, indigenous peoples, minorities, and other marginalized groups.<sup>12</sup>

The Basic Principles and Guidelines on Development-Based Evictions and Displacements, presented by the former Special Rapporteur on the Right to Adequate Housing and formally adopted by the Human Rights Council in December 2007,<sup>13</sup> provide specific instructions and operational guidelines on the different stages of eviction. The Principles aim to minimize evictions, calling for alternatives to the same whenever possible, and underline that evictions can only take place in “exceptional circumstances.” When evictions are inevitable, the Basic Principles establish certain non-negotiable human rights standards which must be respected and upheld.

### **The rights to land and territory of indigenous peoples and ethnic communities**

In the field of international human rights law, the rights to land and territory of indigenous peoples and ethnic communities are granted special consideration. ILO Convention 169 (Art. 13-16)<sup>14</sup> recognizes the right to territory of the concerned peoples, obligating governments to “respect the special importance for the cultures and spiritual values of the peoples concerned of their relationship with the lands or territories, or both as applicable, which they occupy or otherwise use, and in particular the collective aspects of this relationship”(Art. 13). The protection afforded by Convention 169 also includes the right to *ownership* and *possession* over the lands they traditionally occupy and the utilization of lands that are not exclusively occupied by these people, but which they have traditionally had access to in accordance with their customs. “The rights of the peoples concerned to the natural resources pertaining to their lands shall be specially safeguarded. These rights include the right of these peoples to participate in the use, management and conservation of these resources” (Art. 15). The people should not be removed from the lands they occupy. When their relocation is considered necessary as an exceptional measure, such relocation should only be carried out with their free and informed consent (Art. 16).

The UN Declaration on the Rights of Indigenous Peoples, adopted by the UN General Assembly on 10 December 2007,<sup>15</sup> provides absolute protection against the dispossession of lands, territories and resources (Art. 8b), and the right not to be forcibly evicted from their territories without free, prior, and informed consent (Art. 10), while recognizing the right of the communities to lands, territories and resources that they have traditionally owned, occupied, or utilized, as well as traditional property, and the State obligations to recognize and protect this right and various systems of land tenure (Art. 26).

The realization of many economic, social and cultural rights is directly related with land and territory, including the right to food, the right to housing, the right to an adequate standard of living, the right to culture, and the right to free determination. For this motive, the right to land and territory of social groups other than indigenous peoples has



begun to be elaborated in recent years. Afro-descendants, fishing communities, gatherers, and *campesinos* have begun to demand their right to territory.<sup>16</sup>

The Inter-American Human Rights System explicitly recognizes the right to land as a human right. Various bodies of the United Nations and its human rights system have been developing the relation between access to land, agrarian reforms, and the economic, social, cultural and environmental rights of the most marginalized groups. In fact, the CESCR has been addressing the theme of land and agrarian reform more and more specifically in the final observations emitted in response to the reports submitted by States Parties of the International Covenant on Economic, Social and Cultural Rights in fulfillment of their obligations regarding periodic reporting on the progressive realization of these rights. The former Special Rapporteur on the Right to Adequate Housing recommended to the Human Rights Council that the right to land be recognized as a human right.<sup>17</sup> The office of the Special Rapporteur on the Right to Food has also on several occasions emphasized the importance of secure access to land as a fundamental right.<sup>18</sup>

### **The human right to water**

Although the human right to water is not explicitly recognized in the ICESCR, the Committee on Economic, Social and Cultural Rights (CESCR) considers it to be covered by paragraph 1 of Article 11.<sup>19</sup> The right to water is also inextricably related to the right to the highest attainable standard of health (paragraph 1 of Art. 12)<sup>20</sup> and the right to adequate food and housing (paragraph 1 of Art. 11).<sup>21</sup> In addition, the Committee devoted GC N° 15<sup>22</sup> to the interpretation of the right to water. In this document, the right to water is defined as the right of everyone to have water that is sufficient, safe, acceptable, accessible and affordable for personal and domestic uses.

The Committee believes that this right fits very clearly into the category of guarantees essential for securing an adequate standard of living, because it is a necessary condition for survival. The GC notes that water allocation must prioritize water for personal and domestic ends and the necessary water resources to avoid hunger and illnesses and to fulfill the fundamental obligations at the core of each of the rights consecrated in the Covenant. It also indicates that the States must recognize that they need to treat this good as an asset indispensable for the exercise of other rights, such as the rights to food, adequate housing, a healthy environment, health, the right to earn a living by working, and the right to enjoy certain cultural practices.

GC No 15, paragraph 7 also indicates that “The Committee notes the importance of ensuring sustainable access to water resources for agriculture to realize the right to adequate food (see General Comment N° 12 (1999)).<sup>23</sup> Attention should be given to ensuring that disadvantaged and marginalized farmers, including women farmers, have equitable access to water and water management systems, including sustainable rain harvesting and irrigation technology. Taking note of the duty in article 1, paragraph 2, of the Covenant, which provides that a people may not “be deprived of its means of subsistence,” States parties should ensure that there is adequate access to water for subsistence farming and

for securing the livelihood of indigenous peoples.<sup>24</sup>

That which is deemed adequate for the exercise of the right may vary according to different conditions prevailing in each region. Five factors are listed below that can be applied in all circumstances:

1. **Availability.** This means that the supply of water for each person must be sufficient and continuous<sup>25</sup> for personal and domestic uses.
2. **Quality.** Water should be free of agents that can be harmful to health: micro-organisms and chemical or radioactive substances. Because a high percentage of diseases in the world and especially in less developed countries are transmitted through water, the Committee has specified that the water accessible to people must be healthy, with an acceptable color, odor and taste. For the development of national standards to ensure the safety of drinking water, the Committee refers to the Guidelines for drinking water quality issued by the World Health Organization.
3. **Physical Accessibility.** Having the right to water supposes that water installations and services should be within a safe physical distance of all sectors of the population. Every home,<sup>26</sup> educational institution or place of work should have a water supply or at least the possibility of having access to one in his or her immediate vicinity.
4. **Affordability or economic accessibility.** Water, and facilities that provide access to it, must be affordable in relation to the income of individuals. The Committee states that the costs associated with supplying water should not compromise the ability of individuals to access other essential goods such as health, education, housing, and other rights.
5. **Non-discrimination.** Based on the concept of non-discrimination, the Committee states that healthy water and services must be physically and economically accessible to all people, especially those historically unable to exercise this right because of race, religion, national origin or any other grounds.

### State obligations

In its doctrine, the Committee on Economic, Social and Cultural Rights has recognized two types of corresponding obligations:<sup>27</sup> the general legal obligations intended for immediate application, and specific obligations.

#### *General obligations*

- The obligation to adopt measures for the progressive realization of rights to the full extent of the available resources, and its corollary of the prohibition of regressive measures: in accordance with General Comments Nos. 4, 12, and 15, this obligation involves a legal duty to move as expeditiously as possible toward the realization of the rights to adequate housing and food, and water in accordance with Article 2.1 of the ICESCR and General Comment No. 3 of the ESCR Committee on the nature of the obligations of States Parties. Furthermore, note that

it is understood that the principle of progressivity implies a prohibition to return, meaning that the State cannot take regressive measures that affect the realization of ESCR. Regressive measures would include, for example, ending land reform programs in a situation where a significant percentage of people are still landless.

- Non-discrimination: States should immediately ensure that no person is discriminated against in regard to his/her exercise of rights to housing and access to food, or the means to produce it, on grounds of race, color, sex, language, age, religion, political opinion or any other opinion, national or social origin, economic position, birth, or any other social condition, with the purpose or effect of nullifying or impairing the equal enjoyment or exercise of ESCR, which would constitute a violation of the Covenant.

### *Specific Obligations*

The rights to adequate food and housing, as well as the right to water – like all other human rights – impose three types or levels of obligations on States Parties at the national level: the obligations to respect, to protect, and to fulfill. The obligation to respect existing access to adequate food and water requires that States Parties shall not take any action that destroys or hinders access. In relation to housing rights, the obligation requires, among other things, that the State refrain from carrying out, sponsoring, or tolerating forced evictions. The obligation to protect requires measures by the State to ensure that neither businesses (corporations) nor individuals deprive people access to adequate food and water, nor carry out forced evictions. The obligation to fulfill means that the State must actively strengthen the population's access to resources, means and basic services, and their use, and provide certificates or other measures to ensure legal security of tenure, equal ownership rights for men and women, and protection against eviction. Furthermore, States Parties have extraterritorial obligations under which steps must be taken to respect and protect the enjoyment of the right to food and water in other countries, to facilitate access to food, and to provide assistance when needed.

## **Responsibility of transnational companies and other commercial actors in the human rights sphere**

Due to the increasing influence of transnational corporations and other business enterprises in the economies of most countries and in international economic relations, a few years ago the UN human rights protection system began to discuss the responsibilities of these TNCs and enterprises with respect to human rights.

In 2005, the United Nations appointed Mr. John Ruggie for a period of two years as Special Representative of the UN Secretary General on human rights and business, and in 2008 his mandate was renewed for an additional 3 years. In April 2008, the Special Representative submitted his final report entitled “Protect, Respect and Remedy: a Framework for Business and Human Rights,” which was adopted by the Human Rights Council in June 2008. This report is organized around three basic principles: the State

duty to protect against human rights abuses committed by third parties, particularly businesses; the obligation of businesses to respect human rights, and the necessity for effective recourse for the victims of abuses. The three principles form a complementary set in which each principle supports the others in order to achieve sustainable progress.<sup>28</sup>

### **Toward recognition of the rights of *campesinos* and *campesinas***

The international movement *Vía Campesina* recently called upon the United Nations to adopt an International Convention on the Rights of *Campesinos/as*. *Vía Campesina* affirms that, as in the case of other oppressed groups such as indigenous peoples and women, the moment has come to make explicit the individual and collective rights of *campesino* women and men, given the large gaps that exist in the interpretation and the implementation of the main treaties in human rights matters when applied to this sector. In addition, *campesinos* face a series of systematic violations of their rights, such as in the case of the crimes committed by large agroindustrial companies, or the case of the Free Trade Agreements. Existing human rights instruments do not effectively protect or even adequately recognize these types of violations. For this reason, *Vía Campesina* demands specific provisions and mechanisms to address such violations in a way that guarantees the complete protection of their human rights. The Advisory Committee of the Human Rights Council, in its session of August 2008, echoed this call, and by mandate of the Council, a study is currently being prepared on the food crisis, the right to food, and the rights of *campesino* men and women. This study is scheduled to be discussed at the upcoming session of the Advisory Committee in January 2010.

## **PRIMARY TYPES OF VIOLATIONS OF THE RIGHTS TO FOOD, HOUSING, WATER, LAND, AND TERRITORY, RELATED TO MONOCULTURES**

Male and female *campesinos* and other small-scale food producers have protested for more than two decades against the expansion of industrial agricultural production, which is in large part to blame for their poor living conditions. Only recently, however, has their protest been echoed in scientific and intergovernmental spheres.

The regional assessment for Latin America and the Caribbean undertaken for the previously-noted IAASTD diagnosis confirmed that the development models of the past 60 years have favored the conventional/productivist system, resulting in an increasing rise in agricultural productivity and production, but without a significant drop in poverty and malnourishment. It is most striking to observe that while the region produces three times the amount of food it consumes, it is home to around 209 million poor, 54 million of whom are undernourished, representing 37 and 10% of the population respectively. It is no coincidence that the region has the highest rates of inequality in the world, in

particular in reference to land distribution.<sup>29</sup>

Despite growing criticism, the industrial agricultural system still presents itself as a “modern,” “efficient,” and “safe” system essential for solving the problem of hunger and malnutrition in the world. In the name of “development” and agricultural modernization, millions of peasant and indigenous families have been expelled from agriculture, and in many cases from their land as well, to make way for large industrial monoculture. An increasing number of these monocultures employ genetically modified seeds with high risks to biodiversity and human health.

Below we present a brief analysis of the main problems associated with monocultures that may constitute violations of the human rights of affected communities.

### **Forced evictions**

Profit expectations generated by the agro-export business and more recently by the increase in agrofuels and rising food prices have triggered strong demand for land and water to expand monocultures. In several countries, indigenous and other rural communities report that this expansion has caused a large number of land conflicts, and that they have been harassed and forced to abandon their land by various methods, as documented in several articles and cases presented in this Report. Forced evictions of people and entire communities, often violently carried out by public security forces or paramilitary groups, are one of the many methods used to force people to abandon their lands.

As mentioned earlier, forced evictions are first and foremost violations of the right to adequate housing and also violate other human rights such as the rights to food, water, land and territory, health, education, work, personal safety, security of home, freedom from cruel, inhumane and degrading treatment, and freedom of movement, among others. By committing or allowing forced evictions, States infringe upon their obligation to respect and protect access to adequate housing and food, as well as to land and territory. In addition, States generally do not assume the responsibility to resettle the victims of these evictions, who in most cases suffer from hunger and loss of livelihood and end up facing serious deterioration of their living conditions.

One of the most significant cases in relation to evictions included in the present Report is that of Argentina (see: National Campesino-Indigenous Movement, page 141), which analyzes the country’s transgenic soybean production model. The progressive expansion of the agricultural frontier unleashed by the soybean model has provoked the displacement of high numbers of *campesino* and indigenous families. Despite the fact that these families have occupied their lands for decades or even centuries, in most cases they do not have an official property deed. The historic failure of the State to formally recognize their rights and grant them a degree of legal tenure status to protect them against forced evictions has left them highly vulnerable to displacement by real estate agents supported by local governments. The resistance of the communities leads the real estate agents to contract private armed guards to patrol the monoculture fields and harass the communities. Similar elements are presented in one of the cases from

Brazil (see COHRE, page 171) that looks at the expansion of eucalyptus and sugarcane monocultures in Quilombola territories, which according to the Constitution of Brazil are entitled to collective property deeds over their traditionally-occupied territories. The failure of the State to complete procedures to comply with this Constitutional provision in the large majority of cases, and judicial interventions tending to obstruct efforts to do so, have left these populations formed by descendents of African slaves particularly vulnerable to forced evictions. The expulsion of the communities has in many cases been achieved through violent tactics including the burning of properties and lands, and thousands of previously self-sustaining families have been obligated to migrate to the cities, where they have no option but to settle in irregular *favelas* and face the sharp impoverishment of their living conditions.

Another modality used to evict *campesino* families is illustrated in the case from Ecuador (see Jácome and Landivar, page 219), which refers to the expansion of African palm in the country and impacts in the El Samán region in particular. This case denounces a practice through which powerful agroindustrial companies, in conspiracy with local authorities, manipulate vitiated legal instruments to accuse families with valid property deeds of invading lands, from which they are eventually evicted. When such strategies fail, the companies employ systematic pressure mechanisms including threats and violence, often with local authority participation. Many families have little choice but to “voluntarily” sell their properties at miserable prices to the companies and abandon the region.

Finally, in many other cases, authorities and companies are saved the hassle of evicting residents by simply creating such unlivable conditions that the populations are forced to abandon their lands. The heavy use of agrottoxins prevalent in monoculture operations quickly pollutes an area’s water, air, food, and soil, with grave health consequences for the region’s population, whose own crops are often destroyed by the agrochemical applications in neighboring fields. Staying in their homes and on their lands becomes unviable and even suicidal for the inhabitants, for which there is generally little recourse. The cases of Costa Rica (see Cuadrado and Castro, page 191) and Paraguay (see Barreto, page 279) among others are illustrative of this type of displacement, which leaves the *campesino* families as equally homeless, landless, and destitute as those evicted through more direct modalities.

### **Loss of lands and territories**

One of the gravest problems associated with the expansion of monocultures is the loss of access to lands and territories by the local population. This loss, caused by State action or omission, in many occasions constitutes a dispossession of means of subsistence and living spaces, resulting very quickly in reduced standards of living or the complete destitution of families and communities, thereby constituting a violation of the right to adequate food and housing and the right to land and territory. In the long term, this loss is often never adequately compensated by alternative sources of livelihood, relegating the families and communities to poverty and dependence or destitution.

The States have the obligation to facilitate access to and use of productive resources by marginalized social groups including the landless and indigenous and *campesino* communities with inadequate amounts of land. The increasing pressure on land and water unleashed by the promotion and aggressive expansion of monocultures is translating into the growing alienation of natural resources from marginalized rural groups and accelerated concentration of the same in the hands of a few powerful interests. This particularly affects the rights of indigenous peoples to control, use, administer and preserve their lands and territories. In addition, the zeal of powerful economic actors to buy up vast amounts of land has driven up its price. This trend runs counter to urgently-needed agrarian reform policies through which States must fulfill their noted obligation to facilitate access and use of productive resources.

As illustrated in this Report, lands and territories are lost through a variety of forms. In those cases in which it is a gradual process of economic and social transformation involving the sale of small landholdings to larger land owners, it is more difficult to determine the impact in human rights terms. The two cases documented from Paraguay related to soybean monocultures (see Barreto, page 279, and Segovia, page 267), and the case from Ecuador on African oil palm (see Jácome and Landivar, page 219) demonstrate how small land-owning *campesinos* or others with legally-recognized rights of possession are pressured to sell their lands either through apparently lucrative offers or through coercive methods such as threats and harassment, or because the small producers are left surrounded by large monocultures and exposed to the accompanying indiscriminate fumigation, or because they are blocked from use of access roads now controlled by the large owners of neighboring monocultures. A similar situation was faced first by *campesino* communities and later by Mapuche communities in southern Chile with the encroachment of eucalyptus monocultures (see Bengoa, page 177).

Another modality through which land and territory are lost is illustrated in the case from Honduras involving oil palm expansion in Garifuna lands (see Guity, page 247). As ethnic group, the Garifuna defend their rights to their ancestral territories, which have been only partially recognized. The lack of precise identification and effective protection of these ancestral lands has made it possible for their lands to be occupied, assigned to others by the authorities themselves, and even sold to third parties for palm plantations. The Argentinean case of *campesino* landholders with usucapion rights to the same is another example of how investors take advantage of lack of formalization of land rights in order to dispossess legitimate landholders from their plots (see: National Campesino-Indigenous Movement, page 141).

The illegal appropriation by private interests of public lands to which local communities had access and upon which they depended for their subsistence is another form of loss of access to land. Such situations are exemplified in the cases from Argentina and that of the Quilombola communities in Brazil.

The present Report also offers demonstrations of how monoculture expansion hinders the realization of agrarian reform, as witnessed in the case of Pernambuco, Brazil (see Bechara, page 163). In this case, landless farmers had made productive use of lands long

abandoned by their owners and therefore legally subject to expropriation. But the lands are now disputed by the sugarcane industry. In the case of the Polochic Valley in Guatemala (see Fradejas, page 229), the agrarian reform program was effectively abandoned by the State the moment investors arrived to compete for the same lands, dashing the aspirations of the landless laborers. This case also shows how African palm and sugarcane plantations reconfigure indigenous lands, in this case the territories of the Maya-Q'eqchi people whose rights remain without full recognition by the State.

### **Loss of autonomy and food sovereignty**

A key element of the right to adequate food is its direct availability, either from productive land or from other natural resources, i.e. the ability of people to feed themselves with secure control over land, water, seeds and other resources needed for food production (see page 22). Several of the contributions in this Report show how food crops are supplanted by cash crops with grave impacts on the availability of food for *campesino* and native populations, affecting their food sovereignty and their autonomy.

Reduced local production of food due to its substitution by cash crops forces communities to depend on the market and commercialization networks from outside the region for their basic provisions. This is evident in the case from Honduras (see Guity, page 247), which describes how the expansion of African palm monoculture on Garifuna lands has affected the availability of wild fruits and game, and left some varieties of yucca at risk of extinction. The decreased availability of basic foods has led to increased food prices, and native inhabitants are now obligated to purchase food produced by other communities. This situation increases the vulnerability of poor families left at the mercy of the volatility of food prices, which affects their access to the same. This is directly connected to another fundamental element of the right to food which is economic sustainability, referring to the price of food in relation to income.

The article from Chile (see Bengoa, page 177) notes how, prior to the encroachment of the eucalyptus plantations, the population had lived very comfortably off of its grain, potato, corn, chili, and other crops, but the transformation of its fields into forestry plantations and the subsequent loss of access to food has now impoverished the *campesinos*. The case from Paraguay (see Barreto, page 279), describes how a community loses its food production capacity due to the soybean monoculture on adjacent plantations. When the plantations' fumigations coincide with the flowering stage of the community's legumes, they are severely affected by the herbicides, resulting in starkly reduced yields of the community's crops, obligating the purchase of food, which in turn requires that they take on outside jobs.

In his article on Central America (page 107), Aguilar analyzes the relation between lack of availability of food at the local level – due to agricultural policies oriented to promote monocultures for export through trade agreements - and the growing dependence on food imports in many countries of the region. Nicaragua and Honduras already register food deficits and are highly dependent on imports. The author also observes how the



trade agreements have contributed to a situation in which regional agricultural production is increasingly concentrated in a narrow group of products for export. This means that while total availability of food grows, it is not designated to local consumption, and is primarily accounted for by a notable increase of imports, provoking higher food prices, most strongly affecting the poor and extreme poor population sectors.

The lack of availability of food and dependence on food from elsewhere also reduce the quality and variety of the diet of communities and alter food customs, constituting another type of threat against the right to food. The internationally recognized right to food stipulates that food must be adequate, meaning that its quality must respond to the physiological needs of each stage of the human life cycle. The official right also establishes that food must be culturally adequate and accepted (see page 22).

In the framework of the human right to food, the States have the obligation to facilitate access to and use of productive resources for marginalized groups so that they may feed themselves. The States also have the obligation to protect the subsistence of marginalized social groups, such as native peoples and *campesinos* who have lost their access to food due to the expansion of monocultures often under the control of national or transnational companies.

### **Discrimination against *campesino* and indigenous family agriculture**

As the IAASTD report acknowledges, the public policies of the past 60 years have discriminated against traditional indigenous and peasant agricultural farming systems, as well as agro-ecological systems. While industrial agriculture enjoys subsidies and broad public support, controls the best lands, and has access to abundant water as well as road and energy infrastructure, *campesino* and indigenous family agriculture does not have secure nor sufficient access to quality lands, nor sufficient water for irrigation. *Campesinos* and indigenous groups are relegated to remote and marginalized areas, and generally work under extremely precarious conditions. Small family agriculture was severely affected by the implementation of structural adjustment programs during the 1980s, which led to the liberalization of agricultural trade and the dismantling of public systems of agricultural extension services, credit, supply, distribution, and trade, as well as price stabilization mechanisms. In countries such as Mexico, the destruction of much of the rural economy resulted in a forced mass exodus to cities and to the United States.

The case from Argentina in the present Report (see National Campesino-Indigenous Movement, page 141) notes the disappearance between 1998 and 2002 of farms smaller than 100 hectares (most of them smaller than 25 hectares) while the number of agricultural operations occupying more than 1,000 hectares increased.

On the other hand, the cases of Pernambuco in Brazil, Ecuador, Guatemala, and Mexico report how budget resources assigned to the sector are predominantly designated to foment monocultures and export agriculture, while public support for food crops and *campesino*/indigenous family agriculture amounts to mere pittance. Taking into account rural and indigenous poverty indexes and the obligation to use the maximum of avai-

lable resources to guarantee the progressive realization of the social rights of the most disfavored groups, the discriminative allocation of public resources in favor of investors and in detriment to the most impoverished sectors of the population constitutes a clear violation of State obligations vis-à-vis the ICESCR.

Furthermore, as Aguilar details in his article on Central America (page 107), the trade agreements and correspondingly-oriented food security policies, which include the elimination of tariff protections for national producers, have bankrupted small producers of basic grains by placing them in direct and disadvantaged competition with the large and highly subsidized producers in the northern countries. Those who survive are forced to dedicate themselves to export-oriented monocultures because they are the crops eligible for the most support. These factors have already had serious consequences on food sovereignty and the population's realization of its right to food in countries such as Nicaragua and Honduras.

### **Destruction of biodiversity, pollution, and climate change**

There is abundant literature on the genetic weakening and destruction of biodiversity caused by monocultures. Similarly, deforestation due largely to monocultures like soy and palm oil, in addition to destroying wild food sources, is responsible for producing close to one-fifth of total global emissions of CO<sub>2</sub>. On the other hand, monocultures demand intensive use of chemical fertilizers and pesticides that destroy biodiversity, pollute soils, rivers, subterranean water sources and springs, and gravely affect the health of communities.

Assuring stable and long-term food supply is part of State obligations in relation to the right to food. Failure to protect and guarantee the sustainable use of the natural resources necessary for food production, especially for marginalized groups, constitutes a State violation of the right to food of affected communities.

A large number of the articles and cases contained in this Report refer to one or more of these problems. For example, the article from Chile (see Bengoa, page 177) describes how pine and eucalyptus monoculture kills ground-level vegetation, and how the rest of Chile's once bountiful native forest and its local fauna have disappeared. In the case from Guatemala (see Frandejas, page 229), the industrial transformation and heavy application of agrochemicals and byproducts in the sugarcane and African palm plantations for agrofuels production affect the ecosystems surrounding the Biosphere Reserve of Sierra de las Minas and the Ramsar wetlands of the Bocas Wildlife Reserve on the Polochic River. The introduction of transgenic plants – integral element of the technological package associated with monocultures – in regions with high levels of biodiversity, poses enormous risks associated in particular with the possibility of transfer of modified genes to wild plants and local crop varieties, which could result in the disappearance of native crops, provoking grave imbalances in the ecosystems, as highlighted by Altieri (page 67).

As Mendonça points out in her article from Brazil (page 149), forests and grasslands

hold large amounts of carbon, indicating the inherent danger of increased carbon emissions posed by the transformation of these lands into vast monocultures for agrofuels. Deforestation to clear space for monocultures such as soybeans and palm oil, in addition to destroying wild food sources, is responsible for producing 17.3% of total global emissions of CO<sub>2</sub> according to the Intergovernmental Panel on Climate Change (IPCC). By sector, industrial agriculture is primarily responsible for 13.5% of emissions. Industrial agriculture emits practically the same amount of greenhouse gases as the transportation sector, which is a significant factor contributing to climate change.<sup>30</sup> All in all, as explained by Mendonça, the ethanol produced from sugarcane and the biodiesel made from soybeans cause more environmental damage than fossil fuels.

The articles by both Altieri and by Bejarano González (page 67 and 99) refer to the intensive use of chemical pesticides, including glyphosate and endosulfan, – prohibited in 60 countries – and the use of transgenic seeds. Their use today has increased as a result of governmental trade policies promoted over the course of several decades. In the article by Aranda on Argentina (page 135), precise examples are provided of the impacts of transgenic soybean monocultures, which carpet a total of 16 million hectares in that country, in which massive amounts of glyphosate are applied, polluting air, water, food and soil. As explained by Bejarano González, the agrochemicals have an intrinsic toxicity derived from the composition of their chemical molecules, and therefore can be defined as *agrottoxins* that kill not only pest organisms but also other living beings including pollinators and beneficial insects that serve to naturally control plagues, as well as other plants and animals such as amphibians and distinct organisms critical for biodiversity and environmental balance. The Bt transgenic crops, among other effects, can produce environmental toxins that leach into the soil and water, affecting invertebrates and probably upsetting ecological processes, as further discussed by Altieri.

Use of agrottoxins also threatens the realization of the right to food. One of the cases from Paraguay (see Barreto, page 279) documents how fumigations of transgenic soybean plantations destroy adjacent community food crops. When wild food sources are destroyed, lands, rivers and waterways are polluted, and the fish disappear, the rural communities that depend on the natural resources for their survival face stark difficulties to feed themselves and to do so with healthy and culturally appropriate food. As stated at the beginning of this section, stable and long-term supply of food is part of State obligations in relation to the right to food. The pollution of water resources also of course violates communities' human right to water.

Monocultures also seriously affect the human right to health of rural inhabitants. This publication includes several testimonies of the grave impacts on this right of monocultures based on transgenics that invariably include the use of high levels of agrottoxins. Several of these cases involve soybeans, of which South America's southern cone is now the world's primary exporter. Aranda (page 135) outlines the toxic and polluting effects of glyphosate, the most widely-used herbicide in the transgenic soybean industry. The communities adjacent to these plantations in Argentina suffer from eye irritations, headaches and stomach aches, genetic malformations, cancer, and reproductive problems.

Segovia (page 267) also describes the impacts on the right to health of the agrochemicals used for fumigations in soybean monocultures in Paraguay, including headaches, diarrhea, vomiting, skin afflictions, respiratory problems, and others. Bejarano González (page 99) provides examples from banana plantations in Nicaragua and in Ecuador where the high levels of agrottoxins have caused grave health problems among plantation laborers, including infertility, cancer, and birth defects among their children. Mendonça (page 149) notes the health impacts provoked by burning practices in the harvesting of sugarcane for ethanol production in Brazil. The burning destroys microorganisms in the soil, pollutes the air, and produces respiratory illnesses including asthma, and cardiac, arterial, and cerebral-vascular illnesses, with both acute effects such as increased deaths due to cardiac arrhythmia and strokes, and chronic effects from long-term exposure, including increased mortality from cerebral and cardiac illnesses and increased risk of lung cancer.

### **Concentration of access to irrigation water and unsustainable use of fresh water**

Monocultures demand large amounts of water. One of the articles from Brazil (see Mendonça, page 149) notes that according to research published in the *Natural Resources Research* magazine, 7,000 liters of water are needed to grow 12 kilos of sugarcane, employed for the production of one liter of ethanol. Monocultures are exhausting scarce fresh water reserves in several locations. The concentration of water resources in the hands of monoculture companies leads to its unsustainable use and unleashes conflicts over its access. Those primarily affected by this situation are the marginalized communities that, as noted in the section on the right to water, should be guaranteed sustainable access to hydrological resources, including irrigation water sufficient for subsistence agriculture and the exercise of their right to adequate food. Equitable access to water should also include sustainable rain water collection and irrigation techniques. The previous section also referred to the pollution of water sources provoked by this type of large-scale agriculture.

The large majority of articles and cases documented in this Report refer to one or more of the many water-related issues that in turn imply some type of violation of the corresponding right. Some of the most relevant issues are previewed here.

The article on Ecuador (see Zapatta, page 211) addresses several impacts related to water consumption in that country's agroindustry, with special emphasis on the concentration of access to irrigation water in the hands of companies through distinct mechanisms (the hoarding of water distributed through State irrigation systems; pumping of water from rivers and underground sources; deviation or interruption of waterways), in many cases without official permission. The case from Costa Rica (Cuadrado and Castro, page 191) indicates similar problems provoked by pineapple companies and denounced by local organizations, among other reasons for unauthorized deviation of waterways. One of the articles from Brazil (MAB, page 155) reflects on the strategic importance of water and the hoarding by transnational agricultural companies of strategic water

recharge areas and springs, among other issues. The most visible consequence of the concentration of water in few hands is the exclusion or loss of access to the resource by small producers and marginalized groups.

The depletion of water sources is another great cause of concern. In the case from Ecuador (see López and Landivar, page 219), the *campesinos* interviewed report how the construction of irrigation systems and deep wells in the mega-plantations has provoked a drop in water levels in their superficial wells, jeopardizing their water supply for domestic and subsistence agricultural production purposes.

In one of the cases from Paraguay (see Barreto, page 279), those interviewed denounce the fact that while prior to implementation of the monocultures they were able to extract water from a depth of ten meters, they now must go down as far as twenty meters, due to the overexploitation of the water table by unmitigated extraction on the part of the soybean companies. The other case from the same country (see Segovia, page 267) reports a case in which soybean companies have gone to the extreme of appropriating cisterns and tanks used to supply water to communities. In the Costa Rican case (Cuadrado and Castro, page 191), the pineapple producers have transformed protected lands, forests, and hydrological recharge areas into croplands, leading various waterways to dry out. This situation has left many communities without water, in particular during the summer months. In Chile (Bengoa, page 177), the pine and eucalyptus forestry plantations act like sponges, pulling water from the entire region, desiccating regional creeks and other waterways. In southern Mexico (see Castro, page 255), the explosion of oil palm plantations has aggravated the water situation of communities that lack public water distribution systems and must extract water from wells.

The problem of polluted water sources caused by indiscriminate application of agrochemicals is also noted in many of the cases included in this Report. The water supply of thousands of residents of Costa Rica's Caribbean region (see Cuadrado and Castro, page 191), is now contaminated. The pollution of several rural aqueducts in the northern region and many fresh water wells throughout the country has been recognized by various research centers and universities. In response, local organizations have filed legal suits alleging violation of the right to a healthy environment and the human right to water. The Constitutional Tribunal has ruled in favor of the plaintiffs in one of these suits, calling for the immediate purification and elimination of all pesticide residues from the water sources of the affected communities, ordering the company to remove the agrochemicals responsible for the water contamination, and even, if necessary, to abstain entirely from use of contaminating agrochemicals in its plantation. The Tribunal concluded by ordering that in compliance on the part of the company would result in its immediate closure. The article from Chile (see Bengoa, page 177) refers to the poisonings suffered in the Mapuche communities caused by the contamination of their drinking and irrigation water from the fumigations of the pine and eucalyptus monocultures that surround their communities. One of the Paraguayan cases (see Barreto, page 279) even documents the presence of empty agrochemical containers tossed into local creeks.

## Greater discrimination against rural women

The strong pressure for a shift from food crops to industrial crops bears the risk that men take over the control of land, water, and other productive resources from women so that they may use the women's former resources to plant higher-value cash crops. Export crops and agrofuels production can thereby exacerbate the inequality of access to land between men and women. This risk is particularly large in the case of so-called marginal lands in communities in Asia, Africa and Latin America, where strong incentives are used to promote cultivation of a particular crop, such as jatropha or others. The destruction of biodiversity due to industrial agricultural production disproportionately affects poor, rural women, undermining their knowledge of traditional uses of wild plants as food, fodder and medicine. The depletion of natural resources, especially water, can result in the violation of the right to food for women, since the production of agrofuels makes the task of supplying water for drinking and cooking uses more difficult.

Rural women are the world's primary food producers. According to the FAO, they produce 80% of the food in countries afflicted by hunger and malnutrition, and they constitute the majority of the world's agricultural population. However, cultural traditions and inherited social structures lead to situations in which women often suffer the consequences of hunger and poverty more sharply than men. Of those who currently suffer hunger in the world, 60% are women (WFP, UN World Food Program).<sup>31</sup>

Recent years have seen a shift toward the "feminization of agriculture," due to the fact that in many countries large numbers of men have emigrated from rural areas in search of work, while the women have remained in the communities in charge of the farming. At the same time, many rural women lack security of tenure over their lands, access to loans, and other fundamental resources needed to realize their right to food (see 3.1). The effects of monocultures and the usurpation of lands for the noted motive tend to most acutely affect women.

A FAO study<sup>32</sup> notes that the high global demand for agrofuels, in combination with expanding land needs, may place pressure on "marginal" lands, which in fact fulfill a key function for the subsistence of the rural poor, and are most often cultivated by women. The conversion of these lands into plantations for agrofuels production "might cause the partial or total displacement of women's agricultural activities towards increasingly marginal lands," with negative impacts on women's capacity to provide food, as warned by the study.

In her article, Filippini (page 123) refers to several cases from various Latin American countries in which testimonies are presented on the difficulties faced by women to gather the foods necessary for survival due to the expansion of tree monocultures at the expense of wild foods. Filippini describes how the foods available in the outskirts or along the borders of forests, to which the women have access, have disappeared, and how the women are therefore forced to travel deeper into the forests to areas of difficult access. This situation affects the availability of foods, which is a basic element of the right to food.

The exhaustion of water sources, among other natural resources, has a large impact on women's rights to water and food. The production of agrofuels with its excessive use of water and resources makes the tasks carried out by women to secure their families' water supply more difficult. This is demonstrated by Filippini with the case of Espirito Santo in Brazil, among other cases, where the depletion of regional water reserves by tree monocultures affects the availability of water for human and animal consumption and for local agriculture. Water has various crucial uses related to the tasks traditionally assumed by women. Barreto (page 279) explains in the Lote 8 case in Paraguay how the waterways in which women wash their families' cloths have been cut off within private properties, deviated, or dried out. These daily tasks have therefore become much more burdensome for the women, eventually affecting the enjoyment of their rights.

The loss of biodiversity due to industrial agricultural production disproportionately affects poor rural women, undermining their traditional knowledge and skills. In the case of eucalyptus monoculture in Espirito Santo, Brazil, the loss of forestry products including foods and medicinal herbs has translated into the loss of the prestige women once held as the ones who provided the necessary foods for their families as well as the ability to heal. Barreto (page 279) describes something similar in the Lote 8 case in Paraguay.

Another responsibility traditionally assumed by women and necessary for food production is the gathering of firewood. The disappearance of native forests has made this task more and more difficult. In many cases, plantation owners, such as the eucalyptus companies, prohibit the native populations from entering their plantations. In the case of Espirito Santo in Brazil, Filippini illustrates how disappearance of the forests also means the end of raw materials used in the fabrication of utensils and crafts, which in the case of the indigenous communities is an economic activity frequently developed by women and an important source of income. The loss of the forests thereby affects women's right to work and to an adequate standard of living.

The FAO<sup>33</sup> study demonstrates that employment opportunities within the monoculture plantations are plagued by inequalities. According to the study, women represent a growing percentage of the workforce (around 40% in Latin America and the Caribbean as a whole), but existing social inequalities leave women at a disadvantage to men in terms of wage levels, labor conditions, social benefits, training, and exposure to risks that affect their physical safety and health. In the cases described by Filippini, the majority of women employed in some way in the plantations work as peons, often hired through subcontractors, with no possibilities to improve their wages or benefits. They are often obligated to work in environments in which application of agrotoxins is virtually permanent, with specific impacts on the health of women. In the case from Pernambuco, Brazil (page 163), Bechara describes the precarious conditions of female laborers in the sugarcane plantations, with no labor rights guarantees and with serious health problems.

In the case she reports from Paraguay (page 279), Barreto documents the damages caused by agrotoxin fumigations of adjacent soybean crops. The entire Lote 8 population has been affected, but in particular the women, 55% of whom have suffered miscarriages. Various cases of blindness, skin afflictions among the children, and respiratory

difficulties are also reported, and regardless of who becomes ill, the women are left with a double burden as the primary caregivers. The lack of health protection for women workers and in compliance with environmental legislation also constitute violations of women's right to health, as stipulated in the ICESCR and more precisely elaborated in General Comment N° 14.

### **Precarious and inhumane labor conditions**

Dangerous and inhumane working conditions in plantations have been documented in several countries. Serious violations of the rights of the workers, for example, on sugarcane and palm oil plantations range from their overexploitation to the prohibition of formation of labor unions, and the imposition of forced and child labor. Working conditions, especially in the sugarcane sector, are degrading and dehumanizing, and fail to conform to provisions of international human rights law. In countries such as Brazil or Colombia, sugarcane harvesters are subjected to extremely poor conditions regarding food and accommodation, while labor relations are outsourced to third party cooperatives, which undermine their labor rights. Moreover, current labor conditions in the harvesting of sugarcane can compromise the physical integrity of workers, who are often the victims of serious illnesses resulting from their working conditions and malnutrition. In some cases, workers die as a result of these conditions. Exposure to pesticides is one of the most common problems in this sector. States have the obligation to protect workers from these disgraceful working conditions.

The present Report unfortunately does not address labor conditions in the monoculture plantations as a central topic. The primary focus of attention is the local communities who depend on agriculture for their subsistence and the competition for control over natural resources for food production. As we mentioned early, an integral human rights approach to the monocultures issue would need to also thoroughly address labor conditions on the plantations, which are only superficially addressed in this publication.

The articles by Filippini on gender, those from Paraguay and Costa Rica, and the articles on the impacts of agrottoxins in Mexico and Argentina, primarily highlight the impacts of intensive use of agrottoxins on the health of laborers. In the majority of the cases presented, the State fails to guarantee sufficient protection of both male and female laborers in relation to the application of agrochemicals.

The article on the case of Pernambuco in Brazil (Bechara, page 163) refers to multiple cases of slave labor in the sugarcane sector, as well as the unbearable labor conditions of women employed in the plantations. In the case from Guatemala (Fradejas, page 229), the author highlights the issue of the exceedingly low wages paid by the plantations, insufficient to meet even the basic nutritional needs of workers' families much less maintain an adequate standard of living.



## Persecution of social movements and human rights defenders

The persecution and criminalization of social, rural, and indigenous movements and activists struggling to defend their lands and territories and their economic, social and cultural rights in Latin America is not new, but rather has been reproduced under evolving modalities dating back to colonial times and continuing to the present day. However, in recent years, in particular since the events of 11 September 2001, a new trend is observed in which many governments have passed or modified laws to limit the rights of citizens under the pretext of eliminating terrorism. These laws have particularly affected social movements and those dedicated to defend economic, social and cultural rights. The struggle for access to natural resources in many cases is treated as a threat to national security. A notable increase is observed in Latin America of what is already known as “the criminalization of social protest.”<sup>34</sup>

The violence unleashed against human rights defenders and social movements and the criminalization process is most evident in the struggle for land and against inequalities in land distribution, as highlighted by the World Organization Against Torture (WOAT) in its parallel report on Brazil submitted to the UN Committee on Economic, Social and Cultural Rights in 2009.<sup>35</sup> The WOAT reports that the intensification of land conflicts and the increased numbers of landless *campesinos* and of forced evictions of *campesino* families are critical factors contributing to the explosion of violence and the murders of *campesinos*, indigenous peoples, and rural laborers.

The former UN Special Representative on Human Rights Defenders, Ms. Hina Jilani, called attention to the fact that human rights defenders who work on behalf of the rights to land, natural resources, and environmental issues in the Latin American countries are particularly exposed to aggressions and the violation of their rights consecrated in the Declaration on Human Rights Defenders.<sup>36</sup>

The contributions of the present Report also illustrate the persecution and criminalization of social movements. In one of the cases from Paraguay (page 267), Segovia describes the legal persecution of community leaders fighting against the fumigations in neighboring soybean plantations that cause various problems related to health, access to food and water, and adequate housing. In Yvypé, in the Department of San Pedro, transnational companies dominated by Brazilian businessmen, in 2004 began to illegally or semi-legally buy up *campesino* plots. Cases of severe violence have derived from the situation, including direct violence inflicted by State forces and by paid thugs hired by the Brazilian businessmen, all with the purpose to force the remaining small land-holders to sell their plots. The situation of incompetence and corruption permeating the government has hindered the inhabitants from securing any definitive solution in response to the multiple complaints they have filed with the pertinent authorities.

In Chile, the Mapuche social protest has resulted in a broad backlash of persecutions, deaths, detentions, and tortures at the hands of State powers. In his article (page 177), Bengoa describes how the Mapuche indigenous peoples in the Bío Bío region have suffered judicial persecution and State violence in response to their rejection of the abuses

of the forestry companies. In the past ten years, numerous indigenous organizations have confronted the forestry projects with protests that have included the burning of plantations, machinery, and installations. This conflict has left three indigenous people killed by the police forces, several young leaders in prison, and many others pursued by the police.

The article on Mexico (Castro, page 255) also reports the police persecution of union members in relation to the cultivation of African palm in the state of Chiapas.

## CONCLUSIONS AND PERSPECTIVES

The IAASTD is emphatic in its central message: business as usual is not an option (see page 289). Profound change is imperative in agricultural and food policies to confront the multiple crises (food, climate, energy) faced by the world today. The massive and systematic violations of the rights to food and to adequate housing, water, land, and territory, all linked to the multiple global crises, demand effective actions. In the transition toward sustainable management of production systems, the IAASTD recommends:

1. Diversified production in space and time (polyculture, crop and pasture rotation, etc.).
2. Satisfaction of family food needs and their contributions to the internal market.
3. Use of agroecological practices.
4. Reduction of energy costs of agricultural systems (less mechanization, shorter transportation distances, etc.).
5. Adequate use of the biomass produced within the systems.
6. Development of capacities based on the revaluation of local knowledge and proven technological innovations.

The article on Cuba in this Report (see Funes, page 201) shows that it is possible to transition toward more sustainable production systems and presents Cuba's concrete experience in this regard.

The coincidences with the alternatives proposed by the food sovereignty movement are clear. As manifested by the Nyéléni Declaration,<sup>37</sup> "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 the aspirations and needs of 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 and users. 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 incomes to all peoples as well as the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage 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 and economic classes and generations”.

Human rights, for their part, can contribute as mechanisms of oversight, denouncement, and remedy to reinforce the agrarian, environmental, and labor provisions that protect the human rights of the rural population.

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## NOTES

<sup>1</sup> As mentioned in the initial paragraphs, and as further discussed in the article by Cerdas (page 49), current global agricultural and trade policy – which promotes monoculture-based agriculture – has been designed essentially by the governments of the United States and the European Union. The interests of these countries are therefore strongly reflected in the results of these policies, with devastating impacts in the global South. We think it is necessary that civil society, academics, and representatives of diverse sectors in the different countries dialogue among themselves to find joint strategies to confront the domination of monocultures. Civil society actors in Europe and the United States have the responsibility to inform in their countries regarding the negative impacts of monoculture-based agriculture on the human rights of the population in the global South, and to demand that their governments be accountable and assume responsibility for the distinct problems detailed in this and other works on this issue. In the context of the food, energy, and climate change crises, it is increasingly urgent to call attention to the grave problems caused by the current development model, especially reflected in agriculture. It is our hope that this Report, presented for the first time in the activities parallel to the Copenhagen Climate Summit in December 2009 and coordinated by three organizations, two of which are based in Europe, may serve as an important tool for the dissemination of information and shaping of policy in that continent.

<sup>2</sup> For a complete version of the Guidelines, see: <http://www.fian.org/noticias/noticias/monocultivos-y-derechos-humanos/?searchterm=monocultivos>

<sup>3</sup> See the web page (in Spanish only) of the Latin American Network Against Dams and in favor of Rivers, their Communities, and Water (*Red Latinoamericana contra Represas y por los Ríos, sus Comunidades y el Agua – REDLAR*), Report on the World Commission on Dams. <http://www.redlar.org/Medios/display/fileid/122>

<sup>4</sup> “Soja, pasteras y mineras, el mismo modelo,” by Darío Aranda, interview with Javier Rodríguez Pardo and Luis Manuel Claps, page 12, 7 October 2009: <http://www.pagina12.com.ar/diario/sociedad/3-133062-2009-10-07.html>

<sup>5</sup> Such as Puerto da Cargill, constructed in the Brazilian Amazon with the purpose to export soybeans. See (in Portuguese): [http://www.greenpeace.org/brasil/amazonia/noticias/estudo-de-impacto-ambiental-do\\_](http://www.greenpeace.org/brasil/amazonia/noticias/estudo-de-impacto-ambiental-do_)

<sup>6</sup> General Comments are interpretations formulated by the CESCR regarding the content of the ICESCR and contributing to delimit the scope of the articles of the Covenant. They operate as a source of authorized interpretation for the Covenant’s internal application by State public authorities.

<sup>7</sup> General Comment N° 12 may be consulted at: <http://daccessdds.un.org/doc/UNDOC/GEN/G99/420/15/PDF/G9942015.pdf?OpenElement>

<sup>8</sup> General Comment N° 4 may be consulted at: <http://www.unhchr.ch/tbs/doc.nsf/0/469f4d91a9378221c12563ed0053547e?OpenDocument>

<sup>9</sup> Including very significantly the HIC Housing and Land Rights Network (HLRN). See: [www.hlrn.org](http://www.hlrn.org)

<sup>10</sup> See reports of the UN Special Rapporteur on adequate housing at: <http://www2.ohchr.org/english/issues/housing/annual.htm>, in particular the Questionnaire on women and housing, Annex 3, A/HRC/4/18, February 2007, <http://www2.ohchr.org/english/issues/housing/women.htm>

<sup>11</sup> General Comment No. 7 may be consulted at: [http://www.unhchr.ch/tbs/doc.nsf/\(symbol\)/CESCR+General+Comment+7.En?OpenDocument](http://www.unhchr.ch/tbs/doc.nsf/(symbol)/CESCR+General+Comment+7.En?OpenDocument)

<sup>12</sup> See: *Handbook on the UN Basic Principles and Guidelines on Development-Based Evictions and Displacement*, HLRN and YUVA, New Delhi, November 2008: <http://www.hic-sarp.org/UN%20Handbook.pdf>

<sup>13</sup> The Basic Principles on Evictions are found in Annex I of the Special Rapporteur’s Annual Report, and may be consulted at: [http://www2.ohchr.org/english/issues/housing/docs/guidelines\\_en.pdf](http://www2.ohchr.org/english/issues/housing/docs/guidelines_en.pdf)

<sup>14</sup> Agreement 169 may be consulted at: <http://www.ilo.org/ilolex/cgi-lex/convds.pl?C169>

<sup>15</sup> The complete Declaration may be consulted at: <http://daccessdds.un.org/doc/UNDOC/GEN/N06/512/10/PDF/N0651210.pdf?OpenElement>

<sup>16</sup> See, for example, the Final Declaration of the Forum on Land, Territory and Dignity held parallel to the International Conference on Agrarian Reform and Rural Development, available at the “Tierra, Territorio y Dignidad” web site at: [http://movimientos.org/cloc/fororeformagraria/show\\_text.php3?key=6595](http://movimientos.org/cloc/fororeformagraria/show_text.php3?key=6595)

<sup>17</sup> See Human Rights Council, 2007. Report of the Special Rapporteur on adequate housing as part of the right to an adequate standard of living, Miloon Kothari. UN Doc A/HRC/4/18, paragraphs 25-31. See also Human Rights Commission, 2005. Economic, social and cultural rights. Report of the Special Rapporteur on adequate housing as integral element of the right to an adequate standard of living and on the right to non-discrimination in this regard. Mr. Miloon Kothari. UN Doc. E/CN.4/2005/48.

<sup>18</sup> See UN General Assembly. The right to food. Report prepared by Mr. Jean Ziegler, Special Rapporteur of the Human Rights Commission, in conformity with UN General Assembly resolution 56/155 of 15 February 2002. UN Doc. A/57/356. See also UN General Assembly. The right to food. Building resilience: a human rights framework for world food and nutrition security. Report prepared by UN Special Rapporteur on the Right to Food, Mr. Olivier de Schutter. UN Doc A/HRC/9/23, 8 September 2008.

<sup>19</sup> See paragraphs 5 and 32 of General Comment N° 6 (1995) on the economic, social and cultural rights of older persons.

<sup>20</sup> See General Comment N° 14 (2000) on the right to enjoyment of the highest possible level of health, paragraphs 11, 12 a), b) and d), 15, 34, 36, 40, 43 and 51.

<sup>21</sup> See section b) of paragraph 8 of General Comment N° 4 (1991). See also the report on adequate housing as part of the right to an adequate standard of living, prepared by former UN Special Rapporteur on adequate housing, Mr. Miloon Kothari, (E/CN.4/2002/59) and presented in conformity with resolution 2001/28 of the UN Human Rights Commission of 20 April 2001. In relation to the right to adequate food, see the report of the UN Special Rapporteur on the right to food, Mr. Jean Ziegler (E/CN.4/2002/58), presented in conformity with resolution 2001/25 of 20 April 2001.

<sup>22</sup> General Comment No. 15 may be consulted at: <http://www1.umn.edu/humanrts/gencomm/escgencom15.html>

<sup>23</sup> This relates to both *availability* and *accessibility* of the right to adequate food (see General Comment N° 12 (1999), paragraphs 12 and 13).

<sup>24</sup> See also the Statement of Understanding accompanying the United Nations Convention on the Law of Non-Navigational Uses of Watercourses (A/51/869 of 11 April 1997), which declares that in determining vital human needs in the event of conflicts over the use of watercourses, “special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for production of food in order to prevent starvation.” See: <http://www.unhcr.org/cgi-bin/texis/vtx/refworld/rwmain?docid=4538838d11&page=search>

<sup>25</sup> “Continuous” means that the periodicity of water supply must be sufficient for personal and domestic uses.

<sup>26</sup> The home may be a permanent house or a place of provisional lodging.

<sup>27</sup> See General Comment No. 3 of the Committee on Economic, Social and Cultural Rights; the Limburg Principles on Implementation of the International Covenant on Economic, Social and Cultural Rights drafted by a team of experts in 1986 and adopted by the UN (Doc. E/CN.4/1987/17); and the Maastricht Guidelines on violations of Economic, Social and Cultural Rights subscribed in 1998, which have been employed by the Committee on Economic, Social and Cultural Rights to evaluate the States Reports and to elaborate the General Comments.

<sup>28</sup> For information on the mandate of the Special Representative, see: <http://www.business-humanrights.org/Updates/Archive/SpecialRepresentativeMandate> The reports of the Special Representative may be consulted at: <http://www.business-humanrights.org/Gettingstarted/UNSpecialRepresentative>.

<sup>29</sup> The Regional Evaluation for Latin America and the Caribbean may be consulted at: [http://www.agassessment.org/docs/LAC\\_SDM\\_130508\\_English.htm](http://www.agassessment.org/docs/LAC_SDM_130508_English.htm)

<sup>30</sup> IPCC 2007. Climate Change. Mitigation of Climate Change.

<sup>31</sup> See: <http://www.wfp.org/hunger/stats>

<sup>32</sup> FAO (2008), Gender and Equity Issues in Liquid Biofuels Production – Minimizing the Risks to Maximize the Opportunities.

<sup>33</sup> *Ibid.*

<sup>34</sup> Oscar Correas Vazquez, “Criminalization of social protests in Mexico and Latin America.” Universidad Nacional Autónoma de México –UNAM. Paper presented at the annual meeting of the The Law and Society Association, TBA, Berlin, Germany, 2007.

<sup>35</sup> For a copy of the Alternative Report see: [http://omct.org/pdf/ESCR/2009/JB-OMCT-MNMMR\\_Alt\\_report\\_CESCR\\_Brazil.pdf](http://omct.org/pdf/ESCR/2009/JB-OMCT-MNMMR_Alt_report_CESCR_Brazil.pdf)

<sup>36</sup> See UN General Assembly. Report presented by Ms. Hina Jilani, Special Representative of the Secretary General on the situation of human rights defenders. UN Doc A/HRC/4/37, 24 January 2007, paragraph 40.

<sup>37</sup> See: [http://www.nyeleni.org/?lang=en&lang\\_fixe=ok](http://www.nyeleni.org/?lang=en&lang_fixe=ok)



# *General Analysis*





# *Monocultures and agrofuels: key elements for debate*

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## **MONOCULTURES AND AGROFUELS: ONE AND THE SAME THING**

Although they are not precisely new, the so-called “biofuels” are presented today throughout the world as the great alternative to fossil fuels. Companies and governments compete fiercely for global control of this new agroindustrial branch, while at the same time investing enormous efforts to extol the virtues of said fuels as environmentally correct, painting a “green” aura around them to disperse any lingering shadow of doubt. Nevertheless, as the world fever for production of plant-based fuels increases, the evidence also accumulates testifying to the grave impacts of massive-scale production and commercialization of the same on the environment and on rural communities and urban populations, as well as their role in the food crisis affecting millions of people in the countries of the South, whose numbers have particularly expanded over the past months.<sup>1</sup>

We would like to begin by objecting to the prefix “bio” (meaning life) to refer to these fuels. Those who promote their grand-scale use coined the term “biofuels” to make them acceptable in the eyes of producers and consumers throughout the world. However, important *campesino* organizations from across the planet, within the framework of the World Forum on Food Sovereignty (Mali, Africa, 2007), minted the concept “agrofuels” with the purpose to highlight the connection that exists between their production and

agribusiness. We coincide with this proposal and therefore borrow use of this concept to refer to the fuels extracted from various types of biomass.

Agrofuels and monocultures are in fact one and the same thing: the former obtained thanks to the large-scale cultivation of corn, sugarcane, jatropha (pine nut), canola, African palm, soybeans, or eucalyptus, in all of these cases provoking very severe environmental damages (desertification, contamination of soils and water resources with copious amounts of agrottoxins, monopolization and exhaustion of already-scarce water supplies, in addition to the socio-economic and other damages to agriculture and rural ways of life). The increasingly higher production of agrofuels will only be possible through the expansion of monocultures to unprecedented levels in the countries of the South, deepening the old structures of domination solidified through export-agriculture monoculture.

The boom in agrofuels production may be attributed to the adoption of official policies oriented to reduce oil dependency in countries such as Brazil, the United States, the European Union, Japan, China, and India, among others, through the complementary use of agrofuels mixed in different proportions with fossil fuels. These countries favor the leadership of their transnational corporations (oil, agrochemical, agribusiness, and other companies), as well as their high-level research institutes, in the research, production and commercialization of fuels from plant sources. In addition, the recent Memorandum of Understanding between Brazil and the United States to promote the production of agrofuels and supply the North American market, to which we refer later in this text, has accelerated the process at the global scale, given the position of these two countries as the highest global producers of ethanol (Brazil from sugarcane and the US from corn).

While the hegemonic power groups in Latin America are making decisions shaped by strong corporate interests that envision a new and lucrative sphere of business, the information that circulates regarding said decisions is limited, does not enter into any level of analysis, and most often is simple propaganda in favor of the agrofuels. Said propaganda focuses on highlighting the supposed virtues of agrofuels to counter the environmental damages of oil-based fuels, reduce external dependency on the same, and, if that were not enough, create jobs for the impoverished campesinos of our countries. In addition, said propaganda takes care to disqualify as “myths” all arguments that dare to question agrofuels as viable energy alternative.

## THE GLOBAL CRISIS OF THE FOSSIL-FUELS BASED ENERGY MATRIX

The current energy matrix is based on intensive and almost exclusive use of fossil fuels. Said matrix initiated with the first industrial revolution and its use of technologies based on consumption of coal (and later oil), which propelled the productive forces of capitalism to never-before-seen levels. This matrix is currently in the midst of a profound crisis, evidenced not only by the progressive and accelerated exhaustion of the raw ma-

terials that make it possible (leading the world's economic-political powers to ferocious competition for their control), but also by the grave environmental consequences that accompany fossil fuels, graphically expressed in global warming and climate change.

The accelerated economic growth that followed the Second World War consolidated the fossil-fuels based energy matrix, which is currently divided among consumption of oil (between 35 and 38%), coal (23%) and natural gas (21%), the three of which together generate approximately 80% of the planet's total energy consumption. The ten wealthiest countries consume the majority of this energy, generated from raw materials most often not originating from their own territories.

Despite the apparent abundance of these energy resources, various estimates predict that the "oil peak," in other words, the moment in which global production of crude will reach its historic maximum, will occur sometime before the year 2020, after which production will decline while consumption continues to grow. The disproportion between available and potential reserves and steeper and steeper growth in consumption will inevitably form an insurmountable crisis of the fossil-fuels based energy matrix.<sup>2</sup>

Four times more oil is currently consumed per year than the amount discovered in the same period. Data from 2005 indicate annual global consumption of 30 billion barrels<sup>3</sup> versus discoveries of only 8 billion barrels. In addition, it has become increasingly expensive and difficult for the oil companies to find and access new reserves to sustain current consumption rates and those foreseen for the coming years. As we noted, once the oil production peak is met, real reserves will begin to systematically decline at the same time that consumption continues to expand.

To quote the International Energy Agency's World Energy Outlook 2008:

*"The findings of a detailed field-by-field analysis of the historical production trends of 800 fields, set out in Part B of this Outlook, indicate that observed decline rates (the observable fall in production) are likely to accelerate in the long term in each major world region (IEA, 2008: 12)."*<sup>4</sup>

It is in this context that the United States, the European Union, and other world economic powers (including Brazil) have been encouraging massive production of agrofuels in Latin America and other regions. We therefore consider it necessary to place the issues related to agrofuels within the framework of the crisis of contemporary, monopolistic and transnational capitalism controlled by financial capital and unconcerned with what happens to the environment or to peoples and their identities and productive and cultural practices. To a large degree, the discussion surrounding the current energy crisis, based on fossil fuels, is a false discussion. Said debate in reality hides the fact that what is actually in crisis is the production model itself: industrial-financial capitalism, with its complex machinery and its sophisticated networks of production and circulation of merchandise and capital. Agrofuels:

*"...are seen as an ecologically correct energy source, capable of compensating, although partially, the scarcity of oil without aggravating global warming. Ethanol, like biodiesel, is considered a "zero emission" fuel, given that the carbon liberated in its combustion is equivalent to that which the plants used as raw material accumulate in their natural growth. In summary, the*

*perfect solution...*<sup>5</sup>

However, those who promote agrofuels omit mention of the social and environmental impacts of the crops used for their production in the gigantic scale necessary to fulfill established objectives in the countries in which they are grown and in fact the planet as a whole.

The experience to date in countries such as Brazil and Colombia, to mention only two nations in the region, - experience that is reflected in the cases presented in this Report - demonstrates that agrofuel production not only does not constitute a true alternative to the current energy matrix, but also that it inserts within it and simultaneously reproduces colonial relationship patterns between the countries designated to provide the raw materials and those that consume the final products (without ignoring the creation of a market for agrofuels within the raw materials-producing countries). As we will see further below, the research, production and commercialization of agrofuels is controlled by the same large capitals that already control the oil industry, and that seek, through this route, to assure the growing reproduction of capital at the global scale, regardless of the environmental and human costs.

As pointed out by Vélez and Vélez,<sup>6</sup> we affirm that we are faced today not only with a clear international division of labor, but also an international division of nature that marks a sharpening of the capital-nature contradiction, in addition to the already structural capital-labor contradiction. Agrofuel expansion obligates our countries to convert into providers not only of labor but also of “clean and cheap” energy to the hegemonic capitalist countries, which supposes the historic continuity of the colonial models.

The policies oriented to favor the production of agrofuels in our countries are sustained in the same elements that characterized colonization from the 16th through the 19th centuries: appropriation of the territory, natural goods and labor, which translates into greater concentration of power, profit, and energy resources.

## WHAT ARE AGROFUELS, WHAT INTERESTS SURROUND THEIR MASSIVE PRODUCTION, AND WHAT ARE THEIR POSSIBLE SOCIAL AND ENVIRONMENTAL IMPACTS?

Agrofuels are any type of fuel, either liquid or gaseous, originating from plant biomass.<sup>7</sup> The United Nations Food and Agriculture Organization (FAO) defines biofuels as those fuels:

*“produced directly or indirectly based on biomass, such as firewood, coal, bio-ethanol, bio-diesel, biogas (methane) or bio-hydrogen” (Moreno and Mittal, 2008: 32).*<sup>8</sup>

Biomass in turn is:

*“material of biological origin (excluding the material encrusted in geological formations and transformed into fossil), such as: energy crops, agricultural and forestry residues and sub-products, animal manure, and microbial biomass” (Moreno and Mittal, 2008: 32).*

The fuels produced based on biomass can be used to partially substitute fossil fuels such as gasoline and diesel. The most developed agrofuels are currently ethanol and plant-derived diesel, which are obtained from the processing of various “energy crops” (as euphemistically referred to by the FAO), including sugarcane and corn (in the case of ethanol) and oleaginous crops such as soybeans, canola, oil palm and pine nut (from which plant-based diesel is obtained). Ethanol and plant-based diesel are referred to by their proponents as “first generation biofuels,” and it is important to note that the production of these fuels is controlled by large corporations linked to the oil, agribusiness, and auto industries, among others, through the control of enormous extensions of land and by various intellectual property regimens applied to genetically-modified seeds, and of course through control of the plantations or the crops through which the fuels are developed.<sup>9</sup>

For those who promote the production and use of agrofuels, their benefits are practically infinite. As we have indicated, they are hailed as the best possible alternative to fossil fuels, but it is also affirmed that they will create thousands of jobs, especially in the countries of the South, where they will transform the “idle lands” of thousands of poor campesinos into “productive” crops. They are also presumed to clean the air and effectively counter climate change. In the words of the nongovernmental organization, GRAIN:

*“It would appear that the greenhouse gas emissions responsible for global warming would substantially decrease given that the CO2 emitted by the cars that function with the fuels derived from biological material had been previously captured by the plants that produced it. The countries would become more self-sufficient in their energy needs since they could “grow” their own fuel. The rural economies and communities would benefit since there would be a new market for their crops. And the poor countries would have access to a new and exuberant export market.”<sup>10</sup>*

But it is necessary to contrast such discourse with the concrete evidence generated in recent years regarding its large-scale production and consumption, which presents a very different face of the equation. It is also helpful to look at available data that illustrate the magnitude of the agrofuel business, and who in fact are its direct beneficiaries.

The world’s primary producers of ethanol are Brazil and the United States (contributing 45% and 44% of global production, respectively), and the main producers of plant-based diesel are Germany and France (63% and 17%). Industrialized countries such as Japan, and other rapidly emerging economies such as China and India, have also entered the agrofuels production field.<sup>11</sup> Brazil produces ethanol from sugarcane while the U.S. uses corn, raising the questions of the possible environmental impacts of growth of these monocultures, and of the food implications of designating expanding tracts of cropland to non-food purposes.

Despite this marked international interest in plant-based fuels, with the exception of Brazil where 45% of total energy consumed in the country is derived from non-fossil fuels (Moreno and Mittal, 2008: 16), consumption of plant-based fuels in the industrialized countries is far from generalized, reaching an average of only 6% among members of the Organization for Economic Cooperation and Development (OECD) which integrates the world's 30 most economically-developed countries including the primary industrial powers.

In response, the United States, Japan, and the European Union among others are adopting measures to raise consumption of these fuels, increasing it to as much as around 20% on average, in the areas of public transportation, automobiles, and other industrial uses, as part of goals proposed to be met by the year 2020. In order to guarantee fulfillment of these objectives, the OECD members now allocate massive incentives and subsidies to research on and production of agrofuels, whose monetary value is estimated at around 15 billion dollars per year. The purpose of these resources is to stimulate research and production of agrofuels both within the territory of OECD-member countries and especially in third countries in Africa, Asia and Latin America.<sup>12</sup>

This enormous flow of resources to stimulate agrofuels-related activity has facilitated the establishment of unprecedented alliances between the oil, petrochemical and agribusiness giants, supported by State and academic entities, international institutions, and even space research. It is revealing to note the fact that agrofuel crops currently constitute the fastest growing segment in global commercial agriculture (for example, in 2006 alone, global production of ethanol increased 22%, and the trend since has continued upward). These factors favor articulations between enormous financial interests around the research, production and massive marketing of plant-based agrofuels.

To summarize, the accelerated growth of global agrofuels trade is a phenomenon that converges in time with the expectations regarding real availability of fossil fuels: the maturity of the global agrofuels business would coincide with the "oil peak" around the year 2020. It could well be characterized as an attempt to obtain higher profits while at the same time delaying the critical moment in which lack of fossil fuels tips the capitalist production mode into progressive collapse.

Some of the corporations already participating in this multi-million dollar business are:

**Table N° 1**

**Some transnational corporations and State entities linked to first-generation agrofuels production, by activity sector**

<i>Electric, automotive and/or transportation industry</i>	<i>Agroindustrial and petrochemical corporations</i>	<i>Oil companies</i>	<i>State entities, research centers, and international institutions</i>
<ul style="list-style-type: none"> <li>• Daimler-Chrysler</li> <li>• Boeing</li> <li>• Toyota</li> <li>• General Electric</li> </ul>	<ul style="list-style-type: none"> <li>• DuPont</li> <li>• British Sugar</li> <li>• Cargill</li> <li>• Syngenta</li> <li>• Monsanto</li> <li>• BASF</li> <li>• Archer Daniels</li> </ul>	<ul style="list-style-type: none"> <li>• Exxon Mobil</li> </ul>	<ul style="list-style-type: none"> <li>• NASA (USA)</li> <li>• Petrobrás (Brazil)</li> <li>• University of California (USA)</li> <li>• Lawrence Berkeley National Lab (USA)</li> <li>• University of Illinois (USA)</li> <li>• United Nations Environment Program (UNEP)</li> <li>• United Nations Food and Agriculture Organization (FAO)</li> </ul>

*Source: ETC Group, 2007: 8-9; Moreno and Mittal, 2008: 19.*

Because the “first-generation agrofuels” have been criticized for competing with and threatening human food production, several transnational companies and State institutes are currently developing alliances to produce “second-generation agrofuels,” either improving current crops (such as through genetically-modified sugarcane) or developing new crops for energy extraction from biomass, most significantly eucalyptus and other forestry plantations to produce cellulosic ethanol (ETC Group, 2007: 10-12). These new agrofuels will supposedly -this time for sure-- be the perfect solution, because they do not directly compete with human food and are developed based on forestry plantations, contributing further to combat climate change.

Nevertheless, it must be pointed out that the large-scale production of cellulose-based agrofuels requires the expansion of forestry monocultures, which entails a series of problems including the intensive use of fertilizers and the introduction of genetically-modified<sup>13</sup> varieties without full understanding of the environmental impacts of releasing said plant species modified in scientific laboratories. The eucalyptus and other monoculture plantations are now known in Chile as “planted armies,” occupying vast extensions of land and threatening the traditional livelihoods of the inhabitants expelled by the expansion of this business. In Indonesia, eucalyptus is known as “the selfish tree,” in reference to how it hoards for itself all of the water necessary to grow rice, which forms the basis of the rural diet and economy in said country.<sup>14</sup>



**Table N° 2**  
**Some transnational corporations and State entities**  
**linked to second-generation agrofuels production, by activity sector**

<i>Agroindustry Genetic industry</i>	<i>Oil companies</i>	<i>Research centers, State entities</i>
<ul style="list-style-type: none"> <li>• Cargill</li> <li>• Synthetic Genomics</li> </ul>	<ul style="list-style-type: none"> <li>• Chevron Corporation</li> <li>• Shell</li> <li>• Royal Dutch Shell</li> </ul>	<ul style="list-style-type: none"> <li>• Canavieira Technology Center (Brazil)</li> <li>• China Resources Alcohol Corporation</li> </ul>

*Source: ETC Group, 2007: 8-9*

It is also important to note that the lobbying in favor of agrofuels has included the fervent participation of important United States conservationist and environmental organizations, including the *Environmental Defense Fund*, *Sierra Club*, *Natural Resources Defense Council* and *National Wildlife Foundation*, which see in agrofuels a viable solution to global warming, and which hold significant weight in the formation of public opinion and in decision-making in the power structures in said country on this theme.<sup>15</sup>

The impact of agrofuels on increased prices and reduced availability of food for millions of people in the countries of the South is another critical aspect to consider.<sup>16</sup> Food prices jumped 37% in 2007 compared to the previous year as a direct result of agrofuels promotion policies (Moreno and Mittal, 2008: 24). According to information reported in the British newspaper *The Guardian*, a World Bank report, kept secret by order of the government of George W. Bush, revealed that agrofuels in fact had a much greater role in the rise in global food prices than officially reported by said financial institution.<sup>17</sup>

An analysis of the prices of a selection of the most highly consumed foods (wheat, soybeans, corn, rice, among others), shows that prices have risen 140% since 2002, relegating more than 100 million additional people to hunger and poverty. While the increase in oil and agrochemical prices explains 15% of the food cost increase, agrofuels are responsible for 75% of the price increase occurred during the period of study (2002-2008), according to said World Bank report. The massive production of agrofuels unleashes increasing pressure to favor crops for fuel production over food production, redirecting the priorities of producers in industrialized countries and fomenting financial speculation involving the value of products directed to fuel production.

In order to achieve the production goals of the industrialized countries, which call for the substitution of between 20 and 25% of gasoline with ethanol, the size of agrofuel crops will need to expand at a colossal scale. For example, the entire United States corn harvest would barely suffice to achieve a 12% mix of ethanol in gasoline, and the entire soybean harvest would barely supply the 6% mix of plant-based diesel in fossil diesel. But even the sum of the entire current corn crops of the world's two largest producers, the United States and Brazil, would not be enough to achieve the proportion of these fuels proposed by the Bush administration (GRAIN, 2007; CPT-Red, 2007).

For its part, as alluded to earlier, the European Union has proposed that by the year 2020, 10% of all fuel required by the transportation sector must come from renewable sources, within which it theoretically includes biogas, agrofuels, and hydrogen and electricity from renewable origins. However, most of this is expected to be covered by first-generation agrofuels. Given that, as we have seen, the plant-based fuel goals can not be achieved by these countries' own production, the industrialized countries are already outsourcing the industry to the countries of the South, whose territories will bear the burden of massive production of said crops. And their impoverished populations will be the first ones to pay the price for the negative and even yet unforeseen consequences of this activity. Along these same lines, the accelerated destruction of enormous portions of forest coverage in various regions of the world is directly associated with the expansion of the agrofuels industry. To restate what we all know: forests are indispensable to regulate greenhouse gas emissions such as carbon, methane, and nitrous oxide, and forests also regulate the climate (by exchanging humidity and energy with the atmosphere) and planetary hydrological cycles (Smolker, 2007: 9).

But in addition to the above, the direct damages of agrofuels on human health can be greater than those of gasoline and diesel. This is affirmed by an article published on 2 February 2009 in the British newspaper *The Guardian* titled "Biofuels more harmful to humans than gasoline and diesel, warn scientists,"<sup>18</sup> in reference to recent research indicating that plant-based fuels can produce more severe damages to human health and the environment, and therefore also directly harm the economy even more, than fossil fuels.

The health damages caused by fossil fuels are well known and studied, and as we know are produced by the pollution resulting from the internal combustion in conventional motors and by the industrial use of fossil fuels. In the case of agrofuels, the text indicates that "*the problems are caused by particles given off during their growth and manufacture.*" In that sense:

*"Corn requires nitrogen fertilisers and some of that comes on as ammonia, which is volatilised into the air, (...) The ammonia particles are charged and they attract fine dust particles. They stick together and form particles of the size of 2.5 micron<sup>19</sup> and that has significant health impacts..." (The Guardian, 02/02/09).*

Some of the illnesses caused by agrofuels mentioned by the article include asthma, heart disease, chronic bronchitis, and premature death. The study even recommends slowing down the introduction of agrofuels until its effects are better known and more effective

controls can be put in place. While these recommendations do not solve the problems, the fact that a recommendation is made in this sense is very significant.

Despite all the information noted above, for institutions such as the Inter-American Development Bank (IADB), the growth of agrofuel demand will benefit the countries of the South, including Latin American and Caribbean countries. The IADB estimates that in order to satisfy 5% of global agrofuel demand, the amount of land and resources dedicated to its production will need to be multiplied by five, through the massive expansion of production capacity in these countries. A critical case is provided by Brazil, which already dedicates 6 million hectares to agrofuel crops, while the IADB recommends that it dedicate an additional 120 million hectares for this purpose! (GRAIN, 2007; Moreno and Mittal, 2008). The environmental and social impacts of such an adventure are incalculable in terms of lost Amazonian forest, crop lands farmed by small and mid-sized rural producers and other lands apt for farming, and ecological diversity, as well as the resulting large-scale contamination, etc.

For the IADB, regions such as Sub-Saharan Africa and Eastern Asia can contribute, together with Latin America and the Caribbean, to meet more than 50% of agrofuel demand by the year 2050, if by that year they “...replace current inefficient and low-intensity agricultural systems with best practices in the area of agricultural management systems and technologies” (GRAIN, 2007: 4), in other words, replace millions of hectares dedicated to small production or environmental preservation with enormous plantations of genetically-modified crops. Furthermore, quoting again from the text disseminated by GRAIN:

*“They seize millions of hectares of what the ideologues of the model euphemistically call ‘barren lands’ or ‘marginal soils,’ conveniently forgetting that millions of persons from local communities live off of those fragile ecosystems. And where there are no indigenous agricultural systems to replace, they simply take the forests” (GRAIN, 2007: 4).*

In the case of Latin America and the Caribbean, the IADB promotes an aggressive strategy to stimulate agrofuels through credits and technical advisory to countries such as Colombia, El Salvador, Honduras, Guatemala, and others, supporting private and public projects and fomenting large-scale rural production conversion and investment in transportation and storage infrastructures, among other measures.

On this point, it is important to refer more broadly to the case of Brazil, given the weight of its policy on the theme in the entire region. The Brazilian government has proposed to foment the production and commercialization of agrofuels in response to the creation of a broad global market for these energy commodities. Brazil’s technological leadership in ethanol production is based on an aggressive public policy of research and promotion, which has especially favored the very powerful sugarcane sector, which has controlled enormous tracts of land in said country for centuries, dating back to the beginning of Brazilian sugarcane production in the colonial era (CPT-Red, 2007).

Sugarcane monoculture in Brazil today occupies some 6.9 million hectares, half of which is dedicated to ethanol production (other agrofuel crops such as soy and corn also occupy vast extensions of land). But the agrofuels boom, based on intensive monoculture,

is provoking irreversible environmental and social effects, as already outlined. It is also important to recall the deplorable labor conditions of thousands of peons employed in the sugarcane plantations and other “energy crops.” As documented in the article titled “Sugarcane monoculture and its impact on women in Pernambuco, Brazil” included with this Report, human rights are systematically violated in the sugarcane industry. Slave labor is a norm, and many workers die, either burned, asphyxiated or exhausted, during their long workdays.

In Latin America and the Caribbean, agrofuels are already produced or plans are in place for their cultivation and expansion in: Brazil, Argentina, Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, El Salvador, Mexico, Paraguay, Peru, Uruguay, and Venezuela. Some of these and a few others, including Costa Rica, El Salvador, the Dominican Republic, Nicaragua, Jamaica and Panama, participate as intermediaries in the trade of ethanol produced in Brazil sent to the North American market, taking advantage of preferential tariffs for entry of this commodity to the giant of the North.<sup>20</sup>

To close this analysis of the impacts of agrofuels, we note in synthesis that the evidence is clear that agrofuels produced through the monoculture regimen not only do not contribute to alleviate climate change, but in fact aggravate it, in addition to producing deforestation, displacing thousands of small farmers and indigenous populations, contaminating the air and scarce water resources, eroding soils, and destroying biological diversity. Numerous studies have been alerting to these problems, despite the intentional blind eye of diverse sectors persisting in the accelerated expansion of this activity. The present Report aims to contribute analysis and experiences on the majority of the impacts noted here.

Another effect of these crops is that they increase carbon dioxide emissions into the atmosphere as a consequence of the indiscriminate destruction of forests. And, as already outlined in other articles included in this Report, the increasing redirection of corn, sugar, soybean and other grains to agrofuels production instead of to eradication of the hunger suffered by millions of people throughout the world will further deepen the global food crisis.

## THE “ETHANOL ALLIANCE” BETWEEN BRAZIL AND THE UNITED STATES: POINT OF INFLECTION IN THE AGROFUELS EXPANSION POLICY

The so-called “Ethanol Alliance” established between Brazil and the United States is one aspect that merits special discussion, albeit here in abbreviated form. In March 2007, these governments signed the *Memorandum of Understanding between the United States and Brazil to Advance Cooperation on Agrofuels*,<sup>21</sup> constituting a point of inflection in agrofuels (especially ethanol) expansion policy at the global level, given that these two countries concentrate more than 80% of production.

Brazil was the first pioneer in the massive production of agrofuels beginning in the 1970s in the context of the military dictatorship and the supposed “global oil crisis.” For its part, the United States produces a lot of ethanol but does not use it massively as fuel, to a large degree because the interests of the auto industry have delayed the implementation of effective plans for ethanol use as auto fuel. It is also well known that the United States is resistant to adopt any measure that even partially mitigates its contaminating gas emissions.

Taking these factors into account, we surmise that the decision of the previous United States government to raise the percentage of the ethanol mix to 20% is explained on one hand by national security motives (the U.S. must reduce its extreme dependency on imported oil) and on the other by pressures exercised over the past years by the agribusiness industries in favor of greater use of plant-based fuels.

The expectations generated by the expansion of the ethanol fuel market in the United States, where there are 770 cars for every 1,000 inhabitants (approximately 234 million vehicles for a population of just over 305 million people, according to figures reported by the US Census Bureau), are certainly a great incentive for agroindustry and other strategic sectors within the North American industrial establishment to pressure for a supposed solution such as this to the multiple energy pressures faced by the country in the effort to maintain its hegemony at the global level.

Both Brazil and the United States are dedicated to promoting the use of agrofuels at an increasingly larger scale (although not necessarily with the same strategic interests.)<sup>22</sup> Very specifically, both countries are lobbying for the elimination of tariffs on international trade of ethanol and other plant-derived fuels. The President of Brazil, Luiz Inacio “Lula” da Silva, has dismissed the social and *campesino* movements that oppose the unbridled expansion of the agrofuels plantations, qualifying their arguments regarding the negative impacts of these plantations as “myths,” according to the President’s own declarations to the newspaper *The Washington Post* in March 2007 (quoted by *Folha de São Paulo* in its on-line edition).<sup>23</sup>

The large loans doled out by the International Financial Institutions (IFIs) for ethanol production have flown freely. As reported in July 2007 by the same newspaper *Folha de São Paulo*, the IADB approved a line of credit for \$120 million USD for “bio-energy” projects in Brazil, 40% of which would be provided by IADB itself and the remaining 60% channeled by it with funds from commercial banks, demonstrating the private interests behind this finance. This is the first of five such loans, the sum total of which will reach a generous \$997 million USD, with the goal to triple Brazilian ethanol production by the year 2020.<sup>24</sup>

The so-called “Ethanol Alliance,” given the weight of the Memorandum signatory countries as agrofuel producers and consumers, marks a turning point in the development of this branch of the energy industry and will have important consequences for Latin America and Central America in particular, and for other regions of the world which will soon be incorporated within the productive cycle of these fuels. Brazil today is heavily focused on active “ethanol diplomacy,” promoting use of these products at

the global level. This was clearly demonstrated with the celebration in the city of Sao Paulo in November 2008 of the International Conference on Biofuels, which brought together more than 92 foreign delegations and more than 2,000 delegates, and where Brazil (host and organizer of the event) issued a global call “*to build the necessary dialogue and a fruitful collaboration on bio-energy for the future wellbeing of our nations.*”<sup>25</sup>

## THE RESPONSE OF THE GLOBAL CAMPESINO MOVEMENT TO AGROFUELS

In response to the accelerated encroachment of “energy crops” in different regions of the planet, especially in Latin America, Asia and Africa, the *campesino* movements and organizations (as well as other social movements not directly linked to the rural sphere) have raised their voices to manifest their opposition to these crops and to propose alternatives for rural development.

During the World Social Forum on Food Sovereignty held in Nyeleni, Mali (Africa), on 23-27 February 2007, the *campesino* movements and other participants (fisherfolk, landless peasants, etc.) coincided in their emphasis that the agroenergy products promoted by the large corporations compete for cropland, for water, and for other common goods, placing food production at risk and seriously threatening the delicate natural ecosystems that regulate planetary climate (Moreno and Mittal, 2008: 37).

The discussions that developed during this Forum led to the coining of the concept of “agrofuels” and served to identify the necessary debate around the energy matrix that the peoples, not industrial capitalism, need to satisfy their productive and social needs.

According to Via Campesina, the production and consumption of food and fuel controlled by the agribusiness corporations is significantly contributing to global warming and the destruction of rural communities.

For its part, the National Indigenous and Campesino Coordination (CONIC, member of the Latin American Coordinator of Rural Organizations and of Via Campesina), expressed its posture in the words of its leader, Juan Tinney, of Guatemala:

*“Agrofuels invoke an image of renewable abundance according to those who govern the G-8 countries and their partners in the countries of the South, the IADB, the Davos Economic Forum, cooperation organizations, the United Nations, and even predominant groups in the Inter-Governmental Panel on Climate Change, who affirm that the fuels elaborated based on corn, soybeans, sugarcane and other crops promote a smooth transition from oil consumption to an economy of renewable, environmentally-friendly fuel, and that ruled by the free market, will categorically contribute to mitigate the impact of planetary warming.”*<sup>26</sup>

But the real impacts of agrofuels, according to this indigenous and *campesino* leader, are catastrophic, affecting first of all the food sovereignty of peoples.

Another very grave question denounced by the *campesino* movements is the speed with which land and strategic resources are concentrating in very few hands, leading to

an explosive situation in the countryside in response to the forced displacement being inflicted on small farmers and indigenous populations from their territories and communities, in order to make room for cultivation of the raw material for elaboration of the new plant-based fuels. To mention only two examples in Latin America: in the Brazilian state of Grosso do Sul, an area of sugarcane industry expansion, land disputes increased a registered 87.5% between 2003 and 2005. And in Colombia, rural populations are being forcibly displaced to facilitate the introduction of crops for energy production purposes (Vélez and Vélez, 2008: 49).

In response to this complex reality, the proposals of the campesino movement orient toward the reaffirmation of food sovereignty, understood as:

*“... 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 the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations...”*<sup>27</sup>

In addition, the movements have affirmed the need to develop truly renewable energies such as solar, wind, and even biomass-based, but always emphasizing that any oil substitute will be effective only if said substitution is accompanied by a radical transformation of capitalist production and consumption models. Together with food sovereignty, the movements propose the concept of “energy sovereignty,” in other words, that people produce their own forms of renewable energy, at low cost and on a small scale that protects the environment from the impacts of massive industry (Moreno and Mittal, 2008: 35-38).

The *campesino* and indigenous movements also reaffirm their commitment to struggle for integral agrarian reform that does away with large landholdings and leads to a just distribution of land for those who work it. It is a historic vindication that acquires renewed meaning in today’s context. They also call for the use of local native seed varieties and for full respect for the ancestral knowledge, practices, and forms of exchange of the native peoples and campesino communities throughout the world.

The *campesino* and indigenous movement proposes to advance an agricultural production model based on small-holding agriculture and agroecology, which diversifies production and prioritizes internal consumption. This means opposing the policies that aim to convert the countryside into a vast agro-export extension with the consequences addressed in this article and throughout this Report. In this framework, the local-scale production of agrofuels to satisfy local needs is an option that various campesino organizations do not discard, including Brazil’s Movement of Landless Rural Workers (*Movimento dos Trabalhadores Sem Terra -MST*), which in its Fifth Congress held in Brasilia in June 2007 committed to “struggle so that the production of agrofuels be under the control of the *campesinos* and rural workers, as part of polyculture, with environmental preservation and seeking energy sovereignty in each region.”<sup>28</sup>

## FINAL CONSIDERATIONS

With their “green” discourse, the hegemonic capitalist powers are wagering for the continuity of the oil-based energy matrix, based on the conversion of food products into fuels, for which an entire complementary industry will be developed that will make it possible to delay for a few more years the collapse of civilization based on intensive use of fossil fuels and their multiple derivatives. The production of ethanol and other agrofuels may perhaps slow down the depletion of oil resources, but it will not prevent it, and it will never be possible to satisfy the totality of demand through plant-based fuels.

The threats hidden behind this pro-nature discourse, based on the notion that all countries and regions contribute equally to global warming and therefore hold the same responsibility for the same (thereby concealing the abysmal differences of power and industrial development that have marked capitalist development and its environmental consequences), should be meticulously evaluated. The large interests woven around the production and consumption of agrofuels do not take into account the interests of the countries, of the communities, or of the consumers, much less express an authentic concern for the environment. In reality, most often they are the same companies that have polluted for decades and are now attempting to develop a new branch of the energy industry that will allow them to avoid, at least for awhile, a systemic crisis of capitalism, while at the same time making immense fortunes with the development of these new corporate activities.

In the end, the basic question that underlies this entire issue is the need to move beyond industrial capitalism and its particular forms of production and reproduction, of both material goods and of social relations and relations with nature. Industrial capitalism demands expanding supplies of energy, and this energy must come from somewhere, either the belly or the flesh of the Earth. But satisfying the energy thirst of the monstrous contemporary production complex threatens to aggravate the current crisis and lead to the ruin of millions of human beings around the world.

The increasingly global scale and expansive dynamic of capitalism fail to take into account that the exhaustion of the energy sources used in its operation suppose a real limit of its same possibilities of existence. It is necessary to break with the global scale and expansive growth that contemporary capitalism entails, promoting novel alternatives both regarding the use of energy sources and in the organization of the material production of our societies.

The social organizations and movements, especially those that form part of the campesino movement in various parts of the world, are proposing ideas and alternatives that demand urgent study and debate, given that they represent the voice of the sectors most affected by and vulnerable to the unbridled expansion of agroindustry. But the imposition of the pro-agrofuels discourse ignores and disqualifies these alternatives, labeling the legitimate concerns of these movements and the population sectors they represent as myths. Producing energy to satisfy needs at the local scale; favoring the development



of *campesino* agriculture; assuring both food and energy sovereignty; experimenting with and using truly clean and renewable energy sources, among others, are proposals that deserve and demand serious consideration. These proposals go to the actual root of this global issue, opposing the depredatory model of global capitalism.

## NOTES

<sup>1</sup>As reported on the Telesur web page on 14 August 2009 and elsewhere, the United Nations Food and Agriculture Organization (FAO) estimates that by the end of 2009, more than one billion persons in the world will suffer from hunger, including 53 million in Latin America. Despite such a negative diagnosis, the FAO article does not even mention the impact of agrofuels in this scenario. See: <http://www.telesurtv.net/noticias/secciones/nota/55859-NN/fao-preve-53-millones-de-hambrientos-en-america-latina/>

<sup>2</sup>The Association for the Study of Peak Oil and Gas (ASPO) supports the so-called “Gubert Peak Theory,” which quite accurately predicted the moment in which the maximum peak of crude extraction in the United States would occur (as it did in the early 1970s). After having produced half the oil it consumed, the United States currently imports more than 60% of its total consumption, and this figure is expected to reach 90% by the year 2015. According to ASPO, the peak of global oil production will occur around 2010 and no later than 2020, moment after which global production will begin to decline and the productive structure of capitalism will progressively collapse. (See: Ballenilla Fernando, *El final del petróleo barato: la principal fuente energética de nuestra sociedad en crisis*. In: *Revista El Ecologista* N° 40, Alicante, Spain, 2004).

<sup>3</sup><[http://es.wikipedia.org/wiki/Teor%C3%Ada\\_del\\_pico\\_de\\_Hubbert](http://es.wikipedia.org/wiki/Teor%C3%Ada_del_pico_de_Hubbert)>

<sup>4</sup>International Energy Agency, *World Energy Outlook, 2008* (Executive Summary). Consulted on 16 October 2009: <<http://www.iea.org/Textbase/npsum/WEO2008SUM.pdf>>

<sup>5</sup>Fuser, Igor, “O etanol é o verde enganador,” in: *Le Monde Diplomatique Brasil*, Year 1, N° 5, December 2007, São Paulo, Brazil. Translated from the author’s translation to Spanish.

<sup>6</sup>Vélez, Hildebrando and Vélez, Irene, *Los espejismos de los agrocombustibles*. In: *Agrocombustibles: llenando tanques, vaciando territorios*, Censat-Agua Viva, Amigos de la Tierra Colombia, Bogotá, Colombia, 2008.

<sup>7</sup>Pérez Rincón, Alejandro, *Los agrocombustibles: ¿solo cantos de sirenas?* In: *Agrocombustibles: llenando tanques, vaciando territorios*, Censat-Agua Viva, Amigos de la Tierra Colombia, Bogotá, Colombia, 2008.

We also note that the dictionary of the Real Academia Española includes two definitions for *biomasa*: 1. ... Total material of beings that live in a determined place, expressed in weight per unit of area or of volume. 2 ... Organic material originated in a biological process, spontaneous or provoked, usable as source of energy. See: <[http://buscon.rae.es/draef/SrvltConsulta?TIPO\\_BUS=3&LEMA=biomasa](http://buscon.rae.es/draef/SrvltConsulta?TIPO_BUS=3&LEMA=biomasa)>

<sup>8</sup>Moreno, Camila and Mittal, Anuradha, *A Aliança do etanol: ameaça à soberania alimentar e energética*, Terra de Direitos/Oakland Institute, São Paulo, Brazil, March 2008.

<sup>9</sup>ETC Group, *Combustibles alternativos o abusos alternativos*, Boletín N° 96, November/December 2007. Consulted on 13 February 2008: <[http://www.etcgroup.org/es/materiales/publicaciones.html?pub\\_id=672](http://www.etcgroup.org/es/materiales/publicaciones.html?pub_id=672)>

<sup>10</sup>GRAIN, *No a la fiebre de los agrocombustibles*. Consulted on 12 March 2008: <<http://www.grain.org/agrofuels/2007-07-No-a-la-fiebre-de-los-agrocombustibles.pdf>>

<sup>11</sup>Comisión Pastoral de la Tierra y Red de Justicia y Derechos Humanos (CPT-Red), *Agroenergía: mitos e impactos sobre América Latina*, São Paulo, Brazil, August 2007.

- <sup>12</sup>ETC Group, Combustibles alternativos o abusos alternativos, Boletín N° 96, November/December 2007. Consulted on 13 February 2008: <[http://www.etcgroup.org/es/materiales/publicaciones.html?pub\\_id=672](http://www.etcgroup.org/es/materiales/publicaciones.html?pub_id=672)>; Gilbertson, Tamra et. al., Paving the way for agrofuels: EU policy, sustainability criteria and climate calculations, Transnational Institute, The Netherlands, 2007.
- <sup>13</sup>The genetically-modified forestry varieties produce less lignine, making the cellulose more fragile, which in turn accelerates plant growth and increases productivity.
- <sup>14</sup>Vargas Collazos, Mónica, La deuda ecológica de los agrocombustibles. In Agrocombustibles: llenando tanques, vaciando territorios, Censat-Agua Viva, Amigos de la Tierra Colombia, Bogotá, Colombia, 2008.
- <sup>15</sup>Smolker, Rachel, et. al., El verdadero costo de los agrocombustibles: alimentación, bosques y clima, Global Forest Coalition/Global Justice Ecology Project, United States, 2007.
- <sup>16</sup>In Mexico, the price of tortillas rose sharply in January 2007, associated with the increased price of corn imported from the United States, which is used more and more for ethanol production instead of food (Moreno and Mittal, 2008: 36) Conflicts and protests emerged quickly. Those most affected were the country's rural and indigenous communities, the country's poorest population, whose diet is predominated by tortillas.
- <sup>17</sup>The Guardian, Secret Report: Biofuel caused food crisis. Internal World Bank study delivers blow to plant energy drive. Consulted on 24 August 2008: <<http://www.guardian.co.uk/environment/2008/jul/03/biofuels.renewableenergy>>
- <sup>18</sup>The Guardian, Biofuels more harmful to humans than petrol and diesel, warn scientists. Consulted on 9 February 2009: <<http://www.guardian.co.uk/environment/2009/feb/02/biofuels-health>>
- <sup>19</sup>A micron is a unit of measure equivalent to one-millionth of a meter.
- <sup>20</sup>Honty, Gerardo; Gudynas, Eduardo, Agrocombustibles y desarrollo sostenible en América Latina y El Caribe, Centro Latino Americano de Ecología Social, Montevideo, Uruguay, 2007.
- <sup>21</sup>See: <http://www.state.gov/r/pa/prs/ps/2007/mar/81607.htm>
- <sup>22</sup>As the largest industrial and military power on the planet, the desperation of the United States in the energy sphere increases as the world's oil reserves are depleted, in particular given its lack of reserves within its own territory. As noted recently by the professor, John Saxe: *"It must not be forgotten that the large majority of mineral resources consumed by the United States are imported. Annually, the country must import 4 billion metric tons of fresh minerals, without including those that are recycled"* (Weekly publication: *Semanario Universidad*, San José, Costa Rica, 7-14 October 2009. Edition 1825. Year XIII).
- <sup>23</sup>Folha de São Paulo, No "Washington Post," Lula diz que ameaça ambiental do etanol é mito. Consulted on 15 March 2008: <<http://www1.folha.uol.com.br/folha/bbc/ult272u61738.shtml>>
- <sup>24</sup>Folha de São Paulo, BID aprova US\$120 milhões para projeto de biocombustíveis no Brasil. Consulted on 15 March 2008: <<http://www1.folha.uol.com.br/folha/dinheiro/ult91u315068.shtml>>
- <sup>25</sup>Comienza en Brasil Conferencia Mundial sobre Biocombustibles y Desarrollo. Consulted on 12 February 2009: <<http://noticias.latam.msn.com/articulo.aspx?cp-documentid=13166031>>
- <sup>26</sup>Tiney, Juan, Agrocombustibles y seguridad alimentaria, paper presented at the VII Hemispheric Encounter of Struggle against ALCA and the FTAs, La Habana, Cuba, 10 April 2008. Consulted on 15 April 2008: <[http://www.movimientos.org/noalca/vii-encuentro/show\\_text.php3?key=12174](http://www.movimientos.org/noalca/vii-encuentro/show_text.php3?key=12174)>
- <sup>27</sup>The Nyéléni Declaration, Mali, February 2007. Consulted on 13 February 2009: <<http://www.nyeleni.org/spip.php?article291>>
- <sup>28</sup>Movimento dos Trabalhadores Sem Terra (MST), Declaration of the 5th National Congress, Brasilia, Brazil, June 2007. Consulted on 15 April 2008: <[http://www.anred.org/article.php3?id\\_article=2145](http://www.anred.org/article.php3?id_article=2145)>



# *Green deserts: Monocultures and their impacts on biodiversity*

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## THE EXPANSION OF MONOCULTURES

During the first years of the 21st century, monocultures have dramatically increased throughout the world. Of the world's 1.5 billion hectares of farmland, 91% is dedicated to extensive monocultures of corn, soybeans, rice, wheat, and others. With the expansion of industrial agriculture, the diversity of crops per tillable land unit has decreased and the use of agricultural lands has intensified with a tendency toward concentration in the hands of a few agricultural producers and in particular of corporations. Important political and economic forces drive these trends toward dedicating large areas of a country to monoculture (Altieri, 1995).

The technologies that have traditionally fostered transition toward monoculture are mechanization, genetic improvement<sup>1</sup> of modern varieties, and development of agrochemicals for soil fertilization and pest and weed control. Governmental trade policies of the past decades have promoted the acceptance and use of these technologies. The result today is fewer but more extensive and specialized farms with more intensive capital requirements. Biotechnology has today transformed into the motor of the intensification of industrial agriculture; in the year 2008, 125 million hectares were planted with transgenic crops. More than half of this global area, a total of 53%, was dominated by

Roundup-resistant (RR) soybeans. In all, some 13.3 million farmers adopted transgenic crops, 1 million of whom are large landholders in the United States, Argentina, Brazil, and other countries, and the rest small Chinese and Indian farmers condemned to producing Bt cotton.<sup>2</sup> None of these dozen-million farmers produces food for the masses of poor in the world (Altieri, 2004).

Very closely tied with the transgenics boom, the biofuel crops have emerged (corn, soy, sugarcane, and African palm), now advancing at a rapid pace at the expense of forests and other habitats, converting food production areas into green deserts, producing ethanol and biodiesel to satisfy the energy appetites of the countries of the North and the emerging economies of China and India, which have demonstrated no intention of diminishing their exaggerated use of energy (Altieri, 2009).

From an ecological perspective, the consequences of monoculture specialization have many facets. The most noteworthy include the high vulnerability of ecologically artificial and genetically homogenous systems to climate change and the invasion of pests and diseases (Altieri and Nicholls, 2004). Part of the low resilience<sup>3</sup> to climatic events and the high susceptibility to pests of ecosystems is linked to monocultures. On one hand, habitat simplification has reduced environmental opportunities for natural enemies, interfering in biological controls and thereby fostering the frequent explosion of pests or weeds. On the other, homogenous monocultures lack compensation or resilience mechanisms to handle extreme climatic events (droughts, hurricanes, etc.).

## ENVIRONMENTAL PROBLEMS ASSOCIATED WITH GREEN REVOLUTION TECHNOLOGY

Imposition of agricultural models in the third world dates back to colonial times when local farmers were expelled from their diversified croplands, which were then dedicated to export crops in the new world economy dominated by the colonial powers. Instead of producing food, these lands were converted into vast monocultures of cacao, sugarcane, rubber, cotton, etc, cultivated with slave labor. The agricultural models that followed, in particular the green revolution, also never intended to coexist with indigenous production systems, given that the vision of rural development of those behind this initiative implied the modernization of traditional agroecosystems, replacing local strains with improved varieties. (Tripp, 1996) The introduction of these “miraculous varieties” and the economic integration of traditional agriculture to the global system brought a multitude of ecological and social problems. The simplification of the traditional systems and the genetic erosion due to loss of local varieties increased the vulnerability of systems to pests and diseases, reduced the diversity of foods, and increased dependency on agrochemical inputs. Introduction of the “improved” varieties had grave effects on the genetic diversity of native local crops and related wild plant life in their areas of origin, affecting the cultural fabric of the communities that co-evolved alongside said genetic

wealth (Shiva, 1991).

Today the industrial monocultures have reduced the biodiversity of the countryside not only through deforestation but also through the direct impacts of pesticides on a variety of organisms including pollinators, natural enemies of crop plagues (biological pest control agents), and wildlife in general. The yield loss to plagues (reaching between 20 and 30% in many crops), despite the substantial increase in pesticide use (close to 500 million kilograms of active ingredient at the world level), is a symptom of the ecological vulnerability of this simplified agriculture. Based on available information, the environmental costs (impacts on wildlife, pollinators, natural enemies, fish, water, and development of resistance) and social costs (human poisonings and illnesses) of pesticide use reach close to 8 billion dollars each year (Pimentel and Lehman, 1993). The most worrisome aspect is that pesticide use is on the rise. Data from California indicates an increase in pesticide use from 161 to 212 million pounds of active ingredient between 1941 and 1995. This increase is not attributable to increased surface area planted but rather to the intensification of the area dedicated to crops with agrottoxins, including toxic pesticides, many of which are associated with cancer (Liebman, 1997).

On the other hand, use of fertilizers also has notably increased with national averages of nitrate applications fluctuating between 120 and 550 kilograms N per hectare. These chemical fertilizers contaminate the environment through their excessive application and the fact that the crops make inefficient use of them. Nitrate contamination of waters has reached dangerous levels in many regions of the world. In the United States, it is estimated that more than 25% of fresh water wells have nitrate contents far exceeding the allowed maximum of 45 parts per million. Said nitrate levels are dangerous for human health; studies have associated nitrate ingestion with metahaemoglobinemia in children and with gastric, bladder and bone cancers in adults (Conway and Pretty, 1991).

The nutrients from fertilizers that fall into surface water (rivers, lakes, bays) promote eutrophication, initially characterized by an explosion in the population of photosynthetic algae. These population explosions in turn transform the water into a bright green color, impeding penetration of light below the surface and consequently killing the organisms that live on the bottom. The dead vegetation serves as food for other aquatic microorganisms that soon consume the oxygen from the water, inhibiting the decomposition of organic wastes, which therefore accumulate in the bottom. Eventually, said nutrient enrichment in fresh water ecosystems leads to the destruction of all animal life in the aquatic systems (McGuinness, 1993).

## ECOLOGICAL IMPACTS OF TRANSGENIC CROPS

The promoters of agricultural biotechnology affirm that the crops produced by genetic engineering will advance agriculture beyond dependence on chemical inputs, increase productivity, diminish input costs, and help reduce environmental problems (James, 2008).

Agroecology questions the myths of biotechnology and unmasks genetic engineering for what it really is: a reductionist science that presumes to “wave a magic wand” destined to resolve the environmental problems of agriculture (which are the product of a spiral of previous reductionist technology) without questioning the faulty assumptions that caused the problems in the first place (Altieri, 2007). Biotechnology promotes solutions based on the use of individual genes to address the problems derived from ecologically unstable monoculture systems designed based on inefficient industrial models. Said unilateral and reductionist approach is not ecologically sound; it perceives agricultural problems as genetic deficiencies of the organisms and treats nature as merchandise, without focusing on the root causes of pest or weed problems but rather on the symptoms, making farmers more dependent on herbicides and seeds produced by an agribusiness sector whose power over the food system is increasingly concentrated. The few independent studies on this issue have produced evidence demonstrating that the massive unfurling of transgenic crops does nothing more than reinforce the ecological spiral derived from unilateral approaches of pest and disease control. (Altieri, 2007; Altieri *et al.*, 2009):

- a. Creation of superweeds by massive and continuous application of the same herbicide or by hybridization between transgenic crops and weed species of the same family or genus.
- b. Conversion of transgenic crops into weeds through germination the following year as volunteer species outside of the crop rows.
- c. Rapid evolution of resistance among pest insects to Bt crops.
- d. Disruption of biological pest control through the exposure of predators and parasites to the toxin through prey or host organisms.
- e. Unanticipated effects on non-pest organisms, such as lepidoptera or pollinators, which are killed off from exposure to the pollen of transgenic crops.
- f. Accumulation of the Bt toxin in soil when it remains active adhered to humic acids<sup>4</sup> or clays, with impacts on microbial and edaphic mesofauna populations, potentially affecting processes such as the nutrient cycle.<sup>5</sup>
- g. Contamination of local varieties of crops through genetic introgression resulting from pollen transfer from transgenic species.
- h. Creation of new species of pathogenic organisms through transference or recombination of genes mediated by vectors.

It is important to emphasize that the ecological effects of transgenic crops are not limited to pest resistance or the creation of new weeds or virus mutations. The Bt transgenic crops are capable of producing environmental toxins that move through the food chain and can reach the soil and water, affecting invertebrates and likely altering ecological processes such as nutrient cycles. A growing concern is the large-scale homogenization of lands with transgenic crops that will exacerbate the ecological vulnerability associated with monoculture-based agriculture, in particular vulnerability to climate change.

However, the primary impact of transgenic crops is associated with its production

methods and accompanying technologies, such as herbicides. One of today's great ecological threats is the massive use of glyphosate, in light of independent studies that identify glyphosate as toxic for many species that inhabit the soil, including predators such as spiders, carabid and coccinellid beetles, and others that feed off of detritus such as earthworms, and for aquatic organisms, including fish (Rissler and Mellon, 1996). Although glyphosate was previously considered non-lethal for amphibians, studies carried out in laboratory conditions indicate that this herbicide can be lethal for tadpoles. After three weeks of glyphosate application at doses equivalent to recommended field applications, Roundup killed between 96 and 100% of amphibian larvae (Reylea, 2005).

Furthermore, studies demonstrate that glyphosate tends to act in a way similar to antibiotics, altering soil biology in a still unknown manner and causing effects such as: (Altieri, 2007)

- Reducing the ability of soy and clover to fix nitrogen;
- Making plants more vulnerable to diseases, specifically: bean plants to *anthracnosis*, soy to *Fusarium*, and wheat to *Gaemannomyces graminis*, and
- Reducing the growth of mycorrhizal fungi that live in the soil, which are beneficial organisms with a key role in helping plants extract phosphorous from the soil.

## CONTAMINATION AND GENETIC EROSION

The introduction of transgenic plants in centers of origin or in regions of high agrobiodiversity represents a great risk, especially due to the possibility of transfer of modified genes to wild plants and local farming varieties, which can cause grave imbalances in the ecosystems. The risks of gene transfer from a transgenic variety to a related species or variety is higher in centers of origin and/or diversity, given that the inserted genes have more opportunities to pass to other plants in places where transgenic plants are surrounded by compatible species, be they local varieties and strains or wild varieties, placing at risk the remaining genetic resources. It has been shown that corn, potato, tomato, manioc, bean, cotton, sunflower, colza, and many other crops can hybridize (exchange genetic material) with wild plants that grow within their centers of diversity. The primary escape route of the new genes to other areas and species is through pollen, which can fertilize sexually compatible plants in the vicinity.

The transgenics debate sharpened following the publication in *Nature* of a controversial article reporting the introgression of transgenic DNA in local native corn grown in remote areas of the Oaxacan mountain range in southern Mexico (Quist and Chapela, 2001). These findings were corroborated by Elena Alvarez-Buylla and her team from the Universidad Nacional Autónoma de México (UNAM), who found contaminated corn not only in the mountains of Oaxaca but also in the northern state of Sinaloa and in Milpa Alta located in the outskirts of Mexico City.

The problem of introduction of transgenic varieties in regions of genetic diversity is



that the characteristics of the genetically modified grains may spread to the local varieties that small producers tend to plant, and that event may dilute the natural sustainability of said strains. Considerations from the perspective of thermodynamics suggest that the characteristics that are relevant for indigenous campesinos (drought resistance, quality suitable for both human food and animal forage, ability to compete, performance in mixed farming, compatibility with family work conditions and better maturity, storage quality, taste and cooking characteristics) would probably be substituted by transgenic qualities that may not be important for the campesinos (Jordan, 2001). In this context, risks would increase and the campesinos would lose their abilities both to adapt to changing conditions of the biophysical environment and to produce relatively stable crops with a minimum of external inputs, while at the same time addressing the food security of the communities.

These threats occur within a world process tending toward increased privatization of seed systems, favoring those more oriented to the market and the agro-industries dedicated to the exploitation of monocultures. This trend may result in the displacement and elimination of the plurality of alternative seed provision systems maintained by local campesino communities.

## AGROFUELS: ECOLOGICAL IMPACTS

The agrofuel fever is strategic for the expansion of a new wave of transgenics for the production of ethanol and biodiesel in the region, emphasizing crops such as soybeans, corn, sugarcane, African palm, castorbean (*Ricinus communis*), *Jatropha*, and others. In Brazil, approximately 750,000 hectares of RR soybeans were used for biodiesel production in 2007, and agro-industrialists are already anticipating the release of sugarcane seeds with enzymes that increase sugar content and industrial yield. Syngenta has already developed a transgenic corn (seed 3272) that contains the alpha-amylase enzyme to favor the ethanol production process (James, 2008). The large-scale boom of the agrofuel industry, like transgenic-based agriculture, will be disastrous for farmers, the environment, preservation of biodiversity, and consumers, in particular the poor (Bravo, 2006; Altieri and Bravo, 2008).

Several countries are positioning themselves to transform into agrofuel producing and exporting powers. The Argentinean agricultural sector has established the objective to produce 100 million tons of grain, which would require an increase of croplands planted with soybeans to 17 million hectares. In Brazil, biotechnological soybeans occupied an area of 22.5 million hectares in the 2007-2008 planting season, representing an additional 11.4 million hectares compared to the 2006-2007 season. This soy expansion is produced through drastic measures that directly affect forests and other relevant habitats. In Paraguay, a portion of the Paraná Forest near the Brazilian border is being deforested (Jasón, 2004). In Argentina, 118,000 hectares have been felled in four years

(1998-2002) for soybean production in the Chaco, 160,000 in Salta, and a record 223,000 in Santiago del Estero. The “Pampa-ization” - the process of importing the industrial model of Argentinean Pampa agriculture to other ecoregions that “are not the Pampa,” such as the Chaco - is the first step of an expansive path that threatens the social and ecological stability of this very fragile ecoregion (Pengue, 2005). In the northeast region of the province of Salta, 51% of soybean fields (157,000 hectares) in the 2002-2003 planting season were located on lands that had remained natural areas in 1988-1989. In Brazil, the Cerrado and the savannas are succumbing to the plough at an alarming pace. (Altieri and Pengue, 2006)

Expansion of the soy production complex implies a significant increase of logistical and transportation demands, together with massive infrastructure projects that bring with them a chain of events that destroy the natural habitats of large areas, in addition to the deforestation directly caused by the expansion of lands for the actual crops. In Brazil, the purported benefits of soy justified the repair, improvement or construction of eight waterways, three railroad lines, and an extensive highway network to bring in agricultural inputs and carry away the agricultural production. The process attracted other private investments for forestation, mining, extensive livestock grazing, and other practices with severe impacts on biodiversity not yet addressed by any environmental impact study (Fearnside, 2001). In Argentina, the agroindustrial cluster of soybean transformation into oils and pellets is concentrated in the Rosafé area on the Paraná River, the largest area of soy transformation on the planet, with all of its associated infrastructure and all of the implied environmental impacts (Altieri and Pengue 2006).

There is no question that the advance of the “agricultural frontier,” now intensified by the agrofuels fever, is an assault against the food sovereignty of the nations of the third world, given that the land for food production is increasingly designated to feed the automobiles of the peoples of the North. Biofuel production also directly affects consumers by increasing the cost of food. This seduction of the global agrofuels market leads governments to develop national agrofuel plans that will gradually transform agricultural systems toward large-scale production of energy monocultures, with transgenic varieties dependent on intensive use of chemical herbicides and fertilizers, not only diverting millions of hectares of cropland which could be dedicated to food production, but also increasing the ecological impacts of industrial agriculture, with yet unknown consequences (Altieri and Pengue, 2006). This type of displacement process necessarily results in the need to import more basic foodstuffs, further revealing the loss of food sovereignty. For small family farmers and for consumers, the result is increased food prices and more hunger (Jordan, 2001).

## CONCLUSIONS

The structure of modern agriculture and of current policies has clearly influenced the

context of agricultural production and technology, which in turn has led to the expansion of monocultures and their associated environmental problems, including the reduction of biodiversity in adjacent fields and ecosystems. Global agriculture today is in fact at a crossroads. The global economy imposes conflictive demands on the 1.5 billion hectares of cropland. Agricultural land is not only asked to produce sufficient food for a growing population, but also to produce biofuels, and to do so in an environmentally healthy way, preserving biodiversity and diminishing the emission of greenhouse gases, while still representing an economically viable activity for the entire sector of farmers. These incompatible pressures are unleashing an unprecedented crisis of the global food system, threatening the food security of millions of people. This is a direct result of the industrial agriculture model, which is not only dangerously dependent on hydrocarbons, but has transformed into the greatest manmade force modifying the biosphere.

As we approach the end of the first decade of the 21st century, humanity is rapidly gaining awareness of the fact that the capitalist industrial model of oil-dependent agriculture no longer works to supply the necessary foods or to preserve nature. This situation is rapidly worsening as agricultural land is designated for biofuel production and as climate change reduces yields through droughts or floods, all part of a vicious cycle. Expansion of agricultural lands to biofuels or transgenic crops, which already cover more than 120 million hectares, will exacerbate the ecological impacts of monocultures that continually threaten biodiversity and degrade the services of nature. In addition, industrial agriculture contributes today more than a third of global emissions of greenhouse gases, especially methane and nitrous oxides. Continuing with this destructive system, as promoted by a neoliberal and ecologically dishonest economic system given its failure to reflect environmental externalities, is not a viable option.

The immediate challenge for our generation is to transform industrial agriculture and initiate a transition of the food systems to eliminate their dependence on oil. We need an alternative paradigm of agricultural development, one that propitiates biodiverse, sustainable, and socially just forms of agriculture. Redesigning the food system toward more equitable and viable forms for farmers and consumers will require radical changes in the political and economic forces that determine what is produced, how and where it is produced, and for whom it is produced. Free trade with no social control is the primary mechanism through which farmers are being displaced from their lands, and it is the primary obstacle to achievement of development and local food security. Only by challenging the control exercised by multinational corporations over the food system and the agricultural export model favored by the neoliberal governments will it be possible to detain the spiral of poverty, hunger, rural migration, and environmental degradation.

A multifunctional agriculture can only emerge if the rural landscape is characterized by hundreds of small biodiverse farms, which, as many studies have demonstrated, are capable of producing between two and ten times more per unit of farmland than large-scale farms. Several studies have proven that small and medium farmers generate higher total production than extensive monocultures, and do so reducing erosion and conserving more biodiversity. Communities surrounded by small farms exhibit fewer social

problems (alcoholism, drug addiction, domestic violence, etc.) and healthier economies than those surrounded by large, mechanized farms. In the state of São Paulo, Brazil, cities surrounded by vast expanses of sugarcane are warmer than cities surrounded by medium-sized, diversified farms.

The scale and urgency of the challenge faced by humanity is unprecedented. But humanity's necessary response is environmentally, socially, and politically possible. Global eradication of poverty and hunger requires an annual investment of approximately 50 billion dollars, a fraction of the annual global military budget that surpasses one trillion. This change must be implemented very quickly, but what is in doubt is whether the political will exists to radically and rapidly transform the food system, before hunger and food insecurity reach irreversible planetary proportions.

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## NOTES

<sup>1</sup> Genetic alteration or modification of plants or animals with the purpose to obtain individuals improved in some aspect of human interest, in other words, plants or animals that are more productive, better adapted to certain environmental conditions, or include a specific selection of organoleptic characteristics, etc. Diverse techniques may be used, such as domestication and artificial selection (practiced since the origin of agriculture some 11,000 years ago), hybridization, self-pollination, and genetic engineering.

<sup>2</sup> Type of transgenic cotton that produces toxins with insecticidal properties against beetles, moths and flies (insects responsible for the majority of crop pests). Bt stands for *Bacillus thuringiensis*, the bacteria found naturally in soils that produces the insecticidal toxins. Genetic engineering techniques are employed to extract the gene that codifies the insecticidal protein and introduce it into the genome of the plant cells.

<sup>3</sup> Resilience is the capacity of an ecosystem to recover after a disturbance.

<sup>4</sup> Humus refers to compounds produced by the microbial and abiotic alteration of organic matter present on the uppermost surface of the soil. It constitutes more than half the organic matter of the soil and is vitally important for agricultural soils.

<sup>5</sup> The nutrient cycle is the space-time process through which nutrients pass through the different stages that integrate the ecosystem in which they are found (atmosphere, soil, plant, microorganism, etc.).

# Climate change and strategies to confront it

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## CLIMATES ARE CHANGING

The climates throughout our planet are changing. Rains now often behave very differently than their traditional patterns: the rainy season may arrive earlier or later, it may be more intense or fall far below average precipitations, or it may be interrupted. Any of these scenarios negatively affects agricultural production and the social and economic situation of small farmers who have no other means of subsistence. These abnormal rains are often complemented by unusual drought patterns, winds, or temperatures, and frequently by extreme climate behaviors. In the Caribbean, hurricanes have increased their strength by an average of 50% over the past 50 years. On some occasions, these extreme climates have led to the loss of high numbers of human lives, such as in the following examples:

- A tropical cyclone in Bangladesh in 1991 killed 138,000 people. In 1970, the cyclone Bhola had already killed half a million people in this country and in India.
- Hurricane Mitch killed 12,000 people in Central America in 1998.
- Intense rains in Venezuela in December 1999 provoked the deaths of 25,000 people.
- A tornado killed 30,000 people in India in 2000.
- A heat wave killed 35,000 people across Europe in 2003.

- The tropical cyclone Nargis left 140,000 people dead in Myanmar (Burma) in May 2008.

Canada and Brazil have experienced hurricanes for the first time in history. Canadian forests are being decimated by tropical plagues. Droughts have contributed to immense forest fires in Asia and California. Mountain glaciers that feed rivers that supply drinking water to millions of people throughout the world are rapidly shrinking, and a lake disappeared in Chile following the melting of the glacier that detained it.

The Arctic icecap will soon cease to exist. Some people may think that these are isolated and limited phenomena, but the Fourth Report (2007) of the Intergovernmental Panel on Climate Change (IPCC), which incorporates 2,000 climate experts from throughout the world, affirms that the climate is changing due to human action, as demonstrated in the following trends:<sup>1</sup>

- Eleven of the years between 1995 and 2006 are among the twelve hottest years since global temperature records have existed.
- The rate of increase of atmospheric temperature in the past 50 years has been double that registered in the past 100 years.
- Oceanic temperature increases have been registered to depths of 3,000 meters.
- Sea levels rose 17 centimeters in the 20th century, mostly attributable to the expansion caused by temperature increases.
- Average temperatures in the Arctic region are rising at twice the rate of the global temperature increase.
- Average annual arctic ice coverage has dropped at a rate of 2.7% per decade, and average reduction occurring over the summers reaches 7.4%.
- Increased rainfalls have been recorded in the eastern sections of North and South America, in northern Europe, and in northern and central Asia. However, the Mediterranean, the Sahel and southern Africa, and parts of southern Asia have been plagued by droughts.
- Western winds in the middle latitudes of both hemispheres have increased in strength since 1960.
- Changes in rain and evaporation patterns are presumed to be taking place in the oceans due to reduced salinity measurements in middle and upper-latitude regions and increased salinity in lower-latitude waters.
- Strong precipitations have increased in most places, which is consistent with the increase in temperature and water vapor in the atmosphere.

These climate changes are due to the atmospheric temperature increase produced by greenhouse gases emitted by humans through the burning of immense quantities of fossil fuels and radical changes in land uses.

## THE GREENHOUSE EFFECT

Changes in the temperature of the atmosphere have historically occurred as a result of changes in the radiation emitted by the sun, modifications in the orbit of the planet, volcanic eruptions, or collisions with large celestial bodies. However, over the past two and a half centuries, the temperature of the atmosphere has been increasing due to small alterations in the chemical composition of the atmosphere itself, product of gases emitted to the atmosphere by human action.

These gases have the characteristic of allowing the penetration of radiation from the sun, which comes primarily in short waves, being emitted at a surface temperature of 6000 °C. But the gases block the exit of radiation emitted by the Earth, which is primarily long wave, being emitted at an average temperature of 14.5 °C. This phenomenon, known as the greenhouse effect, results in an increase of atmospheric temperature, given that in absence of these gases, the temperature would be -20 °C, too cold for the majority of life forms, including human. The current problem is that human action has considerably increased the concentration of these gases, meaningfully increasing the temperature of the atmosphere and thereby altering the climate patterns to which humans and other life forms have been accustomed since the end of the last ice age, some 10,000 years ago.

Of the greenhouse gases generated by human action, the most important are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). CO<sub>2</sub> is formed by the burning and processing of fossil fuels, with an important contribution from changes in land uses. However, CH<sub>4</sub> and N<sub>2</sub>O emissions originate mostly from agricultural and livestock activities, although in the case of CH<sub>4</sub> more than one-third comes from leaks in the transportation of natural gas and from sanitary landfills. In the case of CO<sub>2</sub>, which produces between 65 and 70% of the total greenhouse effect, only half is absorbed by land and marine ecosystems, and the rest accumulates in the atmosphere, aggravating climate change.

## THE ATMOSPHERE WITH AND WITHOUT HUMAN INTERVENTION

The Fourth Report of the IPCC<sup>2</sup> and later reports<sup>3</sup> explain that in the past 800,000 years, while there were no considerable human impacts, the temperature of the atmosphere varied between 6 and 17° C, in cyclical periods of approximately 100,000-year durations, to which also corresponded variations in atmospheric concentration of CO<sub>2</sub> between 180 and 300 parts per million (ppm). Scientists believe that this behavior has existed for at least 20 million years.<sup>4</sup> Some 10,000 years ago, when the last ice age ended and the variable of “considerable human intervention” did not yet exist, the atmosphere of the planet had an average temperature of 13.6 °C and a CO<sub>2</sub> concentration of 260 ppm.

The atmospheric impact of human intervention began with the modification of land



ecosystems for agriculture some 8,000 years ago. CO<sub>2</sub> concentration began to increase until reaching 280 ppm in 1750, although atmospheric temperature and planetary climates did not suffer appreciable alterations. The industrial revolution then began, including the consumption of large quantities first of coal and later of oil, natural gas, and other fossil fuels. This fuel consumption increased dramatically with the economic boom of the western world beginning in the mid-20<sup>th</sup> century, but until that time changes in atmospheric temperatures or planetary climates had still not been detected. By the year 2000, CO<sub>2</sub> concentration had reached 370 ppm, and by 2009 close to 390 ppm, a range equivalent to that occurring naturally over the course of 20 million years. The majority of the increase from 280 to 390 ppm took place after 1950, at a speed 100 times higher than that occurred 15,000 years ago when the last glaciation ended and CO<sub>2</sub> increased from 180 to 280 ppm.

These emissions of CO<sub>2</sub> and other greenhouse gases have so far increased the average atmospheric temperature by almost 0.8 °C, and as time passes the rates of temperature increase have risen. For example, the rate of temperature increase over the past 25 years is more than double that of the last 100 years, and almost four times the rate in the past 150 years. If this CO<sub>2</sub> concentration were to stabilize at the current measurement, atmospheric temperature would continue to increase until accumulating one additional degree C.

## THE PROBLEM FACING OUR FUTURE

But the concentration of greenhouse gases in the atmosphere has not stabilized, and to the contrary continues to increase at higher and higher rates. The future scenarios projected by the IPCC starting in the year 2000 foresee that, depending on consumption rhythms, CO<sub>2</sub> concentrations by the end of the century could vary between 550 and 920 ppm, with temperature increases between 1.5 and 6 °C. Measurements made in 2005 showed that real emissions surpassed the assumptions of the most pessimistic of the possible projected scenarios, and the oceans were reducing their capacity to absorb CO<sub>2</sub>, something not contemplated in the models. This suggests that the concentration of CO<sub>2</sub> and the atmospheric temperature by the end of the century will be higher than estimated.<sup>5</sup>

The Group of Climate Experts of the European Union, seconding the IPCC, together with the World Meteorological Organization and the Global Union of Scientists, suggest that a temperature increase of up to 2 °C could allow human systems to adapt with acceptable economic, social, and environmental costs. Above such an increase, there is a high risk of irreversible large-scale effects, resulting in catastrophic climate events. This is a curious conclusion, given that the already-existing presence of cyclones such as the one in Burma in May 2008, in which 140,000 people died, might logically suggest that the current increase of 0.8 °C is already unacceptable. But in any case, in order to have a 50% probability that the temperature not rise more than 2 °C, the level of stabilization of CO<sub>2</sub> equivalent<sup>6</sup> in the atmosphere must not surpass 450 ppm, which is the same as

not having more than 360 ppm of CO<sub>2</sub> level already surpassed several years ago. This means that fossil fuel consumption will need to be drastically reduced throughout the world to immediately lower this CO<sub>2</sub> level. If we prefer to have between a 66 and 99% probability that the temperature will not go up by more than 2%, the stabilization of CO<sub>2</sub> equivalent should be no more than 400 ppm, which is the same as saying around 325 ppm of CO<sub>2</sub>.

Other scientists express similar concerns. James Hansen of NASA together with nine other scientists from the United States and Europe have warned that if humanity wishes to preserve a planet similar to that in which civilization has developed and adapted life on Earth, the paleoclimatic evidence suggests that CO<sub>2</sub> will need to be reduced to no more than 350 ppm and perhaps less. At the meeting of experts held in Copenhagen in March 2009, some scientists affirmed that the goal of 2 °C is no longer feasible, and that it will be difficult to maintain the temperature rise at no more than 3 °C and the world should plan for 4 °C or more. Professor Neil Adger, expert in adaptation to climate change of the Tyndall Center for Climate Change Research in Norwich, England, has said that a 4 °C increase would place us in a new climate system with impacts of such magnitude that the only real adaptation strategy is to avoid such a situation at any cost, given that no science exists on how to adjust to a 4 °C warming.

## THE VICIOUS CIRCLES

The future estimates of CO<sub>2</sub> and temperature reported by the IPCC do not include the natural mechanisms that activate with the rise in temperature, through which the impacts convert into causes that generate greater impacts and initiate a vicious circle that amplifies the magnitude of the impact. For example, when solar radiation deflects off ice, it is reflected outward and leaves the atmosphere without causing significant impact. But if the ice has melted, the energy that reaches the water surface is not reflected back and instead is absorbed. The water heats up more, melting more ice, generating more water, and thereby resulting in more and more energy absorption, with the result of continued temperature increase. This is currently taking place in the Arctic, which is simply an icecap floating in the sea.<sup>7</sup> At the end of the 20th century its size was 16 million Km<sup>2</sup> in the winter, shrinking to 8 million Km<sup>2</sup> in the summer. Based on that data, in early 2007, scientists projected that the Arctic could be left without summer ice by 2080. The surprise came in the summer of that year when the Arctic reduced to 4 million Km<sup>2</sup>. It shrank again in 2008 although less severely, leading the scientific community to now speculate that the Arctic could be left without summer ice sometime between 2013 and 2040 or perhaps even sooner. The melting of the Arctic ice cap would raise sea levels by only a few centimeters, but it would destabilize the large ice masses of Greenland and Western Antarctica,<sup>8</sup> where there is enough ice to raise sea levels by dozens of meters in a few centuries.

A much more urgent impact of Arctic thawing is the potential melting of the permafrost in Siberia and the Canadian Tundra, releasing the CH<sub>4</sub> sequestered there, which is between 10 and 20 times the amount of carbon emitted to the atmosphere annually. This would inevitably produce an immediate dramatic temperature spike.<sup>9</sup> In addition, the permafrost contains organic material which upon melting is biodegraded, generating additional amounts of CO<sub>2</sub>. Something similar occurs with CH<sub>4</sub> reservoirs in the bottom of the oceans at a temperature approaching 2 °C in amounts comparable to all the rest of the fossil carbon stored in the planet. These compounds are sensitive to temperature: if the water warms, the methane escapes, and as noted earlier, the oceans are gradually heating up. The release of this methane will produce climate changes akin to planetary cataclysm.

Other self-feeding mechanisms also occur in the oceans. Upon warming, ocean water loses its capacity to absorb CO<sub>2</sub>, leaving more CO<sub>2</sub> in the atmosphere and increasing the temperature of the same, further warming the ocean. And something similar also occurs in forests. Increased atmospheric temperature increases evaporation, drying out the forests, resulting in increased forest fires, which further dry out neighboring forests, fostering more burning, all of which increases emissions and atmospheric temperature. Scientists estimate that a 3 or 4° C temperature increase in the atmosphere could result in the total loss of the Amazon. The modification of the Gulf current is another impact whose consequences will be widespread.

## FORESEEABLE IMPACTS

Climate change is ushering the planet into an entirely distinct situation from that which prevailed over the past millions of years in which the human species developed. No one knows for sure what the full effects of these changes will be. However, some very likely impacts are outlined below:

**Reduction of food.** Changes in climate patterns will include altered rain and wind behaviors, generating immediate impacts on crops, resulting in reduced availability of food. Increased temperatures and other extreme conditions may in some cases destroy crops.

**Destruction of land-based ecosystems.** High temperatures tend to increase evaporation from the ground and evapotranspiration from plants, drying out the soil and strongly impacting ecosystems. These alterations will make it increasingly difficult to grow all types of plants and to maintain animal life, which will not only suffer the direct impacts of new climatic variables but also the destruction of its habitat and food.

**Strong alterations of marine ecosystems.** Increased ocean temperatures, in addition to destroying corals, will displace multiple species to cooler waters in other regions, producing strong impacts on fishing, among other consequences.

**Health problems.** The new climate conditions foster the generation and proliferation

of new viruses and bacteria, generating new illnesses for which no medications yet exist and humans have no natural defenses. The new climate conditions will also generate additional direct burdens on already-vulnerable persons.

**Scarcity of fresh water and strong precipitations.** The increased evaporation and transpiration caused by higher temperatures will generate scarcity of water at the surface and subsoil levels while increasing its concentration in the atmosphere due to the fact that the higher temperature of the atmosphere increases its capacity to absorb water. This means that more water will be available for strong storms.

**More frequent extreme weather phenomena.** The rising temperature will intensify the energy of hurricanes, producing storms with unprecedented destructive potential. At the same time, the world will suffer increasingly severe prolonged droughts. Weather phenomena such as *el niño* and *la niña* will become more and more extreme and frequent.

**Heat waves.** As average global temperature increases, sudden local temperature spikes will become more frequent, reaching temperatures at which people will be unable to lose heat through transpiration, generating deaths among those unable to escape the heat through access to artificial climates.

**Lost coastal regions due to rising sea levels.** By the end of the century, the sea may have risen already by two or more meters, wiping out coastal regions including many densely populated cities.

**Conflictive human reactions.** How will governments and societies respond to massive arrivals of environmental refugee populations from other regions or countries? How will one country react to its dwindling fresh water resources while its neighboring country still has plentiful supplies? The impacts of human reactions to pending crises could be worse than those directly created by the climate.

Those who are most suffering and will most suffer these impacts are the sectors with fewer economic resources, while those responsible for the problems created by the emission of immense quantities of greenhouse gases are the economically powerful: 80% of greenhouse gases emitted in the past century came from countries in which 20% of humanity lives. Climate change is a problem that leads to tremendous social and environmental injustice, in which wealthy sectors cause the problem and impoverished sectors suffer the consequences. The wealthy have an immense ecological and social debt owed to the world's poor.

## CAUSES OF THE PROBLEM AND MECHANISMS TO ADDRESS IT

The fundamental cause of climate change is the high concentration of greenhouse gases in the atmosphere produced by the burning of fossil fuels and the destruction of ecosystems through deforestation and industrial agriculture.

## Fundamental causes of climate change in agriculture

*“The expansion of intensive agriculture has led to an increase of levels of greenhouse gas emissions (GHG) due fundamentally to excess use of fertilizers, plowing, degradation of soils, and intensive livestock practices. One of the greatest problems of industrial agriculture is the massive use of fertilizers. More than 50% of all fertilizers applied to soils are dispersed in the air or end up in the waterways. One of the most potent GHGs is nitrous oxide (N<sub>2</sub>O), with a global warming production potential 296 times greater than CO<sub>2</sub>. The massive use of fertilizers and the resulting emissions of N<sub>2</sub>O represent the greatest percentage of agrarian contribution to climate change: the equivalent of 2.1 billion tons of CO<sub>2</sub> each year. In addition, the production of fertilizers, which is highly energy demanding, adds another 410 million tons of CO<sub>2</sub> equivalent. Of all chemical products, fertilizers are those that most contribute to global emissions of GHG. The second greatest source of agricultural emissions is livestock. Upon digesting food, the animals produce large quantities of methane, a potent GHG. If the current increase of meat consumption is maintained, methane emissions will continue to grow and will do so during the coming decades. Beef and sheep livestock have a high impact on climate change. Each kilogram of beef produced, for example, generates 13 kilograms of carbon emissions; every kilogram of mutton in turn generates 17 kilograms of emissions. Pork and fowl, although also large GHG producers, generate less than half those amounts. Agriculture also has a series of grave indirect effects on climate change. The clearing of forests and other natural plant coverings to obtain new lands for pastures or crop production for fodder, human food, or industrial use, eliminates fundamental carbon sinks –plants and soils that absorb atmospheric carbon- and increases global warming. This is especially grave in the case of destruction of tropical rainforests, in which immense areas have been eliminated at an alarming rate to grow soybeans to feed intensive livestock production or palm oil for agrofuels production.”*

*Source: Translated from the summary in Spanish of the Greenpeace Report, “Cool Farming:*

Resolving the problem therefore requires an immediate halt to these situations. This includes reducing fossil fuel consumption to zero, immediately detaining the destruction of the world's natural habitats, and rehabilitating the planet's ecosystems, in other words leaving fossil fuels located in the subsoil where they are, and leaving adequately-functioning ecosystems untouched. An ecosystem rehabilitation program must also be implemented immediately with adequate ecological criteria, such as planting native species with high levels of biodiversity, without use of technologies that remove excess amounts of soil and thereby liberate CO<sub>2</sub>, and a program to transform industrial agriculture into small-scale production using agroecological practices.

Reducing CO<sub>2</sub> emissions to zero and detaining the destruction of natural habitats in the world is a task that is perhaps impossible within the current international political-economic system that promotes and is based on increasing consumption of goods and services, and establishes mechanisms to in fact reduce barriers to use of resources and to facilitate the expansion of the production and consumption system in the entire world, promoting free trade treaties or partnership agreements among countries. This means that a new development paradigm must be established in which the prevalence of economic forces in the political system is replaced by the great ecological imperative that **all human actions must be carried out in a framework of harmonic understanding with nature**. In addition, a fundamental objective must be **the socially harmonic existence of humanity**. This requires conditions for the dignified lives of all men, women and children, free of exploitation, exclusion, imperialism, xenophobia, gender inequity, etc. Once this is achieved, bases may be established in the economic sphere.

## CORPORATE RESPONSES TO CLIMATE CHANGE

For the transnational companies, climate change is another business opportunity. Their proposal is to trade in carbon shares or pollution credits through a carbon market, which basically means that the countries of the North may continue to emit greenhouse gases if and when they pay countries of the South to plant trees or implement technologies to reduce or capture emissions. Aside from the difficulties involved in maintaining a trustworthy accounting of emissions versus CO<sub>2</sub> sequestration, the excess amount of CO<sub>2</sub> already in the atmosphere demands that sectors with high emissions levels immediately reduce their high levels of consumption of goods, which is the cause of the emissions. It will not work to simply attempt to hide emissions through market mechanisms.

Another corporate proposal to counter climate change is to use land to produce energy crops and thereby reduce fossil fuel demand. The problem with this is that from

the moment in which solar energy arrives as electromagnetic radiation until it produces energy in the form of alcohol and averaged across an annual cycle, efficiency ends up at around 1%. This translates into the fact that a huge amount of land is needed to produce energy in this way, and that is synonymous with multiple problems. The first impact is on food production, given that diverting land from food crops to energy crops reduces food supply and therefore increases food prices. An internal World Bank memorandum recognized that 75% of the recent jump in food prices was due to changes in land uses to make way for energy crops. In addition, industrial agriculture for energy crop production employs intensive use of tractors, large amounts of water, agrochemicals, transportation, processing, commercialization and trade, all of which burn large amounts of greenhouse-gas generating fossil fuels, in addition to contributing to the deterioration and depredation of resources such as water.

Promoting agrefuels production also promotes the destruction and use of existing ecosystems that fulfill key environmental functions with climatic, hydrological, and biodiversity benefits. The devastation of these ecosystems to make way for so-called energy crops also contributes to the forced displacement of indigenous populations and the monopolization of land in the hands of the large corporations. For example, in Africa as in other regions of the south, foreign companies are arriving and buying up immense tracts of farmlands.

In addition to these supposed corporate responses to climate change, the large companies also continue to promote mega-projects whose contributions to aggravate climate change are well documented. These include metallurgical mining, large hydroelectric dams, modern highway systems, and urbanizations, among many others.

## PROPOSALS FROM THE VICTIMS AND THOSE AFFECTED BY CLIMATE CHANGE

The gravity of the situation makes it impossible to wait for a change in the development paradigm that leads to a solution. A Movement of Victims and Persons Affected by Climate Change has therefore been proposed with the objective to organize communities around the formulation of survival strategies, within a framework of Sustainability, Solidarity, and Sovereignty. This Movement must work at a minimum of three levels: awareness-building, defense against threats, and the proposal of actions to address climate change.

### *Building awareness (mobilization):*

This activity is fundamental. The population needs to know and understand the full reality of climate change, its potential impacts, and in particular its political and economic causes. The population and its Movement must work in coordination with the communications media, educational centers, churches, labor and trade organizations, neighborhood committees, etc.

*Defense against threats (resistance):*

The Movement must make a stand and maintain opposition to projects that, under the guise of development, in fact exacerbate climate change impacts, including the following:

- Destruction of natural habitats.
- Metallurgical mining projects.
- The burning of fossil fuels to generate electricity.
- Large hydroelectric dams.
- Production of agrofuels.
- Plantations of monocultures and transgenic crops.
- Massive consumption of beef.

*Action proposals (transformation):*

The Movement must also elaborate and promote proposals to actively confront the problem, such as the following:

- Local-level production and conservation of food, basic medicines, and drinking water supplies, guaranteeing their fair distribution.
- Local processing of organic wastes.
- Programs for the rehabilitation of ecosystems.
- Optimal use of non-polluting local energy sources.
- Consumption of vegetarian diets.
- Use of architectural designs that are adequate for the climate and require minimal energy use.
- Use of bicycles and other peddle-operated vehicles for human and small cargo transportation.

Many of the measures proposed here may certainly be considered difficult to implement within today's dominant political realities. But we must remember that what is in play



here is our survival itself as human species, for which the struggle is more than worth the effort.

## NOTES

<sup>1</sup> IPCC, 2007: Climate Change 2007: The Physical Science Basis. Contribution of working group I to the fourth assessment report of the Intergovernmental Panel on Climate Change. Solomon, S.D. et al, Cambridge University Press, Cambridge, UK and NY. 996 pp.

<sup>2</sup> See reference 1.

<sup>3</sup> IPCC WG1. The Physical Science Basis. Latest Findings. Thomas Stocker, Oeschger Centre for Climate Change Research, Physics Institute, University of Bern, Switzerland.

<sup>4</sup> The documents of the IPCC may be consulted at: <http://www.ipcc.ch/ipccreports/ar4-wg1.htm>

<sup>5</sup> Carbon budget 2007. [www.globalcarbonproject.org](http://www.globalcarbonproject.org)

<sup>6</sup> CO<sub>2</sub> equivalent is the sum of the effect of CO<sub>2</sub> plus the other greenhouse gases.

<sup>7</sup> Maps may be consulted at: <http://www.athropolis.com/map.htm>

<sup>8</sup> The largest amount of ice is located in Eastern Antarctica, with sufficient volume to raise sea levels 20 meters if it were to melt. For a more detailed description of icecap melting in these regions; see: <http://www.sciencedaily.com/releases/2007/12/071211233433.htm>

<sup>9</sup> For more information on methane emissions from permafrost, see: [www.greenclippings.co.za/gc\\_main/article.php?story=20060911143346269](http://www.greenclippings.co.za/gc_main/article.php?story=20060911143346269)

# *Climate change and the right to adequate housing<sup>1</sup>*

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## INTRODUCTION

In my work as UN Special Rapporteur on Adequate Housing I have proposed to explore how climate change has consequences for the fulfillment of the right to adequate housing. In 2009, during a fact finding mission to the Maldives, I collected first hand information on the impacts of such phenomenon on the ground, especially on the living conditions of poor communities. I have dedicated considerable time to further researching and debating this topic and have identified a significant relationship between climate change and the right to adequate housing, in particular on exacerbating existing vulnerabilities.

The Intergovernmental Panel on Climate Change (IPCC)<sup>2</sup> has indicated that the earth is warming faster than any time in recorded human history and that global warming is most likely due to the effects of human activity, primarily fossil fuel use and land use change that took place particularly after the industrial revolution.

1995 and 2006 have been among the 12 warmest years in recorded history. If current warming trends are sustained, the IPCC estimates that sea levels will rise an additional 0.23 to 0.47 meters, and average temperatures could rise by 6C before the end of the century.<sup>3</sup> Global warming is prompting longer-lasting droughts and threatening to turn entire regions of the world into deserts. The warming of the earth's climate is also chan-

ging the amount, intensity and frequency of precipitation. This implies more intense and longer lasting storms and other extreme weather events, as well as higher risk of flooding and storm damage.

While it is impossible to link any specific extreme weather event to changes in the earth's climate, it has been established that global warming is increasing the severity of storms which often lead to disasters.<sup>4</sup> Between 2000 and 2004 a yearly average of 326 climate-related disasters was reported, and some 262 million people were affected, more than double the level in the first half of the 1980s.<sup>5</sup>

In view of this context, it is with great concern that we realize that the impacts of extreme weather events will be felt disproportionately in the developing world. Extreme weather events and natural disasters threaten a series of essential human rights particularly for the poorest and most vulnerable populations. They exacerbate disaster risks, both by intensifying climatic and extreme weather hazards as well as by decreasing the ability of people to withstand the impacts and recover from damages.<sup>6</sup> The heaviest impacts fall on those people who have contributed least to the problem and lack the resilience necessary to survive these changes without major harm.

## THE IMPACT OF CLIMATE CHANGE ON THE RIGHT TO ADEQUATE HOUSING

### Climate change and urban settlements

The increase in the magnitude and frequency of weather extremes pose specific risks to cities and smaller settlements. The most direct risks are connected to flooding and landslides due to increases in rainfall intensity and from sea-level rise and storm surges in coastal areas.<sup>7</sup>

This precipitation can overwhelm urban drainage systems and result in floods. Inadequate drainage exacerbates the effects of heavy rainfall, leading to localized flooding and further weakening the already degraded infrastructure.

Heavy rainfalls can also overburden sanitation systems and cause contamination of drinking water. When shelters are built in areas susceptible to hazards, such as in floodplains on the banks of rivers or on slopes which pose the risk of erosion and mudslides during heavy rains, the consequences can be devastating.

As rainfalls become more irregular or scant, drought is predicted to become more frequent and severe. This phenomenon impacts urban systems of water supply. Glacier melting is also affecting water storage and resulting in scarcity of water supply.

The extent to which extreme weather events affect urban settlements is not only related to their locations but also to the quality and level of infrastructure and service provision.

Poor communities can be especially vulnerable, in particular those concentrated in

unplanned and unserviced settlements within urban areas. Low-income groups will face serious constraints in being able to move to less dangerous sites, because of a lack of resources to enable them to move and also due to a lack of alternative safer sites which are at the same time affordable and close to their income earning and human development opportunities. Living in a situation of poverty and exclusion they lack adequate resources to protect themselves. Climate change related effects aggravate these existing risks and vulnerabilities. The majority of the urban population is concentrated – and will be even more in the coming decades - in low- and middle-income countries, which have most of the urban population at greater risk living in unplanned and unserviced settlements. Disasters caused by extreme-weather are not simply a result of natural events, but reflect also a failure of development policies.

### **Climate change and urban mobility**

The greatest impact of climate change might be on human mobility. Such impact, however, is not entirely predictable. While there are no reliable estimates of the numbers of population flows related to climate change, it is clear that climate change related impacts are already resulting in substantial human mobility.

In the context of urban and rural areas, climate change will affect these areas with increasingly frequent and hazardous events. The erosion of livelihoods, due partly to environmental degradation, intense storms, floods, droughts, water stress and food scarcity, is already accelerating the rural-urban drift,<sup>8</sup> as farmers migrate due to failing crops and insecure livelihood perspectives.

Rapid glacier melt affects the water supply and increases flooding risks in other parts of the world. This has a great impact on rural agriculture located in river deltas, resulting in the movement of many people. Drought is also a factor which is affecting mobility in rural areas. Season migration has been adopted in some parts of the world as an adaptation strategy to deteriorating environmental conditions. In other regions, climate change related impacts such rainfall decreases, land degradation, and violence in the arid and semi-arid areas have also caused a rural mass departure.

Disturbances in marine ecosystems and fisheries as well as the deterioration of farmlands due to salt water flooding will jeopardize the access of population to food and to safe drinking water. This phenomenon also generates the movement of people to other areas in search of a better livelihood.

Migration can also aggravate economic problems in receiving zones, especially when it increases the number of or expands subserviced and unplanned communities in urban areas, as addressed in the preceding section.

People might move voluntarily, in search of a better life in areas not affected by these phenomena, or forcibly, when threats to life, health, property and livelihoods exist. Some affected people might be evacuated before and during disasters, some of them

would be relocated because return to the original place of residence is not possible or too dangerous. International human rights standards and the right to adequate housing must be respected during any relocation process.

### **Sea-level rise on small islands and low lying coastal areas**

Vulnerability of human settlements to the impacts of climate change can be aggravated by the location in low lying coastal areas. “[L]ow elevation coastal zones contain 2 per cent of the worlds land and 10 percent of its population, based on estimates for 2000. Of the somewhat more than 600 million people living in the zone, 360 million are urban.”<sup>9</sup>

Urban centres located in coastal areas will face serious risks as sea-level rise increases exposure to coastal flooding, erosion, rising water tables undermining building foundations and saltwater contamination of ground water.

Small islands, where almost half a million people live<sup>10</sup>, are particularly vulnerable to rising seas, which threaten to erode coastal dwellings, destroy fisheries and exacerbate inundation, and erosion. Protection and critical infrastructure may become too burdensome to many small States and they may also see key economic revenue sources, such as tourism, seriously affected. This process threatens the vital infrastructure and facilities that support the livelihood of island communities.<sup>11</sup>

## **A RIGHT TO ADEQUATE HOUSING APPROACH TO CLIMATE CHANGE**

### **Human rights obligations and international cooperation**

States have clear obligations under international human rights law to respect, protect and fulfill the right to adequate housing and to pursue, through international cooperation, global solutions to the global problem of climate change and its impact on housing. It is therefore necessary to take into account international human rights standards to respond to the challenges posed by climate change.

For those regions which face extreme levels of vulnerability and are not in conditions to confront the impact of climate change within their existing base of resources, international support is key for their adaptation and essential to assist them to invest in increasing resilience to climate change is essential.

Developed countries should take the lead in combating climate change and its adverse effects.<sup>12</sup> They should also support developing countries with the costs of adaptation measures, taking into account their specific needs in funding and transfer of technology.<sup>13</sup> In all such actions, as highlighted by the Convention, emphasis should be given to the fact that ‘the human person is the central subject of development’.<sup>14</sup> Any effective response

to the inevitable effects of climate change will require cooperation at the international level.<sup>15</sup> Given the global nature of the threat of climate change, internationally coordinated action to assume collective stewardship of the global climate is particularly critical.

In order for the international community to effectively respond to the urgent need to assist countries and groups of people who are particularly vulnerable to the effects of climate change to adapt in order to minimize harm, commitments toward adaptation assistance should reflect new resources, distinct from funds earmarked for regular development assistance.

In addressing the development deficit in infrastructure provision, international cooperation projects need to confront technical and cultural challenges. Adaptation projects on climate change can not simply replicate the hard engineering solutions that have been behind development projects for decades. International cooperation projects must be adapted to local needs and oriented to long-term development goals.

### **Mitigation**

The grave consequences of climate change require decisive action by the international community. “Mitigation,” in the context of climate change, refers to efforts aimed at actions and policies that seek to prevent global warming from causing dangerous interferences with the climate. While there are several different arenas for possible mitigation action, the world’s leading climate scientists have converged towards a threshold for dangerous climate change of a maximum rise in global average temperature of 2° C above the pre-industrial level.

The level of emissions reductions must be sufficient to adequately stabilize the earth’s climate and avoid contributing to the further challenges to the enjoyment of human rights which will otherwise follow. A rise in just under 2°C in global temperatures may well be tolerable for those societies that enjoy a minimal degree of resilience, flexible infrastructure and adequate baseline conditions of health, housing and income-levels. Many of the world’s most resource-poor or otherwise vulnerable people face the very real threat of the loss of their homes and means of subsistence due to the increased frequency and intensity of storms, rising sea levels, desertification and drought. For these people, the threshold for an acceptable level of global warming might be arguably lower.<sup>16</sup> A human rights-centered focus on the world’s most vulnerable populations would therefore argue for both emissions reductions targets that are sufficiently stringent to avert denial of human rights deriving from climate change, as well as stronger accountability mechanisms for complying with these targets once they are defined.

Human rights standards require all countries to seek to reduce their harmful emissions to the global atmosphere with a view to reducing their negative effect on the enjoyment of human rights. This requires action at multiple levels. Industrialized countries, according to the UNFCCC “equity principle” must lead in reducing emissions levels, and ensure that they comply with their commitments in this context.

Developed countries must also contribute to efforts by developing countries to pursue

low-carbon development paths, thereby avoiding new rounds of increases in emissions. Developing countries also have obligations at a national level, in the context of the mitigation of climate change. National development plans must take into account the urgent need to refrain from contributing further to emissions that cause climate change, which requires the design of economic development strategies which avoid excessive reliance on fossil fuels to power their growth.

For example, without adequate human rights safeguards, mitigation measures related to the development of alternative sources of energy, such as hydro-electric dams, may result in human rights violations. While such measures may aim of promoting development and mitigating climate change, their impacts on the rights of people situated near project sites have in many cases been a subject of concern. Large dam projects around the world have resulted in the displacement of communities from their traditional lands.<sup>17</sup> Forced evictions and the displacement of communities within the context of efforts partly aimed at mitigating climate change have thus sometimes led to violations of the right to adequate housing.

Mitigation strategies in developed countries include the mobilization of renewable, decentralized energy devices and technologies. New building standards have been adopted to reduce the need for artificial cooling and heating as well as to promote the concept of energy-plus housing, which refers to houses that have the capacity to not only provide energy for their own consumption but also to generate a surplus that can be used for other purposes.

When states pursue strategies aimed at mitigating climate change, they ensure that they do not contribute to other rights violations. Human rights also require the participation of those groups who stand to be affected in the design and implementation of mitigation measures. Informed and effective participation, in turn, requires that information about the mitigation targets and decisions related to those goals are managed transparently.<sup>18</sup> The principle of participation in the context of mitigation initiatives should be implemented to ensure that those who stand to be most directly affected have a say in its design and implementation, which could help anticipate, and thus avert, new rights violations that could result from the measure under discussion.

## **Adaptation**

### *Disaster prevention and risk-reduction*

A human rights approach has much to offer to adapt to climate change and the reduction of the risks posed by natural disasters. While some natural disasters are unavoidable, much can be done to avoid their negative impacts on human lives and human rights. Of particular importance are measures to strengthen the resilience and capacity to adapt to climate change of those individual and groups who are most vulnerable to the impacts of natural disasters.

Adaptation measures to climate change need to include an assessment of the areas

most at risk and the particularly vulnerable groups within the population. Warning information must be communicated to all neighborhoods at risk in order to allow dwellers to seek protection and to take risk-reduction actions.

The human rights obligation to reduce disaster risks and vulnerabilities, e.g. by setting up alarm and evacuation systems, has been addressed by the European Court of Human Rights<sup>19</sup>: if a disaster is foreseeable and the State is able to prevent ensuing threats to life and property, it has to take appropriate action in conformity with its human rights obligations under the right to life and/or the protection of privacy and property<sup>20</sup>.

### *Resettlement*

People may be temporarily displaced for short periods of time due to climate change related disasters such as hurricanes, storms and floods, and be able to return to their original homes once the event ends. In this case, temporary relocation must last only as long as absolutely necessary required time and all displaced persons should have the right to return to their homes without discrimination.

All options must be evaluated before proceeding with resettlement plans. This is especially important in view of some particular worrying government policies adopted in the context of post-disaster, which did not allow low-income affected persons to return to their original areas, which were then transferred to higher-income use.

The affected population shall be consulted and fully involved during any process of relocation and resettlement. Permanent relocation should never result in homelessness. Alternative accommodation (or the necessary subsidy or cash payments) should be provided, as required by international human rights standards, to those who would not be otherwise able to access adequate housing. The criteria recognized for adequacy of housing, as established by international standards, also apply in these circumstances. The alternative sites offered to the affected population must be adequate and not be too far from their income-earning opportunities.

In the context of resettlement, particular consideration should be given to women's needs. In the rebuilding process, poorer groups have more limited capacity to adapt. They normally lack insurance protection and receive less support from the state. They must be involved in all discussion making concerning reconstruction processes and must be supported directly if conditions cannot be created to ensure they can obtain on their own appropriate access to adequate housing and livelihood.

Finally, the resettlement process should be seen as an opportunity to address short and longer term development issues, contributing to poverty reduction.

### *Participation and empowerment*

The informed participation of people in the development of national as well as local level responses aimed at adapting to the effects of climate change requires efforts to build the capacity of national populations to take part in such decisions through public



awareness and mobilization. Once this capacity is in place, communities and civil society organizations will be more empowered to monitor and participate in the development of national and local adaptation strategies and ensure that they benefit those who most require the support. This approach will ensure that those people whose rights are most directly threatened by the impacts of climate change, as well as by the responses undertaken, become central authors in the implementation of urban planning initiatives and projects aimed at the development of new infrastructures. The participation of the beneficiaries of adaptation projects in their design and implementation, as well as a leading role for local governments in such projects, will therefore increase the likelihood of their being more responsive to human rights vulnerabilities and better positioned to effectively strengthen the resilience of communities, homes and infrastructure systems.

## CONCLUSIONS

Climate change-related impacts have a range of implications for the effective implementation of the human right to an adequate housing and the most distressing aspect of such implications in the fact that they are disproportionately distributed. The world's poorest people and nations, who have generally contributed the least to man-made greenhouse emissions, are those most affected by global warming impact.

States must comply with their commitments in reducing their harmful warming emissions to the global atmosphere. Industrialized countries must lead in reducing emissions levels and support developing countries to pursue low-carbon development paths.

States have an obligation to employ measures to mitigate climate change and adapt to its inevitable impacts. At the same time, states must uphold their human rights obligations in all areas of action, including with regard to mitigation and adaptation projects and measures. They should also ensure that measures intended to protect people from the effects of climate change do not result in unintended violation of other human rights.

Climate change represents an opportunity for reflection and debate on how to improve housing systems, policies and programmes so as to ensure adequate housing for all.

## NOTES

- <sup>1</sup> This paper constitutes a summary of my concerns and conclusions regarding climate change and adequate housing as expressed in my annual report presented to the UN General Assembly in 2009.
- <sup>2</sup> The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to assess the information relevant to the scientific basis of the risk of human-induced climate change, its potential impacts and possible response strategies.
- <sup>3</sup> IPCC: “Climate Change 2007: Impacts, Adaptation and Vulnerability.” Contribution of Working Group II to the Fourth Assessment Report of the IPCC. Cambridge University Press, Cambridge, United Kingdom, 2007.
- <sup>4</sup> National Office of Oceanic and Atmospheric Research: “Global Warming and Hurricanes.” Found at [http://www.oar.noaa.gov/spotlite/archive/spot\\_gfdl.html](http://www.oar.noaa.gov/spotlite/archive/spot_gfdl.html) last accessed 29 June, 2009.
- <sup>5</sup> United Nations Development Program. “Human Development Report 2007/2008. Fighting Climate Change: Human Solidarity in a Divided World.” UNDP, 2007.
- <sup>6</sup> United Nations International Strategy for Disaster Reduction Secretariat (UNISDR): Global Assessment Report on Disaster Risk Reduction, 2009, p. 11.
- <sup>7</sup> IPCC Fourth Assessment Report. Working Group II Report “Impacts, Adaptation and Vulnerability”, Chapter 7: Industry, Settlement and Society, p. 361.
- <sup>8</sup> Report of the Office of the United Nations High Commissioner for Human Rights on the relationship between climate change and human rights. A/HRC/10/61, 15 January 2009, p.13.
- <sup>9</sup> McGranahan, G., Balk, D., and Anderson, B. “The rising tide: assessing the risks of climate change and human settlements in low-elevation coastal zones” in Bicknell, J., Dodman, D. and Satterthwaite, D. (eds) *Adapting Cities to Climate Change*, Earthscan, London, 2009, p. 58.
- <sup>10</sup> Oxfam. “Climate Wrongs and Human Rights.” September, 2008.
- <sup>11</sup> IPCC: “Climate Change 2007: Impacts, Adaptation and Vulnerability.” Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change. Chapter 17: Small Island States, Cambridge University Press, Cambridge, United Kingdom, 2001.
- <sup>12</sup> United Nations Framework Convention on Climate Change; Article 3 (Principles), adopted 9 May, 1992
- <sup>13</sup> United Nations Framework Convention on Climate Change: Article 4, paras. 4 and 9.
- <sup>14</sup> Report of the Office of the United Nations High Commissioner for Human Rights on the relationship between climate change and human rights. A/HRC/10/61, 2009, p. 28.
- <sup>15</sup> As the Deputy High Commissioner of Human Rights stated: “The human rights perspective underlines the need for international cooperation to address the unequal burden falling on those who are least able to carry its weight.” (Statement delivered at the Human Rights Council Panel Discussion on the relationship between climate change and human rights held on 15 June 2009).
- <sup>16</sup> International Council on Human Rights Policy “Climate Change and Human Rights; A Rough Guide”, Geneva, 2008.
- <sup>17</sup> Presentation by International Forum of Indigenous Peoples on Climate Change to AWG-KP, Agenda Item 5 and <http://internationalrivers.org/en/node/2837>
- <sup>18</sup> Submission by FPP: <http://unfccc.int/resource/docs/2009/smsn/ngo/104.pdf>
- <sup>19</sup> *Budayeva and Others v. Russia*, European Court of Human Rights (ECHR), No. 15339/02.
- <sup>20</sup> The Court referred to obligations under the right to life and property, but clearly the same argument would apply to the right to an adequate housing.



# Monocultures and agrotoxins in Latin America

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The intensive use of chemical pesticides forms part of the technological packages associated with monocultures, in particular those dedicated to export agriculture, and constitutes a serious threat to the exercise of the rights to health, to a healthy environment – and to the resources that integrate it - and to the right to produce and consume healthy foods. Chemical pesticides have an intrinsic toxicity derived from the composition of their chemical molecules, elaborated in a laboratory and industrially produced, hence they



Crop fumigations, Valle del Fuerte, municipality of Ahome, Sinaloa (Mexico), February 2008. Photograph: Fernando Escalante.

are *agrotoxins*.<sup>1</sup> From a biological perspective, chemical pesticides are *biocides*, given that they kill living beings, and merit this name considering that the majority destroy not only the pests but also beneficial insects that naturally control other populations or serve as pollinators. They may also affect fish and other important organisms that form part of the biodiversity and integrity of ecosystems.<sup>2</sup>

Chemical pesticides, classified by many as mere “phytosanitary inputs,” transformed into the dominant form of pest control thanks to the advance of so-called “industrial agriculture,” which is agriculture based on specialized large-scale monocultures, and using mechanization processes, hybrid<sup>3</sup> - and now transgenic - seeds, and chemical fertilizers. In Latin America and the Caribbean, after the Second World War, this model was promoted as a “green revolution,” proclaiming the United States as technological example to be followed. Monocultures and the agrottoxins that accompany them are also found in the development of forest plantations, either for wood and cellulose production or primarily for palm oil production. Opposition to these plantations has been united within the Latin American Network Against Tree Monocultures (*Red Latinoamericana contra los Monocultivos de Árboles*).<sup>4</sup>

A small handful of transnational corporations control the majority of the global pesticide market including the Latin American and Caribbean countries, as listed in the following table.

**Table N° 1**  
**Sales of the 10 primary agrochemical companies in Latin America, 2004.**  
**In millions of US dollars.**

1	Bayer Crop Science	1,415
2	Syngenta	1,017
3	BASF	849
4	Dow AgroSciences	699
5	Makhteshim-Agan Industries	410
6	Monsanto	394
7	Dupont	301
8	FMC	24
9	Sumitorno	55
10	Nufam	28

*Source: Agrw's Top 20: 2006 Edition, Published 31 May 2006.*

The transnational companies Monsanto, DuPont and Syngenta also control 44% of the global seed market (2006)<sup>5</sup> of both hybrids and genetically modified seeds. Monsanto is the world's primary seed company and promoter of transgenic crops resistant to the agrottoxins sold by the same company. Control of the seeds allows Monsanto to control the beginning of the agrofood chain. As owner of the transgenic seed, Monsanto prohibits the user from selling it or using the seed harvested from the crops, and can even sue farmers if genes copyrighted by the company are found in their crops, even if they got there by accident or through contamination from neighboring crops.

Below we will highlight some of the most eloquent cases in recent years that exemplify the impact of use of agrottoxins on the health of workers and the communities exposed to the chemicals, and on the environment.

## IMPOTENCE AMONG WORKERS DUE TO NEMAGON AND OTHER AGROTOXINS USED IN BANANA PLANTATIONS

The case of workers left sterile due to exposure to the pesticide spray DBCP (dibromochloropropane) has been denounced in several international forums.<sup>6</sup> DBCP was marketed by the company Shell under the name “Nemagon” and by Dow under the name “Fumazone.” DBCP was a pesticide spray used on soils for many years in banana and pineapple plantations in Mexico, the Caribbean, Central America, Africa and the Philippines. Since 1954, Shell and Dow knew that DBCP caused sterility and testicular alterations, but the information was withheld from United States environmental authorities in order to secure the chemical’s registration. In 1979, the United States cancelled all domestic uses of DBCP but allowed it to continue to be exported to other countries where it continued to be used for several years.<sup>7</sup> DBCP has been the cause of serious cases of water pollution in California, and it and other agrottoxins have been detected in Nicaragua in well water used for human consumption around old banana plantations in the Chinandega region.<sup>8</sup> In May 2001, 3,600 workers affected by infertility, cancer, and birth defects among their children<sup>9</sup> in Nicaragua sued the transnational banana companies which had exposed them to Nemagon.

On 5 November 2007, a jury of the Court of Los Angeles, California in the United States condemned the transnational companies Dole Fresh Fruit Co. (previously Standard Fruit Co.) and Dow Chemical Co. “for having actively suppressed the information on the toxicity of DBCP to the reproductive system,” and ordered them to pay a total of 3.3 million dollars in compensation to 6 Nicaraguan former laborers.<sup>10</sup> The Association of Workers and Former Workers Affected by Nemagon (*Asociación de Trabajadores y Ex-trabajadores Afectados por el Nemagón* - ASOTRAEXDAN) has headed numerous marches to the Nicaraguan capital. The struggle for adequate compensation and medical attention continues to this day.<sup>11</sup>

The case of DBCP in banana plantations is not isolated. In September 2008, the Latin American Human Rights Association (*Asociación Latinoamericana de Derechos Humanos* - ALDHU) filed a lawsuit in the United States against ten Ecuadorian companies that promote, import, distribute and use the fungicide “Mancozeb” in banana plantations in Ecuador, provoking grave health problems among their workers. Mancozeb is prohibited in the United States since 2005 due to its high toxicity and carcinogenic risks, but it is marketed in Ecuador under the names Dithane, Manzane and others and it is also used in other Latin American countries.<sup>12</sup>

## A PERSISTENT GLOBAL POLLUTANT: ENDOSULFAN

Endosulfan is an insecticide that kills a broad range of sucking and chewing insects. In Latin America, it is authorized for use on a large number of crops, including vegetables, fruits, tobacco, soybeans, cotton, ornamental plants, and coffee. Endosulfan is one of

the new substances examined by the Stockholm Convention on Persistent Organic Pollutants for its possible elimination at the global level due to its toxic effects, its persistence in the environment, and its capacity to concentrate and magnify across the food chain, characteristics which convert it into a global contaminant.

Endosulfan has been found in all elements of the environment: in the air, rain, snow, fog, lakes, sediments, rivers, well and spring water, plants, fish, crocodile eggs, etc. Once dispersed in agricultural areas, this product volatilizes and travels from warm regions to cool regions, falling as rain in areas very far from its original place of application, capable of volatilizing again and repeating the process and thereby covering long distances, reaching even the Arctic and Antarctic Circles. This phenomenon has been documented in measurements taken in Bolivia, Chile, Mexico, and Costa Rica, revealing the increase of concentrations in the Andes mountain range and in protected natural areas with no agricultural activity. Endosulfan is the organochlorine<sup>13</sup> pesticide with highest concentrations in the atmosphere at the world level, according to monitoring studies in 40 sites in seven continents, carried out by the Global Atmospheric Passive Sampling or GAPS Network.<sup>14</sup>

Endosulfan has been prohibited in 60 countries, including the European Union. Bayer CropScience, one of the primary producers of Endosulfan has announced plans to remove it from the global market in the year 2012.<sup>15</sup> In Latin America it has been prohibited in Belize and Colombia (although cases of intoxications have revealed its illegal use), and all of its legal registrations have recently been cancelled in Venezuela.

Endosulfan was identified in Central America and the Dominican Republic among the 12 pesticides responsible for the highest mortality rates due to acute intoxications between 1999 and 2000. In recent years, massive cases of endosulfan poisonings have been denounced in Argentina, Uruguay, and Colombia. For example, in 2003 in the Department of Villaguay in Argentina, in a town of 3,000 inhabitants, several cases of miscarriages and birth defects were denounced which are attributed to the spraying of endosulfan by aerial crop dusters over large monocultures of transgenic soybeans.<sup>16</sup>

Studies compiled by Dr. Meriel Watts indicate that chronic exposure to endosulfan provokes long-term toxic neurological effects such as epilepsy, Parkinson's disease, suppression of the immune system, and allergies. There is also some still-inconclusive evidence of its carcinogenic potential in humans and its genotoxic effect (damaging the genetic material of cells) on bacteria and human and rat cells, although the International Agency of Research on Cancer (IARC) does not classify endosulfan as a carcinogen.<sup>17</sup> RAP-AL has documented several alternatives to endosulfan with examples in a large number of Latin American countries.<sup>18</sup>

In Brazil, the accidental overturn of a truck with 15,000 liters of endosulfan on 18 November 2008 provoked an environmental disaster that led to the pollution of the Pirapetinga River with the death of thousands of fish, birds and wild mammals across the states of São Paulo, Minas Gerais, and Río de Janeiro. Because the spill occurred during the reproductive migration season, 80 species of fish were affected and fish reproduction in the region will be compromised for the next three years. In response to

the environmental catastrophe, the state of Rio de Janeiro proposed the prohibition of endosulfan in the entity.<sup>19</sup> For its part, the National Health Surveillance Agency (*Agência Nacional de Vigilância Sanitária* - ANVISA) in 2008 decided to reevaluate the registration of nine agrottoxins, including endosulfan. This labor was suspended by a court order issued by the 13<sup>th</sup> Federal Court of Justice of the Federal District in favor of SINDAG (*Sindicato das Indústrias de Defensivos Agrícolas*), arguing that the procedure adopted by ANVISA did not facilitate the manufacturers' right to a broad defense. The legal conflict remains unresolved.<sup>20</sup>

## EXPANSION OF MONOCULTURES OF GLYPHOSATE-RESISTANT SOYBEANS IN THE SOUTHERN CONE

Monoculture of soybeans (or soya as it is called in South America) has expanded extensively first across Argentina and later throughout Brazil, Paraguay, Bolivia, and Uruguay, converting the Southern Cone region into the primary exporter of soybeans in the world, destined primarily for cattle, pig, and bird feed in Europe and China. The expansion and intensification of this monoculture has caused massive deforestation (especially of tropical forests), increased use of herbicides and transgenic seeds, the displacement of thousands of *campesino* farmers, and the displacement of food crops, aggravating food dependency and transnational control over the productive chain. Some of the most significant examples are that of Monsanto, which supplies the transgenic soybean seed, and that of ADM, Cargill, Bunge and Louis Dreyfuss that dominate the soybean market in the world and in Latin America.<sup>21</sup>

In the case of transgenic soybeans, the Monsanto-owned and marketed seed is known as RR seed because it is genetically modified to be resistant to the herbicide glyphosate. RR refers to "Roundup Ready," meaning that the crop is suited for application of the Roundup (glyphosate) herbicide. A calculated 90% of genetically-modified crops in the world use Monsanto seeds.

Glyphosate is a non-selective and broad-spectrum systemic herbicide. Although it appears in its commercial formulation in the Monsanto products as a low or medium-toxicity and environmentally-friendly product, in reality it constitutes a grave environmental and public health risk. Glyphosate is formulated with one or more surfactants (which are the ingredients that distribute the solution across the entire leaf, penetrate it, and increase the herbicide's assimilation in the plant). The most-frequently used surfactant is that known as polyethoxylated tallow amine (POEA), which broadens the toxic effects of glyphosate and in itself is more toxic than the Roundup formulations. Glyphosate and the primary substance in which it breaks down, aminomethylphosphonic acid (AMPA), are important pollutants of rivers, with AMPA in fact more toxic than glyphosate.<sup>22</sup>

Other studies have demonstrated that the four formulations of the Roundup line of glyphosate herbicide are highly toxic for human cells and in concentrations far lower than those recommended for agricultural use. Prior epidemiological studies have linked



glyphosate to miscarriages, non-Hodgkin's lymphoma, and multiple myeloma. Various scientists have called for prohibition of the liberation of Roundup-tolerant transgenic crops throughout the world.<sup>23</sup>

The biologist Andrés Carrasco, Director of the Molecular Embryology laboratory and researcher of the National Council of Scientific and Technical Research (*Consejo Nacional de Investigaciones Científicas y Técnicas* -CONICET) and of the Department of Medicine of the University of Buenos Aires, Argentina, directed a study in which amphibious embryos of the *Xenopus Laevis* (African toad) species were exposed to glyphosate doses far below those applied to transgenic soy crops. The study found that glyphosate was capable of producing neuronal, cardiac and intestinal malformations, as well as cancers, with results "totally comparable with those that would occur with the development of the human embryo."<sup>24</sup>

In Argentina, since 2001 the "Mothers of Ituzaingó" group, of the neighborhood of the same name located in the outskirts of the city of Cordoba, has been denouncing the health damages caused by crop dusting and other applications of agrottoxins in the region's soybean fields and other crops, in particular of glyphosate and endosulfan. In 2006, the Municipal Environmental Office documented the presence of between one and three pesticides in blood samples taken from the students in one primary school located near the soybean fields.<sup>25</sup> A collective has been formed in Cordoba of various organizations and specialists to fight against the spraying of agrottoxins in urban areas.<sup>26</sup> Finally, in early 2009, Cordoba Courts accepted to review the denouncement of poisonings presented by the inhabitants of Ituzaingó, and prohibited the use of agrottoxins within 500 meters of urban areas in the case of ground-level applications and within 1,500 meters in the case of aerial spraying. The ruling creates an important precedent for the denouncements being presented by dozens of populations in the provinces of Buenos Aires, Cordoba, Entre Ríos, and Santa Fé, regions forming the agricultural heartland of Argentina.<sup>27</sup>

At the world level, the United Nations Food and Agriculture Organization (FAO) has proposed the gradual prohibition of particularly dangerous pesticides, including not only those with greater acute toxicity but also those with chronic effects, as a measure to contribute to the Strategic Approach for International Chemical Management (SAICM). This proposal is supported by the International POPs (Persistent Organic Pollutants) Elimination Network (IPEN) and RAP-AL, which for its part feels that the solution does not lie simply in the substitution of POPs with less-toxic chemical pesticides but rather the promotion of organic agriculture and experiences of cultural and agroecological control in defense of food sovereignty.<sup>28</sup>

## NOTES

<sup>1</sup> Chemical pesticides is the generic name we give to the chemical substances that kill living organisms considered pests, and which are denominated according to the type of organism controlled, such as insecticides (insects), herbicides (unwanted plants or weeds), fungicides (molds) and acaricides (mites). Exposure of living organisms to these agrottoxins depends on the particular characteristics of its formulation and forms of application, with aerial spraying (crop dusting) being the most aggressive due to the dispersion of airborne pesticide toward neighboring environments and communities. Author's note.

<sup>2</sup> See further: Bejarano G, Fernando. (2002). *La Espiral del Veneno. Guía ciudadana sobre plaguicidas*. RAPAM, Mexico. Available in publications: [www.rapam.org](http://www.rapam.org)

<sup>3</sup> A hybrid seed is the result of manipulation consisting of crossing seeds within the same species, and the seeds harvested from the resulting crop can not be replanted. Hybrid seeds are often accompanied by a technological package. A transgenic seed is the result of manipulation consisting of genetic engineering, for example inserting genes from another species, or making seeds resistant to an herbicide. Author's note.

<sup>4</sup> Network with representatives in Argentina, Brazil, Colombia, Costa Rica, Ecuador, Paraguay and Uruguay. See: <http://www.wrm.org.uy/plantaciones/RECOMA.html>

<sup>5</sup> See ETC, 30 April 2007: [http://www.etcgroup.org/en/materials/publications.html?pub\\_id=615](http://www.etcgroup.org/en/materials/publications.html?pub_id=615) Bayer occupied seventh position in 2006.

<sup>6</sup> The case was presented by the Public Attorney's Office for Defense of Human Rights of Nicaragua to the 61st session of the United Nations Human Rights Commission in April 2005. It was also included in the final resolution of the Permanent Peoples' Tribunal (*Tribunal Permanente de los Pueblos -TPP*), in the session held in Lima, Peru, between 14 -15 May 2008, in conjunction with the Third Peoples' Summit (*III Cumbre de los Pueblos*), in which testimonies were also heard from laborers from Nicaragua and Honduras.

<sup>7</sup> Bejarano, Fernando. *op. cit.*, p.72.

<sup>8</sup> Studies by the Research Center on Aquatic Resources (*Centro para la Investigación en Recursos Acuáticos -CIRA*) of the National Autonomous University of Nicaragua. "Aguas con DBCP." Magazine *Enlace*. No. 78-79, pp. 12-13. RAP-AL. December 2007-January 2008.

<sup>9</sup> Bejarano, Fernando. *op. cit.*, p. 72.

<sup>10</sup> See note of 22 May 2008 by Trucchi, Giorgio, REL UTTA: [http://www.rel-uita.org/agricultura/agrotoxicos/nemagon/tribunal\\_de\\_los\\_pueblos-nemagon.htm](http://www.rel-uita.org/agricultura/agrotoxicos/nemagon/tribunal_de_los_pueblos-nemagon.htm)

<sup>11</sup> For more details see the book by Vicent Boix Bornay: *El Parque de las Hamacas, el químico que golpeó a los pobres*. <http://www.elparquedelashamacas.org/>

<sup>12</sup> *Demandan a bananeras en Estados Unidos*. Magazine *Enlace*. No 82, p. 13. RAP-AL. October 2008.

<sup>13</sup> Organochlorine, which has chlorine in its molecule, and in particular endosulfan, pertain to the same group as DDT, aldrin, eldrin, and endrin, which have been prohibited in most of the world. Author's note.

<sup>14</sup> Bejarano, Fernando coord. Global Atmospheric Passive Sampling (GAPS). *El Endosulfan y sus Alternativas en América Latina*. RAP-AL, IPEN, RAPAM, UACH Mexico. pp. 16-17. (2008).

<sup>15</sup> Press release by IPEN and RAP-AL, 28 July 2009. See: [www.caata.org](http://www.caata.org)

<sup>16</sup> The malformations in children occurred in rural farming communities exposed to endosulfan in cashew plantations in the district of Kasaragood and the resistance of rural farmers' and environmental groups detonated a campaign for its global elimination, which is promoted by the International POPs Elimination Network (IPEN) and the Pesticide Action Network.

<sup>17</sup> Watts, Meriel, quoted in Bejarano, Fernando, *op. cit.* p. 14 -15. (2008).

<sup>18</sup> Fernando Bejarano G et.al., With case studies in Argentina, Brazil, Mexico, and Uruguay. Report II, soon to be published, reports cases in Cuba, Chile and Bolivia. (2008).

<sup>19</sup> "Megadesastre ecológico." Magazine *Enlace* RAP-AL. No. 83, pp 22 -23. Based on Brazilian newspaper sources. January, 2009.

<sup>20</sup> "Brasil, importa agrotóxicos, prohibidos en otros países." Note by RAP-AL. 25 August, 2008. [http://www.rap-al.org/index.php?seccion=8&f=news\\_view.php&id=278](http://www.rap-al.org/index.php?seccion=8&f=news_view.php&id=278)

<sup>21</sup> Bravo, Elizabeth. *Soya, instrumento de control de la agricultura y a alimentación*. Acción Ecológica, Red por una América Latina, Libre de Transgénicos. Ecuador. pp. 114-119. (2005).

<sup>22</sup> Dr. Mae Wan Ho and Brett Cherry in the Magazine *Enlace* RAP-AL, (2009). “*Glifosato y Roundup. Muerte por envenenamiento múltiple.*” No. 84-85, pp. 10-11. June, 2009. From the original in English: <http://www.i-sis.org.uk/DMPGR.php>

<sup>23</sup> Dr. Mae Wan Ho and Brett Cherry. *op. cit.* From the original: <http://www.i-sis.org.uk/DMPGR.php>

<sup>24</sup> “*Glifosato, culpable de cánceres y malformaciones.*” Magazine *Enlace*. RAP-AL, No. 84-85, pp. 8-9. June, 2009.

<sup>25</sup> Magazine *Enlace*. No. 84-85, pp. 6-7. June, 2009.

<sup>26</sup> See: <http://parendefumigar.blogspot.com/2009/07/blog-post.html>

<sup>27</sup> “*Denuncia en las provincias sojeras. La población está envenenada.*” Magazine *Enlace*, No. 84-85, pp. 6-7. See also: <http://argentina.indymedia.org/news/2009/02/653982.php> June, 2009.

<sup>28</sup> Regarding SAICM and the criteria for selection of most dangerous pesticides proposed by PAN to the FAO, see: [www.rapam.org](http://www.rapam.org) y [www.rap-al.org](http://www.rap-al.org)

# *The voracious appetite of the trade agreements, the right to food and autonomous regionalism in Central America*

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## **CONTEXT OF THE REGIONAL SITUATION: ACCESS TO FOOD AND BASIC GRAIN IMPORTS**

During the past twenty years, the Central American region has suffered a socio-productive and economic transformation affecting very specific sectors of the population, including small and medium agricultural producers and average consumers. New regional patterns of accumulation and commercialization have redefined the role of the local markets and have resulted in the increasing importation of basic consumption products. The consequences of a profoundly unequal income distribution model, which is also highly polluting and destructive of the environment, have generated a framework of exclusion and social polarization producing high concentration of wealth and land.

This new pattern of accumulation has not only fostered a redynamization of the regional market (after the United States market, the majority of exports are intra-regional), but also a change in the production structure of the majority of the region's countries. Since the 1990s, the third sector (services, assembly and trade) has been edging out the economic importance of agricultural activities, producing displacements and migrations from the countryside to the city, constituting misery belts around the cities and large conglomerates of informal workers made up by former farmers and rural laborers.

According to the regional report known as the “State of the Region” (2008), in 2005 agriculture brought in less than remittances in terms of Gross Domestic Product (GDP), while services contributed around 62.7% of regional GDP.

According to this report, in only 15 years, between 1990 and 2005, lands cultivated with rice, beans, corn and sorghum (basic foodstuffs of the popular sectors) dropped in half, substituted by products for export.<sup>1</sup> The region that concentrates two countries classified by the FAO (The Food and Agriculture Organization of the United Nations) as countries with both low incomes and food deficits: Nicaragua and Honduras,<sup>2</sup> transformed into a region highly dependent on imports and assistance achieved through the trade agreements, fundamentally with the United States and the European Union.

The surplus, but at the same time insufficient availability of foods, in particular of staple grains, is starkly illustrated by the state of basic food imports, and this situation results in a special challenge for food sovereignty and the right to food. Poverty affects more than 40% of the population in Central America while employment is located fundamentally in sectors with low productivity and incomes, and in self-employment activities (almost exclusively of family character).

Given that agriculture is now an activity concentrated in the expansion of vast monocultures for export to third markets, such as pineapple and banana for consumers in the northern countries or raw materials such as sugarcane or African palm for biofuels production for cars in the northern countries, there is also a heavy increase in the use of fertilizers and pesticides, provoking higher levels of pollution and greenhouse gas emissions, registered in particular in the 2003-2005 period.<sup>3</sup>

The focus in Central America has been on efforts to increase trade based on monocultures, in most cases with heavy consequences on food sovereignty, the environment, and the regional integration process itself, which lacks the instruments necessary to be able to respond to the large problems of the local population.

The link between trade and food, in these conditions, is transforming into a critical factor, which far from promoting improved quality of life threatens to deepen the structural conditions of hunger and malnutrition in the region. An effort to escape this logic of monocultures for export requires conceptualizing an alternative model of integration that addresses the trade question in a different dimension, specifically, incorporating the public criteria of autonomy. To date, Central America provides a good example of how trade (free trade in reality) can constitute a source of inequality and exclusion at the international level. The State of the Region summarizes it as follows:

*“[...] Availability of foods had not been a problem in Central America. However, as a result of the types of international economic insertion, the agricultural production sector was neglected, in particular in the categories related to food production for the internal market [...]. Dependence on imported foods grew, in particular of basic grains [...]. The situation has become complex due to the recent accelerated increase in these prices (international food prices), among other things due to the use of food products for the generation of biofuels.”<sup>4</sup>*

## THE RIGHT TO FOOD AND FREE TRADE AGREEMENTS

The right to food intends to consecrate a universal framework of access to healthy and nutritious foods, in sufficient quantities and quality so that any human being may develop a dignified life. The Central American region, as we pointed out above, is plagued by the persistence of historic conditions of undernourishment and misery which are now sharpening with the insertion of its economies in the global market, in particular through the policies of trade and financial liberalization. Trade - which often stands out as a fundamental variable for the development of impoverished countries - appears to operate under this scheme as a source of inequality and inequity at the regional and international level.

The instruments negotiated in particular in the framework of the World Trade Organization (WTO) and in the Bilateral Trade and Investment Agreements guarantee a base for the export of very specific products of local agricultural production stock and a broad range of facilities for the massive importation of food products, controlled by large global distribution and commercialization chains.

When the FAO published the "State of food insecurity in the world" in 2008, among the various origins of the global rise in food prices provoking increased hunger and undernourishment at the global level, it highlighted the increased demand for food products for biofuels production, and trade policies that favored "speculative re-stocking or pre-stocking by large importers."<sup>55</sup>

According to this FAO report, the relative role of socio-economic factors (including changes in exports and imports) in the provocation of food crises has risen to 27-since 2000, compared to about 2- the 1980s.<sup>6</sup>The links between trade and food have grown in the past decades, and today the right to food cannot be separated from the norms that regulate the trade agreements, or vice versa. The assumption that market opening favors greater competition and that this in turn offers opportunities for lower prices for the consumer is not demonstrated in practice.

In the Central American case, the State of the Region, based on CEPAL indicators, calculated that a 15% increase in food prices could relegate an additional 2.5 million people to extreme poverty, especially in Guatemala and Honduras. A model of increased imports results in high earnings for the importing companies, but growing levels of undernourishment (particularly concentrated in rural and indigenous areas) in the region. For example, wheat, rice and corn imports increased around 30% in terms of total availability of foods in the region for the 1990-2003 period, and prices tripled for wheat and doubled for rice and corn in the 2000-2008 period.

The trade agreements have contributed to the concentration of regional agricultural production in a reduced selection of products for export. The total supply of foods therefore grows but is not oriented to local consumption, or it is based on a significant increase of imports, which has resulted in the situation in which the rise in food prices is felt most strongly in the sectors marked by poverty and extreme poverty. We stopped producing food for the local market, and what we do produce is sent elsewhere through

trade agreements. The diversification of production has taken place at the cost of the hunger of the population, to satisfy the demand for determined tropical products in the “developed countries,” in particular the United States and the European Union.

In this way, based on these tropical products, the region’s agricultural exports have grown exponentially in the past years alongside a significant reduction of the area cultivated with staple grains for local food consumption. For example, Costa Rica, the country with the highest levels of exports at the regional level, experienced a 52% reduction of lands cultivated with rice, beans, corn and sorghum between 1990 and 2005, alongside the doubling of areas dedicated to fruits, vegetables, legumes and oleaginous products designated to the external market (in particular the USA and EU).<sup>7</sup>

The relation is an apparent paradox provoked by the insertion of the regional economies in the global market: greater availability of foods, based on imports of grains, meat and milk, which increase the dependence and destroy the food sovereignty of the region. The greater the growth of trade and investment flows, the higher the imports to satisfy food demand. However, analysis of the composition of the regional markets and companies reveals that the large majority of companies are small and medium, with local and regional trade activities, which has provoked an agrarian structure divided in two modalities: successful sectors of exporters linked to third markets through the trade agreements (export agribusiness), and a campesino-indigenous, rural family-based, self-subsistence agriculture.

To mention some examples directly related to this theme, we can begin by considering the current regional negotiation with the European Union. In regard to market access, Central America is committing to an opening of 90% of the total of tariff items, compared to 94% of the EU’s (a consolidation of the SGP-plus<sup>6</sup> + agrofuels). This relation may well end up harming fundamental products in the Central American countries such as dairy products, pork, and rice. In the negotiations with the United States, the Central American countries negotiated gradual reductions for close to 40% of tariff items, with tax reduction periods ranging between 12 and 15 years or 18 and 20 for more sensitive products (chicken, pork and beef, yellow corn, and dairy products, for example).<sup>9</sup>

The result of this negotiation was exposed by the meeting of regional Ministers of Agriculture held in Managua, Nicaragua in May 2008, in which the delegates warned that a new model of food sovereignty would require the region to produce 83 million quintals (100 kilogram bags) of corn and 9 million quintals of beans. The meeting also noted that, since signature of the trade agreement, more than half the rice consumed is imported from the United States.<sup>10</sup> As stated by Lanuza and Argueta:

*“The 2009 agricultural season began without a budget to implement these measures. The Central American Agricultural Council (CAC) announced that it had estimated that the region would require more than \$646.9 million USD in finance for the 2008-2009 agricultural season. According to its own data, this amount was not entirely covered by the governmental budgets. According to the CAC, up to August (2008) \$114.5 million USD was needed to guarantee the grain production goals.”<sup>11</sup>*

Based on this unbalanced and exclusionary structure, the Central American States have been unable to fulfill any criteria of adequate nourishment (with only a few specific exceptions). The direct availability of food through natural resources and access to productive land is seriously limited or poorly distributed; the distribution and marketing systems are conceived to satisfy the demand of external markets; economic and physical accessibility are impossible amidst an expanding trend of unemployment and misery concentrated in rural areas, indigenous sectors, and African-descendent and small farmer populations; sustainability when achieved relies on greater dependency on imports, and food adequacy is seriously threatened by all of these conditions.<sup>12</sup>

Possibilities for the population to fulfill its Right to Adequate Food - officially consecrated in the international Human Rights system - are impeded by trade agreements that limit the capacity of economic, political and productive autonomy of the region's campesino population.

## **A PROPOSAL TO GUARANTEE THE RIGHT TO FOOD IN THE REGION: AUTONOMOUS REGIONALISM**

Autonomous regionalism synthesizes a series of proposals to advance in a regional integration not limited to sole consideration of the economic-trade aspects of determined business groups. The starting point of an alternative integration proposal for the region is recognition that each country on its own cannot confront the multiple challenges implied by eradicating poverty and misery in Central America. A coordinated region-wide strategy is needed with supra-national policies, founded on new principles of institutional and political organization.<sup>13</sup>

As a whole, autonomous regionalism begins from the precept that the States must resume political control in the definition of their national and regional strategies, based on broader and better-qualified participation and democratic co-management by the diverse actors and social movements. It supposes a foundation of radical democracy that does not exist in the Central American region and is not possible in current institutional conditions. The theme of the right to food is not a minor issue in this perspective. In fact, analysis undertaken through a perspective of autonomous regionalism identifies the growing human malnourishment and hunger in Latin America as the most urgent issue to be addressed through regional integration.

The first step is to provide adequate access to food in Central America, for which the current production and trade structure must change. The priority of national and regional production must be to address local markets and needs; we need to produce specifically to cover the food and nutrition needs of the Central American population. It is not only a matter of guaranteeing food, which could be done in the short term through imports. Rather, it is a matter of creating and reinforcing productive chains and local markets. The role of the common Central American market and the trade responsibilities and



orientations of the primary capital sources at the regional level must be reappraised. The regional business sector has a very important role within this strategy.

We can not lose sight of the fact that in Central America the majority of regional trade and production is carried out by small and medium-sized production, commercialization and distribution structures. It is impossible to envision better food-access conditions without a common policy for the reinforcement of these sectors. Central America is a very small region in geographical terms, and if we continue a model of production and trade of the same products across all the countries, the nutritional and commercial base of this unmitigated growth of export-oriented monocultures is not only going to swell the numbers of hungry citizens, but in the short and medium terms will also provoke a catastrophe of irreparable dimensions in regional ecosystems and the environment in general.

Production must be reorganized on the basis of coordinated agricultural policies with assessments of impacts and alternatives in environmental matters. This means that in addition to the classic borders and joint management of these areas, we need a new form of geopolitics based on bioregions. The region presents considerable contrasts regarding the development, protection and recovery of wooded areas along the coasts. The Mesoamerican Biological Corridor, threatened by a series of initiatives of physical and informational interconnection, represents a zone of high diversity, in particular the Mayan Biosphere Reserve in Guatemala and the Bosawas Biosphere Reserve on the Atlantic Coast of Nicaragua.<sup>14</sup>

In general, the fragmentation of habitats and the concentration of economic and productive activities predominate along the Central American Pacific coast. Coupled with the increased monoculture agricultural activity, the large tourism chains and mineral extraction interests including gold mines are also contributing pressure on the ecosystems, destroying not only forests but also any pretension of food sovereignty. The region needs urgent reorganization of its physical and infrastructural capacities, that takes into account the right to food, protection and recovery of fundamental ecosystems, coordinated policies of productive complementarity and competitiveness with collective objectives,<sup>15</sup> an integral agrarian reform, and greater control in the hands of the population in the definition and execution of public policies on the territories.

Autonomous regionalism assumes that some areas should be totally protected, and others may be partially exploited for specific productive or extractive activities, while some areas offer better conditions for determined food products and others for export products. But it is not possible to continue with a trade scheme that concentrates profits, distributes environmental effects, and determines decisions in small antidemocratic spaces of corporate elites. Central America needs an alternative integration scheme based on a new institutional architecture, with the broad participation of social movements and a radical application of the Right to Food that frees from hunger the thousands of people who now produce so that others may have desserts on their tables, and gas in their cars.

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## NOTES

<sup>1</sup> See: *Estado de la Región en Desarrollo Humano Sostenible, un informe desde Centroamérica y para Centroamérica*. Programa Estado de la Nación. San José, Costa Rica. p. 64. 2008.

<sup>2</sup> See FAO list of low-income, food-deficit countries (LIFDC): <http://www.fao.org/countryprofiles/lifdc.asp?lang=es>

<sup>3</sup> Estado de la Región. p. 52. 2008.

<sup>4</sup> *Ibid.* p. 63.

<sup>5</sup> United Nations Food and Agriculture Organization (FAO). *The State of Food Insecurity in the World 2008. High food prices and food security – threats and opportunities*. Rome. p. 11. 2008.

<sup>6</sup> *Ibid.* p. 20.

<sup>7</sup> Estado de la Región. p. 223-224. 2008.

<sup>8</sup> This refers to the General Preferential Tariffs System that the European Union already applies to the region's countries in virtue of adherence to and application of certain international Human Rights instruments. Neither the right to food, nor ILO Agreement 169 that recognizes the rights of the indigenous peoples to their territory and culture, are included in this EU framework.

<sup>9</sup> Unlike the negotiation underway with the EU that is regional in scope, negotiations with the United States were bilateral. This resulted in differentiated terms negotiated by different Central American countries. For example, in the case of red beans, all of the countries negotiated special safeguards and a 15-year period of

gradual tariff lifting, except for Guatemala which directly eliminated the tariff. Most countries also stipulated a 15-year period for the lifting of tariffs on black beans, except El Salvador which settled on a 12-year period. These are some of several such examples.

<sup>10</sup> See: Oxfam International. *Informe Oxfam #68 “El arroz se quemó en el DR-CAFTA: Cómo el Tratado amenaza los medios de vida de los campesinos centroamericanos.”* November 2004. This report analyzes the possible affects that the Central American Free Trade Agreement with the United States may have on more than 80,000 rice producers, in particular in the region’s most impoverished countries: Nicaragua and Honduras.

<sup>11</sup> Lanuza, Magda/Argueta, Omar. (2008). “*La región centroamericana frente a la crisis alimentaria.*” [www.grito-mesoamerica.org](http://www.grito-mesoamerica.org)

<sup>12</sup> The Regional Observatory of Food and Nutritional Security, in June 2008, noted that only two Central American countries, Costa Rica and Panama, had a minimum agricultural wage capable of covering more than 80% of the value of the basic food basket to cover minimum family nutrition. The most dramatic cases to the contrary are in Nicaragua and Honduras. Reported in the *II Regional Report on the Impacts of the DR-CAFTA in Central America and the Dominican Republic*. Regional Monitoring Network DR-CAFTA. p. 16. October 2008.

<sup>13</sup> See texts on the theme of autonomous regionalism, in particular by Eduardo Gudynas, at: <http://www.ambiental.net/claes/>

<sup>14</sup> Central America is considered to have four land-based biomasses, the most representative being the broad-leaf tropical and subtropical rainforests on the Caribbean coast, and six marine eco-regions, among which the Mesoamerican Reef stands out for its importance in the western Caribbean. The concept of bioregion, unlike eco-region which refers exclusively to flora and fauna species, includes the cultural and human dimension of the population groups located in the areas.

<sup>15</sup> Contrary to the spurious competitiveness of the market that is based on the economic and therefore physical destruction of the other, competitiveness with collective objectives assumes the possibility that a country or region may be more competent for the production of determined goods and products, but in which the redistribution of profits does not translate into exclusive concentration by the one who holds the advantage but rather occurs in a collective scheme according to needs.

# *Water and monocultures: from intensive agricultural exploitation to food sovereignty and global water security*

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## **THE STRUGGLE AGAINST POVERTY: THE INJUSTICES OF THE CURRENT MODEL**

Although various specialized agencies of the United Nations have determined that sufficient resources currently exist to satisfy the basic food needs of the entire global population,<sup>1</sup> the reality is that the situation of misery and exclusion persists and in fact is rapidly expanding.

The world powers, supposedly obligated to cooperate with the less-developed countries, have not only systematically failed their duties in this matter, but have also promoted an economic-financial system – in particular a set of international investment and trade rules - that in fact rebound to their own benefit, and especially that of the corporations they support.

The prevailing economic model is therefore responsible for both the lack of investment directed to satisfy the basic needs of the still-excluded population, and the advancement of a “development” model that directly obstructs the access of broad social sectors to material resources (both natural resources and basic goods and services).

In effect, the global economic powers and agents have frequently used (mega) projects of so-called development cooperation to strategically position themselves for and

maximize the exploitation of natural resources, expropriating traditional knowledge from communities regarding the properties and uses of said resources, generating ecological devastation, and further aggravating the poverty and marginalization conditions they are supposedly there to alleviate.

The hoarding and indiscriminate exploitation of the world's natural resources is resulting in their degradation and threatening the subsistence of entire communities. In response, the States not only appear to ignore their responsibility as guardians of the common good and guarantors of the general interest, but also frequently act in favor of the interests of the transnational companies doing business in the fields of water, food, gas and hydrocarbons.

To facilitate private appropriation of natural resources and (until now) public goods, the States have had to maintain society as a whole outside of decision-making processes, thereby degrading the democratic system. In some cases this situation has been superimposed on the incorporation of more or less authentic, sporadic or formal, participation mechanisms, probably oriented to counter social discontent.

Fortunately, citizen mobilization experiences have multiplied to confront the democratic shortfall. Important networks have been articulated in defense of public rights and freedoms, and new participation and discussion spaces are being opened in which, for the first time, persistently-excluded social groups are now having a voice.

## MONOCULTURE AGRICULTURE: PRIVATE EXPROPRIATION OF NATURAL RESOURCES

Previous authors have already noted that the production model imposed by the global capitalist system is a *market economy* founded on the idea that the simple expansion of the same generates development and decreases poverty, and that said model conceives of nature as inexhaustible source of production inputs and persons as mere consumers, and therefore is necessarily incompatible with *nature's economy* and the *sustenance economy*.<sup>2</sup>

Among the actions that the global economic agents have put into march –often clothed in a distorted interpretation of their development-assistance obligations- is the imposition of a model of highly intensive agriculture supposedly designed to maximize food production to satisfy global demand, but in any case inequitable and ecologically unsustainable.

The international institutions themselves have called attention to the risks inherent to the generalization of this model, for both the environment and for small-scale and subsistence agriculture. Already in its 2005 Report, the UNDP referred to the grave consequences for the sustenance of rural communities resulting from the multi-million-dollar subsidies – often linked to the massive irrigation demanded by industrial agribusiness - that the rich countries designate as assistance to their own agricultural systems, systems that furthermore are based on the overexploitation of resources and the installation of

monocultures. The UNDP went so far as to declare that a fraction of what such countries invest in subsidies for rice or sugar cultivation would be sufficient to cover the financial needs to meet the Millennium Development Goals (MDG) in areas such as education, health, and water.<sup>3</sup>

The small agricultural communities of the less-developed countries - and even the family farms in the developed countries, given that the assistance is directed to the large oligopolic producers - are seeing local production of basic-necessity foods and their subsistence models threatened by disloyal competition from the subsidized exports of large agroindustrialists who offer exceedingly low prices – even below production costs - in the global and local markets, and by the protection of the markets of the economic powers through the establishment of tariff systems and other barriers to entry of products from third countries (for example, requirements regarding labeling, traceability, non-contaminating production, etc.).

Finally, it is very difficult for the products generated by small-scale agriculture to compete in a globalized market, essentially controlled by large multinational agrofood corporations and distorted by the massive subventions with which the more developed countries favor their primary producers. As stated in the 2005 UNDP Human Development Report, “When it comes to world agricultural trade, market success is determined not by comparative advantage, but by comparative access to subsidies - an area in which producers in poor countries are unable to compete.”<sup>4</sup>

In addition, the agrarian modernization policies and programs promoted by some States and the international financial institutions (World Bank, IMF, development banks) favor the concentration of land in the hands of the large agribusinesses, whose modes of production - usually linked to monoculture - are highly polluting, in particular due to their heavy use of pesticides and the introduction even in arid regions of crops that require intensive irrigation. The small producers are exposed not only to commercial dumping but also to social and environmental dumping.<sup>5</sup>

The situation is particularly grave for women given their already limited access to productive resources and the general difficulties they face to exercise their economic, social, cultural and environmental rights. In effect, many women suffer precarious living conditions (limited access to food, water, housing, education, and health); they are blocked access to economic and productive resources (land, water, seeds, property, money, credit, technology) or they are unable to freely make use of the same, despite the fact that many are the primary or sole economic sustenance for their families or communities, the primary users and administrators of the natural resources, and the holders of practically sole responsibility for reproductive work.

While monoculture agriculture is definitively unsustainable in environmental terms and inequitable from the social standpoint, it is also both unsustainable and inequitable from the perspective of the enormous amount of water it demands. Agroindustrial production - more and more focused on monoculture - is estimated to use up to ten times more water than bio-diverse agriculture<sup>6</sup>. But the model fails to take into account the impact of this excessive demand on water resources on ecosystems and on small

agricultural communities, precisely because it perceives water as no more than another raw material, and its overexploitation and pollution as mere negative externalities.

By substituting autochthonous varieties, more resistant to drought, with “high yield” uniform crops, monoculture agriculture not only destroys local biodiversity, but also alters the ecosystem as a whole. The peculiar conditions of arid or semiarid lands are often compensated through excessive use of chemical fertilizers and especially through massive irrigation, resulting not only in exhaustion of water sources but also desertification, flooding, salinization, or erosion of the farmland. For example, in Maharashtra, India, in less than one decade, intensive sugarcane production had reduced underground water to a mere commodity, eliminating water access for basic food crops. While the sugarcane is estimated to account for only 3% of the irrigated lands, it consumes almost 80% of irrigation water.<sup>7</sup>

This model is only able to present itself as highly productive compared to self-subsistence or small-scale agricultural production because it does not reflect real costs. And while it presumes to offer itself as a reasonable alternative to combat hunger and poverty, this industrial agriculture production model instead appears to place at risk the food security of both the small producers displaced by the transnational food companies and their communities, given that it is coupled with exclusionary control of resources and deterioration of their means of subsistence.

The current wager for biofuels production represents another threat from the social and ecological perspectives, among other motives because it demands important volumes of water, necessarily diverted from food production.<sup>8</sup>

Finally, the increasingly frequent private-sector concessions of water provision services management also favor intensive agribusiness, limiting small agricultural communities’ access to the resource, and placing at risk its natural regeneration cycle.

## **WATER AND MONOCULTURES: TOWARD OPTIMAL USE OF WATER RESOURCES FROM THE HUMAN RIGHTS PERSPECTIVE**

An approach to the problem of overexploitation of water linked to general agroindustrial exploitation and monoculture practices in particular demands assuming an integral vision of the resource. Sustainable water management necessarily includes ensuring an adequate control of demand, founded precisely on equitable distribution among the various uses of water.<sup>9</sup>

This management model assumes a distinction between water as vital resource and public good associated with the satisfaction of basic needs, and water as production input, in which case adequate controls must be established on demand to guarantee both the economic viability of the system and its environmental sustainability.

Management of the water designated for human consumption, including personal

and domestic hygiene, food preparation, and subsistence agriculture, should necessarily be addressed in human rights terms. In other words, in this case universal access must be fully guaranteed, and demand is non-negotiable.<sup>10</sup>

In reference to water as production input, it is important to take into account that the primary demand for water - approximately 70% - comes from the agricultural sector, specifically the large-scale irrigation required by intensive agriculture. This is therefore the sphere in which controls should be prioritized, without losing sight of the fact that a large part of the agricultural exploitation that takes place in less-developed countries is not oriented to the benefit of the local communities, but rather to satisfy growing demands in the North.

It is therefore necessary to revert the prevailing model and instead wager on a productive model that guarantees both global food security and water security, protecting subsistence farming and small-scale agricultural production, and rethinking the agro-industrial production model. This necessarily demands declaration of the public-social domain over water resources, subsequently submitting the current wasteful practices of industrial agribusinesses to strict rules for rational and sustainable use of said resources. Water demand for (legitimate) productive purposes must certainly not be confused with an insatiable appetite for the resource for private (and privative) benefit.<sup>11</sup>

An additional question also closely linked to the unsustainable exploitation of water sources to satisfy intensive agricultural demand is the indiscriminate diversion of natural waterways and the construction of large dams. A water policy founded on these principles entails important ecological, social, and economic risks, including the destruction of numerous ecosystems, grave consequences on local economies, massive population displacements, and the disintegration of affected communities.

It is equally necessary to recover the natural flow of water sources and to seek alternative solutions - appealing, for example, to traditional water use and distribution systems - that are less risky and that respect both the limits of nature and the integrity of communities and their territories.

A model with these characteristics - founded on the recognition of water as common good and of basic access to this resources as human right; oriented to guarantee in a sustainable manner the food sovereignty and water security of all peoples, through effective control of indiscriminate water demand for the exclusive benefit of a few; compatible with conservation of the ecosystems, including surface and subterranean water sources and their natural courses, and respectful of the practices and means of subsistence of the communities - can only be achieved through habilitation of effective mechanisms of citizen participation, access to information, and accountability.

Consolidation of this model can certainly be favored by democratization of the system through the decentralization of water resource management. However, to avoid the use of decentralization processes to conceal water privatization projects, it is indispensable that the autonomy of local authorities be accompanied by strict social control mechanisms. Local communities must actively and effectively participate in decision-making regarding the design, implementation, and monitoring of water policies, to guarantee



that they satisfy both the basic necessities of all persons and the equity and sustainability of small and large-scale agricultural production.

Finally, an equitable and sustainable agrarian model should ensure the diversity not only of crops – in accordance with soil and water availability conditions - but also of cultures. For the still numerous agricultural communities, their relation with the land and natural resources is intrinsically linked with their cultural identity. Therefore, as long as the world maintains the devastating productive model imposed by a capitalist and patriarchal system that disdains any form of development not based on accumulation of benefits, the survival itself of these peoples is at risk, or they are condemned to live under the paradigm of dominant thought that today also intends to impose on us a “monoculture of the mind.”<sup>12</sup>

## NOTES

<sup>1</sup> In his Report presented to the UN Human Rights Commission in 2002 (Document E/CN.4/2002/58), the then United Nations Special Rapporteur on the right to food, Jean Ziegler, affirmed that the world already produced sufficient food to nourish the world population of 6.2 billion people. In fact, the Rapporteur added that according to data compiled by the FAO, enough food could be produced to nourish 12 billion people, sufficient to provide each person with the equivalent of 2,700 calories per day. For its part, the 1998 UNDP Report estimated that total additional annual investment necessary to achieve universal access to basic social services – including food, health, basic education, reproductive health services, family planning, and access to drinking water and sanitation – would be only 0.1% of global income. See also the work developed since 1998 by the United Nations independent expert on human rights and extreme poverty.

<sup>2</sup> This text draws heavily on the important works of Vandana Shiva. The terminology cited here is borrowed from the book by Vandana Shiva, *Manifiesto para una democracia de la tierra. Justicia, sostenibilidad y paz*, Paidós Estado y Sociedad 144, Albino Santos Mosquera (trad.), Barcelona, 2006. English title: *Earth Democracy: Justice, Sustainability and Peace*, South End Press.

<sup>3</sup> In its 2003 Report the UNDP had called attention to the threats against small rural communities represented by the activities of industries dedicated to or associated with the exploitation of natural resources, given said communities' close relationship with the land, from both the perspective of their cultural identity and in relation to their socioeconomic heritage.

<sup>4</sup> UNDP. *International cooperation at a crossroads: aid, trade and security in an unequal world*. Human Development Report 2005. p. 130.

<sup>5</sup> For Vandana Shiva, globalization and free-trade policies have provoked the agricultural crisis on three distinct levels: 1. Displacing policies that placed foods and the farmer first with those placing trade and the large company first. 2. Displacing agricultural diversity with monocultures and homogenization through more intensive use of chemical products and capital in production and with deregulation of the inputs sector (seeds in particular), with the result of increased production costs. 3. Deregulating markets and making the State abandon the function of effective regulation of prices, which has translated into a collapse of the sale prices of final agricultural products. Shiva, V., *Manifiesto para una democracia de la tierra, cit.*, p. 154.

<sup>6</sup> Cf. *Ibid.*, p. 126.

<sup>7</sup> Shiva, Vandana. *Water Wars: Privatization, Pollution and Profit*. South End Press, Cambridge MA. 2002.

<sup>8</sup> See the Report of the United Nations Special Rapporteur on the right to food, presented to the UN General Assembly in August 2007. Document (A/62/289).

<sup>9</sup> *Una propuesta de modelo de gestión hídrica fundada en los distintos usos del agua*, in ARROJO, P., “Las funciones del agua: valores, derechos, prioridades y modelos de gestión,” in VV. AA., *Lo público y lo privado en la gestión del agua. Experiencias y reflexiones para el siglo XXI*. Ediciones del Oriente y del Mediterráneo, Madrid. 2005.

<sup>10</sup> See General Comment No. 15 of the UN Committee on Economic, Social and Cultural Rights, paragraph 7.

<sup>11</sup> On management of water demand, see, among others: Martínez Gil, F. J., *La nueva cultura del agua en España*. Bakeaz, Bilbao. 1997.

<sup>12</sup> Expression taken from Shiva, V. *Monocultures of the mind, Perspectives on Biodiversity and Biotechnology*. Zed Press, New Delhi. 1993.



# *Tree monocultures and gender*

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For many years, our organization has been documenting the impacts of the monocultures of trees being promoted in African, Asian and American communities. These large-scale monocultures, consisting of millions of specimens of a sole species planted in homogenous blocks, negatively affect the communities in which they are installed from the social and environmental perspectives. Below we will draw upon some of the many testimonies we have gathered regarding the negative impacts of tree monocultures on people, water, soil, plants and animals, and landscapes.

These plantations are generally associated with deforestation processes and are directly or indirectly promoted by lumber companies and planters and manufacturers of cellulose. We have published hundreds of articles to denounce these situations.<sup>1</sup>

Since 2002, we have dedicated specific efforts to more thoroughly investigate the gender-differentiated impacts of both tree monocultures and of deforestation, and their negative impacts on women in particular.

Tree monocultures lack the forestry products that communities use for food and for fuel, to build their homes and household articles, and to produce crafts and elaborate medicines. The scarcity and absence of these resources has very specific gender impacts, in other words, differentiated impacts for men and women. These unending rows of trees have been established on community lands which are now in the hands of large companies. The result has been the expulsion of indigenous, smallholding farmers and

rural populations, with the consequence of increased levels of poverty and violence. The monocultures have also brought pollution and disappearance of waterways, loss of biodiversity, and impoverishment of soils. These are some of the many problems that affect the poorest populations, and very specifically women as we will see in this paper.

## LESS FOOD, MORE DIFFICULT WOMEN'S LIVES

In a study published in 2001 by the Asian Pacific Development Council (APDC), carried out by the researcher Vanessa Griffen<sup>2</sup> for the publication: "*Seeing the forest for the people, a manual on gender, forestation and rural communities*," the author points out that in communities whose existence depends on the forests, women are traditionally gatherers of fruits and vegetables that grow in the forest. As forests are cut down to leave room for tree monocultures, food is no longer available in the outskirts of the forests within areas reasonably accessible to the women, and must be sought in areas deeper within the forests to which only the men generally enter. The result is that it becomes more and more difficult for the women to gather the food necessary for survival and they end up increasingly dependent on the men for this task.

A study carried out in late 2007 by Gilsa Barcellos and Simone Ferreira, with the objective to describe the impacts of eucalyptus monocultures on women, offers details about the transformation from forests to monocultures. The research was carried out in a Brazilian community in Espirito Santo, where the company Aracruz Celulosa, financed by the federal public bank of Brazil and also receiving support from European banks and the World Bank, planted thousands of hectares of eucalyptus on lands pertaining to indigenous peoples and *quilobomba* (African-descendent) communities. The report indicates that, along with the land, the women lost their space in which to plant gardens, raise domestic animals, and produce medicinal herbs.<sup>3</sup> "We have that feeling, that feeling of loss of our wealth," comments Maria Loureiro of the Commission of Tupiniquin and Guaraní Indigenous Women, in a testimony collected by the study. And the loss is not only of resources. As we noted earlier, the women also lose their independence by having to depend on the men to gather fruits and vegetables, losing prestige as they cease to be those who secure the necessary food for their families, and they lose their capacity to cure, as they no longer have the medicinal herbs necessary to do so.

Substitution of the forest with eucalyptus plantations also makes hunting and fishing impossible. As we will see below, this has negative impacts on the self-esteem of the men, with repercussions suffered by the women.

During a study carried out by Ivonne Ramos and Natalia Bonilla in late 2008 in various provinces of Ecuador affected by pine and eucalyptus monocultures, women report one of the most important changes produced in their lives following their introduction: "All the native plants gradually died out in the pine plantations, and since nothing can grow, everything became very dry and fires occurred," as explained by a woman from

Guaranda<sup>4</sup> in the Province of Bolívar.

“We used to plant short-season crops, berries and other types, but we have had to change our crops. We have also changed the type of animals, now we only have guinea pigs,” says a woman from the Province of Tungurahua.

Another woman from the same province adds: “This affects us primarily in our economy; we no longer produce, now we have to buy everything. Our people have left to work in the city, as domestic servants, as seamstresses. The grandmothers used to stay at home, the children stayed with the older people.”

## WATER-RELATED PROBLEMS

It has been demonstrated that in many cases tree monocultures produce the loss of water sources, affecting the availability of water for human, animal and agricultural consumption. Women, who are the community members in charge of securing water, may then need to dedicate several hours a day to reach and carry water to the community. This represents an additional labor burden for the women.

In the Brazilian case of Espírito Santo noted above, the end of the tropical rainforest and the establishment of eucalyptus monocultures resulted in the extinction of rivers and creeks, which in addition to providing abundant water were gathering places for the women and a privileged space for the exchange of female wisdom.

The women describe this situation in the following words:

*“The rivers had currents, now only this trickle of water remains.”<sup>5</sup>*

*“I always tell people what my mother used to say: there was a lot of game to hunt. There is the São Domingos river, that doesn't have water anymore, one no longer finds game. Only armadillo, capybara ... the fish are also gone forever. If you want fish, you have to buy it in the city, it doesn't exist anymore. My children don't know what it is anymore.”* (Domingas, of the quilombola community of São Domingos).

In the municipality of Aracruz alone, 430km<sup>2</sup> of native tropical rainforest were deforested to make way for the eucalyptus plantation. Rivers indispensable for the life of the indigenous populations, such as the Guaxindiba and the Sahy, which bathed the village of Pau-Brasil, practically disappeared. In addition to being full of fish, these rivers were a space where women gathered and enjoyed each other's company. They recall it as follows:

*“It was so wonderful what the river opened for us. We washed clothes, collected water to drink, to prepare food ... one gathered fish, you could catch them with a screen. The crowd of women ... so many people would get together! It was where we washed clothes. Once the laundry was finished, you bathed and then left, right?”* (Marideia, village of Tupiniquim Pau-Brasil).

This drama was repeated in the region of the quilombola communities.

*"Today the river is polluted, we don't use the water to drink, we don't use it to bathe, we don't use the water to wash clothes, we don't use any ... before we had our good river, our river was clean, the water was like glass, you looked and saw your reflection, you could see the little fish along the bottom, and now you can't see anything, only darkness."* (Nilza, Indigenous Women's Commission, village of Tupiniquim Comboios).

*"... and when there was a river here, the women grabbed their laundry bundles... and it was a party at the river edge, with everyone washing clothes..."* (María Helena, village of Tupiniquim Pau-Brasil).

*"We washed a lot of clothes together. While the women lay their clothes out in the sun they would talk ..."* (Eni, of the quilombola community of São Domingos).

When the water runs out, a lot of work, a lot of effort, and many hours are needed to obtain it, and this task is generally female. The women have to reach the lowest parts of the territory where the only remaining water is found, haul the water out of the well, and carry it home. This is generally not men's concern, as also are not the tasks of meal preparation and of the bathing of children.

In the mountainous region of Ecuador, in a wide plain which had been an ecosystem rich in medicinal plants, the Dutch company FACE installed 150,000 hectares of pine and eucalyptus plantations to "compensate" the emissions of a new coal plant to be built in the Netherlands and which would emit millions of tons of carbon dioxide into the atmosphere. Just a few years after its installation, the impacts of this monoculture are severely felt. The most negative is perhaps the lack of water, suffered especially sharply by the women, as evidenced by the following testimonies:<sup>6</sup>

*"Now we don't have any water and our rivers are dry. We no longer have orchards. We don't plant onion or anything. Summer is really strong; the small plants and the animals now die, the fresh water wells have dried up. The ground is no longer fertile, it doesn't produce anything."* (Woman from Simiátug).

*"We used to use this water for washing, now we can't anymore; we have to use the drinking water."* (Woman from Tungurahua).

*"For example, we are obligated to prepare the meals, get the children to bathe. The sacrifice is that we have to carry the water two hours, three hours for those living in las pomas, that is how it has become. We, the women are the ones who have to give the animals water at noon and again in the afternoon. We have to go out to take the cow to look for water because the water source is no longer available in the big river and is sometimes 40 or 50 minutes away. We, the women pull the cows along. When we have to prepare meals we have to carry water. Off we go bringing the kids along with us. We find water in the places where the native plants are, or if not we dig with a hoe, in places where there haven't been any pines."* (Woman from the Sierra).

The populations have been forced to look for other sources. “They are far away. An hour and a half or two hours away.” They had to install pipes. Now they must pay tariffs to the water agency. The lack of water and food also affects the household economy. What used to be provided free by nature now must be paid for with money.

The same occurs in Pizará where the women describe a similar situation in which they suffer the most by the lack of water to cook or to clean. They tell about how they have to go with the children in tow to look for water. “Everyone helps, but they come back tired, hot from being in the sun so long and then they don’t feel like doing anything else”.

In that area, the little water available is also polluted. “Now the children become ill from the water. I always take my children to bathe and we went to the Morarrero river and my son developed a rash and lost his hair and he didn’t get better. The doctor said it was because of the water. It makes me sick too and when I wash the clothes in the river I get a rash. This began about two years ago and it gets worse in the summer. The children always get sick with this rash”.

*“The water is stagnant and doesn’t flow anymore and also makes my daughter ill and provokes a rash. I spent more than \$300 because I had to take her to the doctor again and again. The baby doesn’t swim in the river but he gets a rash from the clothes that I wash in the river. Several children got sick from the same thing at the same time. Those of us who get the most sick are they because we spend time in the river and those from the company throw poisonous chemicals in the river”.*

In Uruguay, in an area in which forestry monocultures have drained almost all the water reserves in the community of Paraje Pence in the department of Soriano,<sup>7</sup> a testimony was taken from a local nurse who clearly describes the gravity of the situation. She noted that she always tries to be present when a new doctor comes to explain the situation of the region, because sometimes they don’t understand why the people come to an appointment dirty or fail to show up.

*“What happens is that here, in addition to everything else is the fact that the people were left without water in the wells, since all the fresh water sources dried up. So sometimes when they don’t have any water to bathe the children in order to bring them to their appointments, they don’t bring them. There is a girl who has had several surgeries, and who can’t lift heavy objects. Last week she had to come in to her appointment but since the government hadn’t supplied water to her area for two weeks, she had no water to wash her hands and she didn’t come to her appointment.”*

## THE LOSS OF BIODIVERSITY VIOLATES MEN’S AND WOMEN’S RIGHTS IN DIFFERENTIATED WAYS

As mentioned earlier, the loss of biodiversity produced through the substitution of a



forest with eucalyptus monoculture results in the loss of a large amount of medications derived from plants, roots, and animals from the forest. One of the most important negative impacts of the lack of herbs is suffered by women.

The Guaraní indigenous women of the Brazilian state of Espírito Santo, for example, who used to use herbs to stimulate or reduce fertility, now find themselves deprived of their right to family planning, leaving them hostages to contraceptives and in many cases obligated to undergo surgical sterilization. Without the ecosystems that assured the reproduction of the way of life of the traditional peoples, the masculine role within the family and within the community is undermined. Great hunters, farmers and fishermen find themselves forced to try to sell their labor. However, the majority easily find themselves unemployed due to the policy of the companies to not hire indigenous or quilombola labor, in order to steadily force the departure of the native populations still remaining in the region in which the monocultures are developed. The resulting fragility of the masculine role exposes the women to having to deal with the alcoholism of their husbands and with situations of domestic violence.

A woman from the Santo Domingo community in Espírito Santo, Brazil, is very graphic in her description of what the arrival of the company and monocultures meant for the community, detailing how it “ruined part of our life, our freedom and our culture, our daily life and even our health. The arrival here of the large companies ruined everything, it tore out a piece of us, as if we had one part alive and another part dead, as if we were living dead. We were happy; now we aren’t. We live unhappy with this life. We have to fight for what is ours, for our territories, for what they snatched from us, and with that everything has gone, everything that was ours.”

The indigenous women, bearers of a rich traditional knowledge linked to plants and animals, are transformed into the domestic workers, day laborers, nannies and cooks of the functionaries of the company that has been implanted in their territory. The obligation to perform new tasks affects the exercise of maternity, forcing them to give up breastfeeding their children at much younger ages and to leave them while they are still babies in order to take care of the children of the women of the city.

## NOT ONLY FOOD AND WATER: FIREWOOD ALSO DISAPPEARS

In the communities in which the natural forest is replaced by monoculture, firewood becomes extremely scarce for one simple reason: the companies prohibit the original inhabitants from access to their plantations.

The task of gathering firewood, usually carried out by the women who need it to prepare the meals, becomes exceedingly difficult due to the increased number of hours that must be invested to gather smaller quantities of wood than before. In consequence, the women must rely on the men to gather some from more remote areas of the forest

to which the men have greater access.

The disappearance of the forest also provokes the end of the raw materials used in the fabrication of utensils and handicrafts. In the case of the indigenous peoples, this is another activity carried out primarily by women.

## LIMITED EMPLOYMENT AND POOR LABOR CONDITIONS FOR WOMEN

One of the main arguments used by companies while promoting tree monocultures is job creation. In the majority of cases, such jobs do not compensate the employment and work losses generated by traditional activities which most often can not coexist with the plantations.

In one of the studies carried out in Uruguay with the objective to gather testimonies on the impact of forestry monocultures, the experience was documented of a woman who told about how, prior to the arrival of the monocultures and the subsequent depletion of water, her orchard was one of the best in the country. "My property was so good that once even the President of the Republic came, he said, to congratulate me. And look now, I don't even have water for the small plants, I have nothing left, not even my husband. When things start to go bad with the earth, everything goes bad." (Lourdes, of Paraje Pence).

The little work generated for women in the monoculture plantations, announced and publicized by the companies as a great achievement, is in fact under poor working conditions. The women are generally hired to carry out tasks that require precision, such as in the plant nurseries. A document published in 2007<sup>8</sup> describes some of the characteristics involved with this work. The majority of women are hired as peons, often contracted through third parties. They are paid very low wages, barely enough "to survive," with no possibilities of advancement. There are some administrative posts, but few women occupy directive roles, and are most commonly employed as assistants.

Maternity is very difficult to endure alongside the harsh labor regimen in the greenhouses. There are no childcare facilities and the lack of transportation imposes very long workdays on the women, separated from their children. During pregnancy, the labor demands are too heavy to allow the women to continue to work until the date established by labor laws for maternity leave, even though the women generally prefer to work as long as possible given the fact that maternity leave pay is far inferior to their wages. The high temperatures, which may surpass 40 degrees Celsius in the greenhouses, and the long workdays either standing or sitting, force women to take their leave as early as four or six months into their pregnancy.

The women workers find themselves exposed to an environment in which agrotoxins (in particular fungicides) are applied almost non-stop. This means that the persistence and toxicity of the agrochemicals is permanently present, with constantly-increasing

accumulation. Prolonged or repeated contact with this type of substances provokes adverse effects for the health of both the persons who apply them and the workers exposed to them. It is also important to highlight that the specific impacts of each of these substances may be aggravated by the combination of the active ingredients of the sum of agrottoxins used, commonly sharpening the negative effects on health.

## GROWTH, BUT OF VIOLENCE AND PROSTITUTION

As the tree plantation areas increase, the populations are displaced toward the poverty belts around the nearest cities and situations of violence increase. In many Latin American countries, the indigenous communities see their territory decrease as the “green deserts” of pine trees and eucalyptus expand. As a consequence, conflicts over land multiply.

Prostitution increases in areas dominated by monocultures. “New workers arrive to the region, attracted by the companies’ publicity campaigns and promises of job creation. This stimulates the formation of a nucleus of workers without their families, which contributes to the appearance of brothels in the areas around the agro-industrial activity.”<sup>9</sup>

In communities surrounded by forest plantations, as we noted above, the men generally abandon tasks they previously shared with the women in their plots in order to instead sell their labor. Once they leave their communities and change their customs, they often begin to distance themselves from their families, and many couples fall apart. There are now many cases of communities inhabited in their majority by women alone, and these communities are much more vulnerable in the case of robberies, attacks, and natural disasters.

## FOR ALL OF THESE REASONS, MANY WOMEN SAY ENOUGH!

Women from throughout the world react to and oppose the projects fostering increased monocultures based on the concentration of large extensions of lands for export-oriented and large-scale production.

Women from social movements such as *Via Campesina* in Brazil defend and struggle for an agricultural model based on agroecology, production to strengthen the internal market, family and *campesino* agriculture, diversified production, cooperation and solidarity.

Women’s struggles grow. They demand respect for ethnic, religious, and cultural diversities and gender equality. Cooperation is sought for the preservation of natural wealth and to support production destined to address the needs of persons and not of capital.

Demands are made on governments to take a stand regarding the socioeconomic, territorial and environmental impacts provoked by agribusiness, in particular by the

“green deserts.”

We join voices with the call of the Landless Women in the Charter of Mothers without Land (<http://www.mst.org.br/mst/pagina.php?cd=3505>), convoking all the women of the world to fight tirelessly against a system that conceives of food, water, land, traditional knowledge, and women’s bodies as merchandise.

Together with them, “we invite all men and women to raise their hands, their hoes, their voices, and their consciousness to join forces against those who exploit our land, our life, our labor, and our bodies. We stand tall, watchful, and shaping each day the fertility and rebellion born from the bowels of the Mother Earth.”<sup>10</sup>

## NOTES

<sup>1</sup> See section on Plantations Campaign at: <http://www.wrm.org.uy/plantaciones/inicio.html>

<sup>2</sup> Additional information in the article published in WRM Newsletter N° 59 available at: <http://www.wrm.org.uy/boletín/59/Asia.html#Indonesia>

<sup>3</sup> Article published in WRM Newsletter N° 123. October 2007.

<sup>4</sup> Additional information in the publication: “*Mujeres, comunidades y plantaciones*” available at: [http://www.wrm.org.uy/paises/Ecuador/Libro\\_Mujeres.html](http://www.wrm.org.uy/paises/Ecuador/Libro_Mujeres.html)

<sup>5</sup> Article published in WRM Newsletter No. 128 available at: [http://www.wrm.org.uy/boletín/128/Mujeres\\_agua.html](http://www.wrm.org.uy/boletín/128/Mujeres_agua.html)

<sup>6</sup> Testimonies collected during an investigation published by WRM, *Mujeres, comunidades y plantaciones (Women, communities and plantations)*, available at: [http://www.wrm.org.uy/paises/Ecuador/Libro\\_Mujeres.html](http://www.wrm.org.uy/paises/Ecuador/Libro_Mujeres.html)

<sup>7</sup> Additional information in the publication “*Maquillaje Verde*” available at: <http://www.wrm.org.uy/paises/Uruguay/libro.html>

<sup>8</sup> «*Condiciones de trabajo y uso de agrotóxicos en dos viveros forestales*». RAP-AL-Uruguay. August 2007. Available at: <http://www.guayubira.org.uy/trabajo/viveros.pdf>

<sup>9</sup> “*Mujeres y eucalipto*” available at: [http://www.wrm.org.uy/paises/Brasil/Libro\\_Mujeres\\_Brasil.pdf](http://www.wrm.org.uy/paises/Brasil/Libro_Mujeres_Brasil.pdf)

<sup>10</sup> Article published in WRM Newsletter N° 118, May 2007, available at: <http://www.wrm.org.uy/boletín/118/opinion.html#Brasil>



*Case studies and articles  
by country*



## ARGENTINA

# *Soya for today, disease for tomorrow*

**Darío Aranda**

Journalist for the newspaper *Página12*, specializing on indigenous peoples, campesino movements, and natural resources.

Soybeans are Argentina's primary crop. Sixteen million hectares in ten provinces form a massive green desert. The entire system operates based on one agrototoxin, glyphosate, denounced as a cause of birth defects, miscarriages, cancer, and death. The largest seed company in the world, Monsanto, is the focus of the accusations.

Bloodshot eyes. Headache and stomachache. Raw skin –hands, face and legs. This was the clinical profile of Maira Castillo, age 4, who suffered her first acute intoxication with agrototoxins, requiring intensive-care hospitalization. The Castillo family lives in Quimilí, and forms part of the Campesino Movement of Santiago del Estero (Mocase-Vía Campesina). The family has farmed the same plot for five decades and has no doubts regarding the cause of its ills: they glance over at the neighboring field, part of a stretch of thousands of acres of soybeans, and they point to a twin engine crop-duster airplane that fumigates with poison. Thousands of cases, and hundreds of denouncements, are repeated over the years in a dozen provinces. But each comes up against the same legal barrier: the lack of studies that medically validate the rural people's ailment. Here, a series of studies that confirm the toxic and contaminating effect of glyphosate, the most used herbicide in the soy industry. All accusations point to the commercial product "Roundup," owned by the United States company Monsanto, accused of provoking allergies, intoxications, birth defects, miscarriages, cancer, and death. Traditional farmers, indigenous communities, rural doctors, biochemists, and researchers coincide in the accusations



and pinpoint responsibility on the current agricultural model based on monoculture, transgenic seeds, and chemicals.

## SOY, CHEMICALS, AND ACCUSATIONS

The soy planted in Argentina occupies 16.6 million hectares in ten provinces and has a first and last name: “RR soybeans,” property of the Monsanto company. It is resistant to Roundup, the commercial name of glyphosate, sold by the same company. The chemical is applied in liquid form on plants which absorb the poison and die within a few days. The only plant that grows in land sprayed with glyphosate is transgenic soy, modified for the purpose in laboratories.

Doña Ramona Bustamante is 83 years old, and has lived since birth on the same plot, Puesto de Castro, north of the province of Cordoba. In 2004, a group of businessmen appeared in the community and forcefully expelled dozens of smallholding farmers from their historic lands. They leveled Doña Ramona’s ranch with a bulldozer, killed her animals, and dumped heating oil into her well. “Not one meter more. The land is ours!” shouted Doña Ramona, who resisted the forced eviction together with the Campesino Movement of Cordoba (*Movimiento Camesino de Córdoba* – MCC). But this year they are suffering a new assault: fumigation planes pass over the roofs of their homes, destroying their crops and killing their remaining animals, and the human health effects are beginning to be felt. “There have already been intoxications. After every fumigation, people have to go to the hospital. What they were unable to do with the bulldozers, they now want to achieve with the soy poison,” as affirmed by the MCC.

Farmers and indigenous communities accuse the agribusiness industry of polluting the air, water, food and soil. Medical studies specify the acute effects. “Symptoms of poisoning include skin and eye irritations, nausea and dizziness, pulmonary edema, drop in blood pressure, allergic reactions, abdominal pain, massive loss of gastrointestinal liquid, vomiting, loss of consciousness, destruction of red blood cells, skin discoloration, burns, diarrhea, cardiac failure, abnormal electrocardiograms, and renal damage,” as determined by a compilation of research studies undertaken by the specialist in ecotoxicology, doctor Jorge Kaczewer of the University of Buenos Aires (UBA).

## BIRTH DEFECTS AND REPRODUCTIVE PROBLEMS

San Cristóbal is a town of 15,000 inhabitants in the northern region of the province of Santa Fe. In August 2005, the local official Edgardo Martino denounced that in the first semester of the year, there were eleven children born with birth defects and three babies had died within a few days of birth. He also reported the existence of three

additional cases in neighboring populations. While unable to confirm possible causes, the official recognized that all the accusations pointed toward the soy plantations – and the agrochemicals used - which had expanded exponentially over the previous decade.

A multidisciplinary team of professionals had focused its concern on the same phenomenon. Based on a scientific study carried out over the course of two years and headed by the Italian Hospital of Rosario, the team established a link between birth defects, cancer, and reproductive problems with exposures to environmental contaminants, including glyphosate and its aggregates. The study, headed by the doctor and researcher Alejandro Oliva, covered six towns in the humid pampa and found “causal relations of cases of cancer and childhood malformations among the inhabitants exposed to environmental contamination factors, such as agrochemicals.”

The research confirmed that reproductive functions, both feminine and masculine, are highly sensitive to different chemical agents employed in agricultural activity. It also emphasized that the toxic effect can be produced through two mechanisms: direct contact with the substance, or when parents have absorbed and transmitted the substance through their spermatozoids or eggs to their children. It highlighted that environmental factors, such as exposure to pesticides and solvents, contribute to the severity of the infertility and may worsen the effects of preexisting genetic factors.

## FUMIGATIONS AND CANCER

A study by the NGO Rural Reflection Group (*Grupo de Reflexión Rural – GRR*), which advanced a campaign to stop fumigations with Roundup, included a census of ten towns with reported pollution complaints. The witness case was the Ituzaingó neighborhood outside of Córdoba, home to 5,000 people, 200 of whom have cancer. This humble neighborhood of low houses is surrounded by monocultures. Soybean fields are separated by only a road to the east, north and south of the neighborhood, and the aerial spraying reaches the doorways of the homes. “On every block there are women with headscarves due to the chemotherapy, and children with surgical facemasks due to their leukemia,” laments Sofía Gatica, twenty-year resident of Ituzaingó.

The GRR study confirmed respiratory and skin allergies, neurological illnesses, birth defects, spina bifida, and renal dysfunctions in fetuses and pregnant women. In March 2006, the municipal Environmental Office analyzed blood samples from 30 children; pesticides were present in 23 of them. “In every family there is someone sick with cancer, of all types, but especially breast, stomach or throat,” reported Sofía, member of the Mothers of Ituzaingó organization which emerged with the multiplication of the illnesses. Sofía also listed the many consequences among the youngest population: babies without fingers, with switched organs, missing jaws, and hormonal changes.

Oliva’s study detected that some forms of cancer are found with higher incidence in the agricultural sphere, such as non-Hodgkin’s lymphoma and prostate cancers, associated

with the fabrication and use of agrochemicals. There is also unusually high incidence of testicular and ovarian cancers, with 300% higher incidence in the first case and almost twice as many cases as normal in the second, compared with national level estimates. There are almost ten times more liver cancer cases and twice as many pancreatic and lung cancers. The study samples were selected from areas considered representative of the agribusiness model, including rural locations with up to 5,000 inhabitants in regions in which soybean fields cover 90% of cultivated land.

## DEATHS, AND QUESTIONS

Alexis, age 18 months, and Rocío and Cristian, both 8 years old, were known as “the Portillo cousins” in the rural settlement of Rosario del Tala, community of Gilbert, department of Gualeguaychú, Entre Ríos. Over a period of seven years, between May 2000 and January 2007, all three of them died. Norma Portillo, Cristian’s mom, denounced the contamination of the water and named the use of agrochemicals in the soybean plantations that surround the family home. After each fumigation, the children suffered dizziness, vomiting and headaches. On 15 January 2007, two days before Cristian’s death, the crop dusters had sprayed the entire day.

The Portillo family no longer visits the local creek to cool off. They no longer use the well water to cook or to drink, and they no longer live in their home. They abandoned the only home they had ever lived in a year ago and moved into town. “When they fumigated we would shut ourselves inside. For days our heads would hurt, our throats and eyes would be sore. And when it rained, the creek flowed with dead fish. There are dead pigeons, partridges and hares in the fields. The poison leaves nothing,” explains Norma.

The official versions, issued by the local hospital and the municipal Health Coordination authorities, first suggested consanguinity (the parents are cousins), and later blamed “an unknown bacteria,” changing the story a third time to point fingers to a supposed state of malnutrition in the children. “It’s a lie. Our children were well fed: meat, vegetables, milk. We are poor, but we didn’t lack food,” responds Norma with indignation. “The soy farmers poison us, our children die, and it is supposedly our fault.”

## OTHER STUDIES THAT CONFIRM THE AILMENTS:

*The promoters of the current agricultural model deny the toxicity of agrottoxins. Despite the grave clinical patterns of farmers and indigenous families – and even of entire neighborhoods affected by fumigations - soy companies and producers demand scientific studies before they will begin to believe the noxious effects of the herbicides. The academic sphere recognizes that the issue is not easy to study, due to the combination of the pressure applied by the companies to silence their critics, the permeability of researchers to not question, and the role of state entities working in collaboration with the companies of the sector. But there are exceptions:*

### LETHAL IN CELLS

*Gilles-Eric Seralini is a researcher and teacher of molecular biology at the University of Caen (France) who has converted into a severe headache for Monsanto. In 2005, Seralini discovered that human placenta cells are highly sensitive to Roundup, even in lower doses than those used in agriculture. He was harshly questioned by the companies of the sector and accused of being a “green,” understood as an environmental fundamentalist. But he returned to the charge in December 2008 with the publication of a new study in the scientific journal “Chemical Research in Toxicology.” This latest study offered proof that Roundup is lethal to human cells. According to Seralini’s research, doses far below those used in the soybean fields provoke cellular death in a matter of hours. According to the article, the mechanism of cellular action was studied in the presence of four different Roundup formulations (Express, Bioforce or Extra, Gran Travaux and Gran Travaux Plus). The publication states that “the results demonstrate that the four Roundup herbicides, and pure glyphosate, cause cellular death. Confirmed by the morphology of the cells after the treatment, it is determined that, even in the lowest concentrations, important cellular death is caused.” The study specifies that even with doses up to 1,000 times lower than those used in agriculture, Roundup provokes damages in cellular membranes, and cellular death. It also confirmed the destructive effect of pure glyphosate, which in doses 500 times below those used in soybean fields, induces cellular death in only 24 hours.*

### CANCER RISK FACTOR

*Robert Belle is director of the Biological Station of the National Center of Social Research of Roscoff (France). In 2002, he tested Roundup on sea urchin cells (a classic scientific model for study of cellular division). The*

*experiment proved that the agrotoxin deteriorated the points of control of the cellular cycle. In the documentary, "The world according to Monsanto," the scientist explains that the action caused by Roundup alters the cellular division stage, giving it a degree of instability akin to the first stages of cancer. "We have demonstrated that it is a defined risk factor, but we have not evaluated the number of cancers potentially included, or the time period in which they may present," explained Belle in December 2004 in the journal "Science Toxicology."*

### **LETHAL**

*The University of Pittsburg (United States) proved that Roundup is highly toxic in amphibians. The study, on "the impact of insecticides and herbicides on the biodiversity and productivity of aquatic communities," coordinated by Professor of Biology Rick Relyea in 2005, revealed that the agrotoxin killed 70% of the amphibian biodiversity of an experimental ecosystem. "It is highly lethal," affirms the study, which calls attention to the possible relation between agrotoxins and the worldwide decrease of amphibians.*

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# *Soybean monoculture in Argentina: a brief overview, and a few illustrative cases*

National Campesino-Indigenous Movement

*Movimiento Nacional Campesino Indígena*

<http://mocase-vc.blogspot.com/2009/08/el-movimiento-nacional-campesino.html>

In 1996, Felipe Solá, Minister of Agriculture, allowed the introduction of Monsanto transgenic soybeans in our fields. This was done following no independent environmental impact assessment, no type of public consultation, no parliamentary discussion, and no legislation to back it. A simple provision by the Ministry of Agriculture in 1991 created the National Advisory Commission on Agricultural Biotechnology (*Comisión Nacional Asesora de Biotecnología Agropecuaria* - Conabia), which from then on, and with the broad participation of the corporations, “advised” the Ministry on approval of Genetically-Modified Organisms (GMO).

Argentinean agricultural exports currently represent more than 50% of the country’s total foreign trade, with soybeans being the primary export product. Taking advantage of the impressive spike in international soybean prices, from \$182 USD per ton in 2001 to \$561 in 2008, 95% of national soybean production is shipped abroad. According to figures reported by the country’s Ministry of Agriculture, Livestock and Food (*Secretaría de Agricultura, Ganadería y Alimentos*), soybeans are the reigning queen of the countryside, covering a surface area of 16.6 million hectares, which is 50% of the country’s total cultivated lands. The crop is produced in the provinces of Buenos Aires, Santa Fe, Córdoba, Entre Ríos, Santiago del Estero, Tucumán, Salta, Chaco, Formosa, Corrientes and Misiones.

Soybean production rose from 10,862,000 tons in the 1990-1991 season to 48,000,000

tons in 2007-2008. The speed of soy expansion is associated with its higher profitability compared to other agricultural products. This may be attributed to technological advances that have significantly lowered soybean production costs, and the plant's particular ability to adapt to diverse eco-regions. The technological package used is called RR soybeans (by Monsanto) and works in combination with the Roundup herbicide (also owned by Monsanto), whose principle active ingredient is glyphosate. The herbicide is applied to large expanses of the crop and eliminates the vast majority of weeds.

The main instruments and actors involved in the soybean production chain are:

- Planting pools. The National Institute of Agricultural Technology (*Instituto Nacional de Tecnología Agropecuaria* - INTA) defines planting pools as “any of the possible combinations through which a crop is advanced. A common form is the combination of the landowner, a contractor, and an agronomical engineer, who agree upon a production project in which each contributes his resources and profits are divided according to the participation of each. The organizer (any of the three) proposes a planting activity plan, and once it is assembled offers it to potential investors.”
- Direct Investment Funds. The largest pools have been organized by the so-called Direct Investment Agriculture Funds. These mechanisms integrate a fund with contributions from investors, managed by distinct consultancy firms dedicated to agricultural administration involving the leasing of fields in the Pampa region. These funds do not include land acquisition because that would tie up the capital designated to production.
- Powerful businessmen dedicated to soybean planting. Most of these are members of the Argentine Association of Direct Planting Producers (*Asociación Argentina de Productores de Siembra Directa* - AAPRESID), which is the entity that has most heavily propagated the transgenic soybean technological package in Argentina and neighboring countries.
- Renters. These are generally producers with few hectares of land and little capital for technology or to purchase necessary soy planting equipment. They therefore opt to lease out their lands and move to the city.
- Large transnational companies. Some of the main companies are: Monsanto, Syngenta, Bayer, and Novartis among others who sell the seeds and other elements of the associated technological package. In 2003, glyphosate sales totaled \$350 million USD in Argentina, up 33% from the year 2000. Monsanto is also adopting a series of actions to enforce supposed copyrights over the patented transgenic soybean seed, which extend beyond just its sale. Monsanto is also demanding “extended royalty” payments from the farmers in the amount of \$2 USD for every 50-kilogram bag of seeds they hold on to for their own use.
- Large exporters. This list is headed by Cargill, Bunge Argentina, LCD Argentina (Dreyfus); Aceitera General Deheza, and Nidera, among others. They are progressively upgrading their positions in the scale of export companies, and are currently

among Argentina's top ten.

The transgenic soybean production system employs very few laborers. The reality is that it produces massive job losses, given that only one work post is produced for every 500 hectares planted. Even in the case of those laborers who do find work, labor norms are generally not respected, and a large number of laborers in this sector are left without legally corresponding social benefits, given that their employers do not pay into the respective funds.

Regarding land distribution, the latest National Agrarian Census published in 2002 noted a 21.1% drop in the number of individual farms or "agricultural exploitations," with 89,164 fewer registered than in 1988. Of those that disappeared, 53,661 were under 100 hectares in size, most of these smaller than 25 hectares. This process illustrates an increase of the relative role of operations with between 1,000 and 5,000 hectares.

Closely related to the above, it is important to note the spike in land prices taking place over the past years. The Argentina Lands Company (*Compañía Argentina de Tierras*) reports that the average value in the central Pampa region – the corn nucleus - which was \$6,000 USD per hectare in 2006 had doubled to \$12,000 just two years later. Many planting pools have begun to look for new lands in northeastern and northwestern Argentina, regions in which prices may range as low as \$500 USD per hectare, as in some regions of the province of Santiago del Estero.

## CONSEQUENCES OF THE SOYBEAN PRODUCTION MODEL

### At the national level

Since introduction of the transgenic soybean production model, Argentina has ceased to be a food producing country in exchange for producing primarily soybeans. Production of meat and other food such as corn, wheat, potato, sweet potato, lentils, rice, fruits, horticultural products, sheep meat, and cotton has considerably shrunk. The new production model has destroyed small production. On one hand, productions located in the vicinity of soybean crops are no longer viable given how the glyphosate applications drift through the air and destroy all types of neighboring plantings. Also, RR soybean crops are not profitable for farms under around 500 hectares, depending on the region, forcing small and medium farmers to lease out or sell their fields. This has provoked sharp concentration of control over the country's farmland.

In addition, soybean monocultures produce high levels of environmental pollution, given their reliance on permanent and massive use of agrottoxins. At least 150 million liters of glyphosate, 20 million liters of 2-4-D, and 6 million liters of endosulfan were used



in the most recent planting season. In ecological and environmental terms, this system is nothing more than a gigantic 15-million-hectare experiment in selection of resistant weeds and irreversible vertical and horizontal genetic contaminations, the consequences of which are barely imaginable. There have also been enormous losses of biodiversity, floods, strong winds, loss of ground coverage, soil exhaustion, etc.

### At the local level

With the pressure on the agricultural frontier driven by soybean encroachment, many *campesino* and indigenous families and small producers, who have inhabited, worked, cared for and improved the same land for decades or centuries, almost all without property deeds, have been displaced from the land by real estate agents supported by diverse provincial and communal powers, who see the land solely as an exchange good and a possibility to profit through soybean cultivation. For that purpose and through multiple dubious means, they have taken possession of enormous extensions of lands.

In cases in which the land mongers encounter resistance from the inhabiting families, the real estate agents hire armed security guards to defend the fields and intimidate the communities. This type of practice is increasingly common. After taking over the lands, they proceed to enclose the fields with barbed wire, resulting in significant reduction of the territories of neighboring indigenous and small-holding communities. In this way, the communities also lose part of the woodlands from which they obtain food, medicines, and other products indispensable for their livelihood and wellbeing.

Then the deforestation process begins with the clearing of the native forests. In the Chaqueña region in northern Argentina, which forms part of the South American Gran Chaco, more than one million hectares have been felled in only six years, with a deforestation rate six times the world average.

Once the soybean crops are planted, the aerial and land-based fumigations commence. Between the months of October and April, the fields are sprayed approximately every 20 days with glyphosate, 2-4-D (2-4-Dichlorophenoxyacetic acid), endosulfan, atrazine, methamidophos, and other chemicals. These poisons are applied with aerial crop dusters that rain the chemicals down on both the soy crops and the communities (families, homes, water deposits, crops, animals, etc.). Land-based fumigation equipment is also employed, but its indiscriminate use in inadequate climate, humidity and wind conditions produces airborne drift that reaches areas far beyond the fences of the soybean fields.

Throughout this planting season, families in neighboring communities suffer multiple effects (respiratory and gastrointestinal illnesses, skin afflictions, etc.) caused by the agrottoxins. It is very difficult for communities to continue to produce in these conditions given that the poisons kill all of their family crops (corn, calabash, cotton, watermelon, melon, squash, orchard products, etc.), and their livestock is plagued by miscarriages, malformations and deaths. The water in wells and dams, used for both animal and human consumption, is also contaminated. All of this has provoked a decrease in productivity of *campesino* plots and gradual loss of food sovereignty of these communities.

## Resistance groups

The advance of soybean monoculture has also produced manifestations of resistance. One of these is the National Campesino Indigenous Movement (*Movimiento Nacional Campesino Indígena* - MNCI), organization formed by approximately 15,000 *campesino* and indigenous families from different provinces that struggle on a daily basis to impede monoculture encroachment in their territories. This organization employs several elements in its strategy to keep the agribusinesses off their lands: formation of its members, education on their rights and how to defend them, organization of base communities, and local struggle. It is very significant to note that thanks to the MNCI's formation, organization and defense activities, the powerful soybean interests have been unable to evict any of the communities that form part of the Movement, even in cases in which various types of violence have been unleashed by armed guards, police forces, and special groups deployed by the provincial security forces.

Another group resisting this model is the Union of Citizen Assemblies (*Unión de Asambleas Ciudadanas* - UAC). This Union is formed by groups of assemblies that came together as a form of resistance against the pollution provoked by different companies, including mining and soybean monoculture operations. Another resistance movement is called the "Stop Fumigating Campaign" (*Campaña Paren de Fumigar*), formed by neighbors who came together spontaneously from different villages in the country's interior to resist the fumigations of soybean fields in the vicinity of their communities.

## SOME "WITNESS" CASES

### Guaycurú Lote 4 Indigenous Community

This community is located in the Ibarra Department of the province of Santiago del Estero, approximately 300 km from the provincial capital and 60 km from the city of Quimilí.

The families of this community have lived here all their lives, passing land from generation to generation, as ancestral community territory. In the decade of the 1980s, the community was sued and taken to court in a "revindication"<sup>1</sup> trial that questioned their rights of domain over the land. Legislative protection of indigenous rights that today would have allowed them a collective response did not yet exist at the time, forcing them to face the legal suit as individuals. The process culminated in the early 1990s with a highly unfavorable ruling for the community, recognizing their possession of only 600 hectares of the 3,000 included in the community's territory.

The court ruled in favor of the litigating lawyers for a sum that the community could

not pay. In 2005, the court ordered the auction of the 595 hectares that had remained for the families following the trial. The lands were acquired by the Attorney Oscar Ruben Gauna, creditor involved in the case, who immediately solicited the eviction of the community's families. The judge conceded his request.

The first eviction attempt occurred in September of that year, but it was resisted by the families. In December 2006, troops from the Provincial Police Infantry and agents from the Special Tactical Group for High Risk Operations that also forms part of the provincial police forces entered the community's territory to expel five families, but the community again stood firm. The community continues to resist handing over its territory, but a new judicial action is currently anticipated to persist with the violation of its rights.

### **Guaycurú Lote 5 Indigenous Community**

This community is located in the same department and province as the previous case. The department of Ibarra has a surface area of 384,527 hectares, of which one-third is occupied by lagoons and another 30,000 or so hectares are planted with soybean monoculture. The community is currently home to 27 families who raise cows, goats, pigs, and domestic fowl, and raise cotton, seasonal fruit, and corn.

Before arrival of the monocultures, the community lived off of livestock and agricultural activities, hunting, the collection and sale of honey, and fruits gathered in area forests. Their fields were open community lands, with no barbed wire, in which the animals could graze freely. Large rodeos were held in the community. In the late 1970s, businessmen began to show up in the region claiming to hold titles to the land (although never presenting them). They began to displace the families from their lands through nonviolent manipulations. Many of the families were unfamiliar with their rights and simply abandoned their lands to move to neighboring villages.

These businessmen then proceeded to build fences around the fields, clear the forests, and plant cotton. Beginning in the mid-1990s, they switched to transgenic soybeans. With this crop, the fumigation problems began. Each time the soy crops are sprayed, the families are also covered with large amounts of agrottoxins that provoke grave health effects, crop losses, animal production problems, water contamination, etc. The community no longer gathers fruits from the forest or hunts game because there are no wild animals left. The fumigations cause the native trees to stop bearing fruit and to dry out. It is increasingly difficult to raise local crops because they are burned by the agrottoxins used on the neighboring soybeans.

The monocultures have reduced the community's territory, severely limiting spaces in which to pasture livestock and subsequently reducing the number of animals. The landowners have harassed the families for many years, and continue to do so. There have been cases of intentional poisonings and killings of animals. The homes of several families have suffered violent attacks in which the police have used rubber bullets and beaten the men and women and terrorized the children who witness the events. Several activists have been detained and tortured by the police.

The region's landowners have carried out several eviction attempts using violence exercised through the intervention of private security groups contracted by the businessmen and through the local police. Nevertheless, they have been unable to carry out the evictions thanks to the community's organization in the Campesino Movement of Santiago del Estero – *Vía Campesina* (*Movimiento Campesino de Santiago de Estero – La Vía Campesina* – MOCASE-VC) through which they have mobilized resistance. The families have filed a large number of complaints in the local commissary, the national public defender's office, the provincial Ministry of Production, and other entities, none of which has provided a favorable response for the community.

The families demand respect on the part of judges, police forces, and provincial and national governments for the rights due to them as indigenous communities, as recognized in Article 75, paragraph 17 of the National Constitution, in ILO Agreement 169, and National Law 32.302, and they demand compliance with the Provincial Law on agrochemicals 6.312 dated 7/8/1996 and Regulatory Decree series "A" n° 0038. They demand an end to the conflict, allowing them to live in their territory as they have lived for generations, as a community, producing healthy food and caring for the countryside that offers them great diversity of products for their lives and their future.

## NOTES

<sup>1</sup> A revindication suit is an action that addresses the relation of domain a person has over individual objects of which the owner has lost possession and now reclaims and defends against the person in possession of the same.



## BRAZIL

# *Impacts of sugarcane monoculture for ethanol production in Brazil*

**Maria Luisa Mendonça**

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All monocultures provoke socio-environmental impacts, given their nature as vast extensions of one sole species. In addition to exhausting the soil over time, monocultures reduce biodiversity, causing environmental devastation. From the social perspective, expulsion of the rural population from its lands in order to make way for monocultures causes unemployment and reduces food production, which is carried out primarily by small and medium farmers.

In the case of sugarcane production, the environmental and social impacts are enormous, beginning at the planting stage and continuing through harvest. The intensive use of chemical products makes soil and water contamination inevitable. Use of agrottoxins begins during soil preparation, when products are applied to inhibit weed growth and to eliminate insects. When the sugarcane begins to sprout, herbicides are applied that pollute the soil and area water sources, including deep in the subsoil.

Despite increased mechanization in the sugarcane sector, burning is still frequently employed during harvest. This practice destroys the microorganisms in the soil, pollutes the air, and causes respiratory illnesses. Burning sugarcane straw releases gases that contribute to the greenhouse effect. A large amount of ashes is carried through the air to neighboring cities, and this soot is damaging to the health and wellbeing of the population. In São Paulo, the largest sugarcane producer in the country, the National Institute of Spatial Research (*Instituto Nacional de Pesquisas Espaciais* - INPE) has warned that the

burns severely reduce relative air humidity to levels between 13 and 15%.

A technical study by the Public Ministry of Labor of Mato Grosso del Sur, published on 6 May 2008, concluded that sugarcane burning “results in the formation of potentially toxic substances, such as carbon monoxide, ammonium and methane, among others, with the fine material (that which contains particles smaller or equal to 10 micrometers—PM 10) being the pollutant that presents greatest toxicity and which has been the most studied. This material is constituted in its majority (94%) by particles that reach the deepest parts of the respiratory system, pass through the epithelial barrier, reach the pulmonary interstice and are responsible for triggering grave illnesses.”

The document cites various scientific studies, such as those by physician and expert Dr. Marcos Abdo Arbex, that “reveal that the atmospheric contamination generated by the burning of sugarcane led to a significant increase of hospitalizations for asthma treatment.” Other cardiac, arterial, and cerebral-vascular illnesses were also noted: “both acute effects (increase in hospitalizations and deaths due to arrhythmia, ischemic illness of the myocardium and cerebral illness), and chronic illnesses, due to long-term exposure (increase in mortality due to cerebral-vascular and cardiac illnesses).”

Regarding social problems, the report highlights “the non-compliance with labor legislation and intoxications of workers due to chemical products; the death of workers due to inhalation of carcinogenic gases; incidence of respiratory problems, given that the burning releases carbonic gas, ozone, and nitrogenous and sulfuric gases (responsible for acid rains); in addition to the bothersome soot (which contains carcinogenic substances) provoked by the straw burning.” In conclusion, “the data reveals that exposure of the sugarcane cutters to the particles generated during the process of sugarcane burning constitutes an important risk factor to be considered in the analysis and association of the possible causes of sudden death of some workers.” The report also adds that “the labor conditions expose the sugarcane cutters to pollutants that carry the potential risk of making them fall ill, primarily to respiratory problems and lung cancer.”<sup>3</sup>

According to the researcher Horacio Martins, “one of the gases responsible for the greenhouse effect, nitrous oxide, has agriculture as its primary source of emission, and is 310 times more polluting than carbon dioxide, the most common in the atmosphere.” Martins also notes the problem of “pollution of waters and the soil by agrottoxins and herbicides, as well as soil saturation by nitrogenous fertilizers,” in addition to the “compacting of the soils by heavy motor-mechanization.”<sup>4</sup>

A study published by the National Academies Press of the United States on the impact of ethanol production on water sources reveals that “the quality of underground water, rivers, the coastal seaboard and springs can be impacted by the increasing use of fertilizers and pesticides for production of biofuels. High nitrogen levels are the primary cause of diminished oxygen in regions known as ‘death zones,’ which are lethal for the majority of living beings. The contamination deposited in lagoons and rivers can also cause soil erosion.”<sup>5</sup>

In addition to the pollution of water resources, a large amount of water is used in ethanol production. According to a study published in the magazine *Natural Resources*

*Research*, 7,000 liters of water are needed to cultivate 12 kilograms of sugarcane, necessary to produce one liter of ethanol. Each liter of ethanol generates ten liters of polluted residual water.

According to a study by the agronomist Marília Castro Lima of the Rural Federal University of Pernambuco (UFRPE), each liter of ethanol produced generates between 10 and 13 liters of sludge known as *vinhoto*.<sup>6</sup> Part of the sludge is used as fertilizer once diluted in water. Several researchers have warned that this substance pollutes rivers and underground water sources. In Brazil the majority of *vinhoto* deposits are not constructed of cement, leaving the sludge to contaminate the subsoil and aquifers.

Another effect of the expansion of monocultures for commodity production is the spike in land prices. In 2007, land prices rose an average of 18%. According to professor José Gilberto de Souza of the State University of São Paulo (UNESP), “that trajectory has been influenced most decisively by the expansion of sugarcane.”<sup>6</sup>

One of the most important studies on transformation in land use forms and their relation with increased carbon emissions was published by the magazine *Science*. The authors affirm that “the majority of previous studies reveal that substituting gasoline with biofuels could reduce carbon emission. These analyses did not consider the carbon emissions that occur when farmers, throughout the world, respond to the rise in prices and convert forests and grasslands into new plantations, to substitute with grain cultivation to use for biofuels.”<sup>7</sup>

The article mentions the increased price of soybeans as a factor of influence in the acceleration of the dismemberment of the Amazon, and estimates that its cultivation for diesel production results in a “carbon deficit” that would take 319 years to compensate. According to the researcher Timothy Searchinger of the University of Princeton, “forests and grasslands hold a lot of carbon, and therefore there is no way to obtain benefits by transforming those lands into crops for biofuels.”<sup>8</sup> This study demonstrates that the effects of biofuel production should be evaluated based on the entire cycle of monoculture expansion.

In Brazil, we know that the sugarcane plantations are expanding rapidly and also “pushing” the agricultural frontier of livestock and soybean farms. In January 2008, the Smithsonian Institute of Tropical Research (*Instituto de Pesquisas Tropicais Smithsonian*) established that the ethanol produced from sugarcane and the biodiesel made from soybeans cause more damage to the environment than fossil fuels. The study issues a warning regarding the environmental destruction in Brazil caused by the advance of sugarcane and soybean plantations in the Amazon, the Atlantic Jungle, and in the forest. According to researcher William Laurence, “the production of fuel, be it from soybeans or sugarcane, also causes an increase in the cost of foods, both directly and indirectly.”<sup>9</sup>

These impacts have intensified in the last years with the increase of governmental investment in the ethanol industry. According to data of the National Supply Company (*Companhia Nacional de Abastecimento* - CANAB), the area dedicated to sugarcane plantations grew from 4.5 million hectares in 2006 to 8.5 million hectares in 2008, with a 13.9% growth in harvest, resulting in the record production of 571.4 million tons. Ethanol pro-



duction reached 26.6 billion liters, employing a total of 325.3 million tons of sugarcane.<sup>10</sup>

That expansion is being reinforced by the National Biofuels Program, which enjoys generous subsidies from the government. Data from the National Bank of Economic and Social Development (*Banco Nacional de Desenvolvimento Econômico e Social* -BNDES) reveal that financial proposals are currently under evaluation for the total amount of 7.2 billion Reals (3.5 billion USD). Total bank investments for the construction of new centers are programmed to reach 12.2 billion Reals (6 billion USD).

Expansion of biofuels production has the effect of multiplying environmental destruction, because as external demand increases for the product, Brazil is seen as the great “granary” for both sugarcane and soybean plantations. In an interview with the *Washington Post*, Carolo Lovatelli, commercial director of Bunge, the multinational company that controls 93% of Brazilian soybean exports, affirms that “if the United States disputes the production of ethanol, the price of soybeans will tend to go up and that demand will be supplied by Brazil.”<sup>11</sup>

The domino effect also occurs in livestock reproduction. Researcher Sérgio De Zen of the University of San affirms that “the so-called extensive livestock raising, organized in large land extensions, now migrates toward Mato Grosso, Tocantins, toward the agricultural frontier that threatens the Amazon and the Pantanal biomasses. In this way, ethanol, which in all accounts appears as viable economic alternative for the world (in the path toward substitution of fossil fuel), converts into an environmental threat.”<sup>12</sup>

According to professor Antonio Thomaz Júnior of the department of Geography of the State University of São Paulo, “the expansion of sugarcane in Brazil for ethanol production may encroach on areas in which food products are currently cultivated, in addition to placing at risk the integrity of important biomasses, such as the Amazon and the Pantanal.”<sup>13</sup>

Brazil continues to be one of the world’s champions in concentration of wealth and land, in addition to maintaining a high index of poverty and hunger. Despite all the country’s agricultural potential, millions of people suffer the violation of their right to access to food. According to data of the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* - IBGE), 14 million people suffer hunger in Brazil and more than 72 million live in situations of food insecurity.

A development model compatible with the historic demand of the social movements would have to prioritize food sovereignty and implement agrarian reform, to guarantee access to land for millions of rural workers. But on the contrary, what we are witnessing today is the legalization of the *grilagem*<sup>14</sup> of lands, the repartition of favors by public entities, increased land concentration, the commodification of nature, and incomppliance with environmental and labor laws. It is necessary to defend a development model that prioritizes the democratization of land and the preservation of natural resources, based on fulfillment of the rights of the small farmer, indigenous, and African-descendent communities.

## NOTES

\* Pasty and foul-smelling residue obtaneid after distilling fermented sugarcane. (Traslator's note)

<sup>1</sup> This text is a product of collaboration among Isidoro Revers, Marluce Melo and Plácido Júnior in the research presented in the report on "Impacts of sugarcane production in the jungle and the Amazonia," published by the Pastoral Commission on Land and the Social Network on Justice and Human Rights in November 2008. [www.social.org.br](http://www.social.org.br) and [www.cptpe.org.br](http://www.cptpe.org.br)

<sup>2</sup> The author is currently completing her PhD in Geography at the University of São Paulo.

<sup>3</sup> Ministério Público do Trabalho (2008). REF: OF/PRT24<sup>a</sup>/GAB-HISN/Nº 134/2008. Authors: Sônia Corina Hess, professor, Federal University of Mato Grosso do Sul, and Heiler Ivens de Souza Natali, attorney, Public Ministry of Labor, Mato Grosso do Sul. 6 May 2008.

<sup>4</sup> Martins de Carvalho, Horacio (2007). *Avalanche do Imperialismo Verde*. 3 May 2007.

<sup>5</sup> National Academies Press (2007). *Report Considers Impact of Ethanol Production on Water Resources*. 10 October, 2007. <http://www.nationalacademies.org/morenews/20071010.html>

<sup>6</sup> Radioagência Notícias de Planalto. 5 May 2008.

<sup>7</sup> Use of U.S. Cropland for Biofuels Increases Greenhouse Gases through Emissions from Land-Use Change. *Science Magazine*. 28 February 2008.

<sup>8</sup> Ibid.

<sup>9</sup> Lusa, (2008). *Estudo da "Science" diz que etanol pode ser mais nocivo ao Ambiente do que a gasolina*. 9 January 2008. [www.ultimahora.publico.clix.pt/noticia](http://www.ultimahora.publico.clix.pt/noticia)

<sup>10</sup> [www.conab.gov.br/conabweb/download](http://www.conab.gov.br/conabweb/download)

<sup>11</sup> Losing Forests to Fuel Cars: Ethanol Sugarcane Threatens Brazil's Wooded Savanna. *Washington Post*. 31 July 2007.

<sup>12</sup> O Estado de S. Paulo (2007). "Cana invade os pastos e expulsa os rebanhos." 15 April 2007.

<sup>13</sup> *Cana pode prejudicar meio ambiente e produção de alimentos*. 3 April 2007. <http://www.reporterbrasil.com.br/exibe.php?id=984>.

<sup>14</sup> Method of land appropriation through use of false property deeds.



# Water, mining, agribusiness, and the energy model: For what? For whom?

## Movement of Persons Affected by Dams of Brazil (MAB)

*Movimento dos Atigidos por Barragens*, [www.mabnacional.org.br](http://www.mabnacional.org.br)

The intention of this document is to offer a reflection on three strategic natural goods: water, minerals and energy. Its elaboration was motivated by a debate developed by *Via Campesina* of South America. It is a preliminary document and as such may contain deficiencies and even contradictory ideas, but it faithfully represents current thinking in MAB.

The majority of countries are currently organized in a capitalistic society, in which the dominant class is therefore solely interested in financial profit. The capitalist system has gradually grown and dominated. Over the last decades, capitalism has advanced even further and is currently in what we call the imperialist phase. In practice, this means that large world banks and large multinational companies amass greater and greater wealth and seek to dominate the world as a whole: the financial system, the most important industries, commerce, agriculture, and strategic natural resources, in effect establishing the rules in many governments and even dominating several countries at the same time. In the name of “progress” and “development” they are destroying the life of the planet as never before seen in the history of humanity. This situation has reached the point in which one of every six persons who inhabit our planet Earth suffers from hunger.

The large corporations are generally headquartered in the rich countries (the United States, European countries and Japan), but there are some that originate in the so-called developing countries. Such is the case of the Banco Bradesco, Odebrecht and Votorantim corporations, which are Brazilian. The sole objective of these large groups has been to

guarantee for themselves high profit margins. The philosophy of today's capitalists is: "Invest where the profit margin is high and said profit is obtained in the shortest time and with the lowest risk."

In practice, the priorities of international capital are to:

- Invest in the financial sphere (currently concentrating investment in oil and food speculation);
- Invest in public and private debt (to anticipate the appropriation of gains in value and obtain high interest rates);
- Go where the labor force is least valued, in other words, where labor is cheapest (resulting in greater value extraction);
- Invest in locations outfitted with the most productive technologies (which translates today into greater unemployment);
- Control the most favorable natural bases (those offering the highest profits), in other words, the most strategic regions and/or natural resources, and
- Make wars (the United States possesses 823 military bases throughout the world).

According to some capitalists, the current economic crisis indicates that capitalism, and specifically the neoliberal ideas which have prevailed in the last decades, "is defeated."

The financial system is in crisis and the crisis lies in the center of imperialism. In addition to the crisis of the financial system, and the subsequent drop in growth rates of the world economy, it is also important to highlight the energy, environmental, and food crises, the overexploitation of the labor force, structural unemployment, etc. In summary, this is the current moment and the nature of the capitalist system. And we are well aware that its consequences fall on the poorest countries and regions, in particular the Latin American countries.

## **THE COUNTRYSIDE – WHERE THE CONFLICTS OVER CONTROL OF STRATEGIC NATURAL RESOURCES TAKE PLACE**

The crisis tends to generate concentration and centralization of wealth in the hands of the transnational corporations and increased poverty for the vast majority of workers. In this scenario, in recent years the large multinational companies and large international banks have initiated a struggle for control of the Latin American countryside with the goal to dominate strategic natural resources: energy, land (in particular for the production of agrofuels, cellulose and "food"), water, minerals, and biodiversity (especially seeds).

These companies install themselves in Brazil and in other Latin American countries in search primarily of agricultural, mineral, and energy raw materials in order to exploit (plunder) them for private accumulation in the international context. In other words, the role attributed to Latin America by international capital in the international re-division

of production and labor is that of mere exporters of agricultural, mineral and energy raw materials.

The stories are practically the same in all Latin American countries: the multinational companies advance in their control of the largest reserves of water (and rivers for the construction of hydroelectric dams), minerals, and land.

The two most important geopolitical regions in the international context have been the Middle East and the Amazon. The first region concentrates approximately 70% of all world oil reserves; the second is one of the richest regions of the world with enormous biodiversity, concentrating mines, water, lands, oil, etc. Not only the Amazon but all of Latin America has been strategic to guarantee the private accumulation of international capital.

## THE WATER QUESTION

Four of the primary strategic water reserves for the future of humanity are located in South America. These include coastal waters, the Amazonian and the Río de la Plata basins, considered the world's two largest hydrographic basins, and the Guaraní aquifer, considered the world's greatest mineral water reserve, located in the subsoil of Brazil, Argentina, Paraguay and Uruguay. In this region, the multinationals are buying up areas located precisely in the primary points of springs and recharge.

Water is fundamental for industry, agriculture, and for all human life. Today, close to 70% of all potable water is consumed in agriculture and 20% in industry. Due to agricultural techniques employing intensive irrigation, more than 45 million hectares of land have already been affected. Meanwhile, water sources in the industrialized countries (United States, Europe, Japan, etc.) are practically all polluted.

Everything indicates that the dispute for control over fresh water will occupy a central place in the coming years. The best agricultural lands, primarily for production of agrofuels, cellulose and/or agricultural production, and the best water reserves located in the Latin American countries, are already heavily disputed by the large multinational companies.

Rivers are particularly interesting for the construction of hydroelectric installations to generate cheap energy and for the extraction of minerals and cellulose.

## THE ENERGY QUESTION

The energy debate currently revolves around three sources: oil, agrofuels, and hydroelectric sources. There is also a debate on cellulose in relation to its potential for ethanol production.

At the world level, oil has been the primary source of “liquid energy” used by humanity as a whole. It possesses the characteristic of being easily transported, favoring its distribution to regions lacking their own supply. Oil may be transported in many ways: by land (in oil tankers), by sea (in cargo ships), or even by air. Nevertheless, oil is part of the sector of energy sources called “fossil fuels,” which require millions of years to form, and once their reserves are consumed they are not renewed. In addition to oil, natural gas and coal are of the same origin. The world oil reserves are running dry and becoming increasingly difficult to access, making them more and more expensive, limiting their quantity and diminishing their quality.

As we have seen, the Middle East concentrates the greatest oil reserves. But several Latin American countries are also rich in fossil fuels, primarily Venezuela, Brazil, which converted into another giant with the discovery of the “pre-sal” oil deposits off its coastline, and Bolivia (natural gas).

Experts project a 71% growth in global energy consumption by the year 2030, coupled by a downward trend in world oil reserves. This will further aggravate the struggle for control of all economically viable energy sources.

The world scenario of energy crisis primarily affects the central countries of capitalism, given that they consume 70% of the world’s energy, despite accounting for only 21% of global population. The solution sought by these countries has been to try to find new energy sources, such as biomass, wind, solar, and water energy. In the meantime, it is impossible to address a consumption pattern based in the central countries.

This energy scenario has various consequences:

- Speculation resulting in increased international oil prices;
- World imperialist disputes for control over current energy reserves;
- Elevation of food production costs due to an oil-dependent agricultural model;
- Transfer of electro-intensive industry (cellulose and mining) to the peripheral countries;
- The race for control over strategic energy sources: land for agrofuel production, control of rivers for hydroelectric plant construction, etc.;
- Change in the social function of agriculture: instead of producing food, agriculture shifts toward production of energy for imperialism;
- Acceleration of construction of large electric energy generation works in Latin American countries, in particular hydroelectric projects and the encroachment of multinationals in the control of lands for bioenergy production.

## ACCELERATED CONSTRUCTION OF HYDROELECTRIC PROJECTS

The race of the multinationals to build and dominate hydroelectric installations is attributable to the fact that water energy fosters the highest profit margins. In the Brazilian

case, in the year 2007 this sector obtained its highest profits in history. The 17 largest electric energy companies obtained an income of 64 billion Reals (approximately USD 37 billion) of which 12 billion Reals was (approximately USD 7 billion) pure profit.

The energy originating from hydroelectric plants is considered one of the cheapest available. Hydropower represents an “advantageous natural base” in relation to other sources, motivating the brutal race of the multinationals to dominate this sector in both generation and distribution. Below we look at some characteristics of the hydropower source:

- Hydroenergy offers high productivity, with energy efficiency of 92%, while thermal energy presents a maximum of 30% efficiency.
- Hydropower presents low production costs. The raw material (water) used in the turbine represents no production cost, unlike thermal energy in which the raw material is oil.
- It is renewable, barely altering its intensity according to the different seasons of the year.
- The water from the same river can be used several times by constructing various hydroelectric plants along the river.
- The so-called “inter-connected system” allows energy to be transferred and returned from one region to another according to rain intensity, meaning that the hydroelectric lakes can serve as a large water box, producing profits of up to 22% in efficiency. In other words, the system allows control over an entire river, hydrographic basin, across basins and regions, and across countries.

Through privatization, electric energy has become controlled and placed at the service of the large transnational companies. Our countries’ electric generation is destined to supply the large consumers of electric energy, primarily the so-called electro-intensive industry (cellulose, aluminum, iron, among others) and the large supermarkets, offering them subsidized energy. In Brazil there are currently 665 large energy consumers that alone consume approximately 30% of all Brazilian electric energy, while receiving energy at real cost.

For example, the VALE and ALCOA mining companies and the cellulose producer Votorantim receive energy from the Brazilian government (through 20-year contracts) at pennies the kilowatt (kW) while the Brazilian population pays 50 cents for the same kW. In other words, the rates which have followed the privatization of the electric sector represent an outright pillaging of the Brazilian population.

In ten years of privatization, rate hikes have surpassed 400%, raising electric energy prices in Brazil to international rate parameters, even though 80% of our energy is of hydroelectric origin. The discourse of scarcity has been the primary ideological argument to justify rate hikes and new works, and also to guarantee public financing through BNDES.

Electric energy distribution is currently organized in a way to allow maximum exploitation of the poorest while favoring the wealthiest (the large consumers). In Brazil and



in a large number of Latin American countries, the energy model allows international capital to obtain extraordinary profits, for remittance to their headquarters in the central countries. In 2007, the French multinational SUEZ Tractebel billed 3 billion Reals (approximately USD 1.7 billion) in energy sales in Brazil alone, of which 1 billion Reals was net (approximately USD 590 million) profit.

In this scenario of oil crisis and the search for energy alternatives, and considering the large hydropower potential of the Latin American countries and the high profits obtained through hydroelectricity, acceleration is observed in the construction of hydroelectric projects, both small plants and mega-projects.

More than 45,000 large already-built dams exist in the world, which have already displaced more than 80 million persons, most of whom received nothing in exchange. In addition, close to 1,600 dams are currently in construction throughout the world. Said projects mobilize approximately 50 billion dollars per year.

An analysis of the use of hydroelectric potential in the world reveals that in the majority of wealthy and developed countries, the primary rivers have already been used for construction of hydroelectric installations. In these countries, the sources have been tapped out to their maximum levels, presenting enormous difficulties for the construction of new dams. The dam construction industry (Siemens, Alstom, General Electric, VA Tech, etc.) is therefore obligated to find new regions in the world to maintain its businesses and billing.

China, which holds the second highest potential in this sector, is the country constructing the highest number of hydroelectric plants at this moment. There are currently 50,000 MW in construction and more than 30,000 MW soon to be initiated.

Brazil holds the third position in hydroelectric potential in the world, accounting for 10%, behind China (12%) and Russia (13%). According to Brazil's "National Energy Plan 2030" established in 2006, the Brazilian system established a projected increase of 130,113 MW of electric energy. Of this, 94,700 MW should come from water sources (87,700 MW through large-scale hydroelectric installations and 7,000 MW through small hydroelectric plants). A projected investment of USD 286 billion would be required to meet this goal (around 500 billion Reals). Considering only the following ten years, the "2007-2016 Decade Plan of Electric Energy Expansion" outlined a set of 90 hydroelectric installations to be constructed, with a total foreseen generation of 36.83 MW.

The energy model is based on mechanisms and an operational logic of "financial capital" organized in a large private "monopoly" of international capital to foster speculation and the greatest possible profit returns.

Those we refer to as the "energy owners" are currently a fusion of large international banks (Santander, Bradesco, Citigroup, Votorantim, etc.), large global energy companies (Suez, AES, Duke, Endesa, General Electric, Votorantim, etc.), large international mining and metallurgy companies (Alcoa, BHP Billinton, Vale, Votorantim, Gerdau, Siemens, General Motors, Alstom, etc.), large contractors (Camargo Correa, Odebrecht, etc.) and large agribusiness companies (Aracruz, Amaggi, Bunge Fertilizantes, Stora Enso, etc.). This block of international capitalists forms a strong alliance around financial capital,

mining-metallurgy-energy capital, and agribusiness capital. In other words, the large international banks and the multinationals have been our main enemies.

## CHALLENGES

The central problem in the energy question is the current energy model that seeks to guarantee the highest profit margins in all the areas that form part of the electricity sector. In the financial sphere, the energy companies demand a “good image” of each company, with optimum profitability, surpassing profit records each year, and images associated with environmental preservation, thereby securing enormous benefits in the actions market. In the sphere of trade exchange, the electrical energy tariff has been a gold mine extracted from the population, given the exorbitant prices the population is forced to pay. And in the sphere of merchandise production, construction of hydroelectric works and energy generation projects have become some of the most profitable businesses of the current system, given the profits obtained through the sale of machinery and equipment paid for by the States, which finance the works almost in their entirety, and from the sale of the energy generated.

Construction of hydroelectric projects and multiplication of mining works and cellulose companies all form part of the same logic. A) Hydroelectric plant construction is financed with public money; b) the energy generated is sold at international prices to the people of each country to obtain the maximum profit; c) in the case of the large consumers, subsidized energy is provided at cost from the governmental companies to supply their electro-intensive industries, and d) the final production of these industries is sent (exported) to the central countries at rock-bottom and even tax-exempt prices. In other words, all the projects of new hydroelectric plants, mines, and cellulose production are meticulously linked to serve imperialist accumulation.

In the production sphere (energy generation), the struggle against hydroelectric projects and to combat the exportation of high energy-dense products for capitalist accumulation purposes (electro-intensive, mining, and cellulose products) has transformed into an anti-imperialist struggle, and therefore merits reinforcement, given that the confrontation is concentrated against the largest transnational corporations of the world.

In the sphere of circulation, the issue of tariffs, despite its tactical character, can also be an important struggle, given that it affects the sphere of realization of profits, in addition to affecting almost the entire population of each country and fostering the establishment of alliances with urban populations. We pay one of the most expensive energy tariffs in the world, while the large consumers (multinationals) receive the same energy at prices ten times lower than those paid by the general population.

We affirm that the majority of projects being developed are conceived in the logic of the current energy model, and therefore are anti-people. The commitment to oppose these projects should be shared by all people, in the countryside and the city.

It is not a struggle exclusive to the population affected by the dams or by the mines.

As in the struggle against unjust tariffs, the entire population is affected.

Our natural riches belong to the people and should be at their service. The energy struggle and the struggle around the mineral projects should be understood as struggles for the sovereignty of each country and at the same time anti-imperialist. These struggles should be understood in their totality as part of the struggle for transformation of the current model of society.

In Latin America, the challenges are enormous. There are hundreds or perhaps thousands of hydroelectric and mining projects in expansion phase. At the same time, thousands of *campesino* farmers and native populations are and will be affected. For this reason, we face the challenge to strengthen this fight potential, in addition to seeking to continually reinforce our international links for the permanent construction of unity in the countryside and in the city.

We have a long road in front of us, and we must tackle head-on the challenge to reinforce the struggle and organization around the strategic sectors outlined in this text.

**Water and energy are not merchandise!**

# *Sugarcane monoculture and its impact on women in Pernambuco, Brazil<sup>1</sup>*

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Sugarcane monoculture is the hegemonic economic activity of the 43 municipalities of the rainforest area, the highest sugarcane-producing region of the state of Pernambuco, Brazil. The plantations cover an area of approximately 450,000 hectares. In 2008, production of ethanol extracted from the sugarcane surpassed the previous year's production by 49%. These numbers reflect records in productions extracted from the land, and the inhuman efforts of the male and female sugarcane workers.

## **WHAT LIES BEHIND THE ETHANOL DISCOURSE?**

Behind the discourse of environmental sustainability and economic growth dictated by those promoting ethanol, the advance of the sugarcane monocultures presents very different realities. The landscape of the rainforest region (the so-called "sugarcane zone" of Pernambuco state) is one of those realities: the false green of the sugarcane plantations. According to figures compiled by the Pastoral Land Commission (*Comissao Pastoral da Terra- CPT*), 98% of cultivable lands in the northern rainforest area have been taken over by sugarcane, despite the fact that the Constitution of the state of Pernambuco requires any monoculture area to dedicate a minimum of 10% of cropland to food production.

But if ethanol is “humanity’s salvation” as it has been catalogued by its national and international defenders, and agribusiness is the “fundamental green anchor to sustain economic growth” as recently declared by President Lula, the population of this region should be gathering the fruits of this “environmentally sustainable economic development.”

However, something very different is evident in the small cities formed around the production plants and surrounded by the plantations. The region has some of the worst social and economic indicators in the world, with reports of slave and child labor, labor rights violations, torture and murders of rural laborers, and poor management of public resources. The area of the Pernambuco rainforest has a Gini coefficient of land concentration reaching 0.9 (this scale ranges from 0 to 1 to indicate lowest to highest concentration) and the state of Pernambuco appears fifth from the bottom in the national index of human development.

The situation of misery and slave labor is even further aggravated by the increase of state and private investments dedicated to agribusiness and to stimulate production of agrofuels. The numbers tell the story: the supply of rural credit offered by the Federal Government for business agriculture for the 2008-2009 season was 65 billion Reales (\$3.6 billion USD), versus barely 13 billion Reales (approximately \$ 8 billion USD) for family agriculture. On 6 March 2009, the Federal Government announced new “assistance” for the sugar sector of the São Paulo and western-central region, financed with public funds. On that occasion it was reported that 2.5 billion Reales (\$140 million USD) would be released immediately to finance the ethanol stock, along with the promise to renegotiate a 3.45 billion Reales (\$193 million USD) debt of the large companies from just the previous year when more than 6.5 billion Reales (\$360 million USD) was released for several companies of the millionaire sugar-ethanol agribusiness, using resources pertaining to society and the workers, such as the Workers Protection Fund.

The agrofuels production model, and ethanol production in particular, is based on slave labor. In 2008, 529 workers were found in situations of slavery and exploitation in the sugar centers in Pernambuco. One of the most emblematic cases was that of the Vitória production center located in the municipality of Palmareas, where 241 rural laborers were rescued from denigrating conditions in November 2008. Another case occurred in the Ipojuca production center, which maintained a regime of exploitation of more than 150 sugarcane workers. In February 2009, in an operation by the Mobile Group for Eradication of Slave Labor, 252 rural laborers including 27 minors were rescued from the Cruangi production center in the municipality of Alianza in the rainforest region. None of these hundreds of workers enjoyed even the minimum of the labor conditions required by law. In reality, the number of rural male and female workers living in such conditions is much higher. The Mobile Group is unable to follow up on all the reports it receives from rural social movements denouncing slave labor.

The “green fuel” that is supposedly going to save the world from the effects of climate change has come to devastate the environment in the regions in which it is produced. In 2008, the Brazilian Institute of the Environment and Renewable Natural

Resources (*Instituto Brasileiro do Meio Ambiente E Dos Recursos Naturais Renováveis* - IBAMA) issued fines totaling 120 million Reales (\$6.6 million USD) to the 24 factories installed in Pernambuco for violations of environmental legislation, including lack of licenses, plantings in conservation areas, unauthorized sugarcane burning practices, and dumping of the sludge residues produced from sugarcane industrialization into area rivers, provoking pollution of water resources. Barely 5% of the Atlantic rainforest has survived the sugarcane expansion.

## THE POWER OF THE STATE IN THE CASE OF THE ESTRELIANA FACTORY

The Estreliana sugarcane factory is another example of the reality behind this agribusiness. The bankruptcy of the Estreliana company was decreed in 1988 due to debts owed to public entities. At the time, its debt totaled 175 million Reales (\$9.7 million USD), plus an additional 90,000 Reales (\$5,000 USD) in wages for its 220 workers, while the plant itself was valued at around 40 million Reales (\$2.2 million USD). According to the document issued by the advisory office of Federal Delegate Paulo Rubén Santiago, the factory is on the list of the highest debtors to the Prevision Funds, currently owing 22.450 million Reales (\$1.243 million USD).

Nevertheless, only five of the factory's more than 20 mills were expropriated by the Agrarian Reform, and each of the expropriation attempts was challenged by Estreliana, using all types of legal maneuvers to impede the National Institute of Colonization and Agrarian Reform (*Instituto Nacional de Colonização e Reforma Agrária* - INCRA) from obtaining definitive possession of the mills and earmarking them for the Agrarian Reform.

The episode lived by the workers struggling for possession of the Pereira Grand mill is one of the greatest absurdities to occur in the country, and demonstrates the power of influence of the businessmen and the complicity of the state and the judicial powers.

In November 2003, the area was declared social-interest property for agrarian reform purposes. In January 2004, the company filed a so-called "security recourse"<sup>2</sup> within the Supreme Federal Tribunal (*Supremo Tribunal Federal* - STF), questioning the presidential decree. The recourse was subsequently denied by Justice Minister, Nelson Jobim. The company then filed a new recourse with the same petition, in complete disregard of the existing STF decision. Observing this irregularity, the Federal Justice dismissed the process. Estreliana had the audacity to appeal the decision, and in June 2005 won its petition in the Regional Federal Tribunal of the Fifth Region.

In March 2006, the President of the STF, Minister Ellen Gracie, suspended the appeal won by Estreliana. The INCRA then requested and again acquired possession, and on 12 March handed Pereira Grande over to the close to 150 families who had struggled for possession of the mill, who immediately occupied it.

Less than one week later, Minister Ellen Gracie changed her decision and determined that the possession and the follow-up of the expropriation action must occur only

after the final sentence is issued in the process. With this new decision, Estreliana filed – and won - a petition to recover possession. Just over a month after being placed on the property by the INCRA, the families were violently evicted by the Military Police. The justifiably indignant workers carried out a large protest demonstration, which was violently repressed by police and judicial forces. One worker was thrown in jail, and arrest warrants were issued for four others.

The questions that emerge are obvious. What type of power is wielded by a company that, while owing more than six times its value, is able to elude complete expropriation? What power allows the State, through the INCRA, to place families in possession and occupation of the property, and days later, being the same State but now through the judicial power and its police forces, to violently evict said families from said property? What power, through the exercise of violence and deprivation of freedom, obligates the workers to pay for all of the irregularities committed by the company?

## THE STORY IS REPEATED, AND ONCE AGAIN THE VILLAINS CONVERT INTO HEROES

The case of the Estreliana company is only one among many in the Pernambuco rainforest region. In each case, debts, violence, arbitrariness and environmental destruction are rewarded with public money.

After the wave of euphoria provoked by agrofuels, resulting in investments to the order of 50 billion Reales (\$2.7 billion USD) over the past four years, the sugarcane ethanol sector has begun to add up the numbers to address the multiple commitments acquired along the way. A total of 75% of the sector has been unable to pay its workers on time. Another 20% has been running into problems, even dating prior to the current international economic crisis. Barely 5% has dutifully covered its workers' wages in a timely manner.

The companies want resources with which to build up their stocks, and they are asking that the funds approved by the Development Bank of Brazil (*Banco Nacional de Desenvolvimento Economico e Social* - BNDES) for expansion of the sugar centers be released, along with finance to cover their subsistence between harvests. The Lula government's current Cabinet Chief, Dilma Roussef, has already indicated that the assistance package for the companies will be approved. And while they are rescued, the workers pay the bill.

## THE INHUMAN REALITY OF FEMALE SUGARCANE WORKERS IN PERNAMBUCO<sup>3</sup>

In the municipality of Agua Preta in the Pernambuco rainforest region, men and women

leave their homes at 4:00 in the morning, carrying buckets and machetes and walking toward the spot where the company trucks pick them up to carry them to the fields to cut sugarcane. This scene is repeated day after day throughout the sugarcane harvest season for thousands of rural men and women.

Slave work is intrinsic to the ethanol production model. The introduction of new production techniques and the surplus of available labor obligate the worker to fulfill determined productivity levels that demand inhuman efforts. It is the only way to guarantee his or her wage. "In order to have a wage here, you have to work a lot. It's a problem. Sugarcane work is vile. It is a wage and that's all, we get nothing more than a wage here," explains Doña Sebastiana, from the municipality of Agua Preta, who has worked in the sugarcane fields for the past eleven years. "Three tons are needed in order to earn a wage. I work together with my husband, so what do we have to do? Six tons."

Health problems provoked by this prolonged physical effort are frequent. Doña Sebastiana describes her days: "I feel a lot of pain in my body. I have gastritis and back problems. It is very uncomfortable for me to be bending down and lifting up, bending down and lifting up. There are days I go to bed in pain and wake up worse, I take medicine and it is as if I didn't take anything. I take the medicines, go to the doctor, and the pain doesn't stop. And that is how I have to go to work. I go one day OK, the next in pain."

## WOMEN SUGARCANE WORKERS; RESISTANCE IN THE RAINFOREST REGION

The stories of the women who survive in the sugarcane fields also illustrate the most perverse side of monoculture production. Aside from the work in the sugarcane plantation, they also have their homes and children to care for. "I get up at 2:00 in the morning, we take the truck at 4:00 and return at 3:00 or 4:00 in the afternoon depending on the sugarcane. When I get home there is still a lot of heavy work ... I have to tend to my house and my father's," explains rural laborer Ivanusa Maria da Silva Ribeiro, age 46, sugarcane cutter and inhabitant of the municipality of Agua Preta.

The cases of Ivanusa and Doña Sebastiana are repeated by thousands of women who work in the sugarcane. According to figures of the Regional Labor Delegation and union registrations in each municipality, women's participation in the state's sugarcane plantations varies by region. Union leaders observe a gradual decline in the female labor force in the fields in recent years. For the women's director of the Federation of Agricultural Workers of Pernambuco (*Federação dos Trabalhadores na Agricultura do Estado de Pernambuco*, FETAPE), Maria Aparecida (known as *Molica*), workers' benefits requirements such as maternity leave are some of the factors that have contributed to a drop in the hiring of female workers. The sugarcane companies demand permanent and elevated productivity indexes with the lowest possible costs and without guaranteeing labor rights.

Entire families are subjected to degrading labor conditions. The rural laborer Doña



María Josué, age 46, recalls how she began working in the sugarcane fields at age 11. “I began replacing my mom when she would get pregnant and go on leave.” Her declaration denotes one of the large problems resulting from the state’s monoculture production model. “A large number of families in the region are prisoners of the sugarcane production model. They all work: dad, mom, sons and daughters. The monoculture created a large dependence in the region’s economy. Most are subjected to subhuman labor and can’t find any other job opportunity,” notes Bethania Mello of the Pastoral Land Commission.

When the women get pregnant, they work up to the last minute in order to fulfill their production requirements and guarantee their wage. “I stayed there, having a bad time, and when I went to the hospital it was already time to have the baby. I worked in the morning and in the afternoon I went to have the baby,” recalls one female laborer from the municipality of Agua Preta.

When they leave for the sugarcane work, many mothers have no one with whom to leave their children. Many of the children are unable to keep themselves in school and are forced to work. Sugarcane jobs in many cases are seen as the only opportunity. “I had five children, when one would grow, he or she would stay with the others. I would leave food in the house, the baby bottle. When I got home, I bathed them, fed them again, and that’s the way it was.

That is how they were all raised. They’re all older now. They’re all working in the sugarcane,” reports Helena Maria da Silva, 43 years old, with 27 years working in the sugarcane fields. During that time she raised her five children by herself, without their father. According to Molica of FETAPE, women’s main demands in the union struggle in the countryside are the creation of childcare facilities, the freedom to undergo preventative exams twice a year, and prevention measures to protect them from the sexual harassment suffered by many of the women. According to Molica, despite the fact that these demands have already been approved, none is guaranteed by the companies.

Nevertheless, the women workers continue their resistance to this situation imposed by the cold agribusiness that obstructs the Agrarian Reform and denies human dignity. Women, companions capable of generating lives and teachers in the art of “resting,” have the patience to cultivate hope and to dream of another Brazil in which the land is shared and income is justly distributed. The women refuse to provide continuity to this slavery model caused by sugarcane monoculture. In the words of Doña Maria José: “I don’t want to form any child to work in the sugarcane, I don’t. Because there is no future in this. The people have nothing here, we are nothing.”

## AN ANCHOR WEIGHTED BY PUBLIC MONEY

The Brazilian regions that have historically cultivated sugarcane at a large scale are the Northeast, in which the state of Pernambuco is located, and the state of São Paulo. The sugarcane sector is extremely vulnerable to external market fluctuations and dependent on public money to survive and convert from villain to hero, depending on the will of the markets and governments. Once these subsidies are suspended, the mills cease operations

in anticipation of a new wave of incentives. What is left are workers abandoned in a state of misery, with no compensation of any kind, and soils exhausted by intensive sugarcane planting and saturated by poisons. In general, the entire local economy is left devastated.

The freefall in sugar prices in the international market in the 1930s plunged the large companies that for many years had been Brazil's primary exporters into decadence. In the 1970s, the Brazilian government reactivated the sector with the *Proálcool* program to stimulate sugarcane production and to restore the sector with large subsidies and various types of incentives. For decades the Sugar and Alcohol Institute was responsible for all product commercialization and exportation, subsidizing projects, stimulating industrial and agrarian centralization, and providing fertile lands, transportation, infrastructure and inputs.

With the finalization of *Proálcool*, the sector entered a new period of stagnation and many sugar mills fell into crisis, leaving billions in debts to the State and thousands of workers in misery. Between 1990 and 2006, the number of sugar mill plants in Pernambuco fell from 43 to 22. Close to 150,000 jobs were estimated to be lost during this period in the Pernambuco rainforest region (the large majority with no compensation) and 40,000 campesinos were expelled from the region. According to a study carried out between 1995 and 1998 in the Legislative Assembly of Pernambuco by the Parliamentary Investigation Commission (*Comissão Parlamentar de Inquérito - CPI*) of the Fiscal Debt, the bankruptcy of the Bank of Pernambuco (*Banco do Estado de Pernambuco SA - Bandepe*) was to a large degree provoked by the lack of repayment of loans made to the sugar plants. Despite the fact that these debts were never paid, that the workers were never compensated, that the lands left unproductive and abandoned for years were never expropriated by the Agrarian Reform (as required by the Federal Constitution), despite all of this, the businessmen have found their most recent savior: ETHANOL. The federal government's ethanol promotion policy injected more public money into the mills, saving the businessmen and reigniting conflict and violence in the region. The workers, who for years had struggled for their labor rights and tilled the lands abandoned by the mills, are once again being

violently expelled from their lands in the name of “economic development.”

## NOTES

<sup>1</sup> This article was published in September 2008 in the *Sem Terra* newspaper.

<sup>2</sup> The “security recourse” is a legal recourse that is generally filed against executive actions to avoid the consummation of damages deemed grave and difficult to repair against the rights of the affected parties. It is a protection measure against the inexistence or lack of effectiveness of the ordinary norms of the process.

<sup>3</sup> Adapted from the special report prepared by the Pastoral Land Commission and Vía Campesina Pernambuco in March 2009 in homage to the struggle of the women workers.

# *Eucalyptus and sugarcane monocultures: amid evictions and other human rights violations of the Quilombola communities of Sapê do Norte, Espírito Santo, Brazil*

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## INTRODUCTION

For more than four decades, as part of the hegemonic development model, the Brazilian government has promoted the expansion of large exploitations of eucalyptus and sugarcane monocultures in the state of Espírito Santo, with no consideration for the grave environmental, social, economic, and cultural consequences derived from the same.

The Quilombola territory located in Sâpe do Norte, in the municipalities of Conceição da Barra and São Mateus in the northern region of the state of Espírito Santo, is one of the areas affected by the introduction and continuous expansion of this type of agroindustrial operation, to the detriment of the native forests and traditional agricultural lands.

## THE QUILOMBOLA COMMUNITIES AND THE RIGHT TO LAND

The Quilombola are descendents of slaves who after escaping the large plantations established settlements in remote areas. These villages, known as *quilombos*, became their area of residence, resistance, and social organization, within which the population developed

its own customs and cultural traits.

In 1988, a new Federal Constitution was approved in Brazil that guarantees for the Quilombola communities the right to collective property of the territories they have traditionally occupied (Article 68 of the Transitory Constitutional Provisions). However, more than twenty years later, these Constitutional promises remain largely unfulfilled, with very few cases to date in which the communities have been issued their collective property deeds to the land and corresponding access to the natural resources.

Without property deeds, the Quilombola communities are much more vulnerable to threats of forced eviction by large landholders, mineral or forestry extraction companies, agroindustrialists, development projects, etc., placing at risk their means of subsistence, social and family organization, cultural and religious identity, and traditions.

## INTRODUCTION OF EUCALYPTUS MONOCULTURES IN SÂPE DO NORTE

Beginning in the decades of the 1960s and 70s and sponsored by the Brazilian military dictatorship (1964-1985) as part of large development projects, various agroindustrial companies established themselves in the northern region of the state of Espírito Santo, invading the territories of indigenous peoples and Quilombola communities.

In the Sâpe do Norte region, acquisition of lands to plant eucalyptus and sugarcane monocultures took place through various mechanisms. The first, according to testimonies from the population itself, was the strategy of “convincing” through false promises of development and progress for those who sold their lands, which were generally paid at very low rates. The companies used third parties as front men, known as *laranjas*, who lent their names to purchase plots on behalf of the companies.

In cases in which the companies encountered resistance to their overtures to buy the land, they used violence, unleashed through state police forces and private militias, to forcibly evict the inhabitants. Quilombola community leader, Katia Santos Penha, research assistant at the Federation of Social and Educational Assistance Bodies (*Federação de Órgãos para Assistência Social e Educacional* - FASE), recalls that “the threat reached alarming levels, such as, for example, the burning of lands and homes to expel the people from them, and use of the state police force to displace the communities.”

A large part of the lands occupied by these agroindustrial exploitations are property of the State, which does not regulate in any way the activities of the companies behind them. Jassenildo Henrique de Oliveira Reis, lawyer working on behalf of Quilombola communities in Serra, explains that “a national edict exists indicating that the lands of the State should be used for public objectives and never placed at the service of private purposes,” and that “the primary State allegation [in reference to the use made of public lands by these companies] is that they do not have the resources to undertake proper oversight of the use of these lands.”

The eucalyptus monocultures in this region are property of the Aracruz Celulose, Grupo Suzano, and Cenibra companies. The sugarcane exploitations belong to the Diza and Alcoom companies.

Aracruz Celulose is the largest landholder in Espírito Santo, with close to 155,000 hectares of eucalyptus monocultures spread across the state. The main shareholders in this company are: Grupo Lorentzen (28%) (Norwegian capital); Grupo Safra (28%); Grupo Votorantim (28%), and the National Bank of Economic and Social Development (*Banco Nacional de Desenvolvimento Econômico e Social* -BNDES) (12.5%), the latter three made up of Brazilian capital.

The products extracted from the eucalyptus monocultures are primarily cellulose and to a lesser degree coal. The cellulose is exported mainly to Europe and North America where it is used for the fabrication of paper towels, toilet paper, and disposable tissues. The coal obtained from eucalyptus wood is used for energy production in the steel industry, and the sugarcane is used to produce ethanol primarily for the national market.

The eucalyptus and sugarcane monocultures present in the Sapê do Norte region have been backed by the successive governments over the course of these four decades through distinct mechanisms, including: financial subsidies granted to agribusiness; incorporation of eucalyptus plantations within the National Forestry Plan; purchase by the State of an important number of shares in these companies, and permissiveness in the use of public lands. Part of this support derives from commitments acquired by elected officials whose campaigns were financed by monoculture companies. This phenomenon has been reported by both the legislative and the executive powers. In the case of the judicial power, the companies have initiated an offensive through a series of possessory, administrative, and criminal actions tending to impede the assignation of collective property deeds and to criminally prosecute Quilombola leaders.

## IMPACTS OF MONOCULTURES

The territory now occupied by large monoculture plantations in the region was previously made up of a mosaic of farm lands and large masses of virgin Atlantic shrub land. The Quilombola communities had a high degree of food self-sufficiency. Crop lands provided basic foods, primarily manioc, sufficient for community consumption, with some surplus product that was commercialized at the local level. The Atlantic shrub lands provided abundant game, fish, fruits, and raw materials for the fabrication of utensils and crafts.

The introduction of monocultures has generated grave social, environmental, economic and cultural impacts. Thousands of Quilombola families have been expelled from their territories and forced to migrate to the cities, where they have no option but to make their homes in informal settlements. São Benedito, created beginning in the 1960s by rural migrants and now the largest *favela* in the city of Vitória, capital of the state of Espírito Santo, is a good example.

According to information compiled by the Quilombola, of the 10,000 families distributed in 100 communities in the northern region of Espírito Santo prior to the implantation of the agroindustrial exploitations, only some 1200 families in 37 communities remain, fenced in by the eucalyptus and sugarcane monocultures.

The loss of territories has had important consequences for these communities, including lost means of subsistence, alterations in social and family organization, and destruction of the historical and cultural heritage of the Quilombola, all of which are closely tied to the land.

Thousands of hectares of Atlantic shrub lands were destroyed by introduction of the eucalyptus and sugarcane monocultures. This has generated not only incalculable loss of biodiversity but also grave consequences for the communities who directly depend on these ecosystems for reproduction of their way of life. The disappearance of the Atlantic shrub lands implied the loss of the food obtained by the gathering of wild fruit and by hunting and fishing; the loss of raw materials used for multiple domestic purposes and economic activities, and the loss of a rich cultural heritage linked to these ecosystems (rites, religious customs, traditional medicines, sacred locations, etc.).

Other vital resources have also been affected. The intensive use of large amounts of water to irrigate the monocultures has depleted a large part of the region's hydrological resources. As a result of the concentrated use of agrottoxins in the plantations, the scarce remaining water sources are now highly polluted.

The Quilombola communities that have been able to remain in the region face innumerable difficulties derived from the vast tracts of monocultures along the borders of their territory. Clear examples include water scarcity, loss of food self-sufficiency due to the destruction of native ecosystems, forcing the population to increasingly depend on purchased foods to meet their nutritional needs, and the appearance of illnesses (diarrheas, headaches, etc.) caused by consumption of water contaminated by agrottoxins.

One of the cornerstones of the publicity campaigns of the monoculture companies is that they will generate needed employment opportunities, but the real percentage of the Quilombola population employed in them is very small. The jobs the Quilombola are occasionally hired to perform are very low-paid and entail high health risks (mutilations by the machinery, poisonings from the agrochemicals). In general, the companies prefer to hire workers from other regions as part of a strategy to force the traditional population to migrate elsewhere in search of subsistence.

It is very relevant to point out that the State dedicates very limited resources to infrastructure and basic services in these communities. Regarding the absence of public investment to guarantee access to basic services for this population, Daniela Meirelles Dias de Carvalho, of the area on informal education in FASE, notes that "the will is observed on the part of the State to leave basic services far from the Quilombola communities, thereby effectively debilitating the struggle and reducing the value of the lands of the Quilombola communities."

## RESISTANCE

One identity trait of the Quilombola communities is their capacity of struggle and resistance, a legacy from their historic past. In response to this exclusionary agroindustrial model that concentrates land more and more in the hands of a small few businessmen, the Quilombola communities, united with other movements including Vía Campesina and the Alert Network against the Green Desert, now head the most important socio-environmental movement in Espírito Santo. Their primary demands are: implementation of agrarian reform; the return of lands to the Quilombola, indigenous, and small farmer communities; promotion of food production for local consumption over the eucalyptus plantations dedicated to cellulose exports, and the recovery of the Atlantic shrub lands and hydrological resources.

## NOTES

<sup>1</sup> This document was elaborated by Soledad Trujillo (collaborator of HIC-AL) and reviewed by Sebastián Tedeschi (COHRE) based on interviews undertaken by Lucas Laitano Valente (COHRE).





## CHILE

# Pumas, forests, and communities in southern Chile

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The valley is wide and surrounded by hills. It is known as San José de Punotro. We make our way by truck along the highway. A few kilometers to our right we can make out the seashore. We take the route along the coastal road. It is southern Chile, almost one thousand kilometers south of the capital city of Santiago. Rains are abundant in this part of the territory. Following the signs, we turn right onto a dirt road that takes us some fifty meters from the bottom of the valley. It is a *vega*, which in southern Chile refers to a region that floods over during the winter months and transforms into fertile soil in the spring after the waters drain away, leaving land particularly suited for growing potatoes. Along the road we pass the homes of the *Mapuche* communal farmers. It is a fairly large community of almost one hundred families. From the road the valley slopes upward, gently at first until forming the hills of the Cordillera de la Costa, or coastal mountain range, of this part of the south. For various historic reasons, the Mapuches lost these lands of slopes and jungles, and were left with only the farmland in the center of the valley. Such is the case in many parts of the Araucanía. The agricultural valley is left surrounded, circled, and in a way walled in by forests, plantations in this case of *pino insigne* or Monterrey pine. The forests belong to Forestal Millalemu, of Swiss capital; Arauco, of national capital; Mininco, in which participate a combination of national and transnational capitals, and several others, whose names are taken - with a touch of irony - from the Mapuche language.

The road winds widely and quietly through the hills, at one point rising enough to allow a glimpse of the ocean in the distance. It is a beautiful landscape. Below in the *vega* in the summer one can see the gardens of potatoes, corn, red peppers, and green produce for the kitchen. Turning upward, one's gaze is lost in the tight forest of pine and eucalyptus. After several turns through the hills we reach the home of Don Juan, the leader of the community, known in the south as the *cacique* in Spanish, or *lonco* in the Mapuche language, the latter roughly translated as "the head." He is waiting for us, and invites us in to his home. It is a nice home. The foundation was obtained through the subsidy issued by the State to the indigenous communities. They are wooden homes sheathed in zinc, with sturdy roofs. The owner has incorporated a wide wooden entryway in which to leave boots and wet clothing, so as not to dirty the dining room, which is furnished with a nice table, and the living area outfitted with a large television and comfortable chairs. It would pass as a middle-class Chilean home and no one would call it the home of a poor family. The Mapuches have not been poor and they know what hard work is. Don Juan produces potatoes, raises animals, and dries *cochayuyo* seaweed, which is an alga with high export value; in other words, extracting the greatest advantage of the resources at hand. He tells us that it is little land, scarcely two hectares. But he rents when the opportunity presents itself. He recently built a warehouse where he can dry the products and wait for good prices. He is a good farmer. The community as a whole is prosperous.

However, they feel harassed by the forestry companies. They are surrounded by them on all sides. They prohibit them from collecting firewood. There are problems with poisonings from the waters that flow down from the hills to the low areas and contaminate the crops. Many have gotten ill. The danger is evident from the crop dusters that fumigate the tree plantations from the air, leaving toxic chemicals that flow with the water that floods the lowlands in which the potatoes are later planted. It is a complicated issue.

But to our surprise and astonishment, Don Juan adds: "The worst part is the problem with **the pumas.**" We had heard about many problems that existed between the communities and the forestry companies, but I must say that this one surpasses our wildest imagination. "What is this about?" we ask curiously. Don Juan then goes on to explain that one of the greatest problems faced by the forestry companies has to do with the rabbits and hares that eat the young pine shoots. And they found no better solution than to bring in pumas to eat the rabbits. He tells us how one of his sons saw how they lowered five enormous pumas or pumas from a truck and released them into the forest. They attack the lambs and other small animals of the communal farmers, even newborn calves, geese, and all kinds of livestock. They don't know what to do anymore with the pumas, and they are planning to file a lawsuit against the company. The pumas come down from the hills to the homesteads and the people are terrified. "And why don't you trap or kill them yourselves?" we ask. Don Juan explains that they can't because each puma has a GPS chip implant and when a puma is caught the forest rangers are immediately on the scene. "The question of the pumas ..." he says, thoughtfully.

## THE LACK OF A FOREST CULTURE

I have been asked to provide a brief reflection on the relation between the forestry industrial complex of southern Chile and the human communities that live in the countryside or the environs of the forestry plantations, in particular, the Mapuche communities. It is clearly an example of monoculture, mostly Monterrey pine plantations with the recent addition of eucalyptus forests. More than for wood, most of the product is delivered to the cellulose factories. My reflection is founded on research experience developed in conjunction with Anthropology students over the past ten years in southern Chile, through which we have gathered information and analyzed communities or populations in the Eighth, Ninth and Tenth Regions, almost all of whom live in a context of expansion of the forestry industry.<sup>2</sup>

The first observation I think is necessary is the following: In Chile, and in particular



in the continental south of the country, a forest culture does not and has never existed. We would define a forest culture as a set of human groups who live in a relatively harmonic manner with and from the forest; it would be a culture that lives in the forest and also takes care of it, protects it, knows technologies capable of recovering it, etc. The Mapuches, for example, were not forest people

but rather plains inhabitants. They settled along the river banks and their “*mabuñidas*” or forests were uninhabited spaces that they visited to gather fruits, medicinal herbs, and other products. I do not venture to comment on Chiloé<sup>3</sup> where the cultural situation is perhaps different regarding the forest and the use of wood. Dating to ancient times, the method used to clear land in southern Chile has been slash and burn, in other words, to clear the forest with fire. In pre-Hispanic times the forest was cleared in this way to plant crops. The demographic pressure was not too strong and therefore it was in fact an adequate technology. The method can still be seen in use today on the islands of the Chiloé archipelago to clear areas in which to develop agriculture and raise livestock. The speed with which the forest is recovered in these regions is such that the method is effective if and when the demographic pressure is not too high.

European colonization of southern Chile took place under the domination of an extractive mining culture. The first Spaniards were miners and not farmers. Those who followed saw in the forest only resources to be exploited. The extractive culture domi-

nates all the way to the present day. It sees the native or any other type of forest as a resource that must be felled and seized. No culture exists of replanting or reforestation or of gradually harvesting the forest, taking only the mature trees. The story is told of when Vicente Pérez Rosales, the official responsible for colonization under the Government of Chile<sup>4</sup> in the mid-19<sup>th</sup> century, arrived with the German colonists. Upon finding no site on which to install them, Pérez Rosales called upon a local resident for assistance, which the native inhabitant was pleased to provide. A fire was set that would burn for months and soon unite Valdivia with Lanco, in other words, clearing the land from the sea clear to the mountains. The “field” was opened and the arriving families were able to install their homesteads on the charred land. Experiences such as this one are many, and we have all witnessed the enthusiasm provoked by lighting fires to “raze” trails, pastures, or full grown forests, or to “topple” a tree, to which people congregate without being summoned. An invitation to a day of work dedicated to reforestation or other pro-protective tasks produces a very distinct reaction.

European colonization of southern Chile provoked an enormous impact on the indigenous communities. In the mid-19<sup>th</sup> century, German, French, Dutch, Italian, and other European immigrants settled first south of the Araucanía and later in the early 20<sup>th</sup> century amidst the Mapuche communities.

At that moment, the Government of Chile, like those of Argentina, the United States, and the majority of Latin American countries, favored foreign migration to land considered unproductive, according to the mentality of the era, given that it was inhabited by indigenous peoples. The colonists received land and the native inhabitants were relocated to indigenous “reductions” or “reservations.” Each family head was issued a Title of Mercy (*Título de Merced*).<sup>5</sup> These Titles could not be sold, but through diverse schemes were passed to the hands of private businessmen, colonists, and others, until finally transformed into forestry plantations, as may be appreciated in the adjacent maps, bordering the communities and in many cases installed on their ancient



Map of Mapuche conflict, indicating the locations of pending court cases against Mapuche detainees, 2009.

lands. The conflict is easy to imagine.<sup>6</sup>

Fire transformed into the worst enemy of the forest of southern Chile. The causes of this destruction are multiple and it is not the purpose of this article to enumerate them. Fire as crop rotation method transformed into a system used simply to clear fields. The colonists lacked sufficient labor and therefore applied the customs of the land, burning everything that impeded their crop and livestock activities. In Aysén, austral region of Chile bordering with the Patagonia, there were fires in the twentieth century that lasted several years. The smoke columns were said to be visible from the city of Río Gallegos, Argentina, hundreds of kilometers away, on the coast of the Atlantic Ocean. The landscape of southern Chile is a dramatic expression of this disaster. The charred trees stand as ghosts silently overlooking the broad sky.

The export cycles have also been very significant factors in the deforestation of native woods. The mining cycle in the narrow north led to the clearing of the forest, which was used as fuel in the copper, iron and other mineral foundries that in the 18th and 19th centuries produced the country's primary exports. The trees were mostly Carobs, but an enormous amount of species were practically wiped out. A semi-arid region was transformed into entirely arid, despite the efforts which have been invested to reforest the area with Tamarugos - a tree from the family of the mimosas or acacias that grows as high as twelve meters and comes from the like-named Pampa del Tamarugal - and bushes that are even contemplated by the forestry subsidies, such as the *Atriplex*.<sup>7</sup>

In the Region of Maule, 300 kilometers south of Santiago, the mid-19<sup>th</sup> century wheat cycle led to the deforestation of the hillsides of the coastal mountain range. The vast oak groves were used to build ships known as *faluchos* that sailed cargos of wheat to the new California at the height of the gold rush. The forests of the mountains of Talca, the capital of the Maule Region, and all the way to the seaside shipyards of Constitución, were devastated. It is in that context that the reforestation program was initiated in the mid-1950s, using Monterrey pine. Construction of a cellulose plant in the old port city of Constitución, long past its wheat exporting heyday, was an explicit attempt to configure a "development pole," as said at the time. The State saw in the plantations and cellulose production the only alternative for those depredated areas.

A similar determination led to the construction of cellulose, paper, and plywood factories in the populations of Laja and Nacimiento, along the Bio Bio river. The part of Chilean territory known as the Laja Island had always been a large expanse of sand with trees and thickets. In contrast, the Malleco hills, approaching the Araucanía region (see map), were over-cut throughout the first fifty years of colonization, leaving the area in a regrettable state of desertification. Heavy clay soils marked by long ditches along which red rivers of fuller's earth ran in the winter months were visible up until the 1970s. The Traiguén region, that area of the country home to colonization and Mapuche communities, as I remember traveling in my youth, was surrounded by entirely sterile hills, worn out by successive cereal harvests with no concern for the conservation of the soils. In the southern part of the Nahuelbuta Mountain Range, the area that slopes down to the Bio Bio river, almost no native woods remained by the late 1950s. So it was not

a difficult decision for the government to allow vast extensions of pine to begin to be planted there as well. The advantages of these plantations were evident: they protected the soil against erosion and were able to mature quickly nurtured by the rains and the cool ocean breezes. It is therefore important to keep this background to the origin of the forestry plantations in mind: the projects were intended to resolve a prior problem of desertification and merciless exploitation of the native forest that had produced its destruction. Most of this countryside was uninhabited, having been abandoned by large and small owners. Cooperatives and share-based land purchasing systems were organized in the 1960s – one of the most famous was known as *Capitanac* – which fostered significant expansion of the new pine forests. No voices were raised against the plantations at the time, and on the contrary, everyone saw them as a positive step for regional and national development.

## THE CONCEPT OF TIME AND THE CONCEPT OF RENEWABLE RESOURCES

The second observation refers to the *times* that exist in Chilean culture in relation to the growth, care, or conservation of an asset such as the forest. The extractive culture by definition has short time tables. The goal is to extract the greatest amount of resources in the smallest time. This was what the Spaniards did with gold. The conception of time also has to do with the concept of renewable or non-renewable resources. While it is affirmed that trees by definition are resources which may be renewed, the existing culture determines whether this is theoretical or practical. I have seen forests that were planted in the late 19<sup>th</sup> century with the express mention that they would benefit the existing generation's grandchildren or great-grandchildren. Such countries, some in Europe for example, have a cultural conception of time different from ours and that necessarily leads to diverse policies and different safeguards. Those cultures often formed through highly authoritative State or Monarchical provisions. In France, in the mid-19<sup>th</sup> century Napoleon the Second dictated the norms regulating the forests, many of which exist to the present day. When in the 1980s, during the Military Dictatorship, we discussed and criticized the so-called "management plan" for the Araucarias forests, we observed that they were based on a false assumption: that the recovery time was existent. The technical authorities affirmed, with incredible naïveté, that thinning the forest would foster improved growth capacity of the rest of the population of these ancestral trees. That affirmation was true under such a quantity of suppositions that it transformed into theoretical and unachievable. One time I asked a Pehuenche friend from Quinquén if he had seen the araucaria trees at the entrance to the valley grow. He looked at me and smiled. "Since I was a boy, and I am now very old, they have always been the same," he told me.<sup>8</sup> This means that in practice the majority of the native forest is, for this cultural reason, non-renewable. Alerces, Araucarias, Queules, Cypresses of the Guaitecas, and

many others, once felled, will take centuries to replace themselves. The Araucarias that remain in the Cordillera were already tall when the Spaniards arrived. The only option is to take care of them.

It is for that reason that when speaking of renewable resources, one must always recognize that “it depends.” There are cultures in which living natural resources, be they trees, fish, animals, etc, may be renewable, and there are other cultures in which renewal is impossible. The cycles of native Chilean forest are such that, while they are not as long as the case of the Araucaria, their renewal depends on the time capacity of society. The cities that were destroyed by the Mapuches or Araucanos around the year 1600, such as the case of Villarrica, were covered by vegetation and disappeared under enormous trees. When the ruins were found in the late 19<sup>th</sup> century, the forest was already grown, but almost 300 years had passed.

## THE FORESTRY MODEL

The third observation refers to the plantation model adopted in Chile. For the noted reasons, it is a model apt for barren or desertificated areas, with little population or in some cases with population which has abandoned the countryside. It is a forestry plantation model that is easily applied, and I consider to be adequate, in areas without vegetation or population, where soil conditions have deteriorated to such a degree that “there is no turning back” toward agriculture. As everyone knows, this model consists of planting trees with very little space between them and constructing a mass of vegetation as thick as possible that eliminates other competitive species. The area is tightly closed off from human intervention. A locked gate is installed while the owners wait for the trees to grow. It is clearly a modern version of the extractive culture. A thick mass of trees is planted to be completely harvested in the shortest possible time.

This plantation system is entirely different from what is normally understood as a “forest.” The forest has animal life, while there is none in the plantations. When there is, such as the case of the rabbits and hares, a way is sought to eliminate it, either through poison or perhaps pumas, as in our surreal example. These plantations have no roads or even walking paths. There is no room for the human being. There are no fruits of the forest other than the wood to be obtained. Furthermore, both pine and eucalyptus kill all ground vegetation. Such species acidify the land in such a way that they leave it unproductive for long periods. While forests have a balance among different natural species, these plantations are monocultures.

The areas in which this “forestry plantation model” has been massively and homogeneously implemented have had all of the same consequences: the replacement of deteriorated lands with thick woods, first of pines and in more recent years of eucalyptus. The disappearance of what remains of existing native forests. In some cases, replacement of native forest, given its slow reproduction and low short-term economic yield. Radical



transformation of area landscape. Disappearance of other tree species and local fauna, and emigration of the population. The cases are well known. The northern section of the Nahuelbuta Cordillera was drastically “reconverted” in the 1970s. The traveler who visited these mountains in the 1960s today finds a completely changed natural and human landscape. Change of land ownership is of course an evident consequence. Something similar happened years before with the *campesinos* and the lands they occupied in Constitución and the surrounding area along the central coast. It is a fact that the felling of the native forest had been almost total and that the wheat cycle had ended by the 1930s. As many forestry specialists have pointed out, the desertification produced by agricultural overexploitation has been replaced by the “green desert.”<sup>9</sup>

## PLANTATIONS AND COMMUNITIES

The fourth observation refers to the problem of expansion of the forestry plantation model beyond barren or deforested areas. It is clear that no one said anything or only words of praise while the model operated in previously deforested areas. A group of forest researchers from the Universidad Austral of Valdivia in southern Chile issued an early warning regarding the “monoculture” character acquired by the model and the dangers of plagues, saturation, climate change, etc. it could bring. Criticisms were also directed to the labor conditions in the plantations, but they were clearly issues separate from the central aspect. The situation is different when the forestry expansion begins to occupy areas inhabited by human communities. In many cases, in the past decades, these communities or persons living there were forced to abandon the countryside. The forestry expansion was a conditioning factor of the necessary impulse of urbanization and modernization of society. It affected persons who lived the tail end of the wheat or general grain cycle and therefore suffered deplorable poverty conditions, and there would be no defense provided for them. In some cases, such as that noted earlier in Constitución in the Maule Region, such persons were clearly pointed toward the alternative to migrate to the “development pole” being forged in the city and to work in the modern forestry activities. The populations located in the hillsides of this city are mute witnesses of the *campesinos* displaced by the “forestry plantation model” massively employed along the coast of the seventh region.

The situation began to change when the forestry expansion reached the borders of the previously deforested areas. Two observations must be made here. In the areas we refer to as “agricultural frontiers,” there is insufficient clarity regarding the distinction between “agriculturally-apt” versus “forestry-apt” land, for example. In these areas we find people who live, or subsist, off of agriculture, and not territories barren of human communities or in which the communities are on the verge of disappearing. From there is derived their name.

Here we will look more closely at this point. In the commune of Los Sauces, a village

located in the northern part of the Nahuelbuta Cordillera in Malleco Province in the middle of the Araucanía, for example (see map), there are eucalyptus plantations separated only by barbed wire from wheat crops, which apparently thrive quite well. In the commune of Tirúa, along the coast of Arauco Province, Lleu Lleu sector, the Volterra company, with national and Canadian capitals, “planted” a eucalyptus crop, as is the best way to define these plantations of straight rows organized to allow them to be mechanically harvested by a chopper, on land that until then had been a grain field and a *vega* dedicated to very productive potato crops. Dozens of families lived off of those crops, and the entire commune benefited from the agricultural activities. The transformation to a forestry plot led to the impoverishment of the directly affected farmers and the entire community. The company has padlocked the plot for twenty years while it awaits the natural growth of the eucalyptus. It pays no taxes or contributions in the commune, and leaves it nothing. And when harvest time comes, it will be carried out with a machine that requires practically no labor. Examples like this abound in recent years. There is now “competition” between the plantations and agricultural activity. It is evident that the latter of these is closely intertwined with the life of the human communities, while the forestry model is clearly associated with their expulsion.

For many reasons, easily understood from a purely economic perspective, the plantations are implemented in locations that are accessible and well communicated. There are an enormous number of absolutely barren areas that have not been forested because of their distant location, far from processing centers or requiring prohibitively high investment in production costs. The old haciendas in relatively extensive areas are generally easier for the companies to acquire. Most of them also happen to be located in flat sectors or with hills or low mountains. It is most notable to observe that in the area of the Nahuelbuta Cordillera, the plantations primarily occupy the intermediate altitudes. The valley floor, such as Angol for example, remains agriculturally viable. The high altitudes and valleys located in them remain in hands of campesinos, especially in the southern part of the Cordillera. In the intermediate altitudes, the plantations have been installed in old haciendas expelled from the grain production market and with lower quality lands. The pressure of the forestry activity on the agricultural lands is the first source of conflict and explanation in our understanding of the current situation.

This is why forestry expansion “butts heads” with the human communities and doesn’t know what to do about them. It is a plantation model for barren areas or those tending toward depopulation. Although it may sound strong to put it in these words, it is a forestry production model incompatible with human life. For those who manage the forestry resource, the individual is the cause of all the dangers of the forest, except for plagues and other consequences of monoculture. People should not transit near the forests because they are the cause of forest fires, broken fences, and all types of disruptions. The plantation should lie empty.

On the other hand, the consequences of these enormous vegetation masses on neighboring communities are multifold. They have been reported enough times that it is not necessary to detail them here. We have seen the desertification process produced in areas

neighboring plantations due to the resulting suction of all available water. Communities that once had viable agricultural activities can no longer live off the land or are currently watching their livelihoods vanish.

The “encounter” between forestry expansion and human communities in many cases occurs at the moment of conclusion of an agricultural cycle or in places in which several generations have already contributed to deforesting territories. Pressure in such cases does not need to be overly strong to convince the campesinos to sell or abandon the land and to migrate. The situation has been quite different when forestry expansion comes up against Mapuche indigenous communities, in which the “man/earth” relationship is distinct. For diverse reasons, it is much more difficult for the Mapuche to sell their land. On the one hand, there is a deep-rooted cultural element. On the other, and as a consequence of the first, the Mapuche have a legal regime with much stronger ingrained protections. These factors have led to situations in certain areas of forestry expansion in which Mapuche communities have found themselves closed off in true islands amidst the “forestry sea.” The deterioration of the soil and production conditions produced by this invasion of a foreign ecosystem will necessarily lead to ruptures. Many observers pointed this out as long as fifteen years ago, as we witnessed how the forestry system encroached upon areas with high indigenous population density.

This structural confrontational relation is coupled by the fact that in several areas the plantations were implemented many years ago by the State and later passed to private company hands. Many voices were raised in the year 1990 to call attention to this fact, common in the Arauco and especially the Malleco Provinces. Many rural estates expropriated by the State in the 1960s and early 70s were reforested by either of two governmental institutions of the time, the National Forestry Corporation (CONAF), or the Agrarian Reform Corporation (Cora). Mapuche farmers worked in the plantation brigades. Settlements were formed in some cases<sup>10</sup> and in others the lands were handed over to the indigenous community, in particular when they were already in litigation over indigenous claims of usurpation. These plantations were left in the people’s minds as pertaining to the indigenous. Later, the properties were “regularized” and divided into plots which then passed from hand to hand until ending up in those of the current forestry companies. The level of confrontation to surge at the moment in which the trees were grown and ready for harvest should have been expected.

## CONSEQUENCES FOR THE COMMUNITIES

The fifth and final observation on this topic touches first of all on the issue of jobs, or lack thereof. The forestry activity that in the beginning, in the 1960s and 70s, was considered highly labor intensive and therefore a promising source of employment, is now seen to require less and less manpower. Planting, thinning and harvesting technologies have become extremely mechanized, and local populations and communities are enjoying

no employment opportunities.

In addition, the forestry activity is entirely foreign to the characteristics of local life. This is the significant and dangerous aspect. The companies are obviously not local and have no interest in the locations. Decisions are not made locally but rather according to plans coldly elaborated in far-off and impersonal offices. The work brigades arrive with personnel foreign to the populations. Their trucks destroy roads and bridges and are seen as a threat by the local population. The companies do not pay local taxes. In summary, as everyone knows, the forestry activities extract local resources but do not contribute much of anything to the locations. In some cases they not only contribute nothing but also wreak destruction and provoke local impoverishment.

As pointed out at the beginning of this article, the consequences in health matters imply perhaps the greatest impacts and threats on the communities. The biggest problem comes from contamination from the pesticides launched from airplanes to control the pests, primarily termites, which affect the large masses of monocultures. While experiments have been done with environmentally-friendly biological alternatives, they have not been implemented beyond pilot trials. Aerial fumigation, which directly pollutes the entire ecosystem, provoking grave consequences in the communities, remains the most used method.

There is little doubt and it is our experience that the communities feel themselves harassed by the forestry plantations. The visual assault is undeniable. Enormous masses of trees that imprison the small valleys in which traditional farmers and Mapuche communities live. There is the permanent pillaging in the form of appropriation of each stream and deposit of water by the green mass that acts as a sponge soaking up all available moisture. It is a very unfriendly relationship represented by the padlocks and guards posted between the plantations and local communities. Human presence is unwelcome.

## THE THREAT OF MONOCULTURE

We conclude that a situation of contradiction has been reached between a forestry expansion model and the survival of the human communities, in particular the indigenous in southern Chile. It is not an issue of good or bad intentions. It is an objective question, and the consequences are very clear. A first alternative is for the forestry expansion process to continue its march unchanged and produce growing expulsion of traditional farmers from the countryside and disappearance of the rural communities as they are increasingly fenced in. It is a possibly very conflictive panorama. A second alternative is to halt the forestry expansion process in areas of massive, and belligerent, indigenous population. Both alternatives are highly negative. A third possibility, which I favor, is to rethink the forestry expansion model and the future of the human communities living in southern Chile.

An initial conclusion that emerges from these observations is the need to find diverse

technological and productive alternatives to the forestry expansion process. The examples are many: (1) determine the type of areas in which the planting of homogenous forests, according to species, is advisable; (2) require and undertake Environmental Impact Studies for plantations larger than a determined surface area; (3) firmly promote reforestation using native species; (4) maximize forestry grazing systems in areas with higher population density; (5) develop research in the area of alternative tree species, etc.

A second point emerges from the need to respect human communities and their surroundings. I think that the existence of villages, hamlets, communities and populations, homogeneously dispersed throughout the territory, is a fundamental population policy issue. I refer here in particular to the indigenous communities. I do not think the existence of enormous barren spaces is an adequate policy. It is a mistake to think that all the Mapuche communities should be forested with pine or eucalyptus because their lands are not apt for agriculture or livestock. Those who propose paying a subsidy to the families who dedicate their entire lands to forestry plantation and suggest they survive on that money while they “watch the trees grow” are unfamiliar with the lands of southern Chile and the lives of its farmers. Such solutions sound good only from many kilometers away.

A third issue has to do with the clarification and establishment of agricultural borders and the determination to not encroach upon lands suitable for grain or other production. It would be a grave mistake to plant the entire southern region of the country with pines and eucalyptus, mortgaging the quality of the land for decades or centuries. On the other hand, there are areas that still resist such intense plantation processes.

A fourth point refers to clarifying land ownership. This is a very complex issue, but it needs to be undertaken with complete transparency. It is impossible to live in complete uncertainty, bowing to the will of the strongest or most impudent. The horizon of underdevelopment is clearly visible if this issue is not addressed. It is necessary to analyze the history of property ownership, looking beyond the thesis that “the papers are good.” The south has been a notorious factory of notarized papers, certificates, and documents, any of which is capable of proving the impossible. It is necessary to analyze this issue in good faith and to find solution routes.

In fifth place is the need to include the participation of the human communities and in particular the Mapuche communities in the forestry process and activity. The exogenous character of this activity conspires against the peaceful development of agricultural work and productive processes in the long term. It is absolutely necessary to find creative systems of co-existence between forestry big-business and local communities. There must be a way for forestry progress and wealth to remain in some way and proportion, even if small, in the location. It is impossible to conceive of the future sustainability of an activity that is one of the richest activities in the country and one of its primary generators of foreign exchange, while the areas in which it is most dominant are characterized by impoverished living conditions. Some positive experiences do exist of relations between forestry companies and human communities. However, most of the “good neighbor” policies are minimal charity tokens, such as allowing the communities to take free-of-charge

the wood scraps that remain after a harvest, or some truly pitiful donations disguised as corporate social responsibility, as they are pompously referred to today.

The conversion of community lands into plantations is also an important issue to address. An appropriate plantation model must be creatively developed in accordance with the characteristics of property ownership, the culture, and the life of the indigenous communities. In the communities of Boroa and Almagro, located near the city of Temuco in the Araucanía, there are several very interesting examples supported by the Fund of the Americas, a semi-public institution, and carried out by Mapuche technicians. Cultivation of quick-growing and moisture-retaining native species, the combination of forestry and crops, land recovery, etc, are some technically feasible alternatives that allow the communities to improve their living conditions and prevent them from displacement to the cities.

Since 1997, a strong reaction began to emerge from the Mapuche communities against the forestry companies, known as “the Mapuche conflict.” Numerous indigenous organizations have confronted the forestry works, setting fire to forests, machinery and installations. The police response has been extremely harsh. Three communal farmers have been killed by the police in these confrontations. Many young leaders of these indigenous organizations are in prison and many more are pursued by the police services. It is perhaps the greatest social and political conflict existing in Chile today and it is directly related to the forestry expansion issue.<sup>11</sup>

It is certainly a very complex issue, on which we have only offered some observations and a few hints as to the direction of future study. There is no doubt that we are facing a very difficult situation. The reaction observed in the Mapuche communities against the forestry companies is not simply the work of a group of “overzealous youth.”<sup>12</sup> It is in fact the collision of two distinct models of operation, of resource management, and in the end of forms of life. It is our opinion that nothing will be achieved by the intention for one to prevail over the other. Respect for the lives of the human communities is a principle that can not be ignored. In addition to the Mapuche groups receiving the respect they rightfully deserve, they must also benefit from development and overcome the poverty conditions in which they live. They also have the right to lay claim to their lands and territories and in some cases the plantations that belong to them. The companies, the country, and the forestry activity should also continue to grow, and the sector has the right to work energetically and free of conflict. Comprehending the phenomenon

beyond first appearances may serve to initiate a fruitful dialogue. It is our hope that these observations contribute in that regard.<sup>13</sup>

## NOTES

<sup>1</sup> Guest professor in 2009 at the University of Leiden, The Netherlands, Andrés Bello Chair, and professor in the Chile Chair of the University of Salamanca, Spain. Has also been guest professor at the Universities of Paris, Complutense, Madrid, Cambridge, England, Indiana, Bloomington, United States, and various Latin American universities. Independent expert of the Consultative Committee of the United Nations Human Rights Commission. Member nominated by the President of the Republic, Mrs Michelle Bachelet, of the Bicentenary Committee of the Republic of Chile. Author, among other books, of: *Historia del Pueblo Mapuche*. Ediciones Lom. Seventh edition. Santiago de Chile. 2008. *Historia de los antiguos mapuches del Sur*. Editorial Catalonia. Second edition. 2008. *Historia de un Conflicto*. Los mapuches y el Estado nacional en Chile. Editorial Planeta. Third edition. 2008. *Trilogía del Bicentenario*. Volume I *La comunidad perdida*; Second edition. Volume II *La comunidad reclamada*. Second edition. Volume III. *La comunidad fragmentada*. Editorial Catalonia. October 2009. In English, see: “Mestizo Chile, Indigenous Chile,” in: *Manifest destiny and Indigenous peoples*. (Edited by David Maylbury Lewis *et al*). Harvard University Press. 2009.

<sup>2</sup> Fondecyt project 109 50 24. *Conmemoraciones y Memorias Subalternas*. 2009. See: [www.identidades.cl](http://www.identidades.cl)

<sup>3</sup> See Isla Grande de Chiloé (Large Island of Chiloé) in the adjacent map, located just south of the forestry expansion region. This archipelago also inhabited by Huilliche Mapuches has a distinct history from that of the continental region.

<sup>4</sup> The colonial history can be found in the previously noted books, in particular: *Historia del Pueblo Mapuche*. A detailed description of the colonization of southern Chile may be consulted in: Bengoa, José. *Historia Social de la Agricultura Chilena*; Second Volume. *Haciendas y campesinos*. Ediciones Sur. (1989). Electronic version at: [www.memoriachilena.cl](http://www.memoriachilena.cl)

<sup>5</sup> See *Título de Merced* in adjacent photo.

<sup>6</sup> Further detail may be seen in the book by Toledo Llancaqueo, Víctor. (2005). *Pueblo mapuche. Derechos colectivos y territorio. Desafíos para la sustentabilidad democrática*. Sustainable Chile Program. Heinrich Boell Foundation. Santiago.; and in Bengoa, José (2008). *Historia de un conflicto*. Editorial Planeta. Third edition. Santiago de Chile.

<sup>7</sup> The Atriplex Numunralia is a hybrid plant native to Australia with the capacity to grow in arid areas and serve as forage for small livestock such as goats.

<sup>8</sup> On this issue see: Bengoa, José. (1992). *Quinquén. Cien años de historia pehuenche*. Editorial Cesoc... Electronic version may be consulted at: [www.memoriachilena.cl](http://www.memoriachilena.cl)

<sup>9</sup> See the illustrated book: *La Tragedia del bosque chileno*. With photographs by Felipe Orrego, Steve Gilroy and others. Santiago\_ (1998).

<sup>10</sup> The campesino settlements were the organization created by the Chilean Agrarian Reform between 1967 and 1973.

<sup>11</sup> See the table on expansion of cellulose production in Chile in the past years, location maps of cases involving disputes aired in the Courts of Justice, and information also included on the types of accusations filed. It is easy to observe the overlap of these cases with the forestry expansion areas.

<sup>12</sup> The Mapuche conflict is not the topic of this article. As those familiar with modern Chile know, it is one of the most complex issues in Chile today. And one of its fundamental roots is the forestry expansion issue addressed here. See: [www.identidades.cl](http://www.identidades.cl)

<sup>13</sup> For further consultations on this theme, please see: Compilation by McFall, Sara. (2001). *Territorio mapuche y expansión forestal*. Instituto de Investigaciones Indígenas. Universidad de la Frontera. Temuco.

## COSTA RICA

# *The expansion of pineapple monoculture in Costa Rica in detriment to human rights*

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## PINEAPPLE MONOCULTURE AND ITS CONSEQUENCES

Costa Rica has converted into the world's number one producer of pineapple, displacing Hawaii, which ironically is reorienting focus toward ecological tourism.<sup>1</sup> With more than 200% growth compared to the year 2000, official estimates report that more than 50 million hectares are currently dedicated to this crop, which is exported primarily to Europe and the United States. Unofficial estimates speculate that this figure is in fact much higher.

Large-scale pineapple production began in the late 1980s in the southern region of Costa Rica, when the company PINDECO S.A., a subsidiary of Del Monte, installed itself in the region and initiated application of a technological package focused on producing the largest possible yield of pineapple per hectare. Through this technological package, a production system was developed dependent on chemical inputs, including the use of herbicides, fungicides, nematicides, insecticides, fertilizers, and chemical compounds and nutrients that induce the flowering of the plant and regulate harvest. Industrial complexes were also installed for the picking and packaging of the product, drastically altering the landscape. "The amount of chemical inputs used in pineapple production far surpasses the amount used in banana production, given the particularity of the fruit and its production cycle, which must be accelerated in response to world demand."<sup>2</sup>

The pineapple expansion has generated innumerable negative impacts, both environ-



mental and social. Some we may mention include: the change in land use of thousands of hectares previously designated to protected forest and water table areas; invasion of protected areas around rivers and natural springs; pollution of water used for human consumption by indiscriminate agrochemical use; erosion due to the use of terrains not apt for the crop; substitution of basic grain crops with export pineapple plantations; changes in livestock activities throughout the country to make room for the pineapple plantations; loss of land previously in the hands of *campesino* and indigenous farmers; devaluation of lands and homes neighboring the pineapple plantations, and the propagation of stable flies (*Stomoxys calcitrans*) due to inadequate disposal of pineapple waste products. This blood-sucking fly causes significant damages that translate into the malnourishment of cattle herds. Its traumatic and irritating action produces nervousness that impedes cows from adequately feeding, resulting in weight loss and alterations in lactation physiology, and in many cases the death of the animals. This plague has forced numerous ranchers to sell their farms, even to the same pineapple plantations responsible for their losses.

Pineapple monoculture has extended at a large scale in several Central American countries. In the specific case of Costa Rica, its effects have been especially suffered in the northern, southern, and Caribbean regions, and the crop is currently expanding to the Pacific North as well. The noxious impacts are very similar in each of these areas, while some differences are attributable to the distinct populations, soil topography, climate conditions, and other factors.

The above situations reveal an accelerated expansion of pineapple production without adequate planning and control on the part of public institutions such as the Ministry of Health (*Ministerio de Salud*), the Ministry of Agriculture (*Ministerio de Agricultura y Ganadería*), and the Ministry of the Environment, Energy and Telecommunications (*Ministerio de Ambiente, Energía y Telecomunicaciones*), which are those responsible among others for safeguarding that the development of productive activities does not take place to the detriment of the environment or the communities.

The problem has been generated by neoliberal policies that have progressively abandoned protection of small and mid-sized producers. These policies stimulate the importation of food before national production, thereby consolidating an agro-export model that favors nontraditional agricultural activities, in turn generating the abandonment of *campesino* and family agriculture.

In response to this panorama, the necessity emerged to create a space through which communities could organize and denounce the human rights violations they are living and demand that the state revert said situation. Out of that need emerged the National Front of Sectors Affected by Pineapple Production (*Frente Nacional de Sectores Afectados por la Producción Piñera -FRENASAPP*)<sup>3</sup> that aims to strengthen community organization to confront the negative effects of the pineapple monoculture expansion.

FRENASAPP is a space of horizontal and participative coordination with the purpose to call attention to the fact that this is a problem of national scope that demands urgent attention. It also aims to denounce all of the existing violations of national and international norms committed by the pineapple growers, as well as the human rights

violations. This space is formed by community groups from the country's northern, southern and Caribbean regions, as well as unions and associations. It has the support of organizations such as CEDARENA, the Environmentalist Association of the Humid Tropic (*Asociación Ambientalista del Trópico Húmedo*), the Environmentalist Association of Siquirres (*Asociación Ambientalista de Siquirres*), the Emaus Forum (*Foro Emaus*), and Ditsö. FRENASAPP was born in 2007 during a community gathering held in the community of Perla de Guácimo, Caribe de Costa Rica, as a way to join forces and counter the noxious impacts of the monoculture activity.

## EFFECTS OF THE PINEAPPLE MONOCULTURE ON HUMAN RIGHTS

Various types of human rights violations are suffered by those living in the vicinity of the pineapple plantations. One is the violation of the human right to health. For example, many inhabitants of the communities of Cairo, France and Luisiana (in Caribe de Costa Rica) have visited area health centers due to illnesses believed to be associated with the consumption of water contaminated by agrotoxins and the population's general exposure to these substances. The most frequent problems include skin afflictions (rashes and burns), intoxications, malformations, liver cancer, and vision problems. When people visit the health centers they are treated, but the problems are not resolved, given that they live surrounded by the causes of their illnesses. The communities have filed complaints demanding the prohibition of fumigations in areas surrounding natural springs, population centers, schools, and homes for the elderly, but their requests have not been granted.

The right to health of the workers is also violated, given that the pineapple companies do not provide their laborers with adequate protective gear for the handling of agrochemicals and the workers are forced to labor in conditions that are damaging to their health. According to Aquiles Rivera Arias of the Southern Region Union Coordinator, the large majority of pineapple plantation workers suffer respiratory problems, allergies, asthma, backaches, and illnesses caused by the agrochemicals. This is aggravated by the fact that the large majority are indirect workers subcontracted through contractors so that the company may ignore labor guarantees and avoid any responsibility or link to the workers.

According to figures compiled by the newspaper "El Financiero," PINDECO employs 7,000 workers. However, according to information provided by the company union, only 2,000 of these workers are direct employees and the remaining 5,000 are indirect laborers subcontracted through contractors.

Acuña (2005) affirms that the primary motives for health service consultations by pineapple company workers (which include allergies, back and lumbar pain, pains in the hands, chronic gastritis, migraines, persistent colds due to low defenses, weakness, etc.) indicate a direct relation with labor conditions, including exposure to toxic elements and the risks entailed by remaining long periods in inadequate physical positions, among others.

The following photograph illustrates typical agrochemical application through a spray boom on a pineapple company plantation.

Before the arrival of the pineapple companies in the Caribbean, North and South of Costa Rica, the communities had sufficient and good - quality water to satisfy their needs. However, this situation changes with establishment of the plantations. The pineapple growers have progressively transformed areas occupied by forests and springs and dedicated to aquifer recharge into pineapple plantations that employ a technological package incorporating a large diversity and quantity of agrochemicals. The land use changes have caused various springs to dry out, and many communities have been left without access to water in particular in the summer season. The companies have also expanded to the



high and mountainous regions and illegally invaded aquifer recharge areas. Thousands of persons in Costa Rica's Caribbean region have access only to contaminated water. Some rural aqueducts in the northern region and many wells used for water supply throughout the country are in this situation due to the proximity of the pineapple farms to population centers. The Regional Institute on Toxic Substances (*Instituto Regional de Sustancias Tóxicas* -IRET) of the National University and the National Laboratory of the Costa Rican Institute of Aqueducts and Drainage Systems (*Instituto Costarricense de Acueductos y Alcantarillados* -AYA) have studied samples to verify this contamination. This situation has generated a serious problem, given that adequate control does not exist of the quality of water used for human consumption. Both the pollution and the problems of inadequate access to this vital liquid constitute violations of the human right to water.

The following photograph was taken at a protest held outside a pineapple plantation by communities affected by contamination in the Caribbean region. According to Yamileth Carpio de Siquirres, for almost two years now, the water obtained from rural aqueducts for consumption by the communities of Luisiana, Milano and El Cairo, among others, has been contaminated with agrochemicals used by the pineapple companies. The population has been left without access to safe water except through cistern trucks sent by the government, but many residents continue to consume the contaminated water because they are unable to wait in their homes to receive the trucks on their delivery routes.

The companies have not assumed their corresponding responsibility, and the State response, which does not address the causes of the problem, is limited to sending the water trucks and the promise to build new aqueducts. However, the institution respon-

sible to build said aqueducts, AYA, is asking the affected communities themselves to pay for a large part of the public works.

The following photograph shows children from the África de Siquirres school protesting in demand of drinking water for the communities.

The right to food of the communities of the North, South, and Caribbean regions of the country

is also being violated. Prior to the pineapple boom, many hectares were dedicated to traditional crops such as beans, rice, yucca, root vegetables, and to livestock, which constituted a local subsistence economy for the communities. All of these lands are now dedicated to pineapple crops, leaving communities without the means to meet their own food needs and guarantee their human right to food. This also affects their food sovereignty at both the local and national levels.



dedicated to food production are gradually disappearing. State supports dedicated to PINDECO have included technical support for pineapple production and incentives provided through Tax Credit Certificates (*Certificados de Abono Tributario*), with which the company has even paid the wages of its workers.

According to inhabitant Denia Montes, in Buenos Aires de Puntarenas, they have to bring food from other regions because agricultural production in the canton is almost nonexistent now that the majority of land suitable for food production is held by the PINDECO company. "Plus, the wages the company pays to the workers are not enough for them to buy products in the agricultural fair, and they are forced to buy the leftovers from the market vendors."



According to data presented by the government of Costa Rica in the 2007 "State of the Nation" report,<sup>4</sup> the country needs to plant approximately 283,000 hectares of basic grains in order to assure sufficient supply for the national population. However, the government has favored the transnational companies dedicated to pineapple and other nontraditional crops, and in consequence the small-holding and family farms

This expansive model of pineapple monoculture has almost completely destroyed small production in these communities. It is not possible to produce in the vicinity of the pineapple plantations, because the technological package applied in the plantations combined with the stable fly infestations affect all types of crops and livestock. Given that the small producers lack the capacity and infrastructure to commercialize pineapple, their only option is to rent out or sell their farms. According to figures of the National Production Board (*Consejo Nacional de Producción*), only 4% of pineapple production is in the hands of small producers. This means that of the \$485 million dollars generated by this activity in 2007, close to \$465 million went to the large companies. This panorama has provoked sharp concentration of land in the hands of the pineapple growers. The inhabitants are obligated to sell their lands at very low prices, given the lack of economic support by the government to allow them to continue to produce. This also constitutes a violation of the right to land. Such is the situation, for example, in the communities of Buenos Aires de Puntarenas, where neighbors of the PINDECO company and indigenous communities living in the region have lost their lands to the expansion of the company and the rising land costs. The population has lost its livelihood and means of subsistence, which it had obtained by working the land. This has in turn produced the phenomenon of migration of the rural population.

In the words of Denia Monge of the Buenos Aires region: “The company has gradually taken over ownership of everything, even 308 hectares designated for housing that pertained to the IDA (Agrarian Development Institute – *Instituto de Desarrollo Agrario*). IDA is an institution in charge of distributing land to *campesinos* and supposedly helping non-profit organizations. But the company *is* for profit, and they give it the only land left, and the government says that it is for national reserve purposes. The government supposedly says that it is registered as reserve land. Why? We don’t know. We don’t understand why the company has that land. There is no reason why it should have it.”

Other human rights violations are also taking place. The evictions of *campesino* families violate the right to adequate housing. Such is the case of the almost 300 families being evicted from their homes in Peje de Siquirres in order to give the land to the pineapple companies. Neighbors affirm that the eviction is pending administrative clearance but the IDA is carrying it out and asking the small-holding farmers to give back the plots of land. As explained by a woman in Cairo, “The people had small farming plots and grew what they ate. Now they are going to push them out and they are going to be left with nothing. We used to have clean water, but now the wells are contaminated, so people don’t even want to fight anymore. They say there is no sense in defending that land.” Furthermore, they are not allowed access to any job opportunities, because the only employment found near their homes is in the pineapple company.

Another case of forced evictions occurred in the southern region of the country in a place known as the Temblorosa Lagoon. As a neighbor of the evicted community recalls, “The people were evicted with the argument that they were located in a swamp area and then they gave the land to the company. Public police forces commanded by the IDA participated in the eviction.”

Another human rights violation is related to the workers' right to organize in a union. The pineapple plantations generally do not have unions, and when they do exist, the workers who join them are most often persecuted and fired. Union membership in the pineapple companies is estimated at less than 5%. Laborers work in very poor conditions, and instead of an hourly wage, payment is calculated according to the amount of product packed or produced, the result of which is very often below minimum wage requirements. Laborers are often forced to work longer than the eight-hour maximum established by national labor laws in order to complete the two acres per day assigned to each worker. Laborers are often exposed to temperatures surpassing 40 degrees C and to agrotoxins and other substances. Workers are also not provided adequate infrastructure and equipment or healthy places in which to eat their meals.

The State of Costa Rica also violates the right to access to information. Very few people know what is behind the pineapple expansion. Official discourse affirms that the pineapple sector is generating thousands of jobs each year, is significantly raising Gross Domestic Product (GDP), and has brought global recognition to Costa Rica as the leading exporter of the "golden" pineapple variety. However, this discourse omits the fact that these profits are held in the hands of a small few and the employment generated violates minimum labor norms.

## SOME CASES OF COMPLAINTS FILED FOR HUMAN RIGHTS VIOLATIONS

The State has not fulfilled its obligations in human rights protection matters. The public institutions are aware of the above-noted human rights violations, but they either fail to act at all or do so insufficiently in relation to the third parties directly inflicting the abuse. On the contrary, the public institutions tolerate and support the propagation of the pineapple companies. Many of the companies involved in human rights violations are transnational firms with branch operations in Costa Rica, such as Del Monte, Dole, Banacol, and Fytfes, and the mentioned company PINDECO, which is one of the companies denounced by FRENASAPP in the Environmental Prosecutor's Office (*Fiscalía Ambiental*) for the crimes of water pollution, land use changes, deforestation, invasion of protected areas, and other infractions.



companies denounced by FRENASAPP in the Environmental Prosecutor's Office (*Fiscalía Ambiental*) for the crimes of water pollution, land use changes, deforestation, invasion of protected areas, and other infractions.

The following photograph shows the land use change carried out by the PINDECO company in the southern region of the country. The photo was submitted as evidence in the denoun-

cement presented.

Only one case speculated to involve PINDECO has been taken before the Inter-American Commission on Human Rights, with the purpose to request protective measures for the environmental activist and union leader, Aquiles Rivera Arias. Rivera Arias has led a struggle for more than twenty years against PINDECO for all of the environmental damages it has caused and the trampling of union freedoms perpetrated by the company.

On 11 May 2009, a computer and fax machine were stolen from the office of Aquiles Rivera Arias, leaving him without his only equipment to carry out his struggle in defense of human and environmental rights. A few days later, near his home in Buenos Aires de Puntarenas, Rivera Arias was the target of a death threat. A few months later, his son, a minor, was also threatened with death. The petition filed through the Human Rights Commission seeks protection for Rivera Arias and requests that the State of Costa Rica be ordered to investigate the case and determine the relation between the work undertaken by Rivera Arias and the robbery and death threats.

The national companies have also committed human rights abuses. A complaint was filed by CEDARENA and Foro Emaús through the Environmental Prosecutor's Office against the company Agroindustrial Tico Verde for the crimes of water pollution, land use changes, and invasion of protected areas. These denouncements are still pending sentencing, but call for the responsible parties to be punished with jail time and that compensation be paid for the environmental and social damages provoked by the companies.

Administrative protests have also been filed through the Administrative Environmental Tribunal (*Tribunal Ambiental Administrativo* -TAA), including against the Tico Verde company mentioned above. The environmental damages denounced in this case include: invasion of protected areas around natural springs, streams and rivers; deviation and disappearance of natural waterways; water pollution by agrochemicals, sedimentation and residues; the disappearance of swamps either by filling or drainage; the proliferation of stable fly infestations; deforestation of primary and secondary woods, and land use changes. These legal protest mechanisms aim to either close the pineapple plantations, impose fines on them, or to achieve necessary improvements, such as in the company waste treatment plants.

Human rights violations are also being alleged through constitutional procedures. Such channels have been used to file several cease and desist requests, including such a request to accompany the complaint filed by FRENASAPP against the Hacienda Ojo de Agua Company for violations of the right to enjoy a healthy and ecologically balanced environment and the human right to access to water. The court ruled in favor of the communities in response to this request. Constitutional Court Resolution N° 2009-9040 establishes that: *"The process shall be initiated immediately of cleaning and elimination of pesticide residues from the water sources that supply the communities of El Cairo, Luisiana, and La Francia (...). Also ordering the Hacienda Ojo de Agua S.A. company, to carry out the legally corresponding withdrawals, and even, if necessary, absolutely prohibit the company from use of contaminating agrochemicals on its plantations and even order the immediate closure of the same, if the company fails to comply ..."*

The legal actions carried out to date have provided very few results. The lack of State response has led the communities to progressively construct resistance processes to struggle against the pineapple expansion and thereby defend their fundamental rights.

FRENASAPP is currently studying the possibility to present a legal suit against the State of Costa Rica in the Inter-American Human Rights Court to denounce violations of the rights consecrated in articles 4 (the right to life) and article 5 (the right to personal integrity) of the American Covenant on Human Rights.

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<sup>2</sup>Salazar, O. 2008. *Plantaciones de piña en Costa Rica contra la sostenibilidad ecológica y social*. Ambientico N° 177. Universidad Nacional. Heredia, Costa Rica.

<sup>3</sup>[www.detrasdelapina.org](http://www.detrasdelapina.org)

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## CUBA

# *Cuba toward the rupture of monoculture*

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### IN FAVOR OF MONOCULTURE

The history of Cuba is characterized by a long tradition of export agriculture, monocultures, and the indiscriminate extraction of natural resources (Le Riverend, 1992; Moreno Fraginals, 1978; Marrero, 1974-1984). These agricultural models of clear colonial heritage and practiced for some four centuries generated high dependency on imported inputs and provoked the degradation of the soils, loss of biodiversity, and drastic reduction of forest cover (CITMA, 1997; Funes-Monzote, 2008).

One of the fundamental objectives of the Cuban Revolution was to resolve what were considered agriculture’s main problems: domestic and foreign (especially United States) ownership of large extensions of land (*latifundium*) and the lack of diversification (Anonymous, 1960; Valdés, 2003). Despite these intentions, the rapid industrialization of agriculture based on conventional methods tended to concentrate land in large state companies. While the state model increased production levels and quality of life in the countryside, it ended up creating negative economic, ecological and social consequences that can not be ignored.

Between 1960 and 1990, Cuban agriculture was characterized by use of intensive, specialized production technologies highly dependent on external inputs. The industrial model fostered increased productivity of land and labor, but nonetheless was inefficient

(in biological and economic terms) and noxious for the environment. The external dependency itself, the artificialization of the production processes (through subsidies), and the weak connection between the biophysical and socioeconomic factors, conferred the model with high vulnerability.

Figure 1 illustrates the four fundamental aspects of technical progress in the Cuban agricultural sector through the implementation of high-input systems. During the 1980s, fertilizer use intensity (A) reached levels comparable with the European countries, but dropped in the early 1990s as a consequence of the economic collapse. In the early 1970s, tractor density (B) reached approximately one per 50 hectares, comparable with that of the more developed countries. It may be observed that in 1960 the situation in Cuba was already favorable in comparison with the rest of the Central American and Caribbean region, but assistance from the socialist countries then helped triple tractor density in just a decade.

Labor force intensity dropped to almost half previous levels between 1960 and 1975, until reaching in the late 1980s levels only slightly below European figures, at around five hectares per worker (C). In addition, the proportion of irrigated agricultural lands doubled between 1960 and 1985 (D).

The conventional model achieved substantial growth in terms of numbers of hectares of land and productivity of the labor force, but at the cost of high levels of inputs

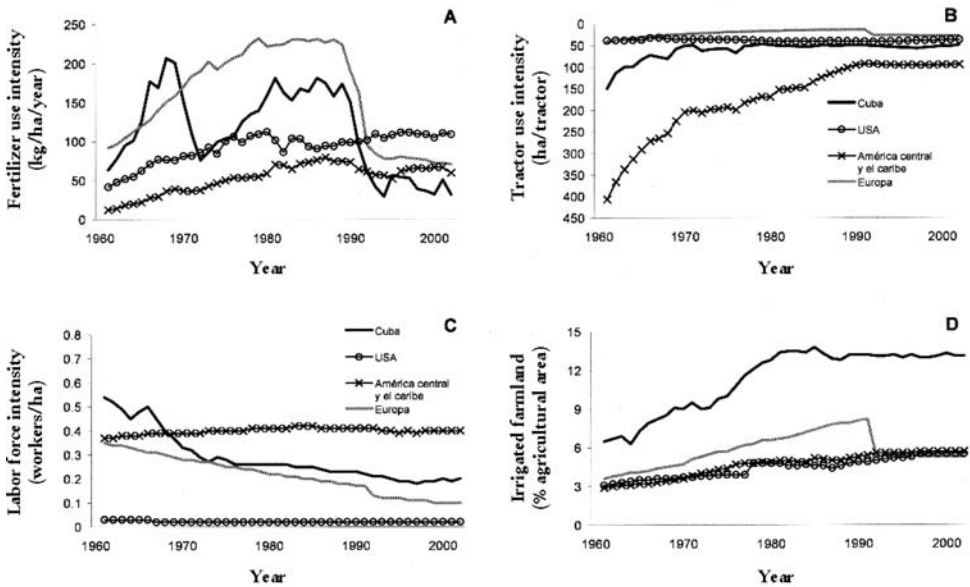


Figure 1. Technological evolution of the Cuban agricultural sector before and after the 1990 collapse (Source: FAO, 2006). The intensity of fertilizer use was calculated as the amount of nitrogenous fertilizer (N), phosphorous ( $P_2O_5$ ) and potassium ( $K_2O$ ) per hectare of agricultural land per year.

acquired at subsidized prices. In exchange, Cuba exported raw materials and agricultural products at preferential prices to Eastern European socialist countries. At first this situation might have been favorable for Cuban agriculture, providing almost unlimited access to technology and resources as well as access to energy and capital in the form of subsidies (figure 2). However, it created enormous dependency, with serious consequences in terms of food insecurity, dramatically manifested at the beginning of the crisis of the 1990s, revealing the high fragility and inefficiency of the model.

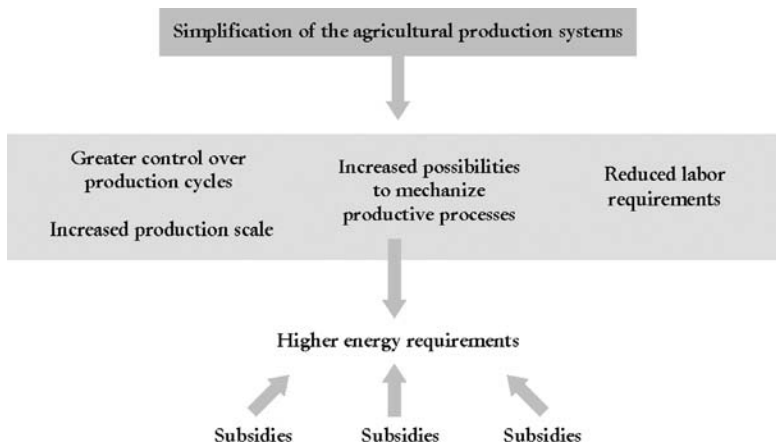


Figure 2. The objectives of the simplification of agroecosystems are achieved based on high subsidies in energy and financial resources, which lead to their unsustainability.

On the other hand, the use of expensive technologies requiring high inputs did not satisfy expectations and had negative environmental impacts reported by the Ministry of Science, Technology and the Environment (*Ministerio de Ciencia, Tecnología y Medio Ambiente* -CITMA) in 1997: reduction of biodiversity, contamination of subterranean waters, soil erosion, and deforestation. Serious socioeconomic consequences were derived from application of this agricultural model, including large-scale migration of the rural population toward cities, resulting in the loss of many experienced farmers, along with their knowledge and traditions.

Despite the high quality of the infrastructure installed and the growing levels of available capital, fertilizers and concentrates, since the mid-1980s land productivity had begun to decline (Nova, 2006). This phenomenon was object of discussion shortly before the collapse, amidst the government's formulation of a National Food Program (*Programa Alimentario Nacional* -ANPP, 1991).

The noxious effects of the industrial agriculture model, together with the enormous economic crisis unleashed in the early 1990s, led Cuba toward a process of profound and inevitable change. The primary reasons behind this change in agricultural practices were fundamentally economic: scarcity of capital and external inputs with which to continue according to the green revolution paradigm. In other words, the changes have not

been fomented in principle through the conscious desire to preserve the environment or develop sustainable technologies founded on scientific bases. Nevertheless, various agronomic, economic and social studies have demonstrated that possibilities exist for the development of sustainable agricultural systems that combine technical feasibility, economic viability, ecological sustainability, and social acceptance, although an integral interdisciplinary perspective for their implementation remains lacking.

## AGAINST MONOCULTURE

Diversification, decentralization, and the search for food self-sufficiency have been the factors stimulating the current advances of the Cuban agricultural sector. Said factors began to emerge in the early 1990s as a consequence of the economic crisis associated with the collapse of the Soviet Union.

The transition toward sustainable agriculture taking place in Cuba since 1990 has been promoted fundamentally by the need to substitute (imported) chemical inputs with (locally available) biological inputs. The conceptions employed have been guided by practices and methods derived from organic agriculture and agroecology. In this context, the traditional small-scale campesinos and the “new” producers who farm plots in urban and suburban areas have developed technological innovations to adapt their agricultural systems to the limited external inputs available, with strong emphasis on environmental protection and agrobiodiversity.

Integrated production systems can offer solutions to many of the problems of specialized systems. The benefits come from more intense use of natural resources available at the system level, through more complex and diversified interactions (Funes-Monzote, 2008). Sustainable intensification, through better use of existing resources, in both agricultural and livestock production, makes possible the achievement of food self-sufficiency and at the same time of marketable products that contribute to generate incomes, with an environmental protection approach.

The small and medium farms, highly diversified, heterogeneous and complex, have demonstrated they can reach higher efficiency levels in terms of both production and resource use than the specialized, centrally-managed and large-scale crop and livestock systems. The state officially recognized in the year 2006 that the small campesinos, with half the country’s farmland, were responsible for 65% of all foods produced in Cuba. Specifically in the livestock sector, with around 13% of grazing areas (some 300,000 hectares), they possessed 43.5% of the country’s livestock. This figure had risen to 55% by March 2008 (ONE, 2008).

Perhaps the success of the small farmers resides in the continuous processes of innovation and adaptation they develop within the generation of solutions to day-to-day problems. In this sense, it is important to facilitate and document these local innovation processes and to implement joint studies in the search for adequate management strategies.

An eventual opening of the agrarian economy could stimulate the implementation of local strategies at a greater scale. It is also necessary to incorporate research methodologies and apply scientific knowledge within a more integrative framework. Scientists should therefore participate in and learn from the dynamic and multifaceted processes for which classic science does not have all the answers. This study documents the way in which local available knowledge «works» from the scientific point of view.

According to official data, the Cuban economy grew at an average annual rate of 10% in the 2005-2007 period. This was possible despite the adverse climate conditions, including the worst drought in 100 years and three hurricanes that produced losses estimated at 3.6 billion U.S. dollars (around 7.9% of gross domestic product in 2005) (CEPAL, 2006). The heaviest precipitations in the country's recorded history were registered in the 2007 rainy season, and agricultural production was gravely affected. In 2008, the country was battered by two hurricanes with losses calculated at 10 billion U.S. dollars. The presence of the small-scale agricultural sector, which suffered fewer damages, to some extent cushioned the impact.

Despite the recognized advances achieved by low-input alternatives for food production, Cuba still imports close to 50% of the food it needs. The imports in this sense have grown steadily during the past ten years, from 0.7 billion USD in 1997 to 1.5 billion in 2007, in proportion with the increased purchasing capacity of the country. However, the instability in international food markets in the 2007-2008 period, as well as the increasing dependency on imports, threaten national sovereignty. This situation recently led to declarations that emphasize the need to prioritize food production carried out with available resources, a strategy that converts sustainable agriculture into state policy (Castro, 2008). It is in fact paradoxical that, to achieve food security in a period of economic growth, the majority of the resources are dedicated to import foods instead of stimulating local production.

## CHANGES IN THE LAND-USE STRUCTURE

The land use patterns present in Cuban agriculture are especially relevant for the conversion toward an agroecological model at the national scale. Important structural changes have taken place in the agricultural sector since 1993, which aim to create the necessary preconditions for application of a national strategy of mixed systems:

In first place, the decentralization of the state companies and the promotion of conversion to cooperatives to keep people rooted to the land. Key elements of this objective have been the distribution of lands in usufruct, reduction of production scales, and diversification.

In second place, 110 of the 155 existing sugar production centers have been deactivated over the past few years, leaving half of the more than 1.4 million hectares previously dedicated to sugarcane monoculture now available for other agricultural uses. In 2002,

the Sugar Ministry (*Ministerio del Azúcar* - MINAZ) initiated a restructurization program (Álvaro Reynoso Task) with the objective to occupy the lands previously pertaining to the sugar centers (Rosales del Toro, 2002).

In third place, around 40% of the two million hectares of grasslands (close to 900,000 hectares) are currently invaded by *marabú* (*Dichrostachys cinerea*, commonly known as sickle bush) and *aroma* (*Acacia farnesiana*, known as needle bush), two rapid-growth woody legume species. These weeds are difficult to eliminate by hand, and using machines to do so sharply raises the cost of their control. The main causes of this unmitigated invasion are the abandonment or inappropriate use of the agricultural lands.

## CURRENT SCENARIO OF CUBAN AGRICULTURE

The instability of oil and food prices in the global market in recent years reinforces the need to reorient Cuban agriculture toward substitution of imported foods with others produced in the country (Castro, 2008; MINAG, 2008). In this scenario, integrated production systems can contribute decisively to a sustainable Cuban agricultural model. Since the early 1990s, several initiatives have been developed throughout the country that involve producers, researchers and decision-makers.. New rural development strategies have been identified, technologies have been adapted to local conditions, and traditional knowledge has been integrated with scientific knowledge, with the purpose to achieve greater sustainability in agricultural practices and better use of available resources. Three main social groups participate in the design and implementation of said strategies:

- The “new” campesinos (urban and rural) who emerged during the years of economic difficulties. Many of them, also called producers, do not have ownership of the land, but do hold usufruct rights. Most of these farmers are highly educated and have experience in other sectors of the economy, some as professionals, and contribute novel ideas in the design of agricultural systems, with strong environmental awareness. In general they are innate innovators, capable and eager to acquire, interpret, and generate information for the implementation and free adaptation of highly-diversified production systems characterized by complex interactions. In many cases they also have managerial capacities, which are important resources for a successful transition process.
- The small traditional campesinos and their families who inherit their own land and preserve a significant source of traditional knowledge regarding the management of diversified and locally-adapted production systems. This campesino production model has been in the past fifteen years the example to follow for the transition of Cuban agriculture.
- An increasing number of members of the Basic Units of Cooperative Production (*Unidades Básicas de Producción Cooperativa* - UBPC), which implement diversified systems under schemes of decentralized management. These cooperativists have

gained experience in the practice of low-input agricultural methods by imitating traditional producers and adopting their know-how on cooperative operation.

The recent national policy that identifies the agricultural sector as strategic and a priority for the future of the country (Castro, 2008) not only favors diversification of systems and decentralization of decision-making but also directs special attention to food self-sufficiency. During 2008, new measures were adopted in relation to decentralization of decision-making and land tenure regulations. This transformation has been implemented based on Law Decree 259, which establishes the regulations for land distribution in usufruct. The Ministry of Agriculture announced the dismantling of more than one hundred “inefficient state companies” as well as support for the creation of 2,600 small urban and suburban farms, and the distribution in usufruct of the majority of unused state lands, an area of around 3 million hectares. Under these new regulations, decisions on resource use and strategies for food production and commercialization will be made at the municipal level, while the central government and state companies will support the farmers by distributing necessary inputs and services (MINAG, 2008). Up until mid-2009, some 70,000 farms had been distributed in usufruct to individuals and legal entities. Discussions are currently underway as to how to accelerate the processing of such requests, which number more than 100,000 (Lugo-Fonte, 2009).

## FUTURE RISKS AND OPPORTUNITIES

Despite the indisputable advances in sustainable agriculture in Cuba, as well as the availability of sufficient evidence of the effectiveness of alternatives to the monoculture model, interest persists to promote systems using high external inputs with highly sophisticated and expensive technological packages. With the objective to “guarantee the food security of the population and reduce importation of foods,” these specific programs pursue the “maximization” of agricultural and livestock production and insist on returning to the monoculture methods, dependent on chemical inputs, machinery, and irrigation, with proven energetic inefficiency and technological fragility. The recently announced plan to plant up to 6,000 hectares of transgenic corn on the island (Borroto, 2009), skipping the necessary national debate on its potential risks to human health and the ecosystem, is a very worrisome turn, particularly puzzling considering the progress and proven alternatives of the national agroecological movement (Funes-Monzote, 2009). All such programs are in essence a strong threat to the successful development achieved to date by sustainable agriculture in Cuba.

Nevertheless, the experience accumulated in the agricultural sector at the small and medium scale during the 1990s is a valuable starting point for the definition of national policies in support of reaching the sustainable agriculture goal. Cuba has sufficient land to satisfy the nutritional needs of its eleven million inhabitants using agroecological



methods (Funes-Monzote, 2008). Despite the soil erosion, deforestation, and loss of biodiversity of the past fifty years, the country's conditions remain exceptionally favorable for agriculture. Close to 6 million hectares of land in flat areas and another million in gently sloped areas are apt for planting. More than half of this land remains uncultivated, and productivity of both land and labor and efficiency of resource use in the rest of this farm area are low.

In summary, during the past fifty years Cuban agriculture has experimented two extremes of food production models: the first characterized by an intensive high-inputs approach, and the second, beginning in 1990 following the economic collapse, oriented toward agroecology and based on low inputs. Cuba has been the only country in the world to suffer such a drastic drop in intensity, which nevertheless can serve as an exceptional starting point for the development of sustainable agriculture at the national scale and the rupture of the monoculture model that dominated for almost 400 years.

Nevertheless, actions are needed in Cuban agriculture to transform its current situation, including truly profound changes. Despite the fact that innovation has been present in all the branches of agriculture and the scientific institutions have experimented with large-scale environmentally-friendly strategies, these efforts have concentrated on substitution of inputs and a phase shift exists between the biophysical and socioeconomic aspects of agricultural development. In order for this new phase of Cuban agriculture - characterized by the emergence of diverse agroecological practices across the entire country - to further advance, it must recognize that neither the conventional model nor that of inputs substitution will be sufficiently versatile to address the technological demands and the socioeconomic characteristics of the agricultural heterogeneity of the country. The integrated production systems approach, based on agroecological perspectives and participative dissemination methods, can help to reach a superior phase in the transformation of Cuban agriculture in its road toward sustainability.

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## ECUADOR

# *Water consumption in ecuadorian agroindustry*

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## PRESENTATION

After presenting a brief panorama on the evolution of agroindustry in Ecuador, this article analyzes the characteristics of water use in the same.

Agroindustrial production and the agricultural production of monoculture plantations are intimately related, given that the products from the plantations are generally oriented to supply the raw materials demanded by agroindustry. Examples of this are the sugarcane and African palm plantations.

It is also important to clarify that agroindustry does not refer exclusively to industrial activity dedicated to transform the products of agriculture, livestock, fishing or forestry, but also to related activities such as quality-selection processes, classification, packaging and packing, and storage of agricultural production, even when the products or subsequent sub-products are not the object of transformation. Banana or mango production for export, for example, therefore should also be considered part of agroindustrial production.

## AGROINDUSTRIAL DEVELOPMENT IN ECUADOR

Shortly before the dawn of the 20<sup>th</sup> century and amidst Ecuador's liberal revolution (1895), the first nationally-projected agroindustry began to flourish: sugar. This product derived from sugarcane would come to be the reference point not only of agroindustrial development in Ecuador, but in fact of the development of capitalism itself in this country.

The beginning of World War I marked both the end of the "cacao cycle" of agro-exports (1875-1914) and the moment of consolidation of national sugar production and the emergence of rubber exports. For its part, the Second World War framed the growth period of banana exports, and by the early 1950s, Ecuador was one of the world's primary exporters of this fruit. Those years marked the beginning of what is known as the "banana cycle" of agro-exports.

The first great banana production crisis occurred in the mid-1960s. It was at that moment and as a possible substitute crop that African palm began to be produced.

Ocean fishing and its industrialization held an important position in the background of Ecuadorian agroindustry throughout the second half of the 20<sup>th</sup> century, until the mid-1980s when shrimp transformed into one of the stellar products of "non-traditional" exports.

All of the products mentioned so far come fundamentally from the coastal region, given that until the 1970s the agroindustry of the inter-Andean region had milk and dairy as its emblematic - and almost sole - area of production. Diversification and expansion of agroindustrial production in this region would have to wait until the late 1980s when, in the framework of the neoliberal modernization process of agriculture, greenhouse flower production became the focus of frenzied growth, followed later, although less dramatically, by broccoli production.

At the beginning of the current decade, there were numerous "non-traditional" agroindustrial export products, including most notably: fresh roses and other fresh flowers and buds, palm heart, cauliflower and broccoli, soybean, chocolates and candies, crude and refined palm oil, tobacco and tobacco products, mango, pineapple, passion fruit juice, canned and frozen fruits, chewing gum, rice, vegetable oils and fats, canned beans, yellow corn, ethyl alcohol, dried beans, eggs, refined sugar, onions and shallots, canned seafood, premixes for dog food, treated and untreated wood, rubber products, hemp fiber, decorative wooden objects and products, latex, and natural and synthetic rubber (Ministry of Agriculture, 2004).

To provide an idea of the current agroindustrial role in the Ecuadorian economy, an official statement by the Ministry of Agriculture (2006) outlines that, in the first five years of this decade, agroindustry contributed 15.5 % of GDP, representing 25% of total exports and 34% of imports.

As we approach the end of the first decade of this new century and millennium, agroindustry in Ecuador has expanded not only in terms of surface area dedicated to raw material crops and of its economic importance through its articulation in business holdings. Agroindustry in Ecuador is also expanding in its response to the new demands

of the international markets, seeking to enter the production of agrofuels.

In terms of surface area, the country's plantations are in permanent expansion: sugarcane production channeled to the sugar mills is close to 120,000 hectares; banana plantations surpass 220,000 hectares; African palm is topping 210,000 hectares, and flowers now cover more than 6,000 hectares. To place these numbers in their proper dimension: in the year 2000, total surface area dedicated to permanent crops in the country, of which plantations for agroindustry make up the majority, was 1,363,400 hectares, while transitory crops and fallow lands accounted for 1,231,675 hectares.

But while monoculture plantations for the agroindustry continue to expand in territorial terms, they are progressively contracting in social terms, with fewer and fewer owners controlling this production and agroindustry in general. Holdings are the legal entities that currently monopolize the majority of agroindustrial production and its plantations, as well as everything related to the commercialization of this production. Cases in point include the holdings of: the Noboa Corporation and Group, controlled by Álvaro Noboa; NOBIS, managed by Isabel Noboa, sister of Álvaro Noboa, whose emblematic property is the Valdez sugar mill; San Carlos, owner among other companies of the San Carlos sugar mill; Isaías Group company holdings, which were recently seized by the State to cover debts acquired by this Group for fraudulent purposes; the Favorita Fruit Company of the Wong group; PRONACA of the Bakker and Klein families; Corporación Favorita, owner of the "Supermaxi" commercial chains and whose largest shareholder is the Wright family; the La Fabril group of companies whose controlling shareholder is Gonzales Artiga and whose most well-known products in Ecuador include "La Favorita" oil; the Quirola Corporation of the Quiroga family, whose emblematic product is export banana, etc.

## WATER USE IN THE PLANTATIONS AND AGROINDUSTRIES

In Ecuador, and in the peripheral countries in general, agroindustrial water use is characterized by: a) profiteering, b) exclusion, c) extractivism, and d) the transformation of water into commodities. Each of these is addressed below.

By profiteering, we refer to the abundant use of water for the intensification of agriculture in order to assure extraordinary profits in the agricultural activity, in other words, to assure capitalist profit through the monopoly of agrarian property. In fact, the most profitable agricultural products in the market are those that demand abundant quantities of water in their productive cycle. In the Ecuadorian case these include: banana, flowers, broccoli, mango, sugarcane, and a few others.

The re-primarization process of the Ecuadorian economy, consolidated in the early 1990s, has continued to carve its path thanks to the application of the adjustment policies. In the area of water, the so-called "water adjustment policies" were oriented to facilitate

the new role to be filled by water in export agriculture. The dismantlement of the water institutions in 1994, including among other measures the extinction of the Ecuadorian Institute of Water Resources (*Instituto Ecuatoriano de Recursos Hidráulicos* - INERHI), represents a key moment of this process.

It is important to remember that the central notion of the theoretical justification of the accumulation model based on economic re-primarization is to optimize the comparative advantages that countries supposedly have according to their ecological characteristics (soils and climates favorable to specific agricultural activities), or related to their existing communications infrastructure (airports, seaports, etc.), etc. (Dufumier, 2004).

The information available seems to indicate that the “comparative advantages” that “allow Ecuador to reinsert itself in the international markets” include the assumption that it has “sufficient water” for crops with high demands in its consumption.

The exportation of high water-demanding crops is nothing strange in the framework of the new international division of labor and the configuration of a new development model of agriculture. In fact, global agricultural trade is nothing other than a gigantic transfer of water, in the form of “commodities,” from regions in which it is abundant and low-cost to others in which it is scarce and expensive, and where its use competes with other priorities. Those who study the topic refer to this as “virtual water.” These experts affirm that this trade will increase in the future alongside growing demand, and parallel to the exhaustion and contamination of the resources.

As an example, in the Santa Elena Peninsula, thanks to one of the largest water infrastructure projects ever undertaken in Ecuador, water is harnessed for the industrial production of “non-traditional” exports, such as mango and asparagus, both of which are high water demanding. One expert specifies the following in reference to asparagus: “Asparagus is a plant that must not experience periods of senescence (wilting of the plant) and consequently periods with the plants in dormancy, or these periods must be very short. This implies that the plant must be watered year-round” (Arenas, 2003).

But apparently Ecuador’s “comparative advantages” do not only include guarantees for the satisfaction of the water requirements of crops with high demands for its consumption. It seems they also include the ability to “absorb” - without implying any additional costs - the negative environmental effects of the water use in the production of highly profitable crops. In other words - using the terms of neoclassical economists - the negative externalities of the productive processes are not internalized in the costs, despite the fact that, as we will see below, said effects are considerably large in the case of several key products.

Flowers, the star of non-traditional exports in Ecuador, are a good example of a crop highly demanding of water that provokes noxious effects on the environment. According to a study carried out in Cayambe by the Centers on Health Research and Advisory (*Centros de Estudios y Asesoría en Salud*), “the waters of the corresponding hydrological systems and the sediments of the respective waterways are polluted with chemical residues in a proportion relative to their proximity to the sources of contamination: lower in the highest sectors of the slopes, moderate in the areas of potato, grasses and barley production,

and higher in the agroindustrial floriculture valley (...). The water of the hydrological systems of the flower-growing basin denotes grave affectation of its physical-chemical and biological properties, and the presence of toxic elements and residues whose consequences on human health are also beginning to become evident.” (Breilh *et al.*, 2005).

It is not only a problem of volumes of water consumed and adverse environmental effects; it is also a grave problem of energy consumption. A scientific study (Alfaro and Marin, 1990) warned in the early 1990s that “the modernization of irrigation systems in developing countries has implied replacing intensive irrigation systems with low energy consumption with more efficient systems but with higher energy consumption and greater operating costs. Although irrigation systems exist that function efficiently, such as those for banana irrigation in Ecuador and for fruit trees in Chile, said systems often function less efficiently than expected, with poor results in relation to water and energy conservation.”

Taking into account that land surface area is limited, given that it is entirely occupied by private properties, the production price of products derived from the land is not determined by the production costs in medium-quality lands but rather in lesser-quality terrains, and it is not determined by the average conditions in which the product is taken to market but rather the worst conditions. The difference that exists between this price and that of production in better lands (or better conditions) constitutes the differential profit. Water for agricultural production thereby ends up occupying a central place in the process of constitution of the differential profit.

The necessity to guarantee water to assure the profitability of agricultural production has implied the development of diverse mechanisms to assure sufficient water provision. In the areas in which the State has historically played an important role in water assignation and regulation, in particular in the inter-Andean region, the large landholders have assured for themselves their private water rights, formalized according to current legislation. In regions in which the State has not had a significant role in water assignation and regulation, in particular along the coast and in the Amazon region, the land and plantation owners have developed diverse types of mechanisms to assure their control of the water, excluding or limiting its access for the small-holding farmers.

A recent study by SIPAE (Ojeda *et al.*, 2009) reveals, for example, in the areas predominated by sugarcane production for the sugar mills, the large landowners have developed a set of mechanisms to control the water: a) hoarding the water that runs along State irrigation systems; b) pumping running and underground water sources with or without State authorization, and finally, c) interruption or diversion of waterways without State authorization.

Water use without the respective authorization of the State is very common in the agroindustries and corporate plantations. The case of banana production by the Wong Group (Favorita Fruit Company) serves to exemplify this: in the year 2005, of the 9,176 hectares of banana plantations, the Group had legally allocated rights to irrigate only 4,148 hectares, in other words, only 45% of the surface area of production (Ministry of Agriculture, 2005; CNRH, 2005).



The agricultural development that responds to accumulative fervors, through the constant increase of obtainment of differential profit, explains the expansion of production that consumes high volumes of water in crops considered “profitable.” It also explains the fact that those crops account for a higher percentage of irrigated croplands, as may be observed in the information provided by the Third National Agriculture Survey. Upon comparing the information presented in the following table on cultivated and irrigated land areas in selected products, it may be observed how “more profitable” crops have larger irrigated surface areas:

**Agricultural production in 6 products  
and irrigated cropland (2000)**

<i>Product</i>	<i>Cultivate area (hectares)</i>	<i>Irrigated area (hectares)</i>	<i>Percentage (irrigated/cultivated)</i>
Banana	180,331	141,798	78.63%
Sugarcane	82,749	78,303	94.63%
Mango	16,754	13,799	82.36%
Rice	343,936	153,709	44.69%
Broccoli	3,359	3,238	96.40%
Potato	47,494	12,250	25.79%

*Source: SIC.A Project, Third National Agriculture Survey*

To conclude, it is worth noting the very close relation between control over water and control over land. Recent studies have shown that a significant factor behind several land conflicts in Ecuador is related to the quality of the lands in dispute attributable to their relative abundance of water. Public irrigation projects very frequently contribute to the displacement of small land-holding families in favor of agroindustrial plantations or investors (Brassel *et al.*, 2008).

Social resistance actions and alternative proposals emerging from the small producers are increasing in number and breadth in opposition to the panorama presented here. The proposals put forth by the excluded populations have achieved such weight and strength that they will almost certainly be reflected in the new Water Law soon to be approved in Ecuador.

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# The silent and dissimulated expansion of African palm in the middle basin of the Guayas River in Ecuador: the case of the Samán sector

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This article presents research based on a case followed by FIAN Ecuador located in the El Samán sector of the city of Quevedo, located in the middle basin of the Guayas river in Ecuador.

The case involves denouncements registered in September 2006 and testimonies gathered then and in August 2009 from small-holding farmers regarding the African palm expansion process taking place in the region. In the first section, we present the central plans and programs of the government of Ecuador designed to promote this agroindustry, and we indicate how said government policies contravene the new legal framework of Ecuador that recognizes the right to food of its people and establishes food sovereignty as strategic State objective. In the second part, we present a historical and geographical perspective of national production of African palm, with particular focus on its expansion in the rural territory of the city of Quevedo. In order to understand the mechanisms employed by the agribusinesses to secure control over the land and natural resources, in the third section we address the specific case of El Samán.

This case constitutes an example of the de-structurization of *campesino* land tenure, the destruction of traditional production systems, and the violations of the rights to food, water, and health affecting thousands of families.

## FOOD SOVEREIGNTY IN SHACKLES

Since the year 2008, with approval of the new Political Constitution of Ecuador, this country converted into one of the first in the world to recognize food sovereignty as a strategic State objective. Amidst a reality in which inequality indexes reveal high concentration of land ownership, the Constitutional articles that prohibit its concentration and prioritize its use in the production of food for the people of Ecuador represent an encouraging reference for the social movements, in particular for the thousands of small holding farmers whose rights have been threatened by the policies of promotion of agroindustrial expansion implemented during the past decades in this country.

Nevertheless, far from respecting the Constitution, the reality reveals a marked contradiction regarding the exercise of food sovereignty, in which the land of small and mid-sized producers dedicated to food production for local consumption is silently and secretly dismantled as a consequence of full-force realization of the prevailing capitalist model, in which land is one more commodity for unfettered transaction in the buy-and-sell market. This reality is stimulated by the “generous” dispatch of a series of decrees and laws quickly materialized through the elaboration and development of governmental plans and programs directed to support for agroindustry.<sup>1</sup>

As example of the above, we refer to the primary line of action shaping the current production priorities of the government of Ecuador, which is the 2007-2011 Agricultural

**Table 1**  
**Priorities of the national agricultural production plan 2007-2011**

	<i>Estimated investment (in millions of dollars)</i>	<i>% of total investments</i>	<i>Production increase (in millions of dollars)</i>	<i>Increase of cultivated area (in hectares)</i>
Products for agrofuels (palm, sugarcane, yellowcorn)	241	44.67	145.2	150.000
Cacao	80	14.83	23.2	50.000
Export products	60	11.12	4	20.000
Bovine Livestock	60	11.12	130	88.000
Traditional crops (potato, sweet corn, beans, vegetables, legumes, banana)	66	12.23	5.6	110.000
Rice	32.5	6.02	59.1	50.000
<b>TOTAL</b>	<b>US \$539.5</b>	<b>100%</b>	<b>US \$367</b>	<b>468,000</b>

*Source: Plan de Reactivación Productiva del Sector Agropecuario 2007-2011*

Sector Production Reactivation Plan promoted by the Ministry of Agriculture.

As observed in this table, a significant difference exists between the increase in investments and value of goods produced for the export market and agrofuel elaboration, and the same for those products essentially designated to local markets. While the Plan's projected investment in palm, sugarcane, and yellow corn production - oriented to agrofuels - accounts for over 44% of total investments (and 150,000 hectares of additional and rehabilitated cultivated area), investment dedicated to products to satisfy Ecuador's internal food needs<sup>2</sup> accounts for 23% of total foreseen investments. According to the Plan, projected investments would increase the production value of palm, sugarcane and yellow corn crops by \$145 million, while the value of traditional crops would grow by only \$5 million USD.

The National Ministry of Planning and Development (*Secretaría Nacional de Planificación y Desarrollo* - SENPLADES) is currently revising the 2009-2013 National Development Plan as a guide for the elaboration of public policies to be framed in this Plan. In reference to the agrarian theme, noteworthy priority is allocated to the increase of agricultural productivity, through the promotion of productive chains<sup>3</sup> designed to achieve competitiveness in the global market. Both the above-outlined Agricultural Plan and the National Development Plan note an investment of \$135 million USD for production of oil palm, increasing the extension of palm plantations by 20,000 hectares and rehabilitating an additional 30,000 hectares.

Various questions emerge in response to this regulatory framework regarding the contradictory policy of the Ecuadorian State, which instead of implementing the principles established in the Constitution in reference to food sovereignty, promotes a model that prioritizes export agriculture and agroindustrial consolidation in the country, as evidenced by the case of African palm. Is it possible to “chain” the food sovereignty of *campesino* families within the African palm production promoted by governmental programs? What social and environmental implications are entailed by expansion of the African palm frontier for thousands of small-holding farm families who practice diversified and traditional production systems? What human rights violations are being provoked against these *campesino* families by African palm expansion in this country?<sup>4</sup>

## AFRICAN PALM PRODUCTION IN ECUADOR: A PROFITABLE BUSINESS... FOR THE AGRIBUSINESSES

African palm cultivation was practically unknown in Ecuador before the 1960s. In 1961, the product began to be promoted in the Santo Domingo canton, in particular for elaboration of vegetable cooking oils and fats. The Inter-American Development Bank (IADB) was an important actor in the introduction of this product. Between 1966 and 1979, the IADB channeled credits through the National Promotion Bank (*Banco Nacio-*

*nal de Fomento* - BNF) for the promotion and sustenance of this crop, helping to raise production to 13,525 hectares by the end of this period.<sup>5</sup> The National Association of African Palm Growers (*Asociación Nacional de Cultivadores de Palma Africana* - ANCUPA)<sup>6</sup> was established in 1970.

Demand for palm oil has sharply increased over the past decade for the elaboration of agro-diesel. This has resulted in good prices for the product, and the development of official programs to foment its production. Surface area dedicated to the palm crop has subsequently expanded by almost 300%, now covering more than 200,000 hectares. In 2006, Ecuador was considered the second largest producer of African palm in Latin America.<sup>7</sup> The following table reveals that the regions in which African palm is currently cultivated include highly productive regions such as the province of Los Ríos.

**Table N° 2**  
**Area dedicated to African Palm, by province, 2005**

<i>Province</i>	<i>Surface area (in hectares)</i>	<i>Number of palm growers</i>
Esmeraldas	79,719.02	1,996
Pichincha	34,201.27	943
Los Ríos	31,977.28	594
Sucumbíos	10,118.57	233
Orellana	5,068.74	101
Guayas	3,409.80	38
Manabí	1,607.50	50
Cotopaxi	1,525.10	28
Bolívar	191.20	4
La Concordia	28,476.15	743
Manga del Cura	6,920.30	443
Las Golondrinas	4,070.38	105
<b>TOTAL</b>	<b>207,285.31</b>	<b>5,278</b>

*Source: ANCUPA, consulted on 19 February 2008.*

The province of Los Ríos, located in the central section of the coast of Ecuador and within the Río Guayas Basin, has an important natural hydrological system with a large portion of the country's best farmlands, reason for which it has converted into an important geopolitical area for agricultural production. Agroindustry, in particular African palm, is one of the main motors of the provincial economy, generating high profits for companies, concentrating land and water, and provoking grave human rights violations.

A process of high concentration of land is clearly observed, specifically in the Quevedo canton. More than half the land, a total of 52%, is owned by the 0.9% of owners with more than 200 hectares each, while 43% of owners, who hold 5 hectares or less each, possess only 4.1% of the land. This process is characterized by a phenomenon known as "multiproperty" (*multipropiedad*) which is when one agribusiness concentrates multiple rural plots in different "precincts,"<sup>8</sup> amassing large extensions of land while registering the properties under different names.<sup>9</sup> The African palm monoculture expansion has provoked not only the transformation of significant traditional systems, but also socio-organizational division and the loss of entire territories integrated by small families and mid-sized producers, as we will see in the following lines. Between 12,000 and 15,000 hectares of African palm were calculated to exist in the year 2006,<sup>10</sup> representing approximately 50% of the rural territory (27,286.4 ha) of Quevedo.

Banana producers also are now converting their crops to African palm, motivated by the prominent campaign in support of expansion of this monoculture frontier. The investment cost for ten hectares of banana crops is equivalent to that of 100 hectares of African palm, which requires only between eight and twelve laborers rotating activities throughout the year.<sup>11</sup> On the other hand, official support for palm cultivation includes technical advisory and finance for land purchase through the National Promotion Bank, the installation of storage and shipping centers in new palm crop regions, and expansion of the commercialization chain, which now facilitates sale of the palm harvest - not only to the oil extraction industry - at a price currently around \$200 USD per ton.

African palm cultivation is indisputably a profitable business for the export agribusiness owner, while not for the small *campesino*. In the following section we identify the conflicts that emerge with the presence of African palm plantations in the precincts and the human rights implications they bring. The promotion of industrial export-agriculture projects unleashes great pressure on natural resources, in many cases ultimately dispossessing the traditional farmers of the same and expelling them from their territory.

A study carried out in the region in 2008<sup>12</sup> reveals that monopolization of land and water by the palm industry occurs through systematic harassment unleashed against the local population and "volunteer" agreements used to force the small land-holders to sell their land. Purchase offers are channeled by the agribusinesses through third parties who offer the farmers irresistible sums of money. But when they refuse to sell, various mechanisms are employed by the agribusinesses to impose their control over the land and natural resources. The following information is based on three interviews carried out in September 2006 and August 2009. The names of those interviewed are omitted for their protection.



## THE *CAMPESINOS* OF EL SAMÁN: MORE VICTIMS OF THE AFRICAN PALM AGRIBUSINESS

All along the route into the El Samán sector, the advancement of the African palm plantations is notorious. Among those plantations already more than ten years old, it is possible to distinguish the presence of new plantings on lands that a few years before pertained to small and mid-sized farms. With help from advanced technologies, bogs have been drained and dredged and deep wells have been dug to extract and store irrigation water, all evidence of the presence of a powerful agribusiness, steadily concentrating lands in the sector.

In September 2006, three *campesinos* from the El Samán sector – all with property deeds to their respective lands - were classified as land invaders in a report issued by the National Institute of Agrarian Development (*Instituto Nacional de Desarrollo Agrario* -INDA). Despite the eviction order issued by INDA against the *campesinos* in response to a suit filed by another supposed owner of their plots, eviction was suspended following legal procedures undertaken by the three small holding farmers to clarify the legality of their properties. In the three years since, the farmers<sup>13</sup> have been the object of permanent harassment applied through diverse pressure mechanisms to persuade them to abandon their lands. The state of siege and conflictive environment in which they lived ended up obligating two of them to “voluntarily” sell their lands, leaving only one of the three currently remaining in the precinct.

One of these three farmers was dedicated to cacao production with support from a mortgage loan issued by the National Promotion Bank, which served to legitimize the farmer as landowner. The African palm agribusiness owner assigned the case to a front man – a third party who uses diverse mechanisms to negotiate and appropriate the land of the small farmers - who he uses to acquire properties supposedly in dispute in order to expand his palm plantations. After selling the land to the small farmer, the front man himself created a conflict by selling the same plot to another party, who then proceeded to file a legal suit alleging a supposed invasion of property. The “plaintiff” ended up winning the trial by taking advantage of privileged information regarding an ancient conflict that emerged during division of the same stretch of land handed down through family inheritance. The disputed property is currently in the hands of the African palm industrialist.

Another one of the three mentioned farmers, who also had a legal property deed, sustained his family by raising small livestock. As noted, he also won the initial trial and was spared eviction after proving his legal ownership of the plot in question. However, a few months after the trial, his entire herd of cattle was stolen. He was left with no choice but to sell the property to persons from another region. Later testimony reported that the new owners abandoned the property shortly after its purchase, frightened away by systematic pressure tactics used by employees of the palm plantation owner, including threats and intimidations, nighttime presence, etc.

The third small holding farmer accused of land invasion in 2006 is the only one who remains with his family in the El Samán sector, where they raise various crops for self-consumption and sale in the local market. The conflict has resulted in the death of one member of this family, which according to various testimonies was provoked by workers employed by the plantation owner's front man dedicated to negotiating *campesino* lands. Since then, the family has received tempting offers from the palm industrialist to purchase the land, but the family insists it has no interest in selling its farm.

The problems faced by the *campesinos* interviewed whose farms border the palm plantations include the impacts generated by the extraction of large amounts of water and by the pesticide and herbicide fumigations on the plantations that affect the traditional family production systems. The farmers interviewed expressed their concern regarding the damming of the Mocache bog for the purpose of implementing an irrigation system, and the construction of a deep well within the agribusiness plantation. Those interviewed affirm that these constructions will lead to a decrease in water available from the superficial wells they use as water sources for domestic use, and will threaten their rights to sufficient and good-quality water. They are also very concerned about the possible destruction of their crops by the strong chemicals used on neighboring palm plantations, as is already occurring in other parts of the region. The contamination of the sector's water resources would also affect their rights to food, to water, and to health.

## IN CONCLUSION

The individual demands formulated by the *campesinos* and supported by various organizations regarding the African palm expansion reveal that the policies of support for this monoculture have brought conflicts over the land and water in highly productive regions such as the province of Los Ríos. The violent evictions suffered by small farmers in the precincts of La Yuca in the Palenque canton in 2006 and La Tranca in Babahoyo in 2007,<sup>14</sup> and the testimonies registered in the case of El Samán in the Quevedo canton, are only a few examples of the dimension of the conflict being unleashed by the expansion of agroindustrial monocultures in this region.

Pressure mechanisms observed in all of these cases oriented to persuade the small producers to abandon their lands range from threats, to forced evictions carried out in complicity with the public forces and certain local governments, to attempts to force "voluntary" negotiations for sale of the plots. When the small farmers resist selling their production assets, other occult mechanisms emerge, ranging from the intervention of "front men" to the criminalization and persecution of leaders, obstruction of tenure legalization procedures, and the presence of land agents and traders and even armed civilians and hired thugs in the precincts, among others.<sup>15</sup>

The monopolization of the best lands of the *campesinos* and of production infrastructure and water resources, and the introduction of technological packages with high

levels of agrotoxins that end up contaminating the natural resources and subsequently destroying the diversified crops of neighboring farms, imply direct violations of the rights of the *campesinos*. These include violations of the international human rights instruments and obligations derived from the same by the government of Ecuador, and violations of the Political Constitution of Ecuador, which among its rights to a *good life*, recognizes the right to food of persons and collectives realized through the exercise of food sovereignty.<sup>16</sup>

The presence of a series of laws, decrees and State programs for the promotion and consolidation of the African palm agroindustry not only constitutes a contradiction of the new legal framework of Ecuador that recognizes the right to food, but also favors a distinct agrarian production model and establishes open discrimination toward those who have been marginalized and impoverished in the past decades by the country's public policies. As illustrated through the specific case of El Samán, expansion of African palm monoculture in the Quevedo region is provoking the transformation of significant traditional production systems, socio-organizational division, and outright violations of the rights of *campesinos*, through the destruction of livelihoods and constant threat against the rights to food, to water, and to health of thousands of *campesino* families.

As we mentioned, the high profitability of African palm monoculture is not accessible for the small producer but rather solely for the large landowner who holds the economic means with which to invest, to concentrate land and water, and to consolidate his political power, supported by governmental incentives and multiple extortion mechanisms unleashed against the small farmer. The African palm expansion is therefore generating an "occult" displacement of *campesino* family agriculture, which in principle is granted priority attention under the Constitution of Ecuador. A policy of promotion of African palm production is definitively incompatible with food sovereignty in the country.

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## NOTES

<sup>1</sup> Landívar N., 2008, p. 93.

<sup>2</sup> Potato, sweet corn, bean, yucca, vegetables, legumes, banana, beef, and others.

<sup>3</sup> Consolidation of the productive chain is the fundamental essence of agroindustry, referring to the incorporation of the productive subjects to the productive chains dedicated to develop, transform and distribute agricultural inputs and products. As *chain* we refer to the successive processes of production, industrial processing, distribution, and final consumption.

<sup>4</sup> Ecuador has ratified multiple international human rights treaties and has recognized “the right to a good life” of the entire population of Ecuador as a Constitutional principle of highest priority.

<sup>5</sup> Lucía Carrión and Matía Cuví. 1985.

<sup>6</sup> Consulted on 4 March 2008 at: [www.ancupa.com/ancupa/index.php?option=com\\_content&task=view&id=19&Itemid=81](http://www.ancupa.com/ancupa/index.php?option=com_content&task=view&id=19&Itemid=81)

<sup>7</sup> Embassy of Brazil. 2006.

<sup>8</sup> The precinct (*recinto*) forms part of the organic structure of rural society along the central coast of Ecuador, in which a determined number of *campesino* families culturally coexist and identify themselves with a determined name.

<sup>9</sup> Cueva V.; Jácome G; Landivar N, *et al.* 2008.

<sup>10</sup> Jácome G. 2008.

<sup>11</sup> *Ibid.*

<sup>12</sup> Jácome G. 2008.

<sup>13</sup> In Spanish: *finquero*, term used to refer to the small producer who works his farm, through which he develops his *campesino* culture and maintains agro-diversity.

<sup>14</sup> In these two cases, supposed owners of the plots occupied them and violently evicted the *campesino* families who cultivated the lands. For more information, see: [www.fian.org/casos/acciones-urgentes/ecuador-ocupan-tierras-campesinas-en-el-recinto-la-tranca](http://www.fian.org/casos/acciones-urgentes/ecuador-ocupan-tierras-campesinas-en-el-recinto-la-tranca) and [http://www.fian.org/casos/acciones-urgentes/ecuador-el-instituto-nacional-de-desarrollo-agrario-inda-desaloja-por-segunda-ocasion-a-campesinas-os-del-recinto-la-yuca?set\\_language=es](http://www.fian.org/casos/acciones-urgentes/ecuador-el-instituto-nacional-de-desarrollo-agrario-inda-desaloja-por-segunda-ocasion-a-campesinas-os-del-recinto-la-yuca?set_language=es)

<sup>15</sup> Jácome G. 2008.

<sup>16</sup> “The persons and collectivities have the right to safe and permanent access to healthy, sufficient, and nutritional food; preferably produced at the local level and in correspondence with their diverse identities and cultural traditions. The Ecuadorian State shall promote food sovereignty.” Article 13 of the Political Constitution of Ecuador.



## GUATEMALA

# *The human right to food versus the new colonizers of agriculture in Guatemala: sugarcane and African palm*

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There is consensus at the international level on the definition of the human right to adequate food (HRF) and the corresponding State obligations. The problem arises when the question is asked regarding *what* this right supposes. It is even more difficult to establish agreement around the issue of *how* to guarantee the realization and defense of the right to food, primarily given the complexity involved in the attempt to conciliate the two divergent postures emerging since the end of World War II and determining the primary - and contradictory - *critical paths* in relation to this right:

On the one hand, the path oriented to strengthen and expand the role of the large agrofood industry and agribusiness as dominant economic and political actor, not only in the control of the world's food, but now also of energy provision, with its aggressive incursion in the business of agrofuels. On the other, the route oriented to the achievement and defense of *food sovereignty* and the guarantee of the human right to food.

The intention of this essay is to briefly address the dynamic oriented to advance the first of these paths unleashed in Meso-America by the sugarcane and African palm agribusinesses, specifically in Guatemala.

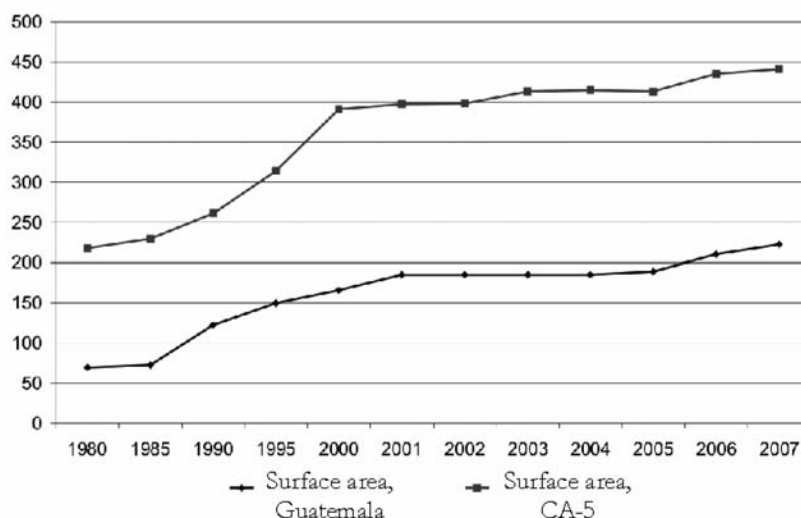
After the rivers of ink which have already been dedicated to the debate on the viability of substitution of fossil fuels with fuels produced from agricultural products, there appears to be little more to add. The verdict is clear in the case of production of agroethanol based on basic grains. Academia, *campesino* movements, numerous countries of the

South, the United Nations Food and Agriculture Organization (FAO), the Organization for Economic Cooperation and Development (OECD), and even the International Monetary Fund (IMF) and the World Bank (WB), coincide in citing the production of corn and wheat-based ethanol as a significant factor behind the increased prices of these basic foods,<sup>1</sup> while producing no significant net gain in reduction of greenhouse gas emissions.

The United States exception to this consensus of opposition to grain-derived agrofuels is a surprise. The Obama administration has in fact perpetuated the United States wager on agrofuels through the decision to surpass the goal of consuming 36 billion gallons of agrofuels by the year 2022 in the United States, established in the “Energy Independence and Security Act of 2007,”<sup>2</sup> a norm that together with the “European Union Strategy on biofuels,”<sup>3</sup> establishes ambitious goals for the consumption of agrofuels, which they intend to reach using primarily corn and wheat for agro-ethanol imported largely from the countries of the South. It is not unusual that the noted consensus takes a 180 degree turn when it comes to questioning agrofuels not derived from basic grains, such as ethanol produced from sugarcane and agro-diesel from African palm oil.

It is precisely within this historic-global context that the surface area planted with sugarcane in Guatemala has quadrupled in the past 30 years, expanding from an occupation of 3.4% of the country’s total cropland in 1980 to 11% in 2007.

**Graph 1**  
**Evolution of surface area planted with sugarcane in Guatemala and Central America (CA-5), 1980-2007 (thousands of hectares)**



*Source: Elaborated by the author based on data from CEPALSTAT-SLAGRO 2008 and Ingenio Chavil Utz'aj 2008. CA-5 includes the countries of Guatemala, Honduras, El Salvador, Nicaragua and Costa Rica.*

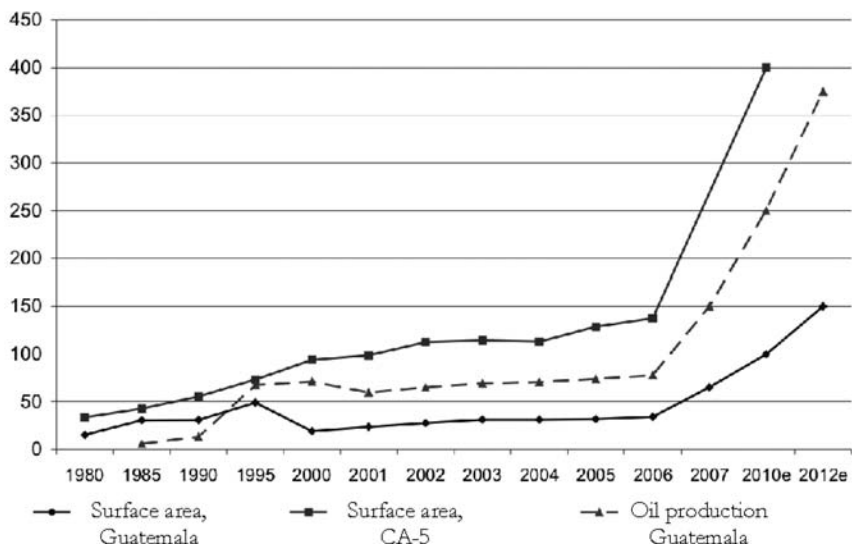
This vast surface area is held in the hands of a very small few. The triply-profitable industry of sugar/agro-ethanol/electricity in Guatemala continues to sharpen its concentration: 75% of sugar production and 100% of agro-ethanol production are controlled by the five largest sugar mills of the guild formed by fourteen sugar families, integrated in the hegemonic Sugar Producers Association of Guatemala (*Asociación de Azucareros de Guatemala*).<sup>4</sup>

Multiplying daily production by the number of days in the sugarcane harvest season<sup>5</sup> and dividing by the amount of sugarcane needed to produce a gallon of ethanol, Guatemala has the capacity to produce 34.44 million gallons of agro-ethanol per year.<sup>6</sup>

In the case of African palm, by the year 2012 almost four times as many hectares will be planted with this crop than in 2005, controlled by an even more concentrated industry than sugarcane. Only four families and one transnational risk capital group<sup>7</sup> control the entirety of national production, associated within the Palm Growers' Guild (*Gremial de Palmicultures*).

**Graph 2**

**Palm area harvested in Guatemala and Central America, and palm oil production in**



Source: Based on data from CEPALSTAT- SLAGRO, 2008 and *el Periódico* 23/06/07.

**Guatemala, 1980-2012(e) (thousands of hectares/thousands of tons)**

Regarding the profitability of these industries:

- i. Guatemalan palm oil is the most competitive in the continent, close to the levels

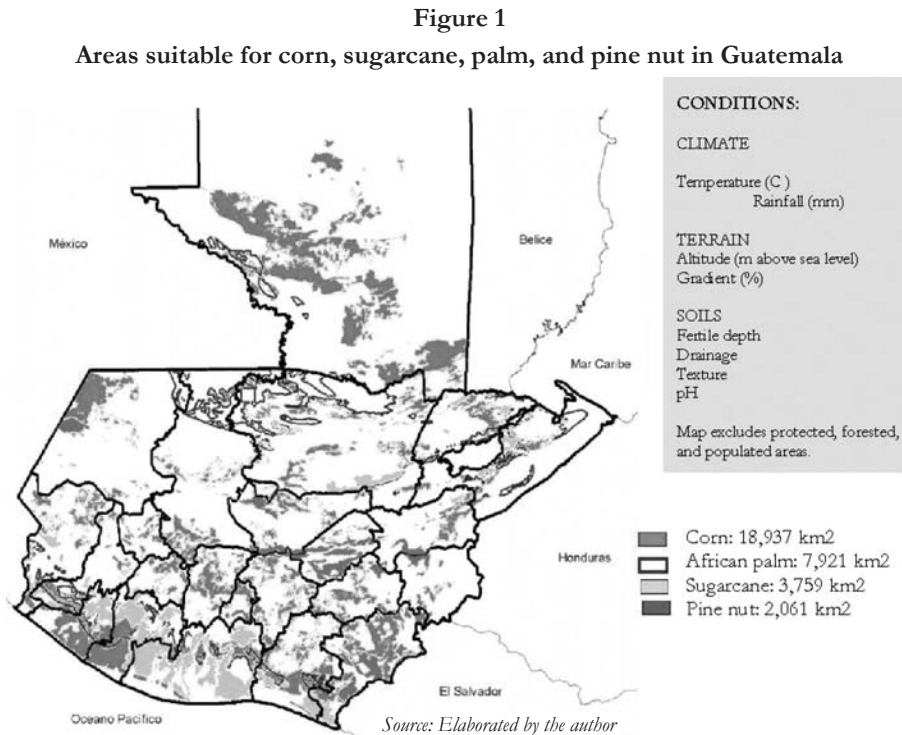


of Indonesian and Malayan oil.<sup>8</sup>

- ii. Production of agro-diesel from palm oil in Guatemala is profitable while crude prices are above \$70.80 USD/\$80.90 USD per barrel.
- iii. The installed industry in the country may be interested in deriving palm oil to produce agro-diesel only if the market price per ton of crude palm oil falls below \$698 USD/\$798 USD.

In this context, various public and private actors in the world point out that the primary limitation on massive commercial incorporation of agrofuels is neither financial nor technological, but is in fact the availability and (low) cost of sufficient quantities of agricultural raw materials. Precisely the interest in satisfying this external demand has reinforced Guatemala's historic process of concentration of agrarian property, unleashing dynamics of re-concentration of land and of corporate control over water and labor in the monoculture-expansion territories.

The expansion of monoculture plantations of sugarcane, palm, and (to many people's surprise) jatropha (pine nut), is taking place on lands apt for growing food. The Fourth Agricultural Production Census establishes a potential for African palm cultivation of 810,000 hectares, or 40% of total Guatemalan farmland. The Guatemalan Ministry of Agriculture, Livestock and Food (*Ministerio de Agricultura, Ganadería y Alimentación* -MAGA) consider 400,500 hectares (19.8% of total national farmland) to be apt for sugarcane, and 206,100 hectares (10.2% of national farmland) for pine nut.



Mechanisms employed for the expansion of industrial land holdings include harassment to pressure small holders to sell their properties, with local operators of the agribusinesses (often Colombians) using expressions such as “*You either sell it to me at this price or I’ll negotiate again later with your widow.*” Another method involves the failed “production alliances” model, according to which small and mid-sized food producers cede their plots for semi-permanent sugarcane crops or permanent palm plantings, which aside from exhausting the soil, leave the individual farmers dependent on the conditions imposed by one sole buyer.

In this panorama, it is important to reflect on the role of the Guatemalan State in relation to the renewed processes of territorial domination derived from the space and time displacement of the capital now linked to sugarcane and African palm.<sup>9</sup> This displacement combines strategies oriented to redirect today’s surplus capitals toward the exploration of future uses with the formation of new operational spaces for sugarcane and palm production, and with significant impacts on the subsistence systems of the rural population. These strategies are supported in Guatemala by the confluence of historic configurations of the State to facilitate the formation and circulation of fictitious capital (which has monetary value and exists on paper but lacks productive or material backing), which is already a traditional mechanism for profit extraction in stages of capitalism in which financial capital predominates over industrial capital. Below we consider four fundamental mediating influences, which historically reinforce this formation of fictitious capital in Guatemala:

*First.* The bureaucratic apparatus continues historically determined by its links with private capital, and the groups interested in sugarcane and palm are particularly politically and economically powerful. The traditional and now reinforced legal and normative framework of supports for these agribusinesses is therefore no surprise.

*Second.* Economic policy in Guatemala establishes a favorable framework for the production and (internal and external) commercialization of the distinct products derived from sugarcane and palm. An important part of this framework is constituted by the National Agenda on Competitiveness 2005-2015<sup>10</sup> (*Agenda Nacional de Competitividad*), which consolidates the leading role of the failed deregulated free-market system, with simultaneous investments in infrastructure, logistics, and energy, as promoted and demanded in the noted process of space and time displacement of agrofuels investment.

This national scenario is framed within the larger panorama of the mega-projects currently predominating in the region stretching from Mexico to Colombia associated with the Meso-American Integration and Development Project (previously known as the Puebla-Panama Plan or PPP) and projects framed within the Meso-American Biological Corridor (*Corredor Biológico Mesoamericano*) and the Central American Sustainable Energy Strategy 2020 (*Estrategia Energética Sustentable Centroamericana*), all of which are extensions of the same general development approach. These projects then meet up in Colombia and beyond with those of the South American Regional Integration Initiative (*Iniciativa de Integración Regional Sudamericana -IIRSA*). The common thread throughout

these regional initiatives is the participation of the globalizing elites of the economic North, through both the private bank and their International Financial Institutions.<sup>11</sup> It is also important to note the growing projection in Meso-America of the Colombian Oil Company (*Empresa Colombiana de Petróleo* -ECOPETROL), the National Economic and Social Development Bank of Brazil (*Banco Nacional de Desenvolvimento Econômico Social* -BNDES) and the PETROCARIBE initiative promoted by Venezuela.

The *third* mediating influence in the formation of fictitious capital rests on the coercive and repressive power of the State and/or armed private/paramilitary groups (such as in the case of collaboration of repressive State forces –police and army- in violent evictions of *campesino* communities with “private security” groups at the service of the sugarcane and palm agribusinesses). This historic dynamic is now supported by the United States’ Merida Initiative, whose official pretext is to combat drug trafficking and organized crime in the region.

A *fourth* influence comes from the power of the mass media in the country to legitimize the action of big capital in the social sectors in which it is projected.

An all-encompassing sphere is thereby solidly conformed around sugarcane, African palm, and their derivatives, with material implications in the daily practices of the population located in the “objective territories.”

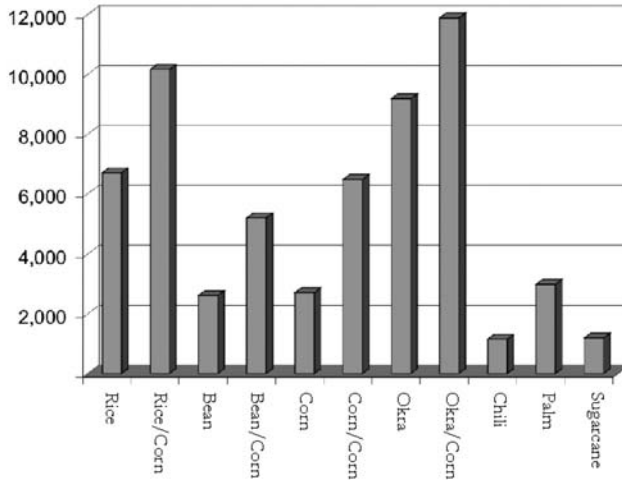
### SUGARCANE AND AFRICAN PALM: FUELS FOR A NEW CYCLE OF ACCUMULATION AND DOMINATION IN *EL POLOCHIC*

One of these “objective territories” encompasses the municipalities of Panzos, Alta Verapaz, and El Estor y Mariscos in Izabal in the basin of the Polochic river and Izabal Lake (see *infra*, Figure 2). One case is that El Polochic, regarding which we will present some of the most important issues which have emerged with the arrival and consolidation of sugarcane and African palm, referred by the Maya-Q`eqchi population.

On the one hand, and contrary to the hegemonic discourse, the wealth generated by sugarcane and African palm is not enjoyed in the producing territory, but rather leaves the region to benefit the bank accounts of national and international elites. The *campesino* farming systems and a few diversified backyard orchards remaining in the valley are based on the following cycles: 1) two corn harvest cycles per year (corn/corn); 2) corn alternating with bean crops (corn/bean); 3) rice and corn rotations (rice/corn); 4) commercial chili crops; 5) bean crops; 6) one sole corn cycle, and 7) okra and corn rotations (okra/corn). All of these generate up to ten times more wealth per hectare than palm and sugarcane.

Graph 3

*Gross Territorial Product* according to crop system in the Polochic Valley  
(In Guatemalan Quetzales, based on the production yield of 1 block of land, equivalent to 0.7 hectares).

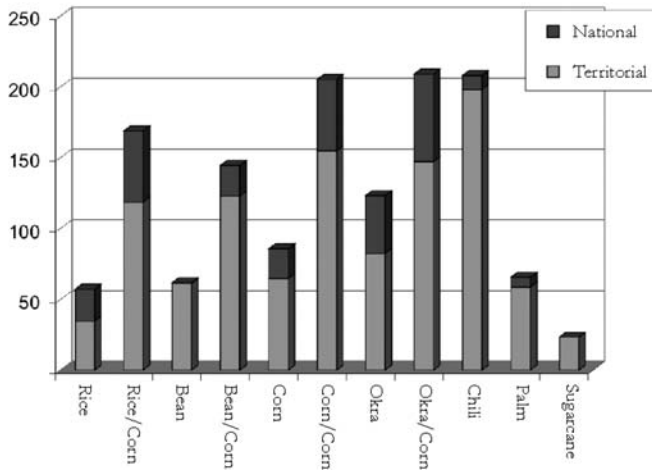


Source: Elaborated by the author

On the other hand, sugarcane and African palm monocultures generate far less employment than the *campesino* crop systems, not only in El Polochic but also at the national level.

Graph 4

Employment generated (in workdays) per block of land (=0.7 hectares). At the territorial and national levels, and by crop system in the Polochic Valley.



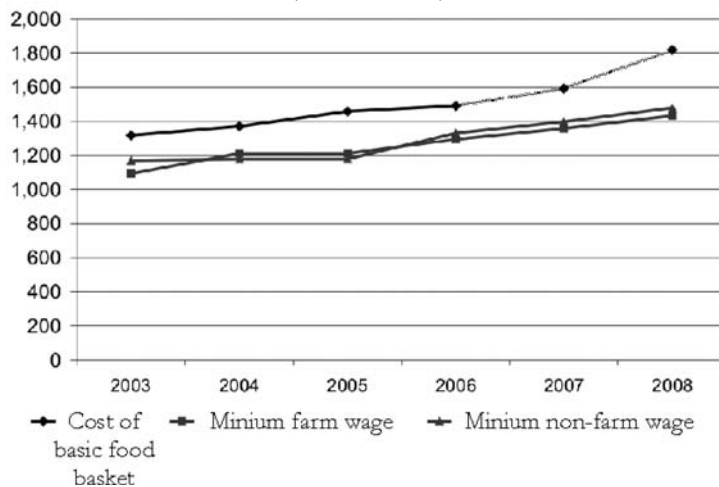
Source: Elaborated by the author

This renewed agroindustrial interest in Polochic Valley lands reinforces the expulsion of *moxos colonos*<sup>12</sup> or tenant farmer families from many properties previously dedicated to coffee, livestock, or rice, to make room for the “cleaning” and sale of the properties to the sugarcane and palm agribusinesses.

Many former tenants negotiated payment of their labor benefits in the form of farmland, providing barely enough for the urban centers of the new communities. To obtain land for crops, beginning in 2002 many initiated negotiations in the Lands Fund (*Fondo de Tierras*) for the purchase of agricultural plots. After protracted four or five year negotiations, many of these processes reach a dead end when the sugarcane mills and palm companies start to compete for the same lands, but offering payment in cash and in dollars to the landowners, who then withdraw their voluntary participation in the Market Agrarian Reform implemented in conjunction with the Lands Fund. The former tenant families find themselves once again at the mercy of the labor regimen, except now within the neoliberal particularities of the flexible accumulation process of the agribusinesses: indirect employment through subcontractors, seasonal employment, piecework wages, and labor flexibility.

The daily wage for a palm cutter in early 2008 was Q. 48 (\$6.20 USD, slightly below the official minimum farm wage), but this amount includes the wage of the “assistant” who gathers the fruits that fall from the palm branch.<sup>13</sup> In 2005, sugarcane planters were paid Q. 300 every two weeks during the two-month planting season (amounting to \$3.25 USD per day, around half the official minimum farm wage). These may be considered starvation wages in a context in which the historic gap between the minimum wage and the “basic food basket” (the cost of purchase of the minimum foods required by a Guatemalan family) has expanded in the past two years.

**Graph 5**  
**Evolution of the minimum wage and the cost of the basic food basket in Guatemala**  
**(in Quetzales)**



Source: Elaborated by the author

The small producer is thereby definitively expropriated from his role as food provider, no longer considered as relevant economic subject but rather object of the charity of social funds, churches, or NGOs, in the likely case that he is unable to find employment in production functional for the international market so highly extolled by the International Financial Institutions in their anti-agrarian vision of the new rural reality.

It is therefore not surprising that half of the undernourished population, in one of the regions with the highest overall malnourishment rates in the planet,<sup>14</sup> is found in Guatemala: 3 million people (1/4 of the national population). The majority of these are children (49% of the population under age 5) and indigenous farmers (70% of the indigenous population).<sup>15</sup> This is an unsustainable contradiction in a country that registers net “food” exports.

**Table 1**

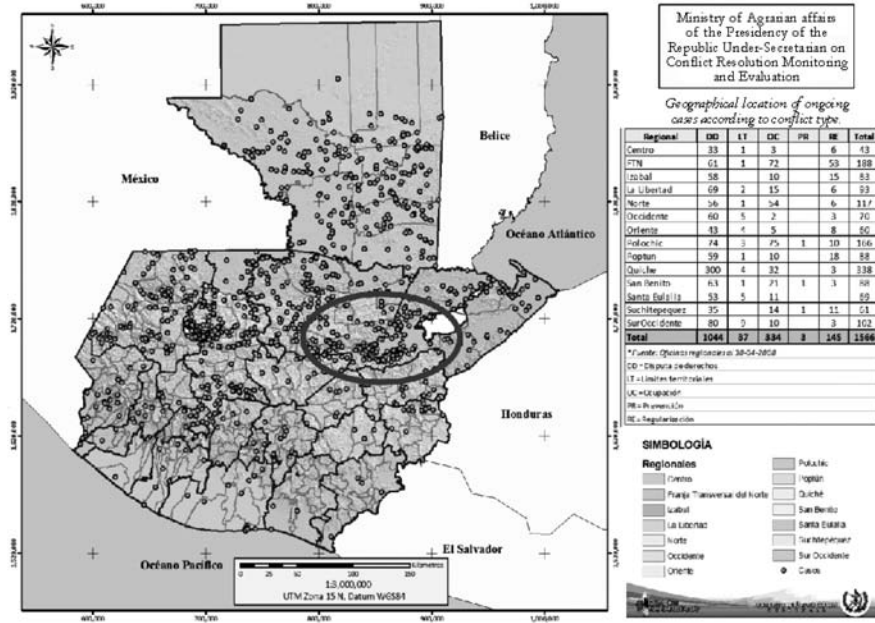
**Chronic undernourishment rates of populations under five years of age in certain Latin American and Caribbean countries**

<b>COUNTRY</b>	<b>2006</b>	<b>2007</b>
Guatemala	49%	49%
Honduras	29%	25%
Haitia	11%	24%
Ecuador	26%	23%
Bolivia	27%	27%

*Source: UNICEF, 2008*

The pressure toward re-concentration of lands in El Polochic – region in which mining and forestry exploitation, construction of hydroelectric projects, and the private administration of the Protected Area of Sierra de las Minas also compete for their shares of resources – is a generator of conflicts, including internally within the communities, between different communities, and between these and other interests. In El Polochic, the Guatemalan Ministry of Agrarian Affairs (*Secretaría de Asuntos Agrarios -SAA*) registers 11% of total conflicts in the country and 37% of those in Alta Verapaz and Izabal.

**Figure 2**  
Conflicts reported by the Ministry of Agrarian Affairs, June 2008



Source: Secretaría de Asuntos Agrarios, 2008. Red oval is added to indicate the Polochic Valley territory

### CASES IN PROCESS

In this high-conflict context, it is also important to note the following:

- First of all, the lack of State recognition of the historic land tenure corresponding to Maya-Q'ech'ie communities automatically excludes this population from access to health, education, production support, and social infrastructure services. In other words, their lack of a property deed excludes them from human rights.
- Secondly, energy that is renewable because of its agricultural origin is not necessarily sustainable energy. The industrial transformation and intensive use of agrochemicals and byproducts in these plantations of invasive species affect the neighboring ecosystems of the Biosphere Reserve of Sierra de las Minas and the RAMSAR-protected<sup>16</sup> wetlands located in the Bocas del Polochic Wildlife Reserve. Pressure has increased on the agricultural frontier in Sierra de las Minas and even on the Mayan Biosphere Reserve in El Petén, where cattle ranchers have migrated after selling their grazing lands for sugarcane or palm. The population reports problems related to access to drinking water and to firewood and wood for housing construction, and health problems caused by overcrowded conditions and the feeling of living fenced-in among natural reserves and monocultures.

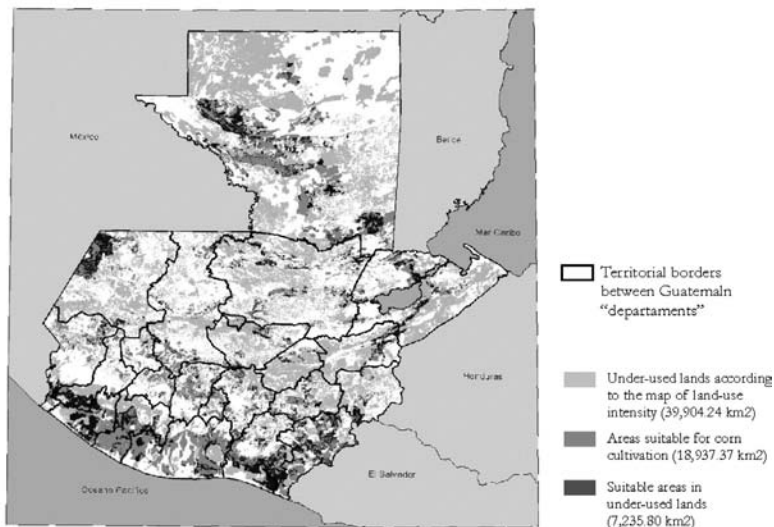
However, the Environmental Ministry continues to fail to demand Environmental Impact Statements for new plantations, and the palm industry is expected to earn close to \$5 million USD over the next seven years for selling carbon within the framework of the Clean Development Mechanisms of the Kyoto Protocol.<sup>17</sup>

- Thirdly, it is important to note the role of NGOs acting as territorial operators of the agribusinesses and other large companies with interests in Polochic. These include *Fundación Turcios Lima* (FTL) as the face of *Fundación Polochic*. This novel figure serves to facilitate cross-sector articulation of big capital in Guatemala,<sup>18</sup> governed by a territorial logic self-legitimized in the discourse of Corporate Social Responsibility.

In summary, the de-localization of agrofuels production has stimulated territorial domination processes in many countries that generate and/or reinforce grave and systematic human rights violations, such as in the case of Guatemala. The drastic planetary consequences of this development should lead to the declaration of food as “public good,” disengaging it from both speculative markets and from multi- and bilateral free-trade negotiations (including in the World Trade Organization and diverse Free Trade Agreements) so that its price be negotiated between producing and consuming countries.

This historic and global context reinforces the urgency to achieve and defend the human right to adequate food, through the recognition of the rights of citizens and of peoples, promoting recognition of the food sovereignty model as an inherent part of the right to food. The State of Guatemala, as well as the various social forces, must not neglect to seize the historic opportunity to define and implement integral agrarian reforms adequate to the diverse territories of the country and primarily focused on vast idle and under-used lands (see areas in blue in Figure 3).<sup>19</sup>

**Figure 3**  
**Areas suitable for corn in under-utilized lands in Guatemala**



Source: Winkler and Mongón, IDEAR-CONGCOOP, 2008



These integral agrarian reform actions must be urgently implemented before land prices skyrocket as a result of financial speculation or are seized for intensive cultivation of permanent palm plantations or semi-permanent sugarcane production, gravely compromising not only the human right to adequate food of the people of Guatemala, but also the multiple and fundamental human rights of all peoples.

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## NOTES

<sup>1</sup> Without ignoring the role played by financial speculation: the FAO points out that investments in financial markets of foods reached 129,000 million Euros in 2008, and the investment bank Goldman Sachs estimates that 60% of the increase in the price of oil during 2008 was due to speculation, with another 30% attributed to the devaluation of the dollar.

<sup>2</sup> [http://energy.senate.gov/public/\\_files/RL342941.pdf](http://energy.senate.gov/public/_files/RL342941.pdf)

<sup>3</sup> [http://eur-lex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexplus!prod!DocNumber&lg=es&type\\_doc=COMfinal&an\\_doc=2006&nu\\_doc=34](http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=es&type_doc=COMfinal&an_doc=2006&nu_doc=34)

<sup>4</sup> Guatemala in fact has one of the most important sugar industries in the continent. Pantaleón Sugar Holding, the largest sugar company, has purchased land and sugar mills in Honduras and Nicaragua, in addition to building a mill in Vale do Pará, Brazil, as part of its joint venture with the sugar mills Manuelita of Colombia and Unialco of Brazil.

<sup>5</sup> Harvest season is November to May, with cutting beginning in mid-November and lasting roughly 165 days.

<sup>6</sup> Based on the total *economic* cost of producing agro-ethanol in Guatemala (\$0.321/liter USD, without taking into consideration environmental and social costs), its production is profitable while the price of oil is at or above \$43.80 USD.

<sup>7</sup> Palmas del Ixcán, subsidiary of the U.S. firm *Green Earth Fuels*, controlled by Riverstone Holdings, Carlyle Group and Goldman Sachs.

<sup>8</sup> With production costs of around \$165 USD and \$225 USD, respectively. (Kaltner, 2005)

<sup>9</sup> These “new” extensive monocultures, the links of Guatemala’s insertion in the international economy, were historically preceded by cochineal and coffee.

<sup>10</sup> [http://www.pronacom.org/web/index.php?option=com\\_content&task=view&id=7&Itemid=5](http://www.pronacom.org/web/index.php?option=com_content&task=view&id=7&Itemid=5)

<sup>11</sup> World Bank (WB), International Financial Corporation of the World Bank (IFC-WB), Inter-American Development Bank (IADB), Central American Economic Integration Bank (*Banco Centroamericano de Integración Económica* -BCIE), European Investment Bank (EIB), etc.

<sup>12</sup> “Defined as all those direct producers who work and live on a determined farm that is not their property and who receive for their labor a retribution that may be monetary, in usufruct of land, or in-kind (corn, bean, salt and lime rations) or in combinations. As may be observed, the definition of *mozo colono* reflects a combination of capitalist production relations with other servile-type relations.” Rafael Piedrasanta, quoted by Carlos Figueroa Ibarra (1980), taken from Hurtado, 2008

<sup>13</sup> This condition leads to the practice in which one of the worker’s small children accompanies the parent during the 35 days of harvest to assure that the full wage remains in the family.

<sup>14</sup> Central America, with only about 0.63% of the total world population (UNFPA, 2007), contributes 6% of the world’s undernourished population (FAO, 2006).

<sup>15</sup> Report on Human Development in Guatemala 2006/2007. <http://www.pnud.org.gt/frmInfHumanoNacional.aspx>

<sup>16</sup> The RAMSAR agreement refers to the swamps or bogs considered within the Convention on Wetlands of International Importance [www.ramsar.org](http://www.ramsar.org)

<sup>17</sup> Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change <http://unfccc.int/resource/docs/convkp/kpspan.pdf>

<sup>18</sup> Includes the following industries: the nickel mining companies: *Compañía Guatemalteca de Níquel* and *Maya-Níquel*; the sugar mill: *Guadalupe-Chavil Utz’aj*; the rubber plant: *Balen*; the African palm company: INDESA; the forestry extraction company: *Maderas El Alto*; and the FTL.

<sup>19</sup> Currently, 30% of all farmland, equivalent to 337,500 hectares, suitable for sugarcane or palm or for food production, is occupied by cattle farms that under-use or leave idle a large part of the land.



## HONDURAS

# *A case of violation of the right to food: community of Triunfo de la Cruz, Honduras*

**Ericka Guity**

Independent Consultant

### Introduction

Article 25.1 of the Universal Declaration on Human Rights establishes the following:

*Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.*

It is the obligation of the State to respect the access of all people to existing resources that guarantee adequate food. This implies that the State must establish the necessary legal mechanisms to fulfill this obligation, in particular to assure access to productive land, water, and other natural resources important for human subsistence. Forced evictions, or the seizure of lands through any mechanism, constitute the violation of the right to food, among other crimes, given the fact that the victims lose access to their means of subsistence.

Food sovereignty entails the right of countries and of peoples to define their own agrarian, employment, fishing, food, and land policies in a way that is ecologically, socially, economically and culturally appropriate for them and their unique circumstances. This



includes the right to food and to food production, which implies that all people have the right to healthy, nutritious and culturally appropriate food and to the ability to sustain themselves and their societies.

## PRESENTATION

This research was carried out by an independent consultant<sup>1</sup> with the purpose to document cases of the violation of the right to food and to access to land, in particular to document displacements and usurpation of land for the purpose of monoculture production.



Members of the Land Defense Committee of Triunfo de la Cruz, occupying 15 blocks of recovered land.

The information was gathered from the Garifuna community of Triunfo de la Cruz, located in Tela bay on the northern coast of Honduras.

The study is based on group and individual interviews, field visits and on-sight inspections, and research through Internet sources. Through group interviews, community members share information on the background and current situation of their struggle to recover ancestral lands. They also refer to human rights violations of which they have been victims since the implantation of African palm monocultures, emphasizing impacts on regional biodiversity and on the autonomy and food sovereignty of the community.

## CONTEXT

The Community of Triunfo de la Cruz was founded on 3 May 1524 by Cristóbal de Olid. It has a population of 9,000 inhabitants and is the largest *Garifuna* village in Honduras. The Garifuna are descendents of Carib, Arawak, and West African people, and the Garifuna inhabitants of this village arrived from the island of San Vicente off the coast of Venezuela, reaching the Honduran coast on 12 April 1797.

The community is located 7 kilometers from Tela on the road to Ceiba, in the department of Atlántida within the Punta Izopo National Park, which includes the Laguna Negra (“Black Lagoon”), the Triunfo de la Cruz Hill, and the Plátano and Hicaque rivers. Tourism, agriculture and fishing are the community’s primary economic activities. Average

daily income is L. 125 (\$6.60 USD) per person. The majority of agricultural production is dedicated to family consumption.

Beginning in the 1960s but intensifying in recent years since introduction of African palm monoculture in the region, outside interests have used various mechanisms—often illegal and always manipulative—to gradually acquire large plots of land in Triunfo de la Cruz and to cut off the community from communal lands on which they depend for their livelihood and way of life. The expropriation of community lands through illegal means has affected the community's food sovereignty, provoking a situation of dependence on foods from external markets, placing at risk the community's food autonomy.

Some segments of the disputed lands have been dedicated to African palm cultivation. Approximately 40 blocks of palm plantation currently exist in Triunfo de la Cruz. Natural pollination has produced some palm plants in various other plots that are dedicated to products such as yucca and rice. In the larger Tela area, there are now 7,150 blocks of African palm cultivated for agroindustrial purposes. The devastating effects of palm cultivation in the area include environmental damage caused by the plantations' drainage network, the channeling of water for irrigation, and the sedimentation resulting from these systems.

### **Human Rights Violations and the Defense of the Community**

Citing the protection due to them by International Labor Organization (ILO) Agreement 169 on Indigenous and Tribal Peoples in Independent Countries, signed by Honduras, which recognizes the right of ethnic and indigenous groups to ancestral land, the community of Triunfo de la Cruz has maintained constant and permanent resistance in defense of and for the recovery of their lands. Several organizations, such as the Honduran Black Fraternal Organization (*Organización Fraternal Negra Hondureña*—OFRANEH) in coordination with the community's Land Defense Committee (*Comité Pro-Defensa de la Tierra*), have spearheaded this struggle, which has in some cases taken place at the cost of human lives and grave injuries suffered by community members.

Some of the cases of violence registered against the community are listed below:

- In 1997, eight community members were killed: Jorge Castillo Jiménez, Julián Alberto Morales Roches, Jesús Álvarez Roches, Cándido Amador Recinos, Ovidio Pérez, Jorge Manueles, José Evaristo Escobar Hernández, and David Cáliz Escobar. Each of these men was involved in the movement in defense of the ancestral land.
- Mr. Secundino Torres was injured in the hand by a machete in a confrontation to recover community land.
- On 24 September 2008, eight fishermen from *Triunfo de la Cruz* were detained by members of the armed forces responsible for surveillance of the Vida Silvestre Cuero y Salado refuge, while the men were fishing offshore from the protected area. According to testimonies, after being detained by the military forces, and without any exchange of words, the soldiers opened fire at them. The fisherman

Guillermo Norales Herrera, native of the Triunfo de la Cruz community, was killed. Norales Herrera received gunfire apparently from a military-issue M16 rifle.

A complaint has been filed in the Inter-American Commission on Human Rights (IACHR) against the State of Honduras for various cases of forced expro-priation of land pertaining to the Garifuna commu-nity of Triunfo de la Cruz. In May 2006, the IACHR called for protective measures to be implemented for the community, demanding that the Government of Honduras “adopt the necessary measures to protect and respect the right to property over the ancestral lands pertaining to the community of Triunfo de la Cruz” (see source # 2).



Worker with African palm fruit harvest in Triunfo de la Cruz.



Map of the northern coast of Honduras, illustrating the areas corresponding to 22 blocks of recovered communal crop and forest land, the Canahuati area, and the location to which the palm harvest is delivered for processing in San Alejo.

### Cooperativa del Esfuerzo The loss of food sovereignty

The *Cooperativa del Esfuerzo* (“Cooperative of Effort”) is a Garifuna women’s organization dedicated to agriculture. In the 1960s, this organization raised various crops in the sector previously referred to by the Garifuna as *warini* and now known as Canahuati, through which it was able to supply food for the entire community.

Community activists have been struggling to recover the Canahuati area since the 1960s. According to various testimonies, the land was sold by the municipality to the Canahuati family as *ejido* or common-property lands. However, an ancient property deed

exists according to which the land pertains to the Garifuna community. As a result of the conflicts between the Canahuati family and the community, the family sold the land to a businessman named Mr. Midence. The community then turned its struggle against the new owner, and was able to recover part of the lost land, which was divided between several community members. The land was then registered in the community's name, through which the community was able to obtain a property title guarantee issued by the National Agrarian Institute (*Instituto Nacional Agrario* -INA).

A few years later, one community member began to sell part of the recovered lands, unleashing a flood of property sales. Many of the owners succumbed to pressures, extortions and other deceitful means to sell their plots. The majority of plots sold were acquired by a company called Marbella. Many community members protested the sales through official complaints and legal suits, thanks to which they were able to halt the project, although the Marbella company still holds a legal property title. The case is currently awaiting a verdict in the Inter-American Commission on Human Rights. As a result of this struggle, the inhabitants of Triunfo de la Cruz have been the object of persecution. This situation, combined with a general lack of information on the case, has divided the community. Some community members now carry feelings of guilt for their roles in losing the lands, and the conflict has produced internal ruptures in many families.

But the greatest impact of this situation is the community's loss of food security and autonomy. The disputed lands had been dedicated to food cultivation and gathering (sugarcane, coconut, yucca, rice, wild fruits and wild game, and fish). In addition, many people could no longer farm on the land and now rent or borrow small plots from third parties to raise yucca for their families' consumption. The community also lost access to an area in which they gathered materials to construct their homes.

The rights which have been violated in this case are outlined below: The primary violations refer to rights established in ILO Agreement 169, specifically the right to access to ancestral lands for food production. Article 14, paragraph 2, establishes that governments must implement the necessary measures to identify lands traditionally occupied by native inhabitants and guarantee effective protection of their property and possession rights. In this case, the State has not complied with Agreement 169 given its failure to allocate a definitive property deed to the community in reference to the Canahuati area.

In addition, by allowing the massive cultivation of African palm in the region without consultation with the community, Honduras has violated article 15, paragraph 1 of Agreement 169, which establishes that the State must especially protect the rights of native peoples to the natural resources existing in their lands. These rights include the right of said peoples to participate in the use, administration and conservation of said resources.

In addition, the authorities allowed persons foreign to the community to take advantage of its uses and customs and its lack of knowledge on relevant laws in order to usurp the property, possession and use of its lands, incurring in violation of article 17, paragraph 3. The perpetrators of this violation are powerful businessmen and local and national authorities.

In response to the situation, the community has established the following demands:

non-interference by the municipality of Tela in issues involving the community's land; compensation for damages suffered; definitive resolution of the land expropriation cases in Triunfo de la Cruz, and the separation of the community from the urban territory pertaining to Tela.



El Esfuerzo Cooperative in the Canahuati area, Triunfo de la Cruz.

## TESTIMONIES

### Felicita Palacios Gamboa

#### Community leader and President of Cooperativa del Esfuerzo

Doña Felicita is a 60-year-old woman born and raised in the community of Triunfo de la Cruz. Her main occupation is yucca and banana farming carried out with her family, which includes her husband, Mateo Herrera (66), farmer and craftsman; her daughter Jenny Lucila (23), housewife, and her son Timoteo (25), drummer.

The land Doña Felicita farms is under communal tenure. The right she holds over the same is because she farms it. According to Garifuna tradition, community members live in one area and farm in another, usually located outside the community.

Doña Felicita explains the situation: "The lands they took from us were those dedicated by our ancestors to grow food, hunt, fish, and gather materials."

In reference to the African palm crops installed in the area, she observes the following: "Around 1992 they began to plant African palm near the community. Since then, land rent prices have gone up. The African palm crops have affected access to other resources such as forests and wild animals and fruits. Prices have been affected for both the production and the sale of foods due to the small amount of production of *guineos*, yucca, coconut, and other basic foods that are now supplied from other communities such as San Juan Pueblo and El Progreso."



Mercedes Guillen and Felicita Gamboa. Inspection of Yucca crops on recovered lands in the Canahuati area, Triunfo de la Cruz.

The land evictions were carried out by businessmen in complicity with the local authorities, in some cases through violent and intimidating means. According to Doña Felicita, before the eviction, community members had free access to the land, water, forests, wild fruits and animals, and other varieties of yucca that are now threatened with extinction as a result. Since the eviction, the lands are fenced with barbed wire and guarded by armed personnel, and the community lives in a permanent state of anxiety.

### Secundino Torres

#### Community leader and President of the Comité Pro-Defensa de la Tierra

Don Secundino, father of 16, is president of the Land Defense Committee (*Comité Pro-Defensa de la Tierra*). Don Secundino and his wife and children farm rice and yucca on small plots of lands recovered in the Canahuati area. Like Doña Felicita, the lands he farms are communal, and his tenure over said land is derived from the fact that he farms it.

Don Secundino also recalls the arrival of African palm cultivation to the region in 1992. There are currently African palm crops planted in the Canahuati area and another 22 blocks in the community.

According to Don Secundino, the current owners of the lands on which African palm is being cultivated obtained said land through municipal concessions or purchases that involved certain illegal processes. The persons identified by Don Secundino as the owners of African palm plots are Honduran, but foreign investors also participate.

Secundino emphasizes the issue of water. The community obtains its drinking water from wells that draw upon underground water sources, which is the same source tapped by the African palm plantations to water their crops.

The plantations employ approximately twenty local farmhands, who work in precarious labor conditions: they are poorly treated, with no labor benefits and wages below the legally-established minimum wage. The palm fruit is transported to San Alejo, Tela, for processing. The long-term effects of the monoculture on the life of the community are still unknown, but to date the impact has been negative. According to Secundino:

“The lands used for African palm previously served to raise yucca, rice, coconut, wild fruits, and other foods; those lands pertained to the community.”

The planning and decision-making on administration and uses of the communal lands is a conflictive issue, given the duality between the board (the *patronato*) and the Land Defense Committee. The former receives support



Secundino Torres, inspection of rice crop in plot within recovered lands in the Canahuati area.

from the Tela municipality, while the latter defends the community's interests. The community has never been consulted regarding the introduction of the monoculture in the area. The environmental impacts have been grave, including devastation of the area's forests, sedimentation in the Plátano river and the Micos Lagoon, and damages to regional biodiversity and wildlife. In this case no forced evictions have been identified to date for the specific purpose of African palm crops. The producers do not own the land, but the owners acquired them through illicit mechanisms.

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## NOTES

1 Ericka Guity is a consultant with ten years of experience in analysis and field research on various topics including demographics, food security, health, education, AIDS, community development, and others, working for diverse community organizations as well as international organizations such as Save the Children and Visión Mundial.

## MEXICO

# *The effects of African oil palm in Mexico*

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The first plantations of African Oil Palm were established in Mexico in 1948 by small producers in the coastal region of the southern state of Chiapas. A second more rigorous stage of African palm plantations were installed in 1982 when 287 hectares were planted with seed originating from Costa Rica, the Ivory Coast and Indonesia. By the early 1990s, a total of 2,800 hectares were dedicated to the crop. A third stage may be defined beginning in 1996, year in which the Mexican government designed the Plantations Program for the southern and southeastern region of the country, in the states of Chiapas and Campeche and later expanding to Tabasco and Veracruz, resulting in the planting of a total of 36,874 hectares. The state of Chiapas accounted for 44.2% of total hectares dedicated to African palm, followed by Tabasco with 20.2%, Veracruz with 19.4%, and the state of Campeche with 16.2%.<sup>1</sup>

At the turn of the 21st century, the situation could be summarized as follows. Between 1995 and 2001, surface area dedicated to African palm increased by more than 1,000% and production by 213%, while average yield per hectare dropped 20%, consumption increased 198%, and national production in relation to apparent consumption increased 17%. Meanwhile, the deficit of national surface area to cover demand was 229% and imports increased 185% while the crop's value grew only 23% due to the fall in the international price.<sup>2</sup> Among importers of palm oil, in 2001 Mexico occupied position 27 among the 171 countries that imported that year for a total equivalent to \$51.415 million



USD. And of the 172 countries that exported palm oil, Mexico was in 87<sup>th</sup> place with only 4 metric tons. As for palm nut oil, Mexico led in imports in Latin America and the Caribbean with 3% of the world total. The country was ranked 37<sup>th</sup> in exports among the 77 exporting countries, with only 48 metric tons, and 9<sup>th</sup> in Latin America. Mexico brought in \$207,000 USD for its exports, compared with Colombia that generated 30 times that income. In yet another category, Mexico occupied the 33<sup>rd</sup> position in palm fruit imports in 2001 and exported the symbolic amount of 6 metric tons, less than Costa Rica, Honduras, Guatemala, Colombia and El Salvador.

### THE TRANSITION OF AFRICAN PALM IN MEXICO (2002-2003)

We close the third stage in 2001, given the new moment that begins in 2004 for African palm plantations in Mexico after a transition crisis characterized by the drop in prices and other events in 2002, including floods, fires, pests, and the loss of 12,000 hectares of destroyed plants. Chiapas accounted for almost 75% of this loss, and many producers abandoned the plantations. Despite efforts to recover the losses, the surface area planted with African palm in the 2003 season dropped to 29,167 hectares, 80% of which was seasonal cropland and 20% irrigated land, practically all in the state of Campeche.<sup>3</sup> In this period of transition in the history of palm plantations in Mexico, the rural producer of African palm obtained only 10.5% of the global selling price when his product was used to generate palm oil or palm nut kernel (*palmaste*), while the producer of palm oil obtained 12.4%. The remaining 77% of profit is gleaned by the rest of the actors involved in the chain reaching to the product's commercialization.<sup>4</sup> In early 2003, the national list of producers reported a total of 7,325 producers, 96% of whom corresponded to the social sector and the remaining 4% to the private sector. Of total producers, the largest number, 3,246, are located in the state of Chiapas, accounting for 44%. Another 2,469 (34%) are located in Veracruz, 900 (12%) in Campeche, and 710 producers (10%) in the state of Tabasco.

### THE NEW STRATEGY OF THE AFRICAN PALM PLANTATIONS (2004-2014)

The African palm oil product system in Mexico has various components. In theory, regional committees should exist integrated by producers, industrialists, marketers, service providers, governmental entities, and others. These committees should identify and carry out the necessary actions to guarantee an efficient and profitable productive chain. However, these committees either do not exist or are not well integrated. On the

other hand, this product system is intended to integrate three levels: a base formed by the economic infrastructure providers, followed by the inputs and services providers at the next level, and finally the producers, industrialists and marketers. In the Palm Oil Guiding Plan (*Plan Rector*), the Mexican government outlined a 10-year regulatory plan (2004-2014). Its mission is to achieve competitiveness of the palm oil productive chain, for which it establishes the need to achieve the alliance of the production chain, increase the surface area planted in compact units, and professionalize the system. The area involved includes three large zones located in the humid tropic of south-southeastern Mexico: 1) Chiapas, located in the Pacific region, has two sub-regions: the Soconusco Coast, and the Palenque Rainforest region. 2) Two states are located in the Gulf of Mexico region: Veracruz, with the Texistepec sub-region and the Jesús Carranza, las Choapas and Uxpanapan sub-region, and Tabasco with three important sub-regions: Balancán, Tenosique and Jalapa. 3) In the Yucatan Peninsula region is found the state of Campeche with three important sub-regions: Sabancuy-Escárcega, Aguacatal, and Palizada. Two general production systems may be identified in these areas: seasonal production that relies on rains, and irrigated crops.

There are 10 palm oil extraction plants located in the four states, seven of which are in Chiapas. Seven are private, only one is financed by social capital, and one is financed with mixed capital. Even though many of the plantations are currently at production age, the extraction plants still operate well below installed capacity. The plants currently operate at 50% capacity, although a few years ago they operated at barely 30% installed capacity.

### Palm oil extraction plants

<i>Name</i>	<i>Municipality</i>	<i>State</i>	<i>Capacity (mtffc/br)*</i>	<i>Beginning of activities</i>	<i>Sector</i>
La Lima	Villa Comaltitlán	Chiapas	2	1970	Private
El Desengaño	Villa Comaltitlán	Chiapas	6	1994	Private
Bepassa	Aca petahua	Chiapas	6	1995	Social
Agroimsa	Mapastepec	Chiapas	10	2001	Private
Propalma, S.A.	Acapetahua	Chiapas	10	2002	Private
Palma Tica de México	Palenque	Chiapas	10	2004	Private
Agroipsa, S.A.	Palenque	Chiapas	6	2004	Private
Compañía Aceitera Camp.	Escárcega	Campeche	6	2003	Private/Social
Acceite de Palma	Acayucan	Veracruz	10	2003	Private
Soc. de Prod. de Palma	Jalapa	Tabasco	6	2003	Private

Source: *Product System, Palenque, June 2003 and ANLAME.* \*Tons of fresh fruit cluster per hour.

Upon initiating the current and fourth stage, the Mexican government identified the fact that palm oil occupied the second position in production of oils and fats of vegetable and animal origin, at around 50%, but held first place in global commercialization. In this context, Mexico produces 0.10% of palm oil at the global level, occupying position 29 among the 42 palm oil producing countries in the world and the 10<sup>th</sup> position among the 13 oil-producing countries in the Americas, surpassing only Nicaragua and Surinam, with an average yield of approximately 9.2 ton/ha, only 35% that obtained by the global leader in yield rates, Nicaragua.<sup>5</sup> Mexico imports 1% of total palm oil imports in the world. The USA and Mexico are considered the countries in the American continent with the greatest dynamic in their imports, participating with 32% and 31% respectively of the continent's total imports (540,132 M.T.), followed by El Salvador that imports 10% of total imports in the Americas.

Mexico satisfies around 10% of its needs from plantations at harvest age in the country, and imports the rest.<sup>6</sup> Costa Rica has been Mexico's primary provider of crude palm oil, contributing 34.6%, while Honduras provides 32.8%, Guatemala 22.5%, and Colombia 4.5%.<sup>7</sup> Chiapas is located in first place in palm oil production, with the highest yields in Mexico (18 tons). In reference to labor force, the plantations have been calculated to generate at most 50 workdays per hectare per year, without taking into account transportation activities.

#### Refineries

Chiapas	1
Distrito Federal	3
Hidalgo	1
Jalisco	2
Michoacán	1
Nuevo León	1
San Luis Potosí	1
Sonora	3
<b>TOTAL</b>	<b>13</b>

Producers are organized in varying legal modalities, such as Rural Production Societies (SPR), Social Solidarity Societies (SSS), the Agricultural Association of Palm Producers and Rural Production Sectors, and a small percentage of individual producers. The organization known as the Millennium Union of Palm Farmers (*Unión de Palmicultores del Milenio*) in Campeche groups together five SPR. In the state of Tabasco are found the Local Agricultural Associations of Palm Oil Producers of Tenosique, Balancán and Jalapa. The State Union of Palm Oil and Regional Union of Palm Oil Producers, SSS, of Veracruz are found in that state.

The Mexican government, in its analysis of Strengths, Opportunities, Weaknesses and Threats (*Fortalezas, Oportunidades, Debilidades y Amenaza* - FODA) of the palm oil production chain,<sup>8</sup> identifies among weaknesses and threats its dependence on imported seeds, insufficient irrigation infrastructure which would allow increased year-round production,

growth in rival countries, poor road infrastructure, unequal growth among producers and industrialists, insufficient electricity infrastructure, technological dependency, and protectionist policies in other competing countries.

Since 2005, the European Union also promotes the African palm plantations in Chiapas through the PRODESIS<sup>9</sup> project in the buffer zone of the Lacandona Jungle and in the Municipality of Marqués de Comillas in the Montes Azules Biosphere Reserve buffer zone area on the Guatemalan border. The government had attempted to promote plantations in this area since 1997, but they were abandoned and destroyed by the producers in response to the lack of supports and advisory on the African palm. The stated reasons behind the PRODESIS project are very simple: that there is high demand for oil palm, it is good business, sufficient lands exist, and there is governmental support, without which the world's palm oil plantations would not be profitable.<sup>10</sup>

## FUTURE PROJECTIONS

The Guiding Plan has already become obsolete. Within the framework of so-called productive reconversion, which implies eliminating food sovereignty, the government of the state of Chiapas announced that for 2009 it would designate 83 million pesos (app. 6 300 000 USD) with which to expand palm oil plantations with the addition of 11,000 hectares, equivalent to a 58% increase over 2007 when plantations in the state totaled 19,000 hectares.<sup>11</sup> The federal government then announced that the Chiapas countryside would receive 300 million pesos for those crops that are more profitable than corn, such as African palm.<sup>12</sup> By 2012 the governor proposes to reach a total of 100,000 hectares of African palm plantations in Chiapas: "As a decisive commitment to the African palm organizations, 100,000 hectares are proposed to be planted during my administration. This will mean an income of 3 billion pesos for the Chiapas producers."<sup>13</sup> In the Soconusco region, the government has identified a potential 300,000 hectares apt for raising palm, and another 600,000 located in the Jungle and North in which "lost lands that were dedicated to self-consumption and livestock agriculture will be recovered."<sup>14</sup> As part of this overall plan, a biofuels (biodiesel) plant will be installed in the Tapachula region in the framework of the Mesoamerica Project (previously known as the Puebla-Panama Plan) and the biofuels agreement signed by the presidents of Colombia, Alvaro Uribe, and Mexico, Felipe Calderón. This plant will be fed with the production of pine nut, African palm, fig tree, and other harvests produced on the coast.<sup>15</sup>

## THE IMPACTS OF THE OIL PALM PLANTATIONS

Despite the experiences of tropical forest deforestation, climate change, appropriation

of indigenous and campesino territories, human rights violations, agrotoxins, contamination, loss of food sovereignty, and other consequences that accompany monoculture plantations, in November 2008 the first shipload of “sustainable and certified palm” reached the Netherlands from southeastern Asia in the framework of the Roundtable on Sustainable Palm Oil (RSPO).<sup>16</sup> Today more than ever, the importance remains of the International Declaration against the RSPO.<sup>17</sup>

The federal government and the Chiapas state government affirm that the palm plantations are being installed on hectares previously deforested by grazing and other no-longer-profitable activities. However, the goal of reaching 100,000 hectares of plantations in the next three years, and the dream of projecting more than 900,000 hectares with said vocation in the state, make it clear that jungles, forests and other ecosystems will continue to be destroyed. If many activities have ceased to be “profitable” for the business market, it is because the government has abandoned the countryside and small producers, and in the logic of the Free Trade Agreements focus has not been placed on food sovereignty but rather on the agribusiness market. The small producer, the campesino and the indigenous farmer are left out unless they insert within this new dynamic of handing over their cheap labor and their land and subsidizing with their work the profits of agribusiness. From this perspective, African palm would not be profitable either if it did not receive significant subsidies from governments, producers, the World Bank, and the Inter-American Development Bank.

### **Environmental costs**

Since 2004, the government had already admitted that adequate analyses were not carried out of palm varieties in accordance with regional agronomic characteristics, resulting in the cultivation of different varieties whose performance and yield had not been verified. Furthermore, the thousands of hectares of African palm imply not only continuing deforestation but also increasing CO<sub>2</sub> emissions and increasing water contamination with agrochemicals in regions of high biodiversity including the Biosphere and Lacandona Jungle regions. In addition, the plantations do not help in any form and in fact further aggravate the recovery of honey production on which thousands of beekeepers depend.<sup>18</sup> The crisis of the beekeepers in Chiapas began and has progressively worsened as the plantations increase. The palm plantations do not regenerate biodiversity because they are not forests, and they are linked to widespread situations including grave deforestation, “that is coupled with the loss of biodiversity, floods, the worsening of droughts, soil erosion, water pollution, and pest explosions; it also threatens water, soil, flora and fauna conservation. The degradation of the forests diminishes their climate-related functions, and their disappearance affects humanity as a whole.”<sup>19</sup>

The more than 11,000 persons who live in the municipality of Marqués de Comillas consume more than 82,000 cubic meters of water per year, the majority extracted from underground sources through wells, due to the lack of drinking water services. In the past few years, water services in the region have gradually begun to expand, including water

meters installed in the new housing projects. Given this situation, the palm plantations, which are large water consumers, aggravate water availability in the region. This same region of the Montes Azules jungle, some 220,000 hectares, has been 80% deforested. To contain this situation, the plan has been established to create “protection cordons through large-impact production projects such as African palm, rubber, citric trees, and protected agriculture.” In reference to African palm alone, the cultivation of 5,000 hectares is being promoted in Marqués de Comillas of the 30,000 hectares proposed for African palm plantations, in a region lacking effective environmental control. This despite the finding of the United Nations Intergovernmental Panel on Forests that identified governmental policies of forestry substitution with industrial tree plantations – such as African palm - and the advance of the agricultural frontier pushed by monoculture plantations as causes of deforestation and forestry degradation.

### The lands

According to the current governor of Chiapas, African palm cultivation is the future of Mexico, and large subsidies and supports are therefore dedicated to it. This fanfare around African palm has caused the campesinos of the municipality of Escuintla to “lament not having the necessary kind of farmlands. The Escuintla campesinos have first-rate lands, but they are all planted with bananas, cacao, mango and corn (...). It’s too bad that in Escuintla there are no available lands for this and other crops,” comment the campesinos Juan Vera and Moisés Ventura.<sup>20</sup> It is clear that the promises of support for palm cultivation generate reactions among the campesino sector similar to those that occurred with the promotion in previous years of cattle-raising and other supposed agricultural development projects. Tomorrow they will be telling them that it is more profitable to conserve the jungles than to expand the plantations. For example, in the context of application of credits from the United Nations Program for the Reduction of Emissions provoked by the Deforestation and Degradation of Forests in the Developing Countries (REDD), conserving the jungle in Indonesia would be more profitable than cutting it down for African palm plantations if the ton of CO<sub>2</sub> in the carbon credits market were valued between 10 and 33 USD.<sup>21</sup> But regardless of all the above, one meaningful indicator in Chiapas is the advance in privatization of *ejido* (common-property) and communal lands. If further such privatization is not made, the government identifies it as “lack of land tenure security.”

The government strategy to gain ground for African palm is to reduce supports to other sectors to force them to opt for plantations. In the municipality of Villa de Acapetahua, the low price being paid for beef, the scarce governmental support, and high maintenance costs, have led several small cattle farmers to switch to African palm production.<sup>22</sup> In the municipality of Villa Comaltitlán, which was one of the primary cattle regions together with other coastal municipalities, even exporting cattle to central and northern Mexico, they confirm that the fall in cattle farming “is due not to negligence of the producers but rather to the arrival of other kinds of crops that can not be combined

with cattle raising. For example, banana and African palm cultivation have taken spaces which have forced the decrease of cattle herds.”<sup>23</sup>

### **Climate change**

Some researchers say that the production of a ton of palm oil in peat bogs generates between 15 and 70 tons of CO<sub>2</sub> in the 25 years of productive life of palm, as a result of forest conversion, the decomposition of drained peat, and the emissions associated with land clearing.<sup>24</sup> «The emission from forest conversion clearly exceeds the potential carbon fixation of oil-palm plantings. Forest conversion on mineral soils to promote continued oil-palm mono-cropping causes a net release of approximately 650 Mg carbon dioxide equivalents per hectare (...)»<sup>25</sup> «The conversion of one hectare of forest on peat releases over 1,300 Mg carbon dioxide equivalents during the first 25-year cycle of oil-palm growth. Depending on the peat depth, continuous decomposition augments the emission with each additional cycle at a magnitude of 800 Mg carbon dioxide equivalents per hectare.»<sup>26</sup>

To put it from another angle, more years are needed to sequester the carbon than the 25 years of productive life of African palm in which it supposedly significantly captures carbon. In peat soils, the carbon balance is even less favorable for oil palm plantations due to drainage emissions. Palm plantations therefore do not store more carbon than forests. Each ton of palm oil produced emits 33 tons of CO<sub>2</sub> (9 tons of carbon), approximately 10 times more than that of normal diesel. In summary, in addition to degrading the environment, affecting peat soil areas, not reforesting, and erroneously equating plantations with forests, Chiapas will contribute more CO<sub>2</sub>, thereby contributing to climate change.

### **Agrochemicals**

An average of 143 oil palms are planted per hectare (the adequate distance is 9 m between plants and 1.8 m between rows, planted in quincunxes) which are sprayed with insecticides such as endosulfan and other chemicals such as pesticides. The plantations are not adequately maintained in particular in fertilizer application, pest control, and the reestablishment of new plantations. There is also inadequate management of technological packages.<sup>27</sup>

In the Lacandona Jungle region, the Lacantún river commonly overflows in the case of hurricanes or heavy rains, thereby threatening the plantations of the local campesinos and easily dispersing in this highly biodiverse area the high amount of agrochemicals they use. This type of monoculture is therefore not environmentally sustainable in neighboring or buffer regions. This aside from the fact that few serious scientists affirm that the palm oil plantations store more carbon than natural tropical forests, given that, on the contrary, they produce more greenhouse gas emissions in comparison with natural forests. If we include the use of fertilizers and the methane emissions from the transformation of forests into plantations, the climate impact is even greater.

## **Labor conditions**

In 2008, public forces were used to suppress the protests of a group of laborers in the AGROIMSA, S.A. de C.V. oil production plant in the municipality of Mapastepec. Some of the group's leaders and one advisor were detained, and the union leaders were fired from their jobs, following which 42 of the 64 employees refused to return to work. In the end, several leaders were sentenced to prison.<sup>28</sup>

In reference to other labor questions, it is important to note that the producers in many cases do not have the adequate tools for harvest (knives, etc.), impeding optimum efficiency in the process, resulting in higher harvesting costs when the trees reach their maximum production capacity (9 years). In other cases, workers lack training for harvesting tasks as well as adequate technical advisory and training for cultivation, control, and integral management of the plantations. While the Guiding Plan boasts of the existence of a large labor pool, it laments that "the work culture of the producer limits the management of the plantation; the producer lacks habits and economic resources to carry out the categories of plantation management." In addition, the campesino and indigenous producers have no contracts or agreements and there are no differences in prices paid in relation to product quality. In the case of the extraction plant of Palma Tica de México, S.A. de C.V., assistance in the form of seedlings provided to producers has been offered on a loan basis in exchange for the condition that the producer commercialize his product exclusively with said plant. On the other hand, to reduce business owners' costs, the proposal has been made to incorporate oil palm product system producers as partners through the purchase of shares in an extraction plant.<sup>29</sup>

### **Little information, little access to resources**

The producers are unaware of the programs and mechanisms through which to access resources. The campesinos and indigenous farmers are not familiar with the form in which the price paid per ton of fresh fruit is established, generating distrust toward the industrialists. Nor do they have access to information on international prices, and they are at the mercy of the large capitals. The Chiapas Guiding Plan establishes false expectations in relation to the achievement of fair prices and increased profitability of productive chain activities, zonification of supply, and the consolidation of the organization of producers, marketers and agroindustrialists, given the serious weakness of each of the three levels. The producers lack sufficient lines of credit and other financial services due to their lack of bank guarantees or previous overdue loans. No regionalized integral technological package validated for oil-palm production in Chiapas is applied. There is no plan for the establishment of new plantations or the maintenance of those that exist, while the governor continues to distribute at whim invitations and seedlings to the campesinos and indigenous farmers to encourage them to abandon corn and join production of the new product.



## Broken promises

The resources the government directs to the producers through institutional programs arrive late. In late 2007, African palm producers denounced the delay in payment of the support offered by the Tropical Agriculture Promotion Institute (*Instituto de Fomento a la Agricultura Tropical* - IFAT) in Acapetahua.<sup>30</sup> In the Marqués de Comillas region, plantations promoted by the government since 1997 ended up abandoned and destroyed by the producers due to the lack of support and advisory.<sup>31</sup> In the meantime, the farmers had lost their other crops.

## Costs and infrastructure

The producer spends almost 40% of the final price he receives to transport the raw material to the extraction plant. This is attributable to the inadequacy of the roads between plantations and processing plants, the insufficiency of collection centers, and lack of the necessary vehicles. In the municipality of Acapetahua, Manuel Jiménez manifested his discontent, affirming that “those primarily responsible for destroying roads and highways are the trucks that haul heavy loads, given that their trucks filled with stone, sugarcane, and African palm fruit cause the damages.”<sup>32</sup> In the municipal seat of Mapastepec, inhabitants reported that trucks loaded with African palm that transit through the Gabriel Colón y Elio Ventura neighborhood on their way to the palm oil plant contributed to collapse roads in which ditches were being dug for the installment of drainage infrastructure.<sup>33</sup>

## Poor profits

The plantations are not accompanied by improvement in the living conditions of the population. In Acapetahua, despite the wealth of the region, including cattle, fruit production and agriculture, “the majority of campesinos are living the worst economic crisis (...). The Soconusco neighborhood is one of the primary producers of banana, cacao, African palm and mango.”<sup>34</sup> According to the IFAT, a producer earns around 30,000 pesos per hectare.<sup>35</sup> The profit is equivalent to just under two minimum wages, with the Mexican minimum wage hovering around 3.8 USD per day. However, studies by Fundación Produce Chiapas offer distinct conclusions, calculating that “an average *ejidal* (common property) producer with seven hectares and average production of 19 tons per hectare obtains annual earnings over 100,000 pesos,” equivalent to 274 pesos (21 dollars) per day, or 39 pesos (2.9 USD) per hectare, which is less than the minimum wage per hectare.

The technological package necessary to establish one hectare of African palm costs the producer around \$6,500 pesos per year, equivalent to 17 pesos (1.3 USD) per day. This includes the costs of planting (preparing the land, purchasing the seedling, weed control, herbicides, etc.) fertilizer, pest control, pruning, equipment, and services. One

third of the investment goes to herbicides, pest control, fertilizers and rodent control. There is no production or harvest for the first three years, and 100% of harvest yield is not obtained until the eighth year. In the first three years, producers must invest more than \$12,000 pesos (896 USD), and in the fourth year when some fruit can finally be sold, producers are still left with a deficit of \$16,000 pesos (1,195 USD). During production, annual investment per hectare of palm is \$9,125 pesos (682 USD), or \$25 pesos (1.8 USD) per day, equivalent to the daily wage paid to an indigenous or campesino laborer in Chiapas. This includes planting, fertilizer and its application, pesticides and their application, pruning, harvesting, equipment, and technical assistance services.<sup>36</sup> This cheap labor is also what subsidizes the products.

One of the resources used by campesino producers is to obtain advance payment from the Program for Direct Supports to the Countryside (*Programa de Apoyos Directos al Campo* - Procampo), which for many years has been financed by the World Bank and the Inter-American Development Bank to invest in the African palm plantations. This program began with NAFTA with the purpose to distribute a determined amount of money annually in cash to campesinos and indigenous farmers for each hectare of corn planted, with the objective to supposedly improve their production and competitiveness in the NAFTA context. However, for years it served so that the poor could secure other necessary goods to combat poverty more than to compete against the corn of Monsanto and other transnationals highly subsidized by the United States. It is an indisputable truth that the big businesses are carried on the backs of the poorest, on their lands and their territories, and at the cost of the common goods of humanity. No more monocultures!

## NOTES

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<sup>4</sup> *Plan Rector Sistema Nacional Palma de Aceite*, Second Phase, 18 February 2005, Veracruz.

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<sup>6</sup> Statistic from Oil World.

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- <sup>17</sup> [http://www.wrm.org.uy/temas/Agrocombustibles/Declaracion\\_Internacional\\_RSPO.html](http://www.wrm.org.uy/temas/Agrocombustibles/Declaracion_Internacional_RSPO.html)
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- <sup>19</sup> International declaration against the Roundtable on Sustainable Palm Oil (RSPO) In defense of Human Rights, Food Sovereignty, Biodiversity, and Climate Justice: [http://www.wrm.org.uy/temas/Agrocombustibles/Declaracion\\_Internacional\\_RSPO.html](http://www.wrm.org.uy/temas/Agrocombustibles/Declaracion_Internacional_RSPO.html)
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## PARAGUAY

# *The case of the Yvypé neighborhood, district of Lima, department of San Pedro, Paraguay*

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## SUMMARY

The last fifteen years in Paraguay have witnessed the impetuous expansion of soy monoculture, generating acute conflict over the land and natural resources of campesino and indigenous communities. This situation, coupled with the lack of solid agrarian reform policies, has led to systematic violations of the human rights of rural inhabitants, as well as the rights of those who migrate to the city and the city dwellers who are suffering the growing waves of unemployment and violence. Yvypé, a community located in the Department of San Pedro, Lima District, is currently suffering the onslaught of a production model promoted by transnational companies, placed into practice primarily by Brazilian migrants and facilitated by the corrupt status of the public functionaries in all their levels.

It is a paradigmatic case in that it involves a combination of diverse actors, actions and strategies through which monoculture progressively expands in the Paraguayan countryside. On one side of the community is found a large landholding, ill-acquired during the 1954-1989 Stroessner dictatorship, today rented out for soybean production. Interspersed alongside original residents inside the community are found individual Brazilian migrants who purchased plots legally or illegally from local campesinos, for the same soybean production purpose. The installation of the monoculture model has generated numerous environmental, health, and production impacts. In addition, in response to the

community uprising in defense of its rights or simply to the refusal to sell its lands, cases of direct violence have occurred, carried out either by State forces or by hired thugs on the part of the Brazilian landowners. Legal prosecution of community leaders is another State-wielded weapon contributing to the decimation of the community.

## BRIEF HISTORY OF YVYPÉ

The neighborhood of Yvypé, also known as San Isidro del Jejuí, was founded in the year 1969. It began as a private colonization promoted by a family with lands in the area. Its inhabitants originated fundamentally from the Departments of Paraguari and Cordillera. There, in the context of the Stroessner dictatorship, base organizations of the Christian Agrarian Leagues (CAL) began to form with the purpose to demand a key agrarian reform for the improvement of living conditions of campesino families. The community was one of the primary bastions of the CAL, and during the repressive State actions of the 1970s its bases were dismantled and part of the community was evicted. The displaced families were dispersed and their plots became the loot of Ramón Matiauda, nephew of the dictator.

Despite the State repression, part of the settlement has survived to the present day. After the dictator's fall in 1989, community members reoccupied the lands that had earlier belonged to the campesinos. However, immediately following Stroessner's fall, his nephew sold the plots to the Velilla family, and while said lands remain in litigation, the Velilla family continues to control and make use of the land. The current Agrarian Statute stipulates that the Paraguayan State must recover the lands that were irregularly distributed during the dictatorship to persons who were not legitimate beneficiaries of the Agrarian Reform. However, progress in this matter has been very limited so far due to the exceedingly long bureaucratic processes and the existing corruption.

In the rest of the community, the part that survived the dictatorial repressions, some of the plots have definitive property deeds, while others are still in process of regularization. In the latter cases the inhabitants have permission to use the lands (as rights-holders).

The settlement has six "lines" of plots of roughly ten hectares each. The most relevant for this case are the Fourth and Sixth Lines, which have around 1,000 and 400 hectares respectively. The primary activities of the Yvypé inhabitants are agriculture, livestock, and forestry exploitation. Crops still raised today include root vegetables such as manioc and potatoes, as well as beans, corn, peanuts, and fruit. Livestock raised in the community includes different types of domestic fowl, pigs, and cows. Don Pedro Silva, one of the community's longest residents, remembers how when the early settlers arrived in 1980 the surroundings included thick forests from which they could gather firewood and medicinal plants and hunt game. They were able to practice agriculture in a favorable climate, and while they were never rich, the community lived well off of what the land offered.

## THE CONTEXT

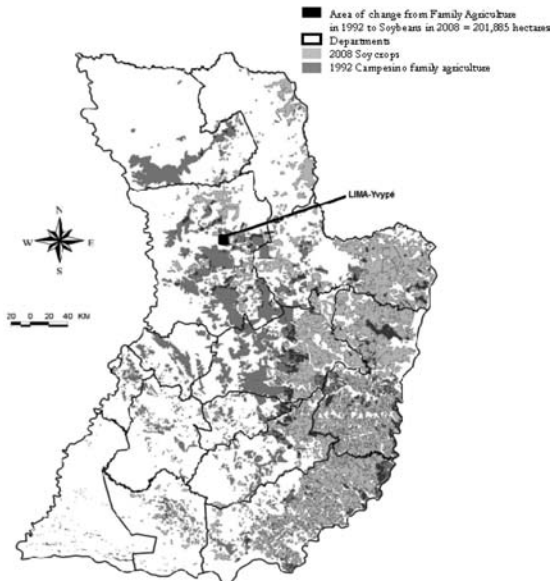
Between 1995 and 2007, the area occupied by soybean crops in Paraguay, which had stabilized during the 1980s at just over 800,000 hectares, tripled to more than 2,600,000 hectares. Monsanto transgenic soybeans (Roundup Ready, RR seeds) were introduced – illegally - for the first time in Paraguay in the 1999/2000 planting season. The seed was legalized by ministerial resolution in 2004, and 95% of soybean crops in the country are now planted with seeds owned by this transnational company. There is also data affirming that transgenic cotton and corn and perhaps other vegetable seeds are also in use, albeit illegally.

This expansion produced a change of patterns in land use. Many old estates dedicated to meat and dairy production are being transformed into plots intensively mechanized for *commodity* production. Mechanization is also encroaching on an important proportion of forest area (with a calculated average of 130,000 hectares of deforestation per year at the national level), and old campesino settlements that either coexist with the monocultures or are wiped off the map.

The phenomenon is stimulated by the transnational companies that own the patents

### AREAS OF CAMPESINO FAMILY AGRICULTURE IN 1992 CURRENTLY ASSOCIATED WITH SOY PRODUCTION AREAS

Study based on comparison of areas of campesino family agriculture settlements interpreted in satellite images and soybean plantations in the year 2008, adapted from thematic map produced by INBIO Paraguay.  
Produced by: Asociación Guyra Paraguay



on the transgenic seeds and the technological packages that accompany them. It is also facilitated by the penetration of Brazilian farmers who find a tempting opportunity to do business in Paraguay given the rock-bottom land prices in comparison with those in Brazil, lax legislation, and scarce environmental controls. For this reason, the Departments with the largest surface areas dedicated to soybeans are those that border Brazil to the East (Alto Paraná, Canindeyú, Itapúa). Very few campesino settlements now remain in this region, and those that continue to resist the pressures to abandon their homes now find themselves with grave socio-environmental problems. The further expansion of soybean production is taking place today primarily in Departments in

the Oriental region (San Pedro, Caaguazú, Caazapá) in which the majority of the campesino population lives. It is no surprise that conflicts over the land and natural resources are currently coming to a height in these areas.

## SOYBEANS AND THE BRAZILIAN EXPANSION. THE YVYPÉ CASE

The Yvypé neighborhood is today one of the nodes of conflict emerging out of the general dispute for land and natural resources. The community witnessed the arrival of soybean monoculture in 2004. Immediately after the Velilla family rented out its large landholding (more than 500 hectares) bordering Yvypé to a group of Brazilian businessmen for the installation of a soybean plantation, other Brazilians began to arrive to the settlement looking to buy plots from campesinos with the objective to plant more soy crops.

In five short years, three Brazilian families managed to buy almost one quarter of the land area of the Fourth Line (Ademir Mendes, Armando Marchao, and Edson Rambo). According to respected Yvypé resident Pedro Silva, of the approximately 1,000 hectares in the Fourth Line, 224 are now farmed by the Brazilians, either legally or illegally. The remaining plots, approximately 10 hectares each, are home to some 70 families. Regarding the community's Sixth Line, residents report that of the approximately 40 campesino families living there prior to the arrival of the soybeans, only 15 remain today, leaving more than half of this section of the settlement in the hands of Brazilian colonists.

The plots are usually sold to the soybean growers, who employ all types of pressures to force the sale, such as indiscriminate fumigation and general intimidation of the native population. The community gradually abandons the area, and most of those who accept to sell their plots then purchase others in another settlement of the same district, although generally smaller in size. The other option is to migrate to the city, usually the capital city of Asunción. There the displaced family may be able to buy a small plot on which to live, but most will be unable to find employment sufficient to generate income to satisfy the family's food, health, education, and other basic needs.

This encroachment of the soybean plantations, both the crops on the Velilla-controlled fields and even more significantly the plantings on the plots located within the community, has generated grave threats to the human rights of the original population. These include both socio-environmental impacts of the monoculture, and direct violence originating from the State itself or armed thugs hired by the Brazilian colonists.

In reference to socio-environmental repercussions, Yvypé residents mention in particular the destruction of their crops, the death of small livestock, and even birth defects in the offspring of their domestic animals. Effects are also felt on human health, including headaches, diarrhea, vomiting, skin rashes, respiratory problems, and others. Important natural resources have also been lost, which were the foundation of the

domestic economy. For example, the destruction of the forests has meant that there is less and less firewood with which to cook meals, while the cost of gas is prohibitively expensive. Given the traditional gender division of roles in the home, still valid in the rural communities, this situation affects women's work in particular, because they assume the responsibility for family meal preparation.

Other changes related to the regional climate are also being felt. Extreme temperatures and intense droughts alternating



with periods of torrential downpours are having profound impacts on the productive activities of the families. The residents almost always associate these changes with the destruction of the forests that surrounded and crossed through the settlement. They also mention that even fruits no longer grow well and it is no longer possible to predict the yield of any of their products.

The Fourth Line has a water distribution network, but nevertheless the residents report that many of the area's creeks have been destroyed by erosion and agrochemical pollution. The problem is more serious in the Sixth Line. Rogelio Silva reports that the Brazilian colonists managed to fraudulently purchase the plot on which was installed the community water tank that supplied all of the houses through a distribution network.

The new "owners" closed the well and disconnected the tank from the distribution system, leaving the residents without running water, despite having all the necessary infrastructure. Residents of this Line also report that they are now forced to send their children to schools in other communities because their local school is surrounded by soy plantations that are sprayed at any time of the day regardless of temperatures or wind directions.

In response to all of the above, the residents turned to the appropriate authorities for assistance. While the authorities intervened in a few specific

Lands held by the Velilla family rented to the Brazilian Eichelberguer brothers for agricultural exploitation. This photo clearly reveals violations of environmental regulations, including the lack of a 25% forestry reserve and of a 100-meter border on either side of waterways and human populations. Yvypé leaders affirm that the environmental permit with which these lands are being farmed corresponds to a different property. Despite multiple complaints filed with the authorities, the same violations continue unabated.



Yvypé, Sixth Line. After illegally purchasing the plot on which the community's water tank was installed, Brazilian colonists closed the well and disconnected the tank from the distribution network. Despite having the necessary infrastructure, the residents were left without running water.

While the authorities intervened in a few specific



situations, no definitive solution has ever been achieved. The Brazilian colonists apply the “law of the strongest” and have even publicly declared that they “buy” the Paraguayan authorities. According to Benigno Acosta, current president of the Neighborhood Committee of the Fourth Line, the Brazilian colonist Ademir Mendes publicly stated in a community assembly that “paying off the Paraguayan authorities is cheaper than buying a piece of gum” and that for that reason they are not afraid of anything.

Given the inaction of the institutions and the prepotency of the soy growers, in 2007 the community began to respond with direct actions, while continuing to pursue the institutional procedures. The first confrontations took place in September 2007 when the community of the Fourth Line formed a human barrier to prevent tractors from fumigating the soy fields inside the settlement. The growers obtained a court order allowing them to continue to spray and were accompanied to the fields by antiriot troops of the National Police (known as blue helmets). Several authorities intervened to negotiate between the two sides with the purpose to establish agreements on the rules to follow. However, the main community leaders were subsequently legally prosecuted. According to Pedro Silva, that situation has made it much more difficult for the community to continue their struggles. For this reason they now sometimes give in and allow the Brazilians to impose their conditions.

On 5 September 2008, at least five complaints were filed with the Ministry of the Environment regarding agro-chemical contamination in the Yvypé neighborhood. The suits named the following Brazilian colonists as responsible for the pollution: Almeri Eichelberguer, Jorge Eichelberguer, Armando Marchao, Edson Rambo and Ademir Mendes. In each case, the population simply demands compliance with the existing environmental legislation, specifically the prohibition of applying agrochemicals within 50 meters of neighborhood roads and 100 meters of homes. This prohibition makes it materially impossible to spray in the plots purchased by the Brazilian colonists inside the community, considering that the plots are generally 100 meters wide, with a neighboring plot on each side.

Another mechanism of struggle implemented by the community is the occupation of plots that have been irregularly acquired by the Brazilian soy growers (who by definition can not possess fiscal lands because their nationality pro-



Yvypé, Fourth Line. Residents stand in front of tractors to impede fumigations on a plot located inside the community, while the police try to defend a court order that allows the Brazilians to continue to spray the fields. The community has been impeded from carrying out more such protests by the legal prosecution of community leaders and the generalized fear of being the target of violence. This situation has left the soy growers free to indiscriminately spray the fields, even in flagrant violation of environmental norms.



Campeſinos of Yypé occupy a 10-hectare plot in the process of being purchased by Brazilian soy growers. The local residents demand the plot be sold to a Paraguayan producer practicing family farming. Neighbors have used this organizational strategy in several cases to impede the further expansion of the monoculture from continuing to decimate their community.

been the same: eviction and legal prosecution of the main community leaders.

Benigno Acosta, current president of the Yypé Fourth Line Neighborhood Committee, declares the following:

If a solution is not provided to these problems, there will continue to be confrontations. There have already been assassination attempts on their part (*the Brazilian owners*) and the conflicts may no longer be contained. Now they think they have won, and they respect no type of right; they continue to advance in their work. Things have calmed down a little now but they will begin again (*when it is soy crop season*). They have even purchased another plot of land and they don't respect even the few laws that exist. They leave no protection border, they do not have a SEAM permit (*environmental license*), and they act according to the law of the strongest. They do anything; they terrorize the people so that they can't fight against them... They have their own armed thugs... The people put up with all of this because they have hope that the institutions are going to respond to the protests that have been filed. But it must be understood that if that does not occur, if the justice system does not act, the people will make justice with their own hands. We have gone to all of the institutional entities, but no one has provided an answer. We have already said enough without anything happening. We have wasted our time: we have carried out protests, we have taken our protests to the highways, we went to Asunción, we called the press, we have stopped tractors, we have carried out many actions, but they have all turned against us. They say we don't want to work, that we want to create problems. They have accused our leaders and they have blocked them from continuing in the struggle.

hibits them from being subjects of the Agrarian Reform) as well as lands that may be sold to them. The lands controlled and rented out by the Velilla family are also intermittently occupied while the community continues the legal process within the National Institute on Rural Development and Land (*Instituto Nacional de Desarrollo Rural y de la Tierra - INDERT*) to recover the same.

Another type of direct action occasionally implemented involves blocking off the District's main road. However, the response of the legal authorities has always

## THE CASE OF PEDRO PABLO SILVA (63)

Don Pedro Silva was president of the Yvypé Fourth Line Neighborhood Committee in 2007, when the direct conflicts began with the Brazilian colonists. Silva was a leader in the protests against the fumigations. The Brazilians had offered to buy his lands but he refused to sell them.

In April 2008 a group of armed gunmen entered his home and shot him five times in different parts of his body. By nothing less than a miracle, he survived. The gunmen were apprehended and remain in jail, but no investigation was ever carried out to identify the people who hired them to perpetrate the attempted murder. Local residents report having seen the gunmen enter the homes of Brazilian colonists on multiple occasions.

According to Pedro Silva: *“The problem faced by the Brazilians is that they want to expand and join their plots so that the machines can work more easily, so we become an obstacle. So first they make an offer and then they turn to intimidation or to direct violence to appropriate the plots. But I have suffered a lot to have this land and I am not going to give it up. Now I am going again, even if only to check my farm. Maybe I will die, but even so my family is going to use this land after I’m gone.”*



Pedro Pablo Silva, former president of the Yvypé Fourth Line Neighborhood Committee, received five gun-shots fired by Brazilian thugs on 25 April 2008, after refusing to sell his lands and opposing fumigations in soy fields located inside the community. Those behind the attack, who according to the residents are the same Brazilians who plant soy in the community, have not been investigated.

### Chronology of conflicts in the community

#### 2004

Soy plantations begin to be planted in the Yvypé area and Brazilians begin to buy plots in the community.

#### 2007

Conflicts begin as local campesino farmers raise protests and call for a halt to the soybean monoculture encroachment and respect for environmental norms.

#### 25/4/2008

Hired Brazilian thugs enter the home of longtime resident Pedro Silva, president of the Yvypé Fourth Line Neighborhood Committee, and without saying a word open fire at him. He is shot five times in different parts of the body, but survives.

#### 15/9/2008

Organized campesinos block Brazilian growers from preparing fields for soy planting, arguing incompliance with environmental legislation. Agreements are signed with the Brazilians on rules to be followed for the fumigations, but the rules are later ignored.

**16/9/2008**

The Public Prosecutor corresponding to unit 1 of Santa Rosa del Aguaray, Ninfa Aguilar, issues a warrant for the arrest of the primary community leaders of Yvypé, including District Board member Elvio Romero.

**23/10/2008**

In response to threats to occupy plots in the hands of Brazilians, the Public Prosecutor issues new arrest warrants against Antonio Cabrera, Joel Cabrera, Florencio Martínez, Catalino Mongelós and Elvio Romero, all Yvypé community leaders.

**28/10/2008**

Organized campesinos impede fumigation in a soy field by blocking equipment pertaining to the Brazilians, despite a large contingency of “blue helmet” antiriot troops sent by the National Police.

**28/10/2008**

Police arrest the professor and Lima District municipal board member, Elvio Romero, who remains in jail two weeks until being granted an alternative sentence. Romero is accused of the crimes of grave coercion, criminal association, resistance, and invasion of private property.

**15/11/2008**

Police detain community leader Antonio Cabrera. The arrest occurs while Cabrera receives a committee of penal, environmental, and technical prosecutors of the National Forestry Institute (*Instituto Nacional Forestal*) and the National Service of Plant and Seed Quality and Health (*Servicio Nacional de Calidad y Sanidad Vegetal y de Semillas*) to carry out an inspection of soy farms. The Public Prosecutor claims that an arrest warrant was pending against Cabrera for the alleged crimes of grave coercion, invasion of property, resistance and criminal association in Lima. Once detained, the community leader presents a judicial resolution absolving him of the crimes, and he is released.

**13/1/2009**

Organized campesinos set up a roadblock and threaten massive occupations and evictions of the Brazilians if State institutions fail to recover the lands and enforce environmental laws.

**12/7/2009**

In response to State inaction, organized campesinos threaten massive occupations of farms held by Brazilians.

## **THE CASE OF ELVIO ROMERO, LIMA DISTRICT MUNICIPAL BOARD MEMBER**

Elvio Romero is a resident of the Yvypé First Line. Since 2006, Romero has served as Municipal Board member, after winning the municipal board elections, running on behalf of an independent movement. Romero has been a permanent personal participant in the neighborhood struggle against the encroachment of soy crops in the community. As political representative, Romero has carried out the corresponding procedures to

demand compliance with environmental norms.

Because of his activism and political role, Romero has found himself in permanent conflict with the community's soy producers, and has on more than one occasion been the target of diverse types of threats. Persecution against him came to a height in 2008, including legal accusations. After the protest involving the detainment of tractors to impede fumigations and other actions to prevent further soybean expansion in the community, the Public Prosecutor for penal affairs of unit 1 of Santa Rosa de Aguaray, Ninfa Aguilar, issued an arrest warrant against him for alleged crimes of grave coercion, criminal association, resistance, and invasion of private property. According to Romero's own account, the Brazilians denounced him for coercion because, as municipal councilman, together with other corresponding authorities he had visited them to demand that they adhere to relevant environmental norms.

On 28 October 2008, Romero was detained by the police and put in jail where he remained 15 days until finally being granted an alternative sentence. The process against him remains open, and Romero is required to report to the Public Prosecutor's office each month to sign papers to verify that he has not fled the country. He is prohibited from attending meetings with other local leaders, and he has been informed that he will go straight to prison if he participates in any act that may be considered criminal (such as blocking fumigations, for example).

This is the type of legal persecutions that Yvypé residents cite for severely impeding the continuity of their struggles. The majority of leaders have such processes pending against them, and any excuse may be used to put them in prison, in particular considering the corruption of national authorities.



Elvio Romero, municipal board member, District of Lima, San Pedro. Accused by Public Prosecutor Ninfa Aguilar of the crimes of grave coercion, criminal association, invasion of property, appropriation, and resistance, for demanding compliance with environmental norms and for opposing fumigations in Yvypé. Jailed 15 days in October-November 2008. The legal process against him continues underway.

## FINAL OBSERVATIONS

Numerous human rights have been violated by the Paraguayan State in the Yvypé neighborhood, including civil, political, economic, social, cultural and environmental rights. The right to a healthy environment is one of the primary rights being violated, given that the State has done nothing to protect the environment from the destruction generated by the monoculture, deforestation, and contamination. The people's right to health has also not been protected by the State, and the multiple cases of acute intoxica-

tions, which may continue as chronic illnesses, are an example of the State failing. The destruction of local crops and livestock deaths derived from the agrotoxins constitute a violation of the rights to food and to work, and the disconnection of the water system is an affront to the rights to water and to housing, which is also affected by the indiscriminate agrochemical spraying practices. The rights of displaced persons have also been affected, considering that they are faced with a smaller and smaller supply of available lands, making it difficult to secure family subsistence. Those who migrate to the cities find few opportunities for dignified employment to generate an income and cover their basic needs. The persecution and criminalization of campesino leaders who organize to defend their land and environment against the frenetic monoculture expansion constitute further flagrant human rights violations, not only of civil and political freedoms, but also of the right to life. The Paraguayan State has failed to protect these rights and has failed to comply with the most basic obligation to respect them.

The political changes occurred in the past year have served little to halt the advance of the soy production model or to better protect the rights of the campesino communities. This is due, in part, to the fact that the legislative and judicial powers maintain the same political structures as always, but also to the paltry action of the executive power to improve the situation.

The Yvypé case clearly illustrates that the accelerated advance of monoculture in a territory creates conditions that favor systematic violation of the human rights of both campesino and urban populations, as well as the indigenous. States face the challenge to deal with and adequately oversee the transnational agribusiness interests – that form alliances with local power groups, including the communications media - with the preeminent obligation to universally protect and guarantee the most basic rights of their citizens.



# *Impacts of soybean monoculture in Paraguay: The case of the Lote 8 Community*

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## **Introduction**

Despite its small size, Paraguay has converted into the world's fourth largest exporter of soybeans, dedicating more than 2.4 million hectares of national territory to soy cultivation.<sup>1</sup> The massive expansion of soybean cultivation has occurred in the past fifteen years (1995 figures reported 830,000 hectares). According to data from the most recent agricultural survey, 80% of Paraguayan cropland is currently dedicated to soybeans.<sup>2</sup>

This growth, the result of neoliberal policies promoted by President Wasmosy in the mid-1990s, began to adopt new characteristics following the illegal introduction into the country of Monsanto Roundup Ready (RR) transgenic seeds, smuggled into Paraguay in 1999 with the complicity of the authorities. Since then, the expansion of soybean production has developed through a model more and more controlled and directed by the transnational companies dedicated to the provision of inputs, stockpiling, processing and commercialization of soybeans in the global market, in response to the growing demand for this product as raw material for animal feed (fodder) and for agrofuels (biodiesel).

Soybean monoculture has come to further aggravate one of the primary and particularly grave causes of poverty and inequality in the country: the unjust concentration of land. Almost 85% of land in Paraguay is in the hands of fewer than 2.5% of landowners, while the *campesino* and indigenous families must subsist on the rest (approximately 250,000



families have no land, and 41% of landowners have between one and five hectares<sup>3</sup>). Aside from the additional pressure created on land, soybean monoculture has also brought intensive and indiscriminate use of agrotoxins. This generates serious risks for the lives and health of the rural population, *campesinos*, and indigenous communities, with the destruction of family-based agricultural production, human and animal habitat, and the environment, including the contamination and exhaustion of water sources.

Massive fumigations are applied to the soybean crops based on a combination of various chemical products. Glyphosate is the most used herbicide, in addition to other insecticides, fungicides and bactericides. Glyphosate continues to be massively disseminated despite sufficient scientific evidence on its acute and chronic toxicity. Its carcinogenic properties, mutagenic action, food contamination effects, and persistence in soils and products have led to reclassification of this herbicide as “highly toxic” by the United Nations World Health Organization (WHO) and the United States Environmental Protection Agency (EPA). The mixture of glyphosate with other chemicals further augments the toxicity levels of the fumigations.

Thousands of small-holding farmers and indigenous families have already been forced to abandon their communities due to lack of land and the risks posed on their lives by the high contamination levels. The only option available to these families is a life of poverty and exclusion in the cities. Such is the case of the “Lote 8” community, which we present below.

## LOCATION OF THE COMMUNITY AND INFORMATION ON THE VICTIMS

The Lote 8 *campesino* community is located in the eastern region of Paraguay, in the Department of Alto Paraná, district of Minga Porá, 450 kilometers from the capital city of Asunción. The community consists of a total of 320 mostly young people in 44 families, whose language, like that of the large majority of *campesino* communities, is almost exclusively Guaraní.<sup>4</sup> The families are small rural land-holders (with less than five hectares each) dedicated primarily to small production for self-consumption, supplemented with incomes earned as seasonal farmhands.

The pressure exercised on small land-holding communities by the advancement of the soybean model is visible in Lote 8, which constitutes a small island in the middle of vast territories of soybeans. The families survive amidst the precarious conditions and grave health problems caused by the fumigations. However, the community has united together in an organizational process of resistance and struggle for their rights. The community’s organization is a civil association with restricted capacity, known as the May 1<sup>st</sup> Association of Agricultural Producers (*Asociación de Productores Agropecuarios 1º de Mayo*) integrated within the regional organization called the Farmers Association of Alto Paraná (*Asociación de Agricultores del Alto Paraná - ASAGRAPA*), which in turn is part

of the National Central of Campesino, Indigenous and Popular Organizations (*Central Nacional de Organizaciones Campesinas Indígenas y Populares* - CNOICIP).

## INFORMATION ON HUMAN RIGHTS VIOLATIONS

The Lote 8 community is 21 years old. It was initially populated by 64 families who arrived from various regions of the country, members of different “landless peoples” organizations. The families were settled on a 240-hectare plot of land expropriated by the Paraguayan State.<sup>5</sup> Of the original families, 32% have abandoned the community, asphyxiated by the neighboring soybean monoculture plantations and the absence of the State, leaving 44 families now inhabiting the community.

As evident from the above, one of the main impacts suffered by the community is the progressive displacement of the *campesino* families, which has been accompanied by the loss of community land, as the abandoned terrains are handed over to the soybean growers. According to data compiled by the community, approximately 100 hectares have been transferred to the soy plantations. Transfer of these lands has taken place under the primary responsibility of departmental agents of the National Institute of Rural Development and Land (*Instituto Nacional del Desarrollo Rural y de la Tierra* - INDERT) who – in infringement of their duties - exercise the role of real estate agents, using coercion means such as eviction threats and the promise of money to the small-holding families in exchange for the abandonment of their possessions. Such sales are illegal, first of all because they are only selling rights of possession, given the absence of land titles. Even if titles were to exist, INDERT restricts the sale of lands allocated through agrarian reform for a period of ten years.

The damages caused by agrochemical fumigations carried out without the protections required by environmental laws, and with the complicit silence of the authorities, are evident in the degradation of the population’s health. According to testimonies collected, symptoms manifested include: vomiting, headaches, skin afflictions, dizziness, blurred vision, and respiratory difficulties. The conclusions of a recent study<sup>6</sup> carried out in Lote 8 indicate that “82% of the surveyed population suffers discomforts or illnesses, the most common of which is headaches; 73% do not have medical coverage, and 55% of the women have suffered miscarriages.” Said study also reports that “23% of the population presents low levels of cholinesterase in the blood, with the existing assumption that an important cause is permanent exposure to some type of organophosphate compounds...” Measurement of cholinesterase levels in blood samples is a method of study of human intoxication produced by agrottoxins, in this case glyphosate. Cholinesterase is an enzyme that regulates the nervous system, and its inhibition produces damages in the DNA of the persons affected. In addition to the noted symptoms, it can activate the development of cancer and anomalies that may result in miscarriages.

In the case of the Lote 8 community, there has been no response by either the health

authorities or the environmental regulator to complaints filed by the community in the respective agencies to denounce the violation of their right to live in a healthy and ecologically balanced environment, as consecrated in Article 7<sup>7</sup> of the National Constitution of Paraguay. Denial of this right is coupled with the violation of others, such as the right to adequate housing recognized in Article 11<sup>8</sup> of the International Covenant on Economic, Social and Cultural Rights (ICESCR), ratified in 1992 by the government of the Republic of Paraguay through Law N° 04/92, and in General Comment N° 4 of the UN Committee on Economic, Social and Cultural Rights.

Another of the problems identified by the population refers to the community's loss of food production capacity and the poor quality of their products, provoked by the neighboring soybean monoculture plantations. Testimonies were gathered from several residents including Jerónimo Arévalo, age 47; Antonio Zacarías Arévalo, age 40, Antoliano Mora, 42; Raúl González, 42; and Agustín Vázquez, age 48, in which they explain that in order to have food to eat they are forced to plan their crops in periods different from the normal seasons established by agricultural calendars, because if the neighboring fumigations coincide with the flowering stage of their leguminous crops (beans, peas), they are severely affected by the herbicides. The same occurs with their manioc and fruit crops. All of this provokes a decrease in average yields of products cultivated, leaving the families dependent on the purchase of food products and therefore obligated to take on additional outside jobs. This is a clear illustration of the direct effects of the soybean monoculture on food availability, access, and adequacy, constituting flagrant violation of the community's right to food.

The community has also denounced the contamination of area waterways, many of which are drying out, as are the community's wells. Prior to implementation of the monoculture plantations, the community was able to draw water from tenmeter deep wells. They must now go at least seventeen and sometimes twenty meters down, very probably due to overexploitation of the water mantle through excessive extraction by the soybean companies. Empty jugs of agrottoxins have even been found tossed in the waterways, adding to the contamination by fumigations.

With this situation, the State is violating its obligation to protect the right to water of the inhabitants of Lote 8, right recognized in General Comment N° 15 to the ICESCR<sup>9</sup> and in "Law N° 3239/2007 on Water Resources of Paraguay,"<sup>10</sup> and through its failure to impede the companies from contaminating the water<sup>11</sup> and overexploiting



Empty containers of agrottoxins in the community's creeks. Photograph taken by Notary Public, Hugo Ramón Cibils, during his visit to the Lote 8 community in July 2009.

the water mantles, hindering the community's access to water.<sup>12</sup>

The inhabitants report that the neighboring agribusiness is destroying the family-based agriculture that is the foundation of food production in the country, due to the noted effects and the land privatization process provoked by the land hoarding of large-scale producers who benefit through speculation. This makes access to land almost impossible and impedes the stability of the communities that are forced to survive in subhuman conditions. This situation represents a clear violation of the right to food recognized in various international human rights instruments, in particular in General Comment N° 12 of the UN Committee on Economic, Social and Cultural Rights.<sup>13</sup> The case of the Lote 8 community clearly illustrates how the right to food is intimately linked to the right to land, a relation which the former Special Rapporteur on the Right to Food, Jean Ziegler, established in his report presented to the United Nations General Assembly in 2002,<sup>14</sup> which also indicates that "Access to land and agrarian reform must form a key part of the right to food [...] General Comment 12, the authoritative interpretation of the right to food by the Committee on Economic, Social and Cultural Rights, clarifies that the right to food requires physical and economic access to resources." The Lote 8 community also constitutes a very meaningful example of the situation internationally denounced and addressed in the Final Observations of the United Nations Committee on Economic, Social and Cultural Rights on Paraguay, dated 28 November 2007,<sup>15</sup> in which the government is called upon to implement urgent measures to carry out the agrarian reform and to review its agricultural policies.

The rights to land and to water are therefore directly linked with the possibility to effectively implement the right to food of the *campesino* population. In the words of resident Jerónimo Arévalo: "Obtaining a piece of land is very difficult and losing it is excessively easy, because people fall into the trap of the monoculture system. While lacking any of the advantages enjoyed by the agro-exporter, one gets involved in the soybean cultivation, leaving aside the manioc, peanut, or other product indispensable for his food. Without money and without food, he ends up selling his only asset, the land acquired through innumerable sacrifices."

This situation especially affects the women and children. Ida Peralta, age 38; Clotilde Arévalo, 59; Noelia Arévalo, 19; Silvia Ortiz, 42; Juana Mendoza, 39, and Clemencia, age 61, summarize the situation as follows: "When the amount and variety of foods traditionally produced by the farming families diminish, women are the ones who are forced to find outside jobs to provide food." In addition, the waterways in which they always washed the family's cloths have been left in private hands, diverted, or have dried up, making their tasks increasingly burdensome. These situations and the miscarriages provoked by the indiscriminate use of agrottoxins threaten their lives. The women report that there have even been several cases of blindness. Their children suffer skin ailments and respiratory illnesses. These situations affect women twice as much, given that they are exclusively responsible for caring for the ill, which implies additional hours of work.

## DEMANDS

The community has denounced the constant violations and the unsustainable living conditions to which they are subjected due to the fumigations and the encroachment of the soybean monoculture. The institutional entities responsible for protection of human health and compliance with environmental laws and international human rights agreements ignore or minimize the complaints, filing them away with no investigation, and much less punishing those responsible. The list of formal complaints and denouncements presented by the community is presented below:

- 1) In January 2009, a complaint was lodged regarding air pollution crimes committed through fumigations of agrototoxin products and other infractions outlined in Law 716/96 that penalizes those crimes committed against the environment and others.<sup>16</sup> The denouncement was filed in the fiscal unit of Minga Porá, in the presence of Attorney Ángel Aveiro, by Lote 8 residents Jerónimo Arévalos, Miguel Miranda, Victor Morel and Reinaldo Ramírez. This complaint was filed away with no investigation of the situation.
- 2) In February 2009, the same persons denounced the same situations in a complaint lodged through the Public Ministry, Fiscal Unit on Environmental Crimes, of the Ciudad del Este Region. On this occasion, through the intervention of Attorney Gustavo Adolfo Sosa Ibarrola, an agreement (registered as N° 776/09) was signed between the denouncing and the denounced parties, through which the business owner known by the community as “Cañote”, and whose property borders the Lote 8 community, assumed the commitment to implement proper protection measures,<sup>17</sup> planting the corresponding barriers. But before the plants even had a chance to serve their purpose, the same owner proceeded to cut them down entirely, under the pressure of his business colleagues who refuse to comply with any legislative norm, apparently so that the plant barrier could not constitute a “bad example.” The commitment had been signed in the presence of the District Attorney, whose office did nothing in response to the posterior actions, which constitute a mockery against the community.
- 3) In the same month of February 2009, a complaint was lodged through the Tenth Region of Sanitary Surveillance (*Décima Región de Vigilancia Sanitaria*), dependency of the Ministry of Public Health and Social Welfare (*Ministerio de Salud Pública y Bienestar Social*), regarding environmental crimes and indiscriminate use of agrototoxins affecting the health of the community. On this occasion, the intervention of the health institution was requested to investigate the scope of the complaint and to send professionals to the community to analyze the persons who live there. These professionals took blood samples, the results of which had still not been released at the time of this report, six months later.

While the community continued to await follow-up to these demands, in July 2009,

the ASAGRAPA requested the establishment of a notarized act to verify the community's water situation (wells, creeks, etc.). The Notary, upon approaching the creeks that run 150 meters from the community's homes, verified the presence of empty containers of different brands of agrochemicals. This Notarized act may be grounds for a legal suit.

Lote 8 is one of many such *campesino* communities surviving today in the hostile conditions briefly described in this document. To date, the denunciations dutifully registered in the public entities responsible to address them, have not improved their situations.

## NOTES

<sup>1</sup> A total of 2,463,510 hectares in 2008. Source: CAPECO (*Cámara Paraguaya Exportadora de Cereales y Oleaginosas*).

<sup>2</sup> Data from the 2008 National Agricultural Survey, published in 2009 by the *Ministerio de Agricultura y Ganadería*.

<sup>3</sup> Preliminary results reported from the 2009 National Agricultural Survey.

<sup>4</sup> Guaraní is the country's second official language and the mother tongue of more than 60% of the Paraguayan population.

<sup>5</sup> The majority of campesino settlements are established on lands expropriated for said purpose by the State and are product of physical occupations.

<sup>6</sup> Study titled: "*Efectos de los Órganos Fosforados utilizados en Agricultura sobre el nivel de Colinesterasa en la población de Lote 8.*" Angélica Ramírez. Thesis in Environmental Engineering, Department of Agronomical Engineering, Universidad Nacional del Este, Paraguay.

<sup>7</sup> Article 7 establishes that: "All persons have the right to inhabit in a healthy and environmentally balanced environment. The preservation, conservation, recomposition and improvement of the environment constitute priority objective of social interest, as well as its conciliation with integral human development. These purposes shall orient the pertinent legislation and governmental policy."

<sup>8</sup> The right to adequate housing is "the right to live somewhere in security, peace and dignity."

<sup>9</sup> General Comment N° 15, paragraph 2 establishes that "the human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses."

<sup>10</sup> Article 3, paragraph b of this Law establishes that "access to water for the satisfaction of basic necessities is a human right and should be guaranteed by the State, in adequate quantity and quality."

<sup>11</sup> General Comment N° 15 specifies that water should be free of agents that may be damaging for health including microorganisms and chemical or radioactive substances.

<sup>12</sup> General Comment N° 15 indicates that having the right to water supposes that the water installations and services be physically accessible for all the population sectors.

<sup>13</sup> The right to adequate food is specified as "physical and economic access at all times to adequate food or means for its procurement."

<sup>14</sup> UN Document (A/57/356, para 30). <http://www.righttofood.org/new/PDF/A57356.pdf>

<sup>15</sup> UN Document (E/C.12/PRY/CO/3). <http://www2.ohchr.org/english/bodies/cescr/docs/cescr39/E.C.12.PRY.Q.3.doc>

<sup>16</sup> Law 716/96, in article 1, indicates: "This law protects the environment and the quality of human life against those who order, execute, or in reason of their attributions allow or authorize activities that offend against the balance of the ecosystem, the sustainability of natural resources, and the quality of human life."

<sup>17</sup> These protection measures refer to living barriers in the form of trees planted between the soybean fields and the populations.



*Final article*





# Monoculture expansion, food sovereignty, and human rights: recommendations from the IAASTD-ALC evaluation

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## Introduction

The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD<sup>1</sup>) was developed as part of the search for new options so that the Systems of Agricultural Knowledge, Science and Technology (*Sistemas de Conocimiento, Ciencia y Tecnología Agrícola* – SCCTA, as known in Latin America<sup>2</sup>) may better contribute to improve environmental, social and economic sustainability. The goal is to examine the past, present and future impacts of these systems of agricultural knowledge on the reduction of hunger and poverty, and the improvement of means of subsistence, human health, and equitable, social, and environmentally sustainable development. Close to 400 scientists and experts from throughout the world participated in the process in a three-year period (2005-2008), including academic sectors, NGOs, governments, and the private sector, among others. In addition to a global evaluation, five sub-global evaluations were produced from this process, corresponding to: (1) Latin America and the Caribbean, (2) Central and Western Asia and Northern Africa, (3) Eastern and Southern Asia and the Pacific, (4) North America and Europe, and (5) Sub-Saharan Africa. Each sub-global group completed a report, a summary specifically for decision-makers, and a synthesis report. The global report also analyzed cross-cutting themes such as bio-energy, biotechnology, climate change, human health, natural resource management, trade and

markets, traditional and local knowledge, innovation in communities, and women in agriculture. The synthesis reports and the summary were approved by 58 governments in April 2008 in South Africa.<sup>3</sup>

Within the plurality and breadth of themes addressed, the evaluation covered aspects related to the expansion of monocultures, with their many implications on food sovereignty and human rights in the different sub-regions of the planet and at the global level.

## BRIEF DIAGNOSIS IN THE FRAMEWORK OF THE IAASTD-LAC

Assessment of the Latin American and Caribbean region began with the identification of two critical facts: it is the region with the highest level of inequity in the division of land, and 37% of its population is malnourished (209 million people). The evaluation grouped the agricultural production systems in the region into the following three categories: (1) traditional/indigenous, (2) conventional, and (3) agro-ecological. The first is based on local ancestral knowledge, is closely linked to the particular territory, and includes the *campesino* (small holding farmer) systems. The second is based on intensive production practices and use of external inputs, and tends toward monoculture. The third combines agro-ecology and traditional knowledge, and aims to use biological inputs and integrate natural ecological processes.

The system predominantly supported by the hegemonic development model has been the conventional/productivist system, also called the industrial system. This system seeks a high degree of mechanization, relies on intensive use of synthetic fertilizers, pesticides and herbicides, employs contracted labor, (Chapters 1 and 2, IAASTD-LAC<sup>4</sup>), and favors land concentration in few hands. Given that the priority of this model is the market and integration of the productive chains, the system is highly competitive and productive, but generates negative externalities that dangerously threaten social, environmental, cultural and energy sustainability. The high productivity of industrialized monocultures in general could not be maintained without a package of agrochemical inputs (insecticides, fungicides and herbicides, among others).

The displacement of *campesino* populations toward cities is a grave problem that debilitates rural communities. The situation is exacerbated in areas of monoculture expansion, be they transgenic, conventional (industrialized), or of bio- or agro-fuel crops. The rural communities and their traditions have been rapidly eroding, with the disappearance of languages, dialects, and ancestral knowledge, along with the indigenous ethnic identities and *campesino* communities.

The future scenarios modeled in IAASTD-LAC (Chapter 3) reveal vulnerability in the current system of industrialized monocultures due to the low resilience to (or capacity

to bounce back from) the effects of climate change (floods, droughts, etc.) due to loss of existing agrobiodiversity and to the emergence of pandemics.

Food sovereignty is now a question of human rights defense. This framework fosters the definition by distinct peoples of their food and agrarian policies, allowing them to prioritize local agricultural production, the population's access to food, and the access of the local campesino farmers to land, water, seeds, credit and support (Chapter 1). Equity is basic criterion for the good use of natural resources, especially water and land, procuring independence from the large multinational companies, and supporting the concept of food as a fundamental right that respects the culture and the idiosyncrasy of peoples. The rupture is sought of current dependence and vulnerability caused by the control of foods by entities external to the communities themselves. Communities are therefore protagonists and essential actors for achievement of food sovereignty.

## PROPOSED OPTIONS

Based on the diagnosis, it was concluded that it is not possible to continue with the currently dominant agricultural-livestock-aquatic production system, given the increasing clarity of indicators of unsustainability. One option gaining force is to adopt the agroecological system, based on a combination of scientific and traditional knowledge oriented to reduce the negative impacts of the conventional systems through diversification of production and the use of ecological and socially-equitable technologies. Agroecology strives for sustainability in social, economic, cultural and environmental terms, with scarce articulation in productive chains and strong linkage with the market of differentiated products, especially those demanding organic products. The traditional systems are characterized by high agrobiodiversity. Mixed farming with traditional or indigenous techniques can produce 20 to 60 % more than monocultures (Chapter 1). Mixed crops are more efficient in water and energy use, and by their nature prevent damage caused by plagues and weeds, if their ecology is correctly understood and rationalized in relation to the crop practices.

### **Alternatives and future options: A systemic vision**

The IAASTD assessment proposes options for decision-makers (be they governments, NGOs, social movements, etc.) to assist the SCCTA to take steps toward achievement of the goals of environmental, social, and economic sustainability. A basic concept is the need for a systemic research approach to analyze the relations among the different parts of the farm, including its socioeconomic and visual surroundings and its human transformation potential. It is clear that agricultural systems are subject to biological, geo-morphological and socio-economic laws, for which they can improve human well-being with a high level of sustainable production of environmental goods and services.

Latin America and the Caribbean possess great wealth in genetic resources and biodiversity, indispensable for the phyto-improvement and the sustainability of agriculture in the long term (Chapter 2). Monocultures tend to favor a few varieties, with the aggravating circumstance that the institutional and political capacity of the majority of countries does not foster the conservation and optimal use and advantage of the genetic wealth currently approaching extinction. A reliable way to conserve these resources is *in situ*, promoting the exchange of seeds, knowledge, and agricultural practices.

### **Training and the generation of agricultural knowledge**

Another basic concept is the need for interaction among the different types of knowledge that sustain the distinct modes of food production, including traditional/indigenous, conventional, and agroecological. A large number of agroecological practices exist (such as mixed farming, mulch, low- or no-till practices, etc.) which have been proven to adapt to the ecological, topographical and soil conditions of tropical countries. Priority attention must be dedicated to fully appreciate and put these practices to the test in terms not only of production but also of ecological and socio-economic benefits. Intercultural education policies are needed to promote local rural-sector capacities and abilities (both their construction and their development), including intercultural and multi-linguistic formation, the compilation of detailed information on local environments and their natural resources, and the application of this information within planning tools and appropriate approaches for resource management.

### **Land tenure**

Chapter 4 of the SCCTA affirms that priority must be assigned to the legalization of land tenure and the development of policies to promote appropriate models of land use, through the application of diverse instruments. The research system has favored the large monocultures and largely neglected the campesino-indigenous and agroecological systems (Chapter 5). Processes are more recently emerging to validate other ways to know, understand, and practice agriculture and local life as a whole.

### **Agrofuels and renewable energy sources**

Renewable energy sources (wind, solar, geothermal) can be found without resorting to the predominance of agrofuel monocultures. It is necessary to avoid the conversion of food crops into raw materials for agrofuel generation (or biofuels, i.e. ethanol and diesel).

It is also necessary to promote interaction among the countries of the region in order to maximize research strengths through the exchange of experiences, and among knowledge systems in particular for the development of renewable energy sources. The direct actors - local producers and consumers - need to form networks to capacitate and generate knowledge toward sustainability. Another route with great potential to provide

healthy food accessible to consumers is to continue to develop urban and peri-urban agriculture.

### **Conditions for transformation toward sustainable management of production systems**

The proposed conditions are: (1) production diversified in terms of space and time (mixed crops, rotation-forestry grazing); (2) satisfy family food needs and the family's contribution to the internal market; (3) use agroecological practices; (4) reduce the energy costs of the system (less mechanization, shorter transportation distances, etc.); (5) make adequate use of the biomass produced within the systems; (6) develop capacities based on renewed appreciation of local knowledge and proven technological innovations (Chapter 4). The transition implies a gradual conversion process that promotes recovery of soil fertility and of functional biodiversity in the agroecosystems, with possible seasonal or temporary drops in yields.

So that the production systems may transition toward ecological or organic agriculture, they must obtain a price in exchange for their products that corresponds to their quality, which may surpass the international market price. Several studies have shown that it is possible to produce sufficient food to satisfy the nutritional needs of the global population without the use of agrochemicals. Ecological or organic production also converts into a good source of rural employment, and consequently a significant contribution to improvement of quality of life. The assessment suggests that the principle of “the polluter pays” could be applied to the polluting or erosive production systems (such as certain industrialized monocultures) in order to generate resources to advance research in agroecology.

### **International commitments toward the future**

To advance toward fulfillment of the Convention on Biological Diversity (CBD)<sup>5</sup> and the United Nations Framework Convention on Climate Change (UNFCCC)<sup>6</sup>, it is necessary to implement sustainable agriculture and livestock practices that foster protection of the right to healthy and culturally appropriate food while at the same time preserving biodiversity and capturing carbon (Chapter 5). However, better coordination is required between policies and actions. It is necessary to know what the economic, social and ecological benefits of biological diversity are, as well as the costs of its loss and of those consequences derived from failure to adopt protection measures. A clean and ecological agriculture may be vital to contribute to achieve the commitment of reduction of greenhouse gases.

### **Intellectual property rights**

The intellectual property of traditional peoples and communities is being increasingly appropriated and used for commercial purposes in sectors such as pharmaceuticals and

agriculture. Guaranteeing the intellectual property rights of its originators is therefore a priority. The evolution of the situation has made it necessary to modify intellectual property norms, given that the current regimen is based on a concept of individual and private property and is insufficient to protect the traditional rights of rural communities and nations over their natural resources and assets. The Latin American and Caribbean assessment (LAC) proposes at least five policies in this direction. It proposes to prevent the bio-pirating or plundering (illegal access) of genetic resources located in the territories of diverse ethnic groups for the elaboration of pharmaceutical or similar products which may be patented outside of the country through the International Regime on Access and Distribution of Benefits (ABS in the CBD). But there is concern regarding its real effectiveness, specifically for the equitable distribution of benefits. A convenient option is to facilitate participation channels among the social actors involved with the goal to guarantee the collective rights over natural resources. Among other recommendations, *sui generis* normative frameworks are proposed to protect traditional knowledge of phylogenetic resources considered the collectivity of knowledge, as well as non-conventional registry forms (oral history, etc.) and distribution systems of the resources generated by access to genetic resources.

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## NOTES

<sup>1</sup> International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). IAASTD-LAC refers to the evaluation of Latin America and the Caribbean.

<sup>2</sup> The SCCTA may be understood as the whole of actors (persons and organizations), networks, configurations, and the interfaces between them, that interact in the generation, reconfiguration and dissemination of information and technologies for the institutional and technological innovation of productive systems, through social learning processes regulated and oriented by norms and rules negotiated with the purpose to improve the interrelation between knowledge, technology, the environment, and human development. The SCCTA have the objective to improve the performance indicators of the agricultural production systems through technological innovation processes (Chapter 1 of the assessment for Latin America and the Caribbean).

<sup>3</sup> The basic documents may be consulted at: [www.agassessment.org](http://www.agassessment.org)

<sup>4</sup> The chapters henceforth cited refer to the IAASTD-LAC, Latin America and Caribbean assessment.

<sup>5</sup> [www.cbd.int](http://www.cbd.int)

<sup>6</sup> <http://unfccc.int/2860.php>







# Glossary

## **AGRICULTURE**

**CONVENTIONAL/PRODUCTIVIST AGRICULTURE:** Industrial agricultural production system characterized by high productivity obtained through large extensions of monocultures using high-yield seeds, with significant mechanization of agricultural tasks, and high dependency on external inputs (energy, chemical pesticides and fertilizers) and large amounts of water for irrigation. This production mode is generally oriented to the national market and increasingly more to the global market thanks to the liberalization of agricultural trade and of food security policies. This is the agricultural production system most supported by the hegemonic development model.

**ECOLOGICAL AGRICULTURE:** Agricultural production model whose fundamental objective is production of maximum quality, nutritious, and sufficient quantities of foods while respecting the environment and preserving the fertility of the soil through optimal use of natural resources and without use of chemical inputs. It is based on integration between scientific and traditional knowledge, and oriented to reduce the negative impacts of the conventional systems through diversification of production and use of ecological and socially-equitable technologies.

**TRADITIONAL AGRICULTURE:** Land use systems locally developed over many years of empirical experience and *campesino* experimentation, transmitting knowledge across generations. Among the diversity of strategies developed in the different regions

of the world, these systems present a series of common characteristics: they are most often small, family or communal-scale operations; they tend to be highly diversified (polycultures integrated with livestock production), thereby minimizing risks and providing variety to the diet; they employ local varieties and appropriate technologies highly adapted to the ecological conditions of the region, and they are sustainable in the long term.

**SUSTAINABLE AGRICULTURE:** Type of agriculture characterized by the preservation of natural resources, and the use of local renewable resources and appropriate and low-cost technologies that foster a high degree of local self-sufficiency. Said technologies are characterized as ecologically adequate, economically viable, socially just, and culturally appropriate.

### **AGROECOLOGY**

Scientific discipline that systematically and integrally addresses the study of agroecosystems, including the environment and human beings. This discipline establishes the bases for the study, design and management of agroecosystems that are productive while at the same time preserving natural resources.

### **AGROECOSYSTEM**

An ecosystem (set of living beings, physical and chemical environment, and the relations existing among them) which has been modified by humans for the production of food, fibers, biofuels, or other products for human consumption. The agroecological approach considers agricultural ecosystems as fundamental units of study. The mineral cycles, energy transformations, biological processes, and socioeconomic relations in these systems are studied and analyzed as a whole.

### **AGROTOXIN**

Any of a wide variety of chemical substances used to combat pests, weeds, or plant diseases, especially in industrial agriculture.

### **BIODIVERSITY**

The variety of genetic material, species, and ecosystems existing in the world or in a specific local environment, including the genetic diversity of each species and among species, and ecosystemic diversity.

### **BIOFUELS**

Products elaborated from organic material and used as fuels. The wide-ranging variety of biofuels includes: solid biofuels (directly burned biomass, such as firewood), gaseous biofuels (biogas), and liquid biofuels (biodiesel, derived primarily from vegetable oils from oleaginous seeds such as soybeans, African palm, colza, sunflower, jatropha, etc., and bioethanol, derived from the fermentation of products with high sugar content such as sugarcane, molasses, or sweet sorghum, or from substances with high starch content such as corn, wheat, or barley). While for many years these products were widely viewed as an alternative to fossil fuels and possible solution to halt climate change, their large-scale industrial production produces significant socio-environmental consequences (substitution of food crops for agrofuels crops, higher prices of basic grains, expansion of industrial agriculture, destruction of native forests for crop expansion, etc.). Many studies also highly question the final energy yield of these crops.

## **BT PLANTS (Bt cotton, Bt corn)**

Transgenic plants that produce toxins with insecticidal properties against beetles, moths and flies (the insect groups responsible for the majority of crop plagues). Bt stands for *Bacillus thuringiensis*, a bacteria found naturally in soils and that produces insecticidal toxins. Genetic engineering techniques are used to extract the gene that codifies the insecticidal protein from the bacteria and introduce it into the genome of the plant cells.

## **FERTILIZER**

Any organic, inorganic, natural or synthetic substance that contributes to crops one or several of the nutritional elements indispensable for their normal plant development.

## **FOOD SECURITY**

The officially accepted definition of food security established by the 1996 World Food Summit defines it as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life,” commonly understood to include both physical and economic access to food that satisfies both dietary needs and cultural preferences. Since its appearance, the term has undergone significant evolution. During the 1970s, its formulation referred to National Food Security, understood as the availability of sufficient food supplies to satisfy per-capita consumption needs of the whole of a country. In the early 1980s, and as fruit of the contributions of Amartya Sen’s “entitlements theory,” the new concept of Family Food Security was developed, focusing on families’ access to food. The fundamental differences are that the latter approach focuses the problem on access rather than availability of food, and the unit of analysis is the family rather than the nation as a whole, which hides large disparities. Since the mid-1980s, the food security concept has been further revised and its complexity has been expanded to address previously ignored aspects such as: gender inequalities within families in terms of control over resources and access to food and other basic goods; health and its relation to nutrition (nutritional status does not depend solely on food consumption but also on the state of health, and therefore also involves aspects such as hygiene, access to water and sanitation, and the healthiness, quality and variety of diet); the cultural value of food; and the subjective perceptions of those affected by food crises regarding their risk situation and their needs.

## **FOOD SOVEREIGNTY**

The concept of food sovereignty was developed by Vía Campesina with the goal to encourage NGOs, civil society organizations, and social movements to discuss and propose alternatives to the hegemonic neoliberal model in order to achieve food security. The concept was made public for the first time at Vía Campesina’s International Conference held in Tlaxcala, Mexico in 1996. It has since been the object of multiple debates in diverse forums, with resulting modifications and expansions. In the words of Vía Campesina: “Food sovereignty is the peoples’ Countries’ or State Unions’ RIGHT to define their agricultural and food policy, without any dumping vis-à-vis third countries. Food sovereignty includes: (i) prioritizing local agricultural production in order to feed the people, [and] access of peasants and landless people to land, water, seeds, and credit. Hence the need for land reforms, for fighting against GMOs (Genetically Modified

Organisms), for free access to seeds, and for safeguarding water as a public good to be sustainably distributed. (ii) The right of farmers [and] peasants to produce food and the right of consumers to be able to decide what they consume, and how and by whom it is produced. (iii) The right of Countries to protect themselves from too low priced agricultural and food imports. (iv) Agricultural prices linked to production costs: they can be achieved if the Countries or Unions of States are entitled to impose taxes on excessively cheap imports, if they commit themselves in favor of a sustainable farm production, and if they control production in the inner market so as to avoid structural surpluses. (v) The populations taking part in the agricultural policy choices. (vi) The recognition of women farmers' rights, who play a major role in agricultural production and in food."

### **GLYPHOSATE**

Glyphosate is a broad-spectrum, non-selective herbicide used to eliminate weeds. It is applied in liquid form directly on the leaves where it is absorbed and then circulates through the plant until reaching the root, killing the plant within a few days. Glyphosate is the primary active ingredient of the herbicide with the commercial name Roundup owned by the Monsanto company, which also holds the patents for the transgenic crops resistant to this herbicide, known as Roundup Ready or RR crops. This herbicide is also used indiscriminately against coca and poppy crops in the so-called Colombia Plan. Despite having been promoted as a risk-free agrochemical with no environmental impact, independent scientific studies have demonstrated its toxicity for human beings, mycorrhizas, animals, microorganisms, and beneficial insects. Roundup also contains POEA surfactant, which serves to facilitate the application and absorption of the product by the plant and is also highly toxic.

### **GREEN REVOLUTION**

The process of development and dissemination of high-yield seeds and high-productivity agrarian techniques promoted by the FAO's World Plan for Agricultural Development from 1963 until the 1990s. The main objective was to increase agrarian productivity in order to meet growing food needs resulting from expanding world population. The practices were generalized in many Third World countries, particularly in Latin America and Southeast Asia, while the Green Revolution had little influence in Africa. The main pillars of the Green Revolution, which led to the doubling of grain harvests (especially corn, wheat and rice), were: intensive crop systems; massive irrigation; heavy use of agrochemicals (fertilizers and pesticides); genetic selection of high-yield seed varieties and highly-productive cattle breeds, and the expansion of mechanized systems. Despite the crop increases, the Green Revolution has brought important negative consequences. The primary environmental problems derived from these practices are: loss of biodiversity and pest resistance due to the generalized use of a few high-yield varieties and the abandonment of traditional crops; environmental deterioration due to the increased use of agrochemicals; heavy pressure on hydrological resources due to the expansion of irrigation systems, and the compacting of soils due to increased use of heavy machinery. In addition, operations based on this type of agriculture require certain conditions (external inputs, specific training, vast extensions of land, access to water,

steep economic investments) often beyond the reach of small farmers. This in many cases leads to the accumulation of debts by the poorer farmers, among other factors due to the dependence generated on the suppliers of improved seeds (the crops from which do not produce fertile seeds, obligating their purchase for each crop cycle). In addition, said crops are not truly productive unless combined with a complete technological package. This situation derives in the loss of lands, degrading the small-holding farmers to a status of day laborers. Other effects of the industrialization of agriculture include greater gender inequality, and increased unemployment due to mechanization. In synthesis, the Green Revolution has to date produced concentration of lands in fewer and fewer hands and increased social inequality.

### **HYBRID SEEDS**

Seeds resulting from the crossing of different strains of a same species to obtain new combinations of favorable characteristics. These seeds are designed to be more productive than similar non-hybrid varieties but they require optimal conditions to achieve all of their potential, which tends to imply the intensive application of fertilizers and pesticides. It is important to highlight that hybrid plants can not produce seeds with their same characteristics, leaving the farmers dependent on commercial seed distributors.

### **MONOCULTURE**

Agricultural practice consisting of cultivation of one sole plant species on vast extensions of land. The practice favors more efficient use of agricultural machinery, and tends to involve intensive cultivation techniques, large quantities of chemical pesticides and fertilizers, high volumes of water for irrigation, and specialized crop varieties. It is the cornerstone of industrial agriculture. Some of the negative consequences fostered by this agricultural practice include: the appearance of plagues due to the absence of biodiversity; soil erosion due among other factors to the practice of leaving the soil uncultivated between crops and therefore exposed to the elements; heavy pressure on water supplies due to the intense irrigation practices; and environmental pollution from the large-scale and massive application of agrochemicals.

### **PATENTS**

A patent is a concession issued by public authorities to an inventor, who thereby acquires the civil right during a stipulated time period (usually between 17 and 20 years) to exclude others from exploiting (making, using or selling) the object of the patent. The underlying idea is to compensate the effort and money invested by the inventor. The concession of a patent is conditioned by the fulfillment of criteria of patentability: novelty, that it be the result of inventive activity, and utility or applicability. An invention is something produced by human ingenuity applied to resolve a specific technical problem or to satisfy a practical need. This means that scientific discoveries are excluded from being patented. However, since 1980 (before which patents were prohibited over living organisms), patents have been issued for natural substances, microorganisms, multi-cellular organisms, cellular lines, DNA sequences, genetically modified organisms, and other living entities. These patents are granted to biotechnological companies that have been allowed to argue that the isolation of biological material (gene sequences,

natural substances, etc.), the insertion of foreign genes in organisms, the reproduction of biological material in laboratories, etc. may be considered inventive acts. The world's five largest biotechnological companies control more than 95% of biological patents.

### **POLY CULTURE**

Simultaneous production of two or more crops in the same space at the same time. This practice fosters maximum use of the land, taking advantage of complementary nutritional and sunlight needs of diverse plants. It also allows food production, incomes, and labor to be distributed throughout the year, and reduces the risk of plagues and diseases, contributing to achievement of a stable yield.

### **PRECAUTIONARY PRINCIPLE**

This is one of the most important principles in environmental and health legislation at the international level, and states that when an activity raises a threat of harm to the environment or human health, precautionary measures should be taken, even if cause and effect relationships have not been fully established scientifically. It subjects development to the obligation of scientific demonstration of its harmlessness. It is applicable when a reasonable doubt exists that some type of damage may occur (to either the environment or human health) and scientific uncertainty or lack of consensus exists on said damage, in which case actions should be adopted to prevent such damage. The burden of proof is placed on the proponents of the activity, using a transparent, informed, and democratic decision-making process, which should include the affected persons.

### **RR PLANTS or CROPS**

Transgenic plants or crops designed to be resistant to the broad-spectrum herbicide with the commercial name Roundup, owned by the Monsanto company. RR stands for Roundup-Ready. This characteristic makes it possible for large quantities of the herbicide to be applied to combat weeds without damaging the transgenic crops.

### **TRANSGENICS (GENETICALLY MODIFIED ORGANISMS, GMO)**

GMOs are live organisms artificially created through gene manipulation. Genetic engineering techniques consist of isolating DNA segments from a living being (virus, bacteria, plant, animal, or even human) to insert them into the hereditary material of another. The fundamental difference between these techniques and traditional genetic improvement techniques is that they are able to cross barriers between very different species, which would have never been crossed in nature. The most important transgenic crops in commercial terms are currently: soybeans (accounting for 60% of all GMO crops), corn (23%), cotton (11%) and colza (6%). These crops present the following genetic modifications: resistance to a given herbicide (73%), production of Bt insecticide (18%), and varieties combining these two qualities (8%). Monsanto is the leading multinational company in transgenics patents; Monsanto varieties account for more than 90% of the world's transgenic crops.