THE GREAT FOOD ROBBERY

How corporations
control food,
grab land
and destroy the climate.

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GRAIN is a small international non-profit organisation that works to support small farmers and social movements in their struggles for community-controlled and biodiversity-based food systems. Our support takes the form of independent research and analysis, constant networking at local, regional and international levels, and active cooperation and alliance-building.
We believe that the current industrial food system, dominated by corporate interests, is leading us further down the path of more hunger, environmental destruction, climate change and eviction of rural and indigenous communities. The alternative exists and is being fought for. Food sovereignty implies a fundamental overhaul of the global food system, putting peasant farming, ecological agriculture and local markets centre stage.
The great food robbery is a collection of materials produced by GRAIN during the past few years. It zooms in on how agribusiness is driving today's global food crisis, how the industrial food system is largely responsible for the climate crisis, and how a whole new phenomenon of landgrabbing is being fuelled by a financial industry wanting to make money off the backs of the poor. It also explains how the struggle for food sovereignty is challenging these trends and actors.

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PREFACE

The global food system is in a profound crisis. More than a billion people on the planet suffer from hunger, and their numbers are rising faster than global population. Yet more than enough food is being produced to feed everybody in the world. At the same time we are heading deeper into a global climate crisis, for which the industrial food system is to a large extent to blame. And we are witnessing a brutal new wave of landgrabbing in which corporations are taking control over huge areas of land and water systems in poor countries, displacing rural communities in the process.

This book looks at the forces behind these developments. Much of it is about corporations and the strategies and tactics they use for organising and controlling the production and distribution of food. We focus on corporations because they are the leading actors driving the expansion of the industrial food system and we are concerned about how their actions impact on people and the planet. As this book should make clear, when these corporations expand, they destroy other food systems: those based on local markets, local cultures, biodiversity and, most of all, people. The corporate food system puts the profits of the few before the needs of people. This is why it leads to massive food safety incidents, environmental destruction, labour exploitation and the decimation of rural communities. All of these impacts are well-documented in this book.

Our goal is to work with others to take the food system back from corporations and put it in the hands of people. We hope this book will help readers to better understand the ways in which corporations seek to increase their control over the food system so that this control can be more effectively challenged. We hope it will inspire people to take action and we hope that it will provide readers with some information and analysis that they can use directly in their local work.

All of the chapters in this book were published as separate articles by GRAIN, most of them in the last two years. They can all be found on our website: www.grain.org. The main purpose of this book is to bring these articles under one hard publication, which can be used as a reference, be distributed where access to the internet is limited, and be shared from hand to hand. Copies are available in English, Spanish and French.

GRAIN would like to thank the many partners from all over the world who – over the years – have contributed to the the thinking, the research, and the writing of the different chapters in this book. Without their input, these materials never would have seen the light. Jim Elick and Amadine Semat proofread the final texts in English and in French, respectively. Odile Girard-Blakoe, Lucy Moffatt, Maria Teresa Montecinos and Jean Luc Thierry provided translations. Dexter Perrera and Raúl Fernández did a tremendous job with the design and desktop publishing. And Camila Oda Montecinos helped us in securing access to the images that we used in this book. Many thanks to all of them!

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Please get in touch with us if you want to share your feedback on this book or if you have ideas for its further distribution.

GRAIN, December 2011
www.grain.org

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INTRODUCTION

RIGHT LIVELIHOOD AWARD 2011
GRAIN's acceptance speech
5 December 2011

Time to recall the land grabbers

On 5 December 2011, GRAIN received the 2011 Right Livelihood Award, often referred to as the 'Alternative Nobel Prize', at the Swedish Parliament in Stockholm. GRAIN was awarded "for its worldwide work to protect the livelihoods and rights of farming communities and to expose the massive purchases of farmland in developing countries by foreign financial interests". GRAIN seized on the opportunity to demand an immediate end to land grabbing and a restitution of lands to local communities. The following speech was delivered to the Swedish Parliament by GRAIN during the Awards Ceremony.

Peasants in Argentina protest the assassination of Cristian Ferreyra, November 2011. Photo: MOCASE – Via Campesina.

Three weeks ago, on the 16th of November, Cristian Ferreyra was shot dead by two masked men in front of his house and his family. Cristian lived in San Antonio, a village north of Santiago del Estero in Argentina. He was part of an indigenous community and a member of one of our partners, the indigenous peasant organisation MOCASE Via Campesina. His "crime"? To refuse to leave his homeland in order to make way for a massive soybean plantation, one of so many that have been encroaching on rural communities throughout Argentina in the last decade. So the plantation owners had him assassinated. Cristian was only 25 years old.

Six weeks ago, on the 26th of October, one farmer died and 21 others were injured, ten of them critically, in the village of Fanaye in northern Senegal. They, too, were trying to stop the takeover of their lands. Government officials had handed over 20,000 hectares surrounding their area to an Italian businessman who wanted to grow sweet potatoes and sunflowers to produce biofuels for European cars. The project would displace whole villages, destroy grazing areas for cattle and desecrate the local cemeteries and mosques. Fanaye is not an isolated case. Over the past few years, nearly half a million hectares in Senegal have been signed away to foreign agribusiness companies.

Gambela is a region in Ethiopia that borders South Sudan. It is home to one of the most extreme cases of landgrabbing in the world. Over half of the arable land in the region has been signed away to Indian, Saudi and other investors who are now busy moving the tractors in and the people out. Ethiopia is in the midst of a severe food crisis and is heavily dependent on food aid to feed its people. Yet, the government has already signed away about 10% of the country's entire agricultural area to foreign investors to produce commodities for the international market. Earlier this year, we were involved in the production of a video on the situation of the indigenous Anuak peoples in Gambela, who now face losing their farms, their villages and their ancestral territories. We wanted to help raise their voices to the international level, but in the video we had to distort their voices and hide their faces – to protect them from backlash by the Ethiopian government.

One could continue with many more examples of how people who just want to grow food and make a living from the land are being expelled, criminalised, and sometimes killed, to make room for the production of commodities and someone else's wealth. Today, we are witnessing nothing less than a frontal assault on the world's peasantry. This is not only happening in the global South. Here in the European Union, we have lost three million farms since 2003. This amounts to a loss of one fifth of our farms in just eight years. Living from the land is becoming more difficult and, in many parts of the world, more dangerous by the day. Peasants who have been feeding the world for thousands of years – and still are – are now increasingly being cast as backwards, inefficient and obstacles to development. The not-so-subtle message is: they should cease to exist.

GRAIN was established two decades ago to help stem the loss of the world's agricultural biodiversity, and the traditional knowledge associated with it. We learned, however, that the problem was not so much the loss of indigenous seeds and breeds but the loss of the people who create, nurture and sustain that diversity. "Genetic erosion", as we called it 20 years ago, is really just a consequence of a larger development that is promoting industrial farming and leading to the annihilation of the world's rural peoples.

But these people, all over the world, are fighting back. In all corners of the globe there are dynamic movements of resistance and rebuilding, where people are struggling to hold on to their territories and keep control over their resilient food systems.

Farmers cool and feed the world.

Via Campesina, the international peasant movement, has called today, the 5th of December, the "International food sovereignty day to cool down the earth". Right now, Via Campesina members and allies are out in the streets of Durban, South Africa, protesting the negotiations over false solutions to climate change, and insisting that small farmers can not only cool the world but can feed it too. They are right.

The basic idea of food sovereignty is that the aspirations and needs of those who produce, distribute and consume food, rather than the demands of transnational corporations, should be at the heart of our food systems. It prioritises local food production, based on agroecology and family farming, and local markets. It keeps seeds and biodiversity

in the hands of farming communities, and GMO free. It nurtures and builds on indigenous knowledge of soils, seeds and farming systems. It recognises the crucial and central role of women.

The world desperately needs food sovereignty. It is our best hope to solve the planet's most pressing crises. Today, over a billion people on the planet do not have enough to eat. Around 80% of these people are food producers living in the countryside. This intolerable situation is not due to a lack of food or technology. It is due to government policies that deliberately replace peasant agriculture with an industrial model driven by the needs of transnational corporations. This model produces commodities for the global market. It does not and cannot feed people.

We are all acutely aware of the climate crisis. But how many people realise that the current industrial food system contributes around half of all global greenhouse gas emissions? You get this figure if you add up the emissions from agriculture itself, plus the change in land use when forests are turned into plantations, plus the enormous distances that food and feed are transported around the globe, plus the energy that goes into processing, cooling and freezing, plus the waste of energy and food in the increasingly centralised supermarket chains. Food sovereignty, which prioritises agro-ecological farming and local markets, can massively reduce these emissions. GRAIN has calculated that just by focusing on soil fertility restoration in agricultural lands, we could offset between one-quarter and one-third of all current global annual greenhouse gas emissions! Small farmers can indeed cool the world.

They can also feed the world. Earlier this year, the United Nations Special Rapporteur on the Right to Food presented a report showing that agro-ecology, if sufficiently supported, can double food production in entire regions within 10 years while mitigating climate change and alleviating rural poverty. Others have shown that policies oriented towards promoting local markets, short food-transport circuits and peasant farming, all help to do the same. The issue is as simple as keeping food in the hands of people, rather than corporations.

Still, peasants, fishers and other food producers have never been more in danger of extinction.

Stop land grabbing.

Never before has so much money gone into the industrial food system. The last decade has witnessed a spectacular increase in speculation on food commodity markets, increasing food prices everywhere. With today's global financial and economic crises, speculative capital is searching for safe places to multiply. Food and farmland are such places. "Everyone has to eat" is the new mantra preached in boardrooms. The race is on to take control of the world's food-producing resources – seeds, water and land – and the global distribution of food. Today, much of those resources and food systems are still in the hands of the poor. For example, 90% of India's milk market, the largest in the world, is in the hands of millions of small dairy farmers and vendors who collect milk and bring it fresh to consumers. These are the kind of markets that corporations, banks and investors now want to take over.

Money is also flowing directly into farming and land acquisition. Banks, investment houses and pension funds are actively buying up farmland all over the world. The data and the contracts are very hard to acquire, but current estimates are that 60-80 million hectares of land have fallen under the control of foreign investors for the production of food in the last few years only. This is equal to half the farmland of the EU! Most of this is happening in Africa, where people's customary rights to land are being grossly ignored.

This latest trend in global land grabbing – that for outsourced food production – is only one part of a larger attack on land, territories and resources. Land grabs for mining, tourism, biofuels, dam construction, infrastructure projects, timber and now carbon trading are all part of the same process, turning farmers into refugees on their own land.

There is much to be done. But GRAIN would like to use this opportunity, here in the Swedish Parliament, to call for one specific action. We want an immediate end to the global farmland grab – an urgent and massive "recall" of land grabbers, analogous to what food safety authorities do when recalling contaminated food. We call on everyone to do whatever is possible to stop the international flow of money for the global acquisition of farmland and to return lands to all affected rural communities. Stopping land grabbing is not just about what is legal. It is about what is just.

Here in Sweden, people can start by taking on companies, like Black Earth Farming, that have bought or leased farmland overseas. They are not allowed to do this here in Sweden and should not be permitted to do so abroad. Campaigns can be launched to pressure Swedfund, which is using taxpayers' money to finance the land grabber Addax in Sierra Leone. The Swedish pension fund AP2 is also going into global farmland acquisitions as a new strategy, supposedly to protect the retirement savings of working Swedes. Swedish development aid projects ought to be scrutinised, as there are already indications that some are promoting land grabbing activities in Mozambique and elsewhere. Such actions and campaigns are already brewing in other parts of Europe and in the US. These should be strengthened and supported, in order to stop land grabbing at the source.

Rural communities have fed the world for millennia. Today, the massive expansion of large scale industrial farming is destroying our capacity to move on. At GRAIN, together with peasant organisations and others social movements, we will continue exposing what is going wrong, while fighting for an equitable, just and sustainable food system. This award gives this struggle a tremendous boost. We see it not only as an acknowledgement of our work but also as a powerful recognition of the contributions of countless people and organisations engaged in the fight for genuine community-based food sovereignty. Together, we will continue this struggle. We have no other option if we are to survive on this planet with some dignity.

Thank you very much for this award, and for your attention.

Twenty years of fighting for seeds and food sovereignty

A twentieth anniversary invites reflection. Reflection on where we came from, the path we have travelled, and the challenges ahead. Without pretending to provide a full analysis, we present below some discussion on this. In the process, we have talked to many of the people who have accompanied us over the last two decades, and asked them about the paths that they have taken, and for their reflections on the struggle for a better food system and a better world. Some of their responses are included in the text and accompanying boxes.

When we set up GRAIN back in 1990, we were keen to influence the international fora that were drawing up agreements around seeds and biodiversity. We often found ourselves at the FAO in Rome, where governments were negotiating an agreement on the rules of the game for conserving and exchanging seeds and benefiting from seed diversity. Those were also the days when the Convention on Biological Diversity (CBD) was taking shape, which was eventually signed into existence in 1992 at the Rio Earth Summit. Just before that, we were deeply involved in the campaign against the patenting of life forms, and organised a major conference at the European parliament to denounce the plans of the European Commission to create a piece of legislation that would permit this. At the same time, we participated in a three-year "multi-stakeholder" dialogue, organised by the Keystone Foundation, which got us to sit at the table with other NGOs, government officials and people from the seed and biotechnology industries and from agricultural research institutes, trying to find some consensus on how to save and use the world's agricultural biodiversity.

What was driving us then? We were concerned about the increasing concentration in the global seed industry, which was then being taken over by transnational agrochemical and pharmaceutical corporations, leading to an ever stronger push for monocultures and uniform seeds all over the world. We were worried about emerging new technologies, such as genetic engineering, that would push diversity further towards extinction and tighten the corporate grip on farmers and the global food system. We were alarmed by legislation being proposed in a number of industrialised countries that would allow for the patenting of life forms and the privatisation of the very building blocks of life. And we noticed that the institutional response to the rapid decline of agricultural biodiversity was limited to collecting seeds from farmers' fields and storing them away in gene banks.

The panorama around us was bleak and the fight fierce, but we thought we could achieve something by lobbying governments and delegates to stop these developments and to support instead the contribution and role of small farmers. Judging from the growing debate around genetic engineering, the massive participation of civil society in the 1992 Earth Summit, and the subsequent meetings of the CBD and other environmental fora, this optimism was shared by many. But, as the 1990s evolved, a cruder reality became apparent. Increasingly, the shaping of agriculture and food production, and the role of transnational corporations in it, were defined elsewhere: in corporate boardrooms and in trade ministries. The 1990s were also the decade of the establishment and rise of the World Trade Organisation (WTO), where, shielded from the critical eyes of civil society organisations, a ruthless neoliberal trade agenda was being forced upon the world, especially on "developing" countries that still had some level of market protection. More economic growth and international trade at any cost had become the central dogma of all policies. And no treaty or agreement related to environmental or agricultural issues was allowed to interfere with this vital concern.

Then came Seattle in 1999. The confrontation between governments trying to push the world further down the neoliberal route with a new WTO agreement, and social movements taking to the streets to stop them, had a powerful impact on both the WTO and on the people and organisations fighting for a bet-

1 Food sovereignty

"Food sovereignty is the right of peoples, countries, and state unions to define their agricultural and food policy without the dumping of agricultural commodities into foreign countries. Food sovereignty organises food production and consumption according to the needs of local communities, giving priority to production for local consumption. Food sovereignty includes the right to protect and regulate national agricultural and livestock production and to shield the domestic market from the dumping of agricultural surpluses and low-price imports from other countries. Landless people, peasants, and small farmers must get access to land, water, and seed, as well as productive resources and adequate public services. Food sovereignty and sustainability are a higher priority than trade policies."

(Via Campesina, The International Peasant's Voice: www.viacampesina.org)

ter world. The WTO never fully recovered from the blow, and the industrialised countries, in response, started signing bilateral or regional trade agreements instead, to secure their interests. To the social movements and NGOs involved in fighting the neoliberal corporate agenda came the realisation that we could actually win by having a clear, radical and coherent line of analysis and action.

Another world is possible.

Often hidden from view, and unexposed at international fora, were the organisations and movements that were quietly resisting and building at the local level. The importance of these experiences became forcefully clear to GRAIN when we got ourselves involved in the "Growing Diversity" project. During a three-year period (2000–2003), this project worked with hundreds of organisations around the world to discuss, analyse and document the experiences of groups working at the local level to build local food and agricultural systems based on biodiversity. A massive amount of evidence came out of this project that an agriculture different from the one being promoted by the industrial powers and corporations was not only possible, but also more productive, more sustainable, and better for the farmers and communities involved. It became clear to us that the work at local level of organisations and communities resisting the neoliberal onslaught while developing strong alternatives was the backbone of any struggle to bring this other world into being.

There was another development in the first decade of the present century that started strongly influencing agendas around agriculture and food systems. This was the emergence of the call for food sovereignty and the growing presence and maturity of small-farmer organisations such as Via Campesina. Via Campesina was created in 1993, and erupted on the international stage at the global civil society forum held parallel to the 1996 world food summit in Rome, where it launched food sovereignty as the alternative framework for a global world food system. Food sovereignty articulates the prioritisation of food policies oriented towards the needs of local communities and local markets, and based on local knowledge and agroecological production systems (*see* Box: "Food Sovereignty" on page 4). For the first time, the global movement for a different food system had a concept and an action agenda that connected all the dots, brought together local and international struggles, and formed a basis for building alliances between different social movements and NGOs. In the decade that followed, many more groups and movements started to use food sovereignty as their framework for action, and this framework was articulated and further elaborated in numerous international and regional fora. The movement received a tremendous boost at the global food sovereignty forum held in Nyeleni, Mali, in 2007, at which organisations representing small farmers, fisherfolk, pastoralists, indigenous peoples, women and youth joined with NGOs and groups from the environmental movement to further articulate a common action agenda for the future.

In the late 1990s, GRAIN embarked on an ambitious and radical decentralisation process that would bring us much closer to regional and local realities and struggles, and transform us into a truly international collective (*see* Box: "A brief history of GRAIN"). This process transformed GRAIN's agenda as well. The increased exposure to local struggles and social movements made us realise that we could not limit our work to the issue-oriented agenda of agricultural biodiversity, and we gradually broadened our focus to deal with the wider food system. As a result, we were able to produce new analysis and fresh thinking on issues such as agrofuels, hybrid rice, bird flu, swine fever, the food crisis, climate change and land grabbing, and connect them with the struggles for food sovereignty. At the same time, we strengthened and deepened our relationship with – and support role to – groups in Africa, Asia and Latin America. "Think globally, act locally" became GRAIN's very way of working.

Lessons learnt and challenges ahead.

As explained in detail in another article in this Seedling, the past 20 years have witnessed a tremendous increase in the dominance and control that huge transnational corporations exercise over the global food system. In essence, the entire neoliberal globalisation process has been an exercise in handing over that control to them, and it has created tremendous inequity, human suffering and environmental damage in the process. As a result, we are now faced with well over one billion people going hungry every day, massive environmental destruction, and a climate crisis that we won't be able to stop unless profound changes are implemented.

The challenges we face today are enormous. As the ever worsening and interconnected financial, food and climate crises are clearly showing us, the current neoliberal development model is beyond repair. At the same time, never before in history have we been faced with such powerful interests that want us to continue on the current destructive path. The matter lies beyond the question of what kind of economic development model to follow, or which seeds to use and which pesticides to avoid. It has become a matter of survival, for all of us. Below we highlight a number of reflections on issues that, from our perspective, we have to deal with, if we are to be successful.

Surviving in a hostile world

There is no point in denying that, despite the growing struggles of social movements, the world for most people has become a worse place to live in than it was 20 years ago. We would argue that the same is true for most other species as well. Several decades of the ruthless imposition of a neoliberal corporate agenda have left us with an aggressive policy environment, with a tremendous loss of democratic spaces at all levels: locally, nationally and internationally. While 20 years ago many of us were involved in all kinds of dialogues and roundtables, today it sometimes feels as if there is no one left to talk to up there. Many states have largely become instruments to implement a full-blown corporate privatisation agenda, and many public institutions have turned into mere servants of that same agenda. When we entered the 21st century, we were promised by world leaders that this would be the century of democratisation, of human rights, of the environment, of ending hunger – but already it has become perfectly clear that we are heading in exactly the opposite direction. This often leaves us in a very hostile environment, with increased repression against those that speak out, the criminalisation of those who mobilise, and the silencing of those who denounce.

Aziz Choudry, a long-time activist and researcher, formerly the organiser of GATT Watchdog and currently Assistant Professor at the University of McGill in Montreal, who has been collaborating with GRAIN in numerous activities countering free trade regimes, points to the importance of historical memory and the need to retain the knowledge of struggles from the past.

> "The anti-globalisation struggles, which emerged as people came to understand how, through the Uruguay round of GATT, there was a move to impose a comprehensive package of rules on the planet to serve corporations, followed in a long history of anti-capitalist and anti-colonial struggles. The WTO and the subsequent advance of bilateral trade and investment agreements are just the latest tool serving the same agenda. So we need to see our struggle within this longer and larger history of resistance, and to look more to past struggles for guidance."

For Aziz, given the comprehensive nature of the threats we all face, the cross-fertilisation of ideas and the dialogue between people coming from different contexts and mobilised around different issues, become all the more important.

> "Activism is bound to always face lots of contradictions and ambiguities, but this should not be a barrier to building more linkages. There is a clear need to build alliances that respect people's different situations and world views. The most significant and effective struggles are happening in movements that are grounded in local contexts but connected to global perspectives. This is difficult, non-glamorous movement building work that, incrementally, is creating spaces where power can be challenged. We rarely hear about these struggles, but they are where hope for the future lies."

Brewster Kneen, another long-standing author and activist —and for many years part of GRAIN's Board of Directors— agrees. He adds:

2 A brief history of GRAIN

GRAIN's work goes back to the early 1980s, when a number of activists around the world started drawing attention to the dramatic erosion of genetic diversity – the very cornerstone of agriculture. Our work began as research, advocacy and lobbying under the umbrella of a coalition of mostly European development organisations. The work soon expanded into a larger programme and network that eventually needed its own independent base. In 1990 Genetic Resources Action International, or GRAIN for short, was legally established as an independent non-profit foundation.

In the second part of the 1990s, GRAIN reached an important turning point. We realised that we needed to connect more with the real alternatives being developed on the ground in the South. Around the world, and at the local level, many groups had begun to rescue local seeds and traditional knowledge, and to build and defend sustainable, biodiversity-based food systems under the control of local communities, while turning their back on the laboratory-developed "solutions" that had only got farmers deeper into trouble. In a radical organisational shift, GRAIN embarked on a decentralisation process that brought us into closer contact with realities on the ground in the South and in direct collaboration with partners working at that level. At the same time, we brought a number of those partners into our governing body and started regionalising our staff pool.

By the turn of the century, GRAIN had transformed itself from a mostly Europe-based information and lobbying group into a dynamic, truly international collective – functioning as one coherent organisation – that was linking and connecting with local realities in the South as well as with developments at the global level. In that process, GRAIN's agenda shifted markedly, away from lobbying and advocacy, and towards directly supporting and collaborating with social movements, while retaining our key strength in independent research and analysis.

3 "Disillusion in government"

Mariam Mayet

Mariam Mayet grew up during the apartheid struggle in South Africa. After being involved in different NGOs in the 1990s, she set up the African Centre for Biosafety, with which she has since sustained a tireless effort to fight GMOs in Africa and to promote instead the use of local seeds.

"Over the last decades there has been a profound change across the world in the food system, over who owns it and controls it. During this time there has been a radical shift in power from ever weaker nation-states to corporations. In South Africa, we were not plugged into global movements but we experienced huge disillusionment with our government because it did not change the agenda but started implementing neoliberal economic policies and privatising. Over the years one has learnt to understand much more profoundly the nature of the struggle, the nature of ownership and big capital. Once you understood what is at stake, you know where you stand and can take a very clear position.

The problems have become more complex and there is a lot of apathy because people feel overwhelmed by the scale and level of corporate intrusion, the insidiousness of it. These corporate powers are extremely well-funded and are implementing their agenda with military precision.

Issues like genomics, IPRs, patenting, are all galloping into the future, without us being able to take stock and consider the impacts.

There are examples of grassroots resistance that have been inspiring – shining examples of where we should be going. But in South Africa the anti-apartheid struggle was largely urban-based, and we do not have many examples of rural struggle. But we know that we will be successful only if we build up our internal capacity and work in networks. We realise that engaging with the multilateral system has been counter-productive and has pulled us away from the real struggles. We are aware that we should not have engaged in that as much as we did. It is local struggles that are important, that we need to keep building up, little by little, and doing the right thing every day. We have been deeply disillusioned, and we feel a great urgency to change things. There is also much anxiety. We keep asking ourselves: what more can I do?

If we are to move forward, relationships between NGOs, movements and communities must be allowed to unfold, we must provide ongoing support to the communities, and we must train farmer leaders. As in the trade unions, communities need to take ownership of the issues. We often want quick-fix solutions, without allowing communities enough time to process and to take ownership of the issues, and not taking enough time to make sure that we support the real struggles. We have to learn from this.

In Africa humanity is profound, and the joy and celebration of humanity is deep-seated. As a movement in Africa we care about the heritage of Africa. To me it has been an honour to be part of that movement. I have learnt a lot from others, and to me it has been a journey to fulfil my destiny. My hope is that something will get through to people, that I can set an example for my son and the next generation."

"A big challenge we have lies in how we deal with the state. The state is a relatively recent construction, and we do not have to accept it as a given. It can be very debilitating when people's movements define themselves in reference to the state. These movements need to be constructed on their own terms. We need to question the authority of the state. What we do should be based on what we feel we have a moral responsibility to do, not what the state tells us we can or cannot do. This is a strange land but we have to venture out from our traditional territory."

Many others that we have talked to have reached similar conclusions. Today we live in a world where a lot of traditional pillars and forces with which we we thought we could build a better world have been eroded or corrupted. The way to deal with this is to construct our own terms of reference, to learn from our history, and to build alliances and dialogues across different issues and realities.

Following or setting the international agenda?

In the past 20 years, the most interesting, promising and mobilising concepts and advances have emerged when social movements have decided to look at things from their own perspectives rather than within frameworks set by the powerful. We can recite a long list of negotiations that we enthusiastically got involved in because we felt that we could achieve some positive results, but in which we got trapped in endless debates, where we saw our proposals being stripped of their essential meaning and corrupted into empty promises. At the FAO we argued for "Farmers' Rights" to challenge the privatisation of seeds and genes, and to promote the notion that rural communities are the starting point for seed saving and crop improvement. We ended up with a Treaty that allows the patenting of genes, is mostly focused on managing gene banks, and – as lip service – might financially support a few projects that involve on-farm management of plant genetic resources. At the Biodiversity Convention we challenged "biopiracy", and urged the recognition of local communities in the management of biodiversity. We got "benefit-sharing regimes" that do nothing about the monopoly control that corporations obtain on the

biodiversity collected from the forests and are essentially about regulating who gets paid for what when genetic resources change hands. They do little to protect local communities from the continuous undermining of their territorial integrity and the biodiversity that they manage, and indeed justify the "business as usual" approach. In the words of Erna Bennett, commenting on the role of NGOs in intergovernmental negotiations, in an article in *Seedling* in 2002: "playing the game by the enemy's rules has achieved nothing but to show us how we got to where we are. But it has not shown us how to get out."

In contrast, we at GRAIN have learned by experience that, when movements clearly define their own perspectives, strategies and time-lines, much more interesting things tend to happen. We have already referred to the growing movement against the WTO, which maintained a clear and radical stand against the neoliberal development model. We have also mentioned the food sovereignty initiative, which allowed people to see the fuller picture of the kind of food system that has to be built. It helped to dissolve apparent conflicts of interest – between farmers in the North and in the South, between producers and consumers, between farmers and pastoralists, and so on – by clearly pointing out where the real source of the problem lies. It helped to build alliances between different social movements, and had a strong mobilising effect. It showed that another food system is possible. All these processes are increasingly difficult for those in power to ignore, or to manipulate.

NGOs or movements?

One of the more encouraging developments in the past two decades has been the surging, maturing and growth of social movements involved in the struggle for a different food system. Although voices critical of the high-tech, Green Revolution approach had been surfacing in the 1970s and 1980s, the dominant thinking twenty years ago was still that the solution to hunger lay in increasing food production by deploying better technology. Among the dominant class, this remains the thinking today. But social movements have begun to articulate a coherent analysis and vision of what is wrong with the current approach, and what should be done to create a food system that feeds people and doesn't throw them off the land. It implies a clear stand against the corporate-controlled production model and a strong vision for a kind of agriculture that is oriented towards local needs, and controlled by local communities.

The relationship between NGOs that have participated in governmental negotiation processes, with sectoral, issue-oriented agendas to achieve progress within the possibilities that these processes offer, and the social movements that

"We need relationships, not domination"

Diamantino Nhampossa

4

Diamantino Nhampossa is executive coordinator of Mozambique's National Farmers Union, UNAC. UNAC is member of Via Campesina, and currently serves as its regional coordination office for Southern, East and Central Africa.

"UNAC was formed in the late 1980s, when Mozambique shifted from a centrally planned to a market economy. The country was pressured by the international powers and institutions to implement structural adjustment programmes, and to dismantle state institutions and policies that supported farmers. UNAC was set up to address this problem.

After liberation, there were still many farmers involved in politics during the early 1980s, and politics was strongly linked to the liberation movement. It was seen as part of the class struggle. But since then all ideologies have been swept away, and the thinking now is very market-oriented. And there is no ideology in the market. At the same time, there has been a huge impoverishment of Africa and a new class has developed that has benefited from the World Bank restructuring processes. The movements, trade unions and farmers' organisations have become very weak, often co-opted by government. They have very little space of their own, where their voices are recognised.

In the last five years I see a new resurgence of the peasant movement, coming from the very poor farmers. The extreme suffering of the peasants in rural areas has led to a new way of struggle. It is now a new age for the movements. Commercial farmers have taken up the all the space, so that there is very little room for small farmers. Small and big farmers have some common issues, such as access to markets, but on most other issues (land, for example) their social and ecological perspectives differ quite a lot. They do not have the same views on GMOs, fertilisers, pesticides. The debt issue has a much bigger impact on small farmers than on larger ones. Commercial farmers also want to control the land and to push small farmers off it, which often leads to conflict. Commercial farmers do not understand how to manage land sustainably.

The biggest mistake made by Africa was to accept Structural Adjustment Programmes, because through these the region lost its vision of becoming a Sovereign Africa. Once we accepted conditions on foreign aid and loans, we were saying that Africa could not walk by itself. We need to redefine help/assistance – we need solidarity, not a big boss telling us what to do. We need relationships, not domination. Since 1987, since independence, we are not moving forward, things are getting worse. Mozambique is now dependent on foreign aid for almost 50% of its national budget. We will remain poor if we keep looking to the outside for help.

Social movements must remain independent and draw their political power from the people. They should be challenging and very vocal, and focus on the basic rights of farmers. They should not stay at the periphery but engage with the core of policy, and transform policies in order to promote the radical transformation of society."

have argued for radical change has not always been easy. One example is the tension between those trying to make the WTO more transparent, and those who want to get rid of the WTO altogether. Another example is the (non-)participation in the mushrooming multi-stakeholder dialogues that have sprouted up in the past decade, such as the "roundtables" on sustainable soya, sustainable oilpalm, sustainable biofuels, and so on. These bring together industry groups and some NGOs to draw up criteria and certification schemes to promote the sustainable cultivation of these crops. Others, GRAIN among them, have denounced these as processes that seek to justify the status quo, fail to tackle the real problems and fail to provide any solutions. Yet another example is the different strategies around climate change: Via Campesina recently felt itself obliged to "distance itself from certain 'self-convened' groups, and those who say they speak on behalf of social movements but who in reality are representing the views of their NGO".

Antonio Onorati, one of GRAIN's founding Board members, and a tireless fighter to create more institutional and political space for social movements in institutions such as the FAO, calls this the danger of "self-referential NGOs".

> "Back in 1990 civil society presence at governmental negotiating fora was dominated by NGOs coming with position papers and participating in debates. Well-intentioned people talking to well-intentioned diplomats who were willing to listen to our discourse and perhaps incorporate some of it into their official positions. Over time, quite a number of these groups have increasingly become self-referential —setting their strategies and objectives in isolation— and thus become part of the problem rather than part of the solution. If we are to achieve anything at places where governments get together and negotiate, we need first to get them to recognise social movements as a representative force negotiating for its own interests. This is what we have been fighting for in the past decade at the FAO and elsewhere."

Aziz Choudry identifies the problem of compartmentalisation that many NGOs tend towards, focusing on specific issues in which they are specialised.

> "We need to inoculate ourselves against this. Grassroots, radical movements tend to look at issues broadly, look at the connections and focus on the underlying causes of problems. Many NGOs fall into a technical discourse and do not challenge things being framed within the dominant language. For example, some NGOs look at how to improve IPR laws, while for many indigenous people the issue is about a fundamental contradiction between Western legalistic approaches and world views that cannot accept such things as the patenting of life. A major problem is that often such NGOs take up a lot of political space and are 'able to marshal political power'. Actually, many NGOs have, in fact, benefited quite well from neo-liberal globalisation, as they've stepped in to fill the void left from the roll-back of the state."

We tend to agree. For independent groups such as GRAIN to be able to continue to play a meaningful role, it is crucial to be in constant active collaboration with social movements, accompanying their processes and understanding their priori-

5 "We need to globalise the struggles"

Piengporn Panutampon

Piengporn "Chiu" Panutampon has been a key figure in Thailand's vibrant social movement. Over the years, she has been an integral part of several civil society groups and has been involved with the struggles of various sectors – health, labour, farmers, fisherfolk – gaining an invaluable insight into, and assessment of, Thailand's burgeoning social movement.

"In the 1990s, globalisation made our world more complicated in the social, political, and economic spheres. It has given birth to new actors, forces and power structures. We're no longer just talking of multinational corporations from the West, because in Asia we have seen an explosion of capital and the emergence of regional TNCs, like Charoen Pokphand in Thailand. This expansion of capital pervades all spheres of life, making capital more difficult to confront.

One of our most important achievements has been to raise the level of consciousness and debate among the people on issues that concern them. Whether it's primary health care or GMOs or FTAs. Our strong growth in terms of sharing information and analysis – making sure that it reaches the people, gets understood, and triggers collective reflection and action – is something we can proudly claim we have contributed to.

Yet at the same time, we acknowledge that we cannot compete with the overpowering influence of a capitalist economy. The impacts of globalisation on people's cultures and values have been drastic; there is so much emphasis on catching up with the capitalist economy by satisfying individualistic needs and tendencies. Consumerism has become the norm. People are interested only in getting rich so that they can conform to that norm. We have failed to beat it. We didn't pay enough attention to organising the people against capitalism. So economic progress has become the central measure of our quality of life. The value of sharing and the culture of taking responsibility for others have been eroded.

We need to globalise the struggles. We cannot fight FTAs just in Thailand. They have to be fought in every corner of the world. But how do we get ourselves more organised? That is the biggest challenge, and a very difficult one."

"Challenging TNC control over the food system"

Cris Panerio

6

Cris Panerio is regional coordinator of MASIPAG, and has been with the organisation since 1994. MASIPAG is a national network of small farmers in the Philippines, widely known for its successful work on farmer-led research and crop improvement initiatives, involving the conservation and the management of the country's rice biodiversity.

"In the 1990s, the failure of the Green Revolution became more pronounced. Everyone was looking for practical alternatives that work. They saw MASIPAG as a viable one. But there was little appreciation of how the 'trial farm' strategy that we use starts the process of regaining farmers' control over the rice seeds, something that we lost massively during the Green Revolution. It is the foundation of farmer-led, on-farm rice breeding that MASIPAG has been promoting, and where farmers choose rice selections that are adapted to their local conditions. Since then, MASIPAG has expanded to another important crop – maize – and in the past four years has started with the conservation and improvement of native chickens.

We are promoting diversified and integrated farming systems to build resilience among farmers, especially in the face of global warming. There are now several agricultural universities and local government units that are not only supportive of MASIPAG, but also even promote MASIPAG as a framework for agricultural development. But the official policies of the government continue to push the monoculture Green Revolution strategies.

The problems of the county remain – it's the same poverty caused by social injustice, an economy dominated by foreign interests, and a government subservient to them. But there is hope in programmes like MASIPAG, which is a direct response to TNCs' control of the global food system. It has actually put a face, substance and process to concepts like 'food security' and made the word 'alternative' concrete.

As a movement in itself, one of MASIPAG's greatest achievements has been to develop farmer leaders who can articulate the needs, problems and aspirations of the farming sector. Helping to raise their political awareness was central to that. Farmers are now able to engage with the government and assert themselves on issues like hybrids, GMOs, and so on with concrete alternatives. Not only did they gain confidence in themselves but also the active support of local governments, other NGOs, and academia in going about the farmer-led process of agricultural and community development. While in the old days farmers were merely 'beneficiaries' of development packages, now they are active participants and their inputs are recognised. Farmers, previously impoverished by poor agricultural practices and policies, have been able to regain their dignity as human beings."

ties. This does not mean uncritically following their agendas, as we are also part of the debates and learning processes of the movement. But it does imply, from our own autonomy, constructing relationships in which a constant dialogue on priorities and strategies informs our own thinking and actions.

Movement building, alternatives and alliances

What has become very clear over the past decades is how help, however well intentioned, can become a dependency trap, rather than a push in the right direction. Gathuru Mburu, of the Kenyan Institute for Culture and Ecology, and also the African Biodiversity Network, puts it this way:

> "Now I understand better that solutions will not come from outside Africa. We need to change our mindset because we are much too dependent on help and ideas from outside. The solutions we are looking for are under our noses, very close, but we keep on looking to the outside. This dependency blocks our minds to the solutions and capacity we have at our doorstep. If anything, we need support for African solutions. Over the years our knowledge has been devalued, our agriculture classified as unproductive, and our people as uneducated. Our focus should now be on working with communities so that they can chart their own destiny, make their own decisions, with or without support. We could have done better – often we didn't empower communities to do their own advocacy work, rather we tried to do it on their behalf. We ignored their capacity to handle their own local situation. If we had understood the importance of local knowledge and local struggles earlier, we could have forestalled many things that have happened in the meantime."

Or, in the words of Diamantino Nhampossa of the Mozambique small farmers union UNAC:

> "We need to redefine help: we need solidarity, not someone telling us what to do. We need relationships, not domination." (see Box #4)

A factor that, ironically, has sometimes undermined the movement building and the formulation of a clear, holistic and integral alternative to the industrial food system has been the imagined desire to come up with measurable results within the time-frame of project periods. On many occasions this project mentality has done more harm than good. As a result, we now have many interesting initiatives, ranging from local seed banks and organic gardens to community biogas production schemes and local credit facilities. But as many of them are disconnected from a wider struggle and vision of the role of rural communities in society, they hardly challenge the expansion

7 "We articulated a continental and a global movement"

Itelvina Masioli

Itelvina Masioli works for the Movimento dos Sem Terra (MST), the landless farmers movement in Brazil. She is also member of the coordinating group of CLOC, Latin America's small farmers' movement, and of Via Campesina.

"I think that many things have changed over the last 20 years, some for the good and some for the bad. From the point of view of the offensive of the neoliberal model, of the offensive of transnationals and the transnationalisation of capital in agriculture, there have been a lot of changes. Land has become more concentrated; the expelling of people from the countryside has occurred – and continues to occur – in a very marked way; transnationals are controlling the whole agricultural process, from seeds to commerce. In general, the situation is tougher, because poverty has increased in the countryside, neoliberal policies have had an impact, and more people in the countryside depend on hand-outs. In places like Brazil slave labour has increased and there has been a growth in contamination, monoculture, and everything else that the model implies.

But, on the other hand, in these 20 years the peasant movement has grown. Today we can say that we have built a continental movement, which is CLOC, and a global movement, which is Via Campesina. Without any doubt we can say that this is the main strength we have accumulated in the last 20 years. We have succeeded in turning the struggle in the countryside, the struggle for land, and the struggle for agrarian reform, for native seeds and for local markets, which were once exclusively peasant struggles, into struggles that involve the whole of society. Confronted with all the crises in capital, we have strengthened our historic demands, like the ones for agrarian reform, for sovereignty, for defence of land and life. Today it has become clear that what is largely responsible for all the disasters and impoverishment is the capitalist model, and there is widespread talk about the need to change the production and consumption model.

The debate and the historic demands of the peasantry have become politicised, and they have become issues that involve the very survival of humanity. This has meant that the struggle, which 20 years ago was undertaken only by the peasantry, has moved to the centre of political debate, when one talks about the need for social change and for building another humanity. What was once a solely peasant debate is today at the centre of the debate involving the whole of society.

It seems to me that this is a hugely important advance that we have made in the last 20 years, this capacity to articulate a continental and international movement. And, at the same time, as a class we have made our historic demands available for everyone in the construction of a popular project for society and for agriculture."

of the industrial food system. So here is another goal for us to meet: we have to become more effective in building a social force that challenges the industrial food system across the board, while at the same time guaranteeing livelihoods so that local communities can survive.

It is here that Antonio Onorati sees the strength of rural social movements and small farmer organisations:

> "Compared to social movements in urban areas, like trade unions among industrial workers, the rural movements actually have a pretty clear idea about the alternative society that they want to build. They have no choice; they have to resist to survive, and in that process they start organising or reviving alternative structures, local markets, seed exchange systems, chemical-free agriculture, direct links with consumers, and so on. Unavoidably, these lead them to clash with the production models that Monsanto, the World Bank and WTO are pushing for."

In that sense, the food sovereignty agenda is one that not only denounces, but also provides solutions. For us at GRAIN, if we have learned one thing in the past 20 years, it is about the central importance of supporting and participating in processes that are clearly aimed at creating an autonomous framework from which alternatives can be built and action taken. The struggle for food sovereignty is one of these. This does not mean that there should not be any relationship with, or involvement in, governmental processes. But such relations have to be built from our own strength, and oriented towards creating political space for putting our own agenda on the table rather than running after the agendas of those in power.

Two decades: some reflections from Latin America

8

The past twenty years of globalisation have greatly transformed people's struggles in Latin America. Today, the region is a laboratory of spaces of reflection derived from the exchange of many diverse experiences. People are more aware of the struggles of others, and this knowledge has fostered a holistic approach, involving new and renewed strategies for organising and resisting. Some of the most significant changes include:

1. An emphasis on horizontal exchange: wounds and dreams are shared directly among localities, regions, and countries.
2. An urgency to understand the whole panorama of how corporations and governments operate together to produce successive and related impacts, devastations, crises and catastrophes.
3. An understanding of regions beyond geography, taking into consideration the constant migration and movement of people and, despite this reality, the urgency of building communities.
4. A realisation that money from governments and other agencies for projects inevitably leads to debts and bondage.
5. A reticence about the concept of "development" and, instead, an enthusiasm for workshops, assemblies, seminars and encounters where experiences are shared and where people can themselves identify causes, sources, problems, obstacles and interconnections.
6. A determination by indigenous peoples to exercise autonomous control over their territories.
7. An awareness among communities that to approach projects in isolation cannot solve their problems, because such an approach does not challenge the larger context, and thus entrenches dominant powers.
8. A recognition of how linking with other processes of resistance in other regions or countries brings valuable knowledge for local struggles.
9. An acceptance of complexity, of our complex world (as opposed to a linear world), as a basis for thinking and understanding.
10. A daring conviction that rural people (specifically peasants and indigenous peoples) are the most informed about the whole panoply of attacks and actions because they face them completely and without filters.
11. A growing alliance, which has emerged organically, between large segments of the indigenous peoples' and peasants' movements with ecological movements and segments of small–farmers' movements, to honour, defend and expand the space that peasants occupy when they produce their own food: the liberty that comes from living at the fringes of the system, and the long-term advantages of staying that way.
12. A crucial contribution from many young people surveying cyberspace for any information pertinent to the struggles of social movements – information that exposes the links between corporations and the political class, the dirty work of the operators, the finances and functions of programmes and agencies, and information that, when presented in regional and national workshops and encounters, whether about biodiversity, maize, water, land certification, ecological reserves, or environmental services, enables a holistic view of connections and horizons.

21

Saying NO to GMOs, it's our right

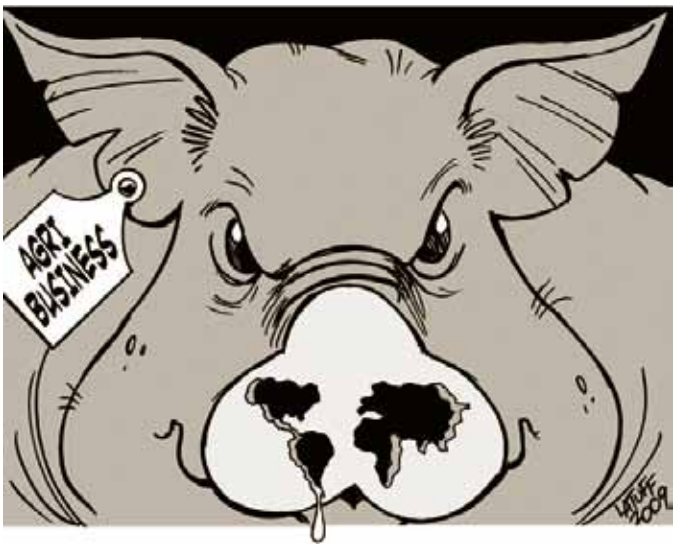
A

AGRIBUSINESS

Global agribusiness:
two decades of plunder

We offer a brief overview of the expansion of agribusiness in the global food system in the past two decades, with some thoughts on what we can expect from these companies in the years ahead.

Cartoon: Carlos Latuff / Indymedia



Back in the early 1990s, many of *Seedling*'s pages were devoted to discussions about international treaties and public research agendas. Corporations were part of the discussion, but mainly as a looming threat, one group of actors pushing forward the industrial model of agriculture that was destroying agricultural biodiversity. Fast-forward twenty years, and the landscape has changed. Corporate power in the food system has grown by leaps and bounds. Today corporations set the global rules, with governments and public research centres following their lead.

The fall-out of this transformation for the planet's biodiversity, and the people who look after it, has been devastating. Corporations have used their power to expand monoculture crop production, undermine farmers' seed systems and cut into local markets. They are making it much more difficult for small farmers to stay on the land and feed their families and communities. This is why social movements are increasingly pointing to food and agribusiness corporations as the problem in the global food system and the focus of their resistance.

Seeds.

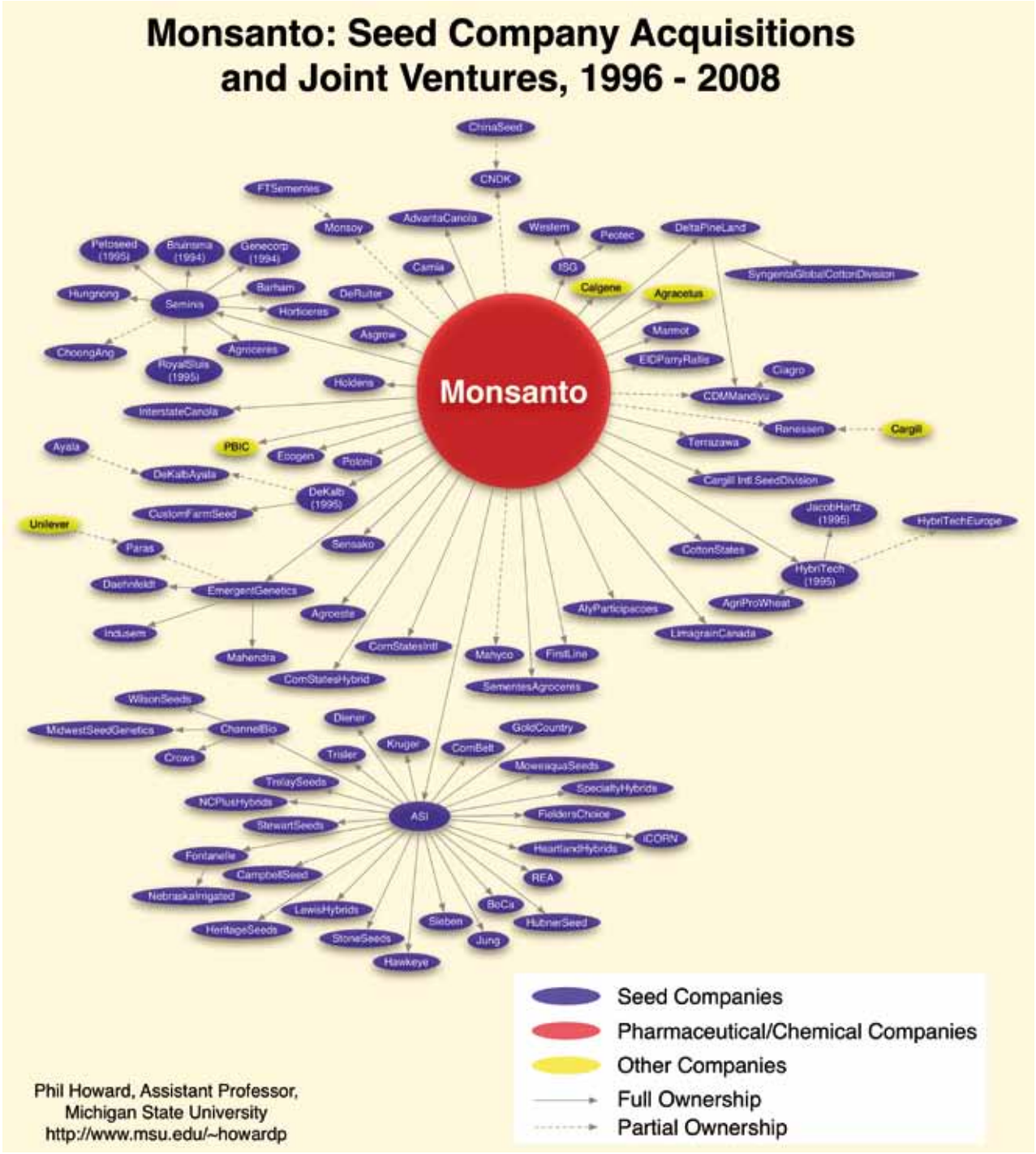
Over the past two decades the seed industry has been dramatically transformed, from an industry of small seed companies and public programmes to an industry dominated by a handful of transnational corporations (TNCs). Today just ten corporations control half of the global market for commercial seeds. Most are pesticide producers focusing on the development of genetically modified (GM) crops that support a chemically intensive agriculture.

The high level of corporate control in seeds, however, is confined to those crops where these companies have been able to bring GM varieties to market (soya, oilseed rape, and maize) and to those countries with relatively large commercial seed markets, particularly where the commercialisation of GM varieties has been allowed. In the US, for instance, just one company, Monsanto, controls over 90% of the seed market for soya. Corporate efforts to expand markets are thus focusing on opening more markets to GM crops and on capturing seed markets for crops in which they are still only minor players. With the latter, they are primarily doing two things. One is to buy up all or part of smaller seed companies, as Monsanto did by taking over the vegetable seed company Seminis, or as Limagrain is doing by buying into wheat seed companies in the Americas and rice seed companies in Asia. The second is by developing hybrid and/or GM varieties of crops such as rice, wheat and sugar cane, which have traditionally resisted private sector involvement because of the general practice among farmers of saving seeds.

With the rise of transnational seed corporations, the public plant breeding systems, which were so significant 20 years ago, have been reduced to contractors for the private sector. The Consultative Group on International Agricultural Research (CGIAR) system is now firmly in bed with the transnationals, pursuing a growing number of joint research and development projects in GMOs and part-

WHOSE SEEDS FEED THE WORLD?
FARM-SAVED SEED: 67.5%;
CERTIFIED SEED: 32.5%[1]

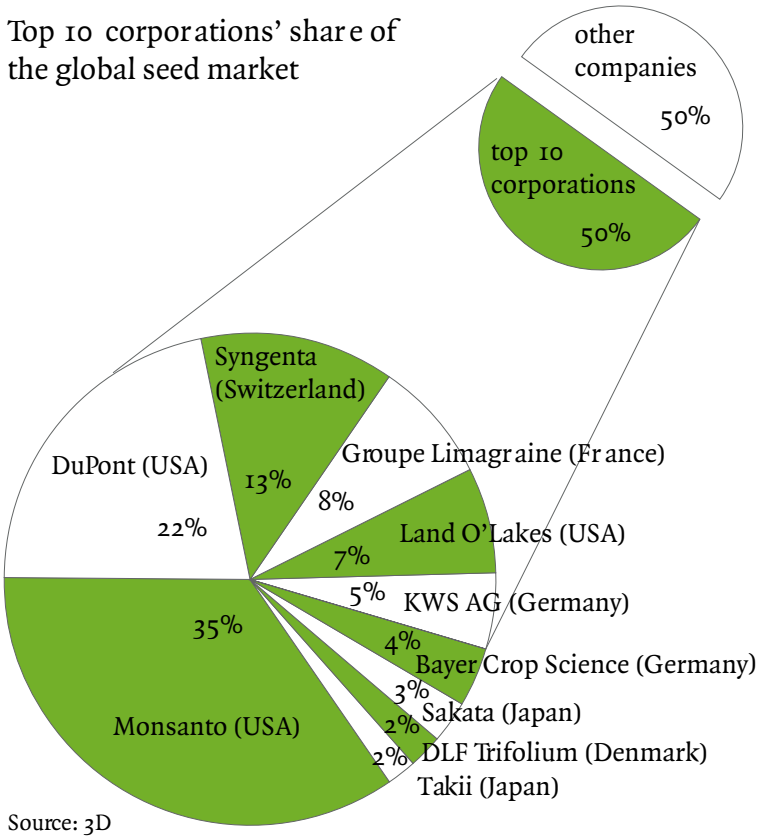
1. Percentages for cereal crops in 14 developing and developed UPOV member countries surveyed by the International Seed Federation in 2005.



Source: Philip H. Howard, "Visualizing Consolidation in the Global Seed Industry, 1996–2008", in Sustainability, 2009
www.mdpi.com/2071-1050/1/4/1266/pdf

nership programmes where CGIAR centres actually sell their breeding material to the highest bidder. The national research institutions and universities have gone down the same path, with many now behaving more like private companies than institutions with a public mandate.

Public seed systems are thus disappearing as a major source of seeds for farmers, and into this hole, often with the collaboration of public research institutions, the private sector is insinuating itself. The second wave of Green-Revolution-style programmes that Bill Gates and other donors are currently pursuing puts the private sector in charge of the seed supply, rather than public seed programmes, as was the case in the past. Typically, these initiatives seek to build up local private seed companies that can establish marketing channels and build up networks of seed growers. While most of these small seed companies will inevitably be bought up or squeezed out by larger transnationals, in the meantime they not only get markets up and running, but also provide critical domestic support to push for changes to seed regulations, intellectual property laws, and biosafety legislation that undermine farmers' seed systems and pave the way for the big corporations to step in and take over the market.



Source: 3D

The implicit (and rarely stated) intent of these programmes is to supply seeds to a new class of medium-scale and large-scale farmers in Africa and elsewhere who can pay for the seeds. There is no interest in supporting seed systems that are controlled by and that serve peasant farmers producing for their families and communities. The expansion of the corporate seed sector is indeed inseparable from the corporate expansion in farming and markets discussed below. The most dramatic case is the boom in sales of Monsanto's GM soya beans that has accompanied the massive expansion of soya plantations for export in Argentina and Brazil since 1996. Similar models of production are now being applied and pursued elsewhere, across the Americas, Africa and Asia, displacing local seed systems with corporate seed systems in the process. In fact, in many cases the introduction of corporate seeds precedes the imposition of corporate farming. For instance, Chinese programmes to promote the use of Chinese hybrid rice varieties in Africa are part of a long-term effort to establish large-scale rice farming on the continent for export back to China.

The situation today with seeds is like a form of apartheid. On one side, there's the so-called formal sector: the private companies, the national and international research institutes and the governmental agencies pursuing the development of varieties for an industrial model of agriculture completely at odds with the needs of small farmers and local food systems. This side has lots of money and is supported by all kinds of laws (intellectual property rights (IPRs), seed regulations, investment protections, and so on), and it also has all the access it needs to the biodiversity developed by farmers and now stored in gene banks. On the other side, there are farmers' seed systems, which still provide food for much of the planet, but which receive almost no support from governments, who instead are increasingly repressing and even criminalising them.

Farming.

Much has been said about the rise of corporate control over seeds. But there has been an equally dramatic rise in corporate control over farming during the past two decades that has received less attention, and that now threatens to get much worse. As with the Green Revolution, some of this control has come about through seeds, since GM crops and hybrids enforce a chemically intensive model of farming. Of greater significance, however, has been the intensification of vertical integration.

In the 1960s and 70s, many of the farms and plantations set up under colonial occupation were nationalised, and the general trend among global food corporations was to move away from direct production. For the most part, capital chose instead to enter farming through the input side – by controlling the sale of seeds, fertilisers and machinery. In recent years, however, that trend has turned around.

Corporations are exercising more and more direct control over farming, particularly through contract farming. In the livestock sector, for example, more than 50% of the world's pork and 66% of the world's poultry and egg production now takes place on industrial farms, which are generally either owned by large meat corporations or under contract to them.[1] In Brazil, 75% of poultry production is under contract, while in Vietnam 90% of dairy production is under contract.[2] Contract produc-

1. E. Blackmore and J. Keeley, "Understanding the Social Impacts of Large-Scale Animal Protein Production", Oxfam Novib/IIED, Preliminary Scoping Report, as input to the Conference on the Social Impacts of the Large-Scale Meat and Dairy Production and Consumption, 2009.
2. UNCTAD, World Investment Report: Transnational Corpora-

tion is also expanding for export commodities such as cacao, coffee, cashews and fruits and vegetables. It is even on the rise for staple foods, such as wheat and rice. In Vietnam, 40% of rice production is farmed under contract with companies.

Part of the reason for this vertical integration is that global retailers are demanding strict adherence to certain standards, which they dictate. Their suppliers thus want to ensure that farmers produce according to strict specifications. These companies have extreme market power, and can force their contract growers to agree to near bondage-like conditions. As these farmers are not employed directly by the companies, the companies do not have to comply with labour laws or deal with unions (*see* illustration: "Who works for whom?").

One consequence of this trend towards vertical integration and tightly integrated supply chains is the emergence of what can be called corporate farmers. These are companies, sometimes owned by families and often owned by a mix of investors and even shareholders, with large-scale operations, typically in different parts of a country and sometimes in more than one country. In Argentina, for instance, where the emergence of such companies is particularly striking, just 30 companies now control over 2.4 million hectares of farmland.[3] In the Ukraine, 25 companies control around 3 million hectares of farmland – 10% of the country's total.[4] Most of these new corporate farmers have special supply arrangements with downstream corporations, as China's poultry producer DaChan has with McDonald's, and some of them have been taken over by their downstream clients, such as Hortifruiti, the biggest fresh-fruit and vegetable producer in Central America, which was acquired by Walmart. Indeed, increasingly the transnational corporations are doing the farming themselves, whether it is with fruits, cereals, dairy, beef or sugar cane (*see* Table 2: "Some agricultural commodity trading companies investing in farms").

And there are other forces driving this recent corporate push into farming. The convergence of the food and financial crises in 2008 triggered a wave of investment in overseas food production and farmland, both by financial investors looking for a secure source of long-term profits and by certain governments rethinking their reliance on the corporate global food system to assure their food security. The recent creation of new markets for biofuels has also brought more corporations into farming. With legislation guaranteeing markets for ethanol and biodiesel in industrial and so-called emerging economies, financial investors and corporations from the energy sector have been pouring money into farming operations for biofuel production.

Table 1: PepsiCo's farming operations

Farms	10 potato farms in China 1 dairy farm in Jordan 1 dairy farm in Egypt
Contract farming operations	12,000 farmers for potatoes in India 1,200 farmers for barley in India 6,000 ha (approx.) under contract farming for rice, tomato and chili in India

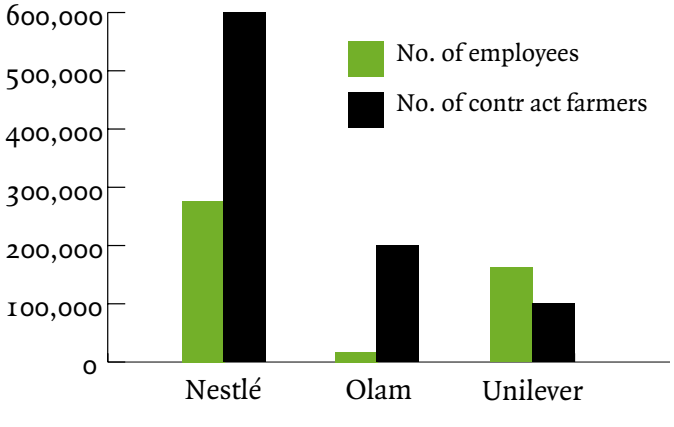
Table 2: Some agricultural commodity trading companies investing in farms

Company	Farms
Cargill	Palm oil, sugar cane, dairy, cattle, poultry, pigs, sugar cane, aquaculture
Olam	Dairy, almonds, palm oil
Bunge	Sugar cane, cereals, oil seeds, cattle
Louis Dreyfus	Sugar cane, cereals, oranges
Mitsui	Cotton, dairy, oilseeds, cereals, poultry, shrimp
Glencore	Oilseeds, cereals
ADM	Sugar cane, palm oil (with Wilmar)
Noble Group	Oilseeds, cereals
Charoen Pokphand	Pigs, poultry, aquaculture, fruit and vegetables, palm oil
Wilmar	Palm oil, sugar cane

Source: compiled by GRAIN

Who works for whom?

Contract farmers are the dominant workforce in the food industry



Source: Compiled by GRAIN

tions, Agricultural Production and Development, 2009: http://unctad.org/en/docs/wir2009_en.pdf

3. Klaus Deininger, "Large scale land acquisition – What is happening and what can we do?" World Bank, Presentation to Land Day event, Rome, 24 January 2010: http://farmlandgrab.org/10920

4. Maryna Moiseeva, "The largest landlords of Ukraine", Delo, 5 October 2009: http://www.smart-holding.ua/en/press-center/articles/index.php?ELEMENT_ID=882

1 Asparagus exports

From 1990 to 2007, global exports of asparagus increased by 271%. Peruvian asparagus production accounted for more than half (58%) of the increase in global exports during this period. Over those years, asparagus production in Peru increased from 58,000 tonnes to 284,000 tonnes. Around 90% of Peruvian exports of asparagus go to the US and Europe. In Peru, asparagus was formerly produced by small-scale farmers, but today they account for less than 10% of the country's production, which is now dominated by large-scale exporting companies. Just two companies control a quarter of Peru's asparagus exports.

Table 3: Ten southern agribusiness TNCs involved in food production.

Sime Darby (Malaysia)	World's largest producer of palm oil, expanding into West Africa and branching into the production of rice.
CP Foods (Thailand)	Asia's largest meat producer, also a major presence in seeds and rice trading. Expanding into Europe, Africa and Middle East.
Wilmar (Singapore)	Major palm oil and sugar producer. ADM owns a minority stake in the company.
Olam (Singapore)	Major agricultural commodity trader, with a presence in Asia, Latin America and Africa. Moving upstream into the production of staple foods, such as rice and dairy. Partly owned by Singapore SWF Temasek.
JBS (Brazil)	World's largest meat company with a focus on beef. Major recent expansion into North America and Australia and into poultry.
Karuthuri (India)	One of the largest producers of cut flowers in the world, with production based mainly in Kenya. It has more recently moved into the production of food crops for export on land it has acquired in Ethiopia.
Savola (Saudi Arabia)	The largest food company in the Gulf region, it is involved in the production and processing of foods as well as retail through its ownership of the Panda supermarket chain.
COFCO (China)	A state-owned conglomerate, it is China's largest food processor and trader. It recently expanded into dairy production.
COSAN (Brazil)	Fourth largest sugar producer in the world. It recently entered into a major ethanol joint venture with Shell Oil.
New Hope (China)	A privately owned conglomerate that is China's largest producer of feed and one of its largest producers of pork, poultry and dairy. The company has recently launched operations in Vietnam, the Philippines, Bangladesh, Indonesia, and Cambodia

The overall effect of these developments is a massive expansion of monocultures. Soya alone accounts for over a quarter of the total increase in global agricultural area between 1990 and 2007 (see illustration, "Occupying fertile land"). What is perhaps most striking about these figures is that the bulk of the expansion in monoculture production has not been about producing more food for people. The expanded agricultural area growing soya, timber, maize and sugar cane has mainly been for industrial uses, especially biofuels and animal feed.

Markets.

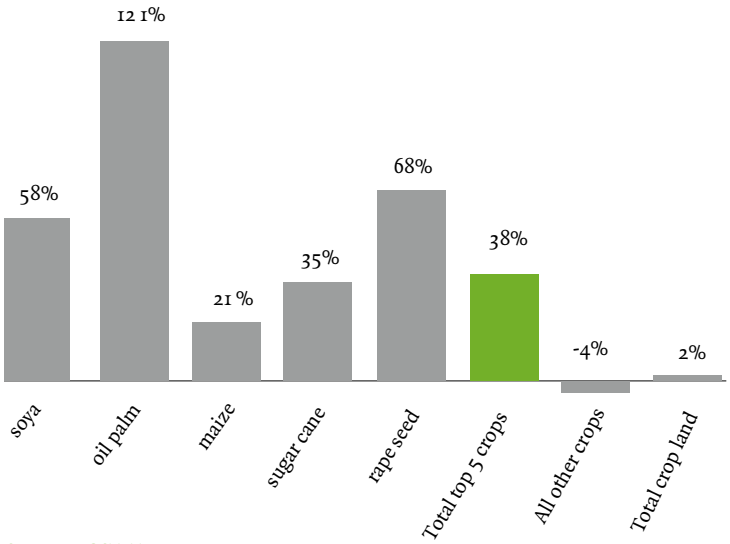
In the 1980s and through to the 1990s, there was a wholesale dismantling of the state or parastatal companies and agencies that, at least in theory, balanced the interests of farmers and the urban population. International commodity boards, which had similar intentions, were also broken apart during these years. Meanwhile, through the creation of the WTO and subsequently through bilateral trade and investment agreements, a comprehensive package of neoliberal rules was imposed on countries around the world, setting the stage for a huge upsurge of foreign investment in agribusiness and the globalisation of food systems. The net result of these processes has been the concentration of tremendous power in the hands of transnational agribusiness corporations. The door has swung wide open for them to remake food systems to suit their global operations.

CARGILL, THE WORLD'S LARGEST AGRICULTURAL COMMODITY TRADER, EARNED ALMOST US$10 BILLION IN 2008–10, UP FROM US$1.5 BILLION IN 1998–2000

For countries in the South, this new wave of corporate control has meant, among other things:

- an ongoing shift in the production of traded agricultural commodities towards places, such as Brazil, where the costs of production are low and state support, in

Occupying fertile land: industrial commodity crops spread at the expense of others
(% increase 1990–2007)



Source: FAOSTAT

infrastructure, finance and policies, is high (*see* "Asparagus exports", below)
• the aggressive entry of northern supermarkets (Wal-Mart, Carrefour), food service companies (McDonald's, KFC), and food processing companies (Nestlé, Unilever) into domestic food systems
• the replacement of local markets and systems of food production with global supply chains of food and feed organised by food and agribusiness TNCs.

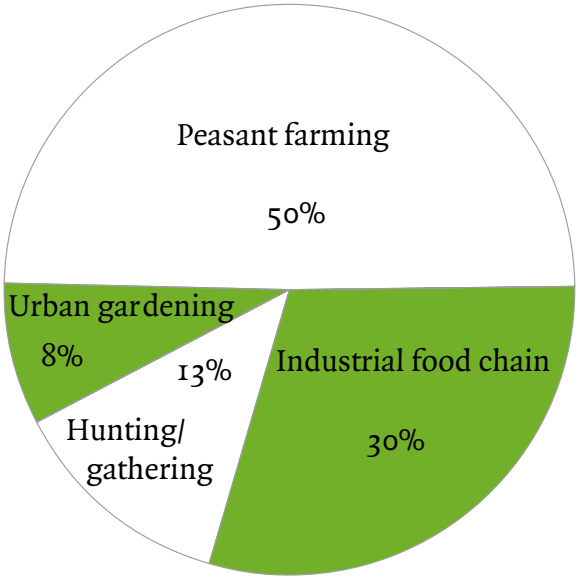
Governments have, by and large, eagerly embraced these trends – falling over each other to provide incentives to foreign investors, signing up for and implementing Western-based IPR laws and food safety regulations that favour corporations and criminalise small farmers and local food systems, and pumping scarce public funds into the creation of infrastructure to facilitate corporate expansion. Some southern governments, such as those of China, Brazil, Thailand and South Africa, have been able to support the development of their own agribusiness TNCs, but these are few and far between and almost exclusively confined to agricultural production. Moreover, these TNCs are replicas of Northern TNCs, organised according to the same logic, and often tightly integrated with larger northern TNCs, whether as suppliers to food corporations such as McDonald's and Nestlé or as clients of agribusiness corporations such as Monsanto and Hybro Genetics.

Moreover, the whole machinery of corporate agribusiness, whether it's JBS in Brazil or Shineway in China, has become inseparable from the global financial sector. The past two decades of globalisation have, more than anything else, been about the concentration of wealth and power in the hands of Wall Street and other financial centres. Today's captains of finance can move trillions of dollars around the world every day, looking for the quickest and highest returns. More and more of this money is now flowing into corporate agribusiness and commodity speculation. Access to this huge pool of capital is propelling the expansion of agribusiness, giving companies the financial resources to take over smaller firms or to set up new operations, while also harnessing them ever tighter to the logic of fast and high returns, which are made off the backs of workers, consumers and the environment. Meanwhile, the amount of speculative capital in agricultural commodities has skyrocketed in recent years, and this, combined with rising corporate control at all levels of the food chain, means that prices have little to do with supply and demand, and that food distribution has become disconnected from need. Today's corporate global food system is organised according to one principle only: profit for the owners of the corporations.

People.

It is hard sometimes not to feel overwhelmed by the growth of corporate power in the food system. It is especially depressing when one considers that this corporate expansion is built on the destruction of local food systems, which provide liveli-

Who feeds the world?



Source: ETC Group, "Who will feed us?", November 2009. www.etcgroup.org

hoods and food to people shut out or exploited by the agribusiness food chain.

Nevertheless, the corporate food system is not entirely ubiquitous. In fact, most seeds are not sown for it, most farmers are not part of it, and most people are not fed by it. Around the world, the foundations for entirely different food systems are still in place, and movements are emerging and gaining force everywhere to revitalise them and roll back the corporate food order. If capital is pushing so hard to take over agriculture, it is only because so much of it still functions outside corporate chains of production; so much of it remains in the hands of peasants, fisherfolk, and indigenous people, and within local cultures and the circuits of local markets.

The truth is that we do not need agribusiness. Rather, as the last two decades have shown, we have every reason to get rid of it. Twenty years of expanding agribusiness control over the food system has generated more hunger – 200 million more people go hungry than 20 years ago. It has destroyed livelihoods – today 800 million small farmers and farm workers do not have enough food to eat. Agribusiness has been a leading cause of climate change and other environmental calamities, the effects of which it is ill-prepared to deal with. It has generated unprecedented food safety problems and has made agriculture one of the most dangerous sectors to work in. And it has funnelled the wealth created though global food production into the hands of a few.

The main story in agriculture over the past twenty years has been the rise of agribusiness. If humanity is going to survive with any dignity on this planet, the next twenty years need to see its decline.

Via Campesina activists demostrating for food sovereignty in Rome. Photo: The Development Fund, Norway.

going further

FAO, State of Food and Agriculture: Livestock in the Balance, 2009: http://www.fao.org/publications/sofa/en/

3D, "Exploring the Global Food Supply Chain. Markets, Companies, Systems", May 2010: http://www.3dthree.org/en/index.php

GRAIN, "Seized: The 2008 land grab for food and financial security", Briefing, October 2008: http://www.grain.org/landgrab/

ETC Group, "Who Owns Nature? Corporate Power and the Final Frontier in the Commodification of Life", Communiqué, December 2008: http://www.etcgroup.org/en/node/707

Philip McMichael, "The World Food Crisis in Historical Perspective", Monthly Review, July–August 2009: http://monthlyreview.org/090713mcmichael.php

GRAIN, "Making a killing from hunger", Against the grain, April 2008: http://www.grain.org/articles/?id=39

The great milk robbery

How corporations are stealing livelihoods and a vital source of nutrition from the poor.

Milk is taking on ever-greater importance in the livelihoods and health of the world's poor. Most of the dairy markets that serve the poor are supplied by small-scale vendors who collect milk from farmers who own just a few dairy animals. But such systems of "people's milk" are in direct competition with the ambitions of big dairy companies, such as Nestlé, and a growing number of other wealthy players that want to take over the dairy chain in the South, from the farms to the markets. A battle over dairy is under way that will profoundly shape the direction of the global food system and people's lives.

PART 1: PEOPLE'S MILK

Delivering dignity.

In the early morning hours of any given day, before most people in Colombia are out of their beds, around 50,000 milk vendors stream into the country's cities. These *jarreadores*, as they are called, travel by motorbike carrying large canisters of milk that they collect from two million or so small dairy farms in the Colombian countryside.

Each day they will deliver 40 million litres of fresh milk at an affordable price to around 20 million Colombians, who will boil it briefly at home to ensure its safety. There is perhaps no more important source of livelihood, nutrition and dignity in Colombia than what is commonly known as *leche popular* or people's milk.

Colombia's jarreadores *(Photo: Aurelio Suárez Montoya)*

Table 1. Percentages of national milk markets not handled by the formal milk sector in certain countries.

Country	Percentage of national milk market not handled by the formal sector
All developing countries	80
Argentina	15
Bangladesh	97
Brazil	40
Colombia	83
India	85
Kenya	86
Mexico	41
Pakistan	96
Paraguay	70
Rwanda	96
Sri Lanka	53
Uganda	70
Uruguay	60*
Zambia	78

* Figure is for cheese only
Source: GRAIN

The *jarreadores* have been gathering in the streets recently for another reason. They, along with farmers, small-scale dairy processors and consumers, have been protesting against repeated moves by the Colombian government to destroy their *leche popular*. The problem began in 2006, when the government of President Uribe issued Decree 616 prohibiting the consumption, sale and transport of unpasteurised milk, effectively making *leche popular* illegal.

The decree triggered huge protests across the country, forcing the government to postpone adoption of the regulation. Popular opposition did not die down and, two years later, with over 15,000 people marching in the streets of Bogotà, the government was yet again forced to push things back another two years.

But Decree 616 was not the only threat to *leche popular*. Colombia had begun negotiations for several bilateral free trade agreements (FTA) with dairy exporters. While Colombia is self-sufficient in milk, the FTAs would remove key protections from the sector, leaving it vulnerable to imports of cheap powdered milk, particularly from the EU, where dairy production is heavily subsidised. In the words of Aurelio Suárez, Executive Director of the National Association for the Preservation of the Agricultural Economy (Salvación Agropecuaria), an FTA with the EU would be a "huge disaster" for Colombia's dairy sector.

By 2010, when legislation to prohibit *leche popular* was once again up for implementation, opposition had merged with anger at the proposed FTAs. Massive mobilisations ensued, leaving the government with little choice but to postpone the legislation to March 2011, when, greeted by a fresh wave of demonstrations, the government had to concede defeat. In May 2011, Decree 1880 was passed, which recognises *leche popular* as both legal and essential.

It was an impressive series of victories for the people of Colombia's dairy sector, one that should inspire the many similar struggles that small-scale dairy farmers and vendors are waging in other parts of the world.[1] Of course, the battle is not over; an FTA with the US has been passed, and the negotiations for an FTA with the EU have just been concluded. But the dairy sector is now at the heart of the popular resistance to

1. The situation in Colombia is extensively documented in Aurelio Suárez Montoya, "Colombia, una pieza más en la conquista de un 'nuevo mundo' lácteo", November 2010: http://www.recalca.org.co/Colombia-una-pieza-mas-en-la.html

these deals, and, whatever happens, it is clear that *leche popular* will be at the forefront if and when the Colombian people succeed in breaking with their government's policies, to chart a new path of social transformation.[2]

People's milk.

The people of Colombia are resisting a strong global trend. Dairy, like other food and agriculture sectors, has been going through severe consolidation over recent decades. Today, a few multinationals, like Nestle and Danone, sell their dairy products in every corner of the planet. Consolidation is happening on the farm too. Dairy herds are getting bigger, and new technologies are squeezing more and more milk out of each cow. And new money, mainly from the financial sector, is now streaming into agriculture, looking for a share of the profits in this move to bigger dairy farms.

Table 2. Differences between milk production in the global North and the global South

	North	South
Total milk production (2009)	362 million tonnes	337 million tonnes
Percentage of the milk market handled by the "informal sector"	<10%	80%
Number of cows per farm	US = >100 Australia = >100 France = >30 Japan = >30	Brazil= <30 India= <10 Kenya= <10 Turkey= <10
Rural jobs per million litres of milk/year	5	200
Milk consumption per person (2007)	248 litres	68 litres
Cost of milk production (US$/100kg)	Canada = >60 New Zealand = >30 Italy = >60	Uganda = <20 Pakistan = <30 Argentina = <30

Source: IFCN; Aurelio Suárez Montoya, "Colombia, una pieza más en la conquista de un 'nuevo mundo' lácteo", November 2010: http://www.recalca.org.co/Colombia-una-pieza-mas-en-la.html

But this is far from the whole story. In most of the world, dairy is still very much in the hands of poor people. The milk corporations are growing, but in many places milk markets are still the domain of what government and industry like to call the "informal sector" – farmers who sell their milk directly, or local vendors who go deep into the countryside to purchase milk from small farmers and bring it directly to consumers. The available data suggests that more than 80% of milk marketed in developing countries, and 47% of the global total, is people's milk.

In India, the world's largest producer of milk, the people's milk sector still accounts for 85% of the national milk market. Although much is said of the significance of Indian's dairy cooperatives in building up the country's milk production, the real story behind the country's "white revolution", which saw a tripling of milk production between 1980 and 2006, lies with the people's milk sector. It was India's small-scale farmers and local markets that led the massive expansion in the country's dairy production over those years, and, as a result, the benefits of this boom in production have been widely spread out. Today, 70 million rural households in India – well over half of the country's total rural families – keep dairy animals, and over half of the milk they produce, which is mainly buffalo milk, goes to feed people in the communities they live in, while a quarter of it is processed into cheese, yoghurts and other dairy products by the local "unorganised sector".[3]

The contributions of people's milk to the lives of the poor around the world are many. It is a key source of nutrition – a subsistence food for those with dairy animals and affordable to those without. Fresh people's milk tends to be much cheaper than the processed packaged milk sold by companies. In Colombia it costs less than half the price of the pasteurized, packaged milk sold in supermarkets.[4] It is the same in Pakistan, where the gawalas (street vendors) sell to urban consumers fresh milk that they collect from rural farms for about half the price of packaged, processed milk.[5]

Cheese at a market in Ayacucho, Peru (Photo: Tomandbecky).

For small farmers, people's milk offers one of the few sources of regular, consistent income. Because milk is perishable, it is also a major source of revenue for small-scale vendors and processors who can source it daily from farmers and bring it to the consumers who purchase fresh milk, cheese, yoghurt and other dairy products on a near daily basis. Common cus-

2. Movimiento Obrero Independiente y Revolucionario (MOIR), "Triunfo de la cadena láctea popular y la seguridad alimentaria," 7 June 2011: http://www.nasaacin.org/component/content/article/1-ultimas-noticias/2180-triunfo-de-la-cadena-lactea-popular-y-la-seguridad-alimentaria

3. Animesh Banerjee, "Lessons Learned Studies: India", FAO: http://www.aphca.org/reference/dairy/dairy.html

4. Personal communication with Aurelio Suárez, 6 July 2011.

5. Tanvir Ali, "A case study of milk production and marketing by small- and medium-scale contract farmers of Haleeb Foods Ltd, Pakistan": http://www.regoverningmarkets.org/en/filemanager/active?fid=30

Women on the way to the market in Benin. Photo: palaku.com

toms of heating or fermenting the milk ensure that it is safe for consumption. In Pakistan, for instance, many leave their milk to simmer for hours on special stoves called karrhni, which burn dung on a low heat. In northern Nigeria, milk is often consumed as a fermented drink called nono.

The "informal sector" is treated with disdain by the elites. Produce is called "unhygienic" or of "poor quality", and the system is labelled "inefficient". Some decry it for not contributing taxes. But the truth is that people's milk thrives in many countries. Small farmers, pastoralists and landless peasants are showing that they can produce enough milk to satisfy people's needs, and small vendors and processors have little trouble getting the milk and other dairy products safely to markets. The "unorganised sector" can do things just fine without the big players when they are not undercut by dumped surplus milk from elsewhere or persecuted by unfair regulations.

Even in markets where dairy was industrialised long ago, people's milk is making a comeback. From the US to New Zealand, the markets for direct purchase of milk from the farm or for organic and raw milk are booming, as people look for higher-quality foods produced outside the industrial system. In these countries, farmers too are increasingly fed up with the dominant model. Intensive production has saddled them with high costs and debt, while the price of milk rarely meets the cost of its production. And the rural communities where the farmers live tire of the pollution generated by the growing presence of mega dairy farms. There is pressure for new models of production and distribution to protect farmers' livelihoods and provide consumers with quality foods. The fight over the future of dairy in Europe is particularly fierce.

The movement for people's milk, however, runs head first into the ambitions of the corporations that seek to control the global dairy industry, which can be collectively called "Big Dairy". With dairy markets in the North already saturated, Big Dairy is targeting for its growth the very markets served by people's milk. As these dairy corporations invade the South, they are flanked by a number of other companies and wealthy elites (see Tables 4 & 5), who, together, are trying to reorganise the entire supply chain, from farms to markets.

Transporting fresh milk in Kenya. Photo: palaku.com

PART 2: BIG DAIRY

Milking it.

Corporate control over the world's milk supply has been accelerating in recent years alongside the globalisation of the industry. The twenty largest dairy companies now control over half the global ("organised") dairy market and process about a quarter of global milk production.[6] Just one company, Nestlé, controls an estimated 5% of that global market, with sales of US$25.9 billion in 2009.

Nestlé is not a milk producer. It owns few cows, and buys milk directly from farmers or suppliers and processes it into all kinds of products. Most of the other top 20 companies are also processors, even though, as with Nestlé, some have started to operate their own farms.[7] The exceptions are the dairy cooperatives, of which there are five in the top 20 (six if Mexico's Grupo Lala is included).[8]

These five cooperatives are owned by around 70,000 farmer members in the US, Europe and New Zealand.[9] While each produces its own own dairy products, much of the milk their farmers produce goes to supply the multinational processors. In this, the interests of the big cooperatives and the processors are often closely aligned. Indeed, the big cooperatives are multinationals in their own right, most having established or taken over dairy companies overseas, and their policies can clash with the interests of the farmers that supply them, particular the smaller-scale dairy farmers.

All of the big dairy players have, in recent years, been pushing aggressively to expand beyond the saturated dairy markets of the North and conquer the growing markets in the South. They have been on a spending spree, buying up major national players or investing in their own production units. Nestlé says that about 36% of its total sales now come from emerging markets. By 2020, it expects that portion to rise to 45%; it plans to double its turnover in Africa every three years.

The expansion into the South is being driven not only by the large dairy companies. A number of corporations from other sectors of the food industry, such as PepsiCo and General Mills, have recently made significant moves into dairy. Financial players such as Kohlberg Kravis Roberts & Co and

Table 3. Top 20 global dairy corporations

Rank	Name	Country	Dairy sales in US$ billions, 2009
1	Nestlé	Switzerland	25.9
2	Danone	France	14.79
3	Lactalis*	France	12.68
4	FrieslandCampina	Netherlands	11.17
5	Fonterra	New Zealand	10.2
6	Dean Foods	USA	9.74
7	Arla Foods	Denmark/Sweden	8.64
8	Dairy Farmers of America**	USA	8.1
9	Kraft Foods	USA	6.79
10	Unilever	Netherlands/UK	6.38
11	Meiji Dairies	Japan	5.13
12	Saputo	Canada	4.97
13	Parmalat*	Italy	4.93
14	Morinaga Milk Industry	Japan	4.81
15	Bongrain	France	4.57
16	Mengniu	China	3.77
17	Yili	China	3.54
18	Land O'Lakes	USA	3.21
19	Bel	France	3.1
20	Tine	Norway	3.02

*On July 7, 2011, Lactalis boosted its ownership of Parmalat to over 50%, making Lactalis the world's second-largest dairy company.
**After the sale of National Dairy to the Grupo Lala (Mexico) in 2009, Dairy Farmers of America's ranking would certainly drop, while Grupo Lala would enter the top 20, with sales of around US$ 5 billion.
Source: Rabobank

Table 5. Some dairy corporations based in the South with an overseas presence

Company	Home country	Overseas expansions
Al Marai/PepsiCo.	Saudi Arabia/US	Egypt, Jordan, Gulf Cooperation Council
Ausnutria	China	Netherlands
Bom Gosto	Brazil	Uruguay
Bright Dairy	China	New Zealand
Grupo Lala	Mexico	Guatemala, US
Marfrig	Brazil	Uruguay
Olam	Singapore	Netherlands, New Zealand, Poland, Uruguay
RJ Corp (Jaipura Group)	India	Kenya, Uganda

6. Figures are from Kevin Bellamy of Zenith International, cited in Shaun Weston, "How global dairy markets are developing and competing," FoodBev.com, 23 Aug 2011.
7. Nestlé established a "demonstration farm" with 120 cows in Pakistan in 2009.
8. The 5 cooperatives are FrieslandCampina, Fonterra, Arla, Dairy Farmers of America, and Land O'Lakes.
9. In addition to its 3,200 direct producer members, Land O'Lakes is owned by 1,000 member-cooperatives that comprise more than 300,000 dairy farmers in the US.

The Swedish corporation Tetra Pak dominates the global market for pasteurised milk packaging, and encourages the consumption of packaged and processed milk by sponsoring school milk programmes such as this one in Thailand. It also has a large corporate division, known as DeLaval, that "develops, manufactures and markets equipment and complete systems for milk production and animal husbandry" in more than 100 countries. In Pakistan, DeLaval is implementing a "Dairy Hub" programme in collaboration with the government and several dairy processors to develop larger-scale, modern, commercial dairy farms. Its "Dairy Hub" promotional video maintains: "The traditional approach of the farmer and his lack of knowledge about modern dairy farming is the single most important barrier impeding milk from achieving its true potential.")*

** Engro and Tetra Pak DeLaval, "Dairy Hub Kassowal" video: http://www.youtube.com/watch?v=J7baPAjdZGg*

Photo: tetrapak

Table 4. Some financial players investing in the dairy industry

Financial company	Investments
Actis (UK)	Invested US$65 million in Nilgiri Dairy Farm (India) in 2006.
Black River/Cargill (US)	Established $300 million fund to invest in dairy farms in India and China.
Carlyle Group (US)	Purchase of minority stake in Tirumala Milk Products in 2010 (India)
Citadel Capital (Egypt)	Owner of Dina Farms, the largest dairy farm in Egypt.
Hopu Fund (China), with Temasek (Singapore) and Goldman Sachs (US) as limited partners	Teamed up with COFCO, China's largest agribusiness company, to acquire China Mengniu Dairy in 2009, one of China's largest dairy companies.
Kohlberg Kravis Roberts & Co (US)	Investment in 2009 in Ma Anshan Modern Farming Co. one of the largest operators of mega dairy farms in China. With KKR's investment, Modern Dairy plans to construct another 20 to 30 mega-farms in China
LEAP Investments (Brazil)	Private equity fund that took over Parmalat's Brazilian subsidiary.
Penxin (China)	In April 2011, it made a bid to acquire Crafar Farms, one of New Zealand's largest dairy farms. The bid is awaiting approval of New Zealand's Overseas Investment Office.
Soros Fund Management (US)	Owner of dairy farms and processing plant in Argentina through its $295 million holding in Adecoagro.

Citadel Capital (see Table 4), are also getting directly involved, as are new dairy companies based in the South, some of whom have begun expanding into markets in the North (see Table 5). In addition, there is a host of corporations not involved in dairy processing or production that have direct interests in the expansion of the transnational dairy industry, in sales of animal genetics and veterinary drugs or in packaging and equipment.

Taking from the poor.

Corporate hopes for emerging markets rest in large part upon projections for a growing middle class in the South that will consume more dairy, and will purchase that dairy from the rapidly expanding supermarket chains. Supermarkets like Walmart and Carrefour are closed to people's milk, as are restaurant chains like McDonald's and Starbucks. It is simply impossible for the people's milk system to comply with the private standards and procurement policies set by these companies. In Chile, for instance, supermarkets insist that their cheese suppliers allow them to delay payment for up to 4–5

THE EXPANSION INTO THE SOUTH IS BEING DRIVEN NOT ONLY BY THE LARGE DAIRY COMPANIES. A NUMBER OF CORPORATIONS FROM OTHER SECTORS OF THE FOOD INDUSTRY, SUCH AS PEPSICO AND GENERAL MILLS, HAVE RECENTLY MADE SIGNIFICANT MOVES INTO DAIRY.

*Ms. Zulaikho sells milk from her own cows to a customer in Tashkent, Uzbekistan, 8 January 2011. Sales of people's milk in Uzbekistan have recently risen. People appreciate its quality and freshness, and it sells for half the price of store-bought milk. The government and industry have responded by calling the milk unhygienic, and recently a campaign was launched in Tashkent to educate school children on the importance of drinking processed and packaged milk instead of people's milk. "Today's young people will be future parents with a new outlook and with modern demands for quality products", says the campaign's marketing agent, Saida Ziyamova. "So it is important to convey to them the importance of healthy, safe milk." When asked why many people in Uzbekistan believe people's milk to be superior in quality, Nestlé Uzbekistan's plant manager, Muzaffar Akilov, explained: "People get mixed up out of ignorance."**

* Shakar Saadi, "Uzbekistan promotes pasteurised milk" CentralAsiaOnline.com, 15 January 2011.

months, which few small-scale cheese makers can afford.[10] So, as more dairy is consumed through these outlets, less is consumed through the people's milk markets, and more is supplied by the dairy corporations able to meet the standards and procurement polices set by the retailers.

Not that Big Dairy is uninterested in the poor. Margins may be slim, but the overall market can be quite significant, and transnational dairy companies are putting great effort into developing products and marketing strategies that target low-income consumers. Since these people currently tend to consume people's milk, fresh from the farm, part of the companies' strategy is to damn that milk as "unsafe".

In Kenya, for instance, in 2003, the big dairy processors launched a "Safe Milk" campaign, accusing the people's milk sector of selling adulterated milk.[11] A coalition of farmers, vendors, researchers and concerned citizens came together to fight back successfully. With the support of a Kenyan University, they carried out their own study, which demonstrated that the accusations were completely false.

"The most plausible explanation of the goings-on in the industry is the big players are scheming to shut out the small traders and small-holder producers so that they can have the market to themselves", said Dr Wilson Nguyo, a senior researcher at Egerton University's Tegemeo Institute of Agricultural Policy and Development.[12]

There is much more reason to be concerned about adulteration in the industrial chain than in the people's milk sector, as the recent melamine scandal in China so amply demonstrates. In that case, milk was being adulterated at the collection centres serving several of China's largest dairy companies. The global dairy corporations were also implicated. New Zealand-based Fonterra owned 43% of Sanlu, the Chinese dairy company at the centre of the scandal, and it appears that the contaminated milk from China got into its global supplies as well as those of Nestlé and other multinationals.

The big dairy corporations responded by trying to distance themselves from the scandal. When tests carried out at Dhaka University in Bangladesh found Nestlé's Nido Fortified Instant milk product, made with powdered milk supplied by Fonterra, to be contaminated with melamine, the two companies publicly questioned the findings and the competence of the university lab. But, at around the same time, similar results came back concerning Nestlé products in Taiwan and Saudi Arabia. Saudi Arabian authorities called the levels of melamine they uncovered "highly harmful".[13] A Freedom of Information Act request by Associated Press revealed that the US Food and Drug Administration had found melamine in tests it conducted on infant formula and nutritional supplement products sold in the US by Nestlé and other corporations.[14]

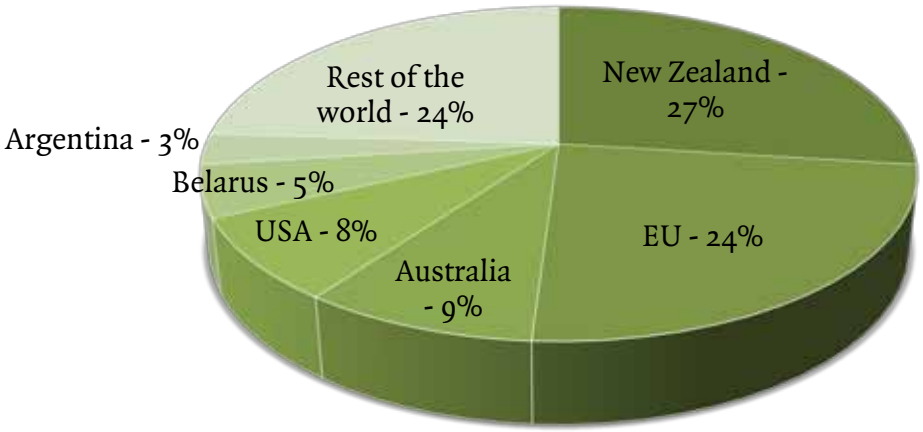
What was Nestlé's response? Low levels of melamine are not dangerous and can be found in most food products, it said. "Minute traces exist in the natural food cycle", said the company, while urging governments to adopt minimum-residue levels instead of zero tolerance.[15]

Small farmers not welcome.

The cruellest hoax about the expansion of Big Dairy into the South is the claim that it will bring more opportunities for dairy farmers. Nestlé and Danone may have a few programmes in poor countries to create supply chains with small farmers, and there are numerous NGO pilot projects trying to help small farmers meet the "quality" criteria set by these corporations.

10. Personal communication with Max Thomet, Director of CETSUR, 20 July 2011.
11. The campaign was led by the Kenyan Dairy Board and the Kenyan Dairy Processors' Association, which is composed of corporate members such as Nestlé and Tetra Pak. The US dairy cooperative Land O'Lakes was also involved.
12. Juma Kwayera, "Clean vs 'Dirty' Milk or Big Business vs Small Farmers", The East African, 22 December 2003.
13. "Saudi Arabia finds traces of melamine in Nestlé milk powder", Zawya Dow Jones, 3 December 2008. http://www.marketwatch.com/story/saudi-arabia-finds-traces-of-melamine-in-nestle-milk-powder
14. Jordan Lite, "Melamine traces found in samples of U.S. infant formula", Scientific American, 26 November 2008.
15. Jenny Wiggins, "Nestlé in melamine dispute with Taiwan", Financial Times, 2 October 2008.

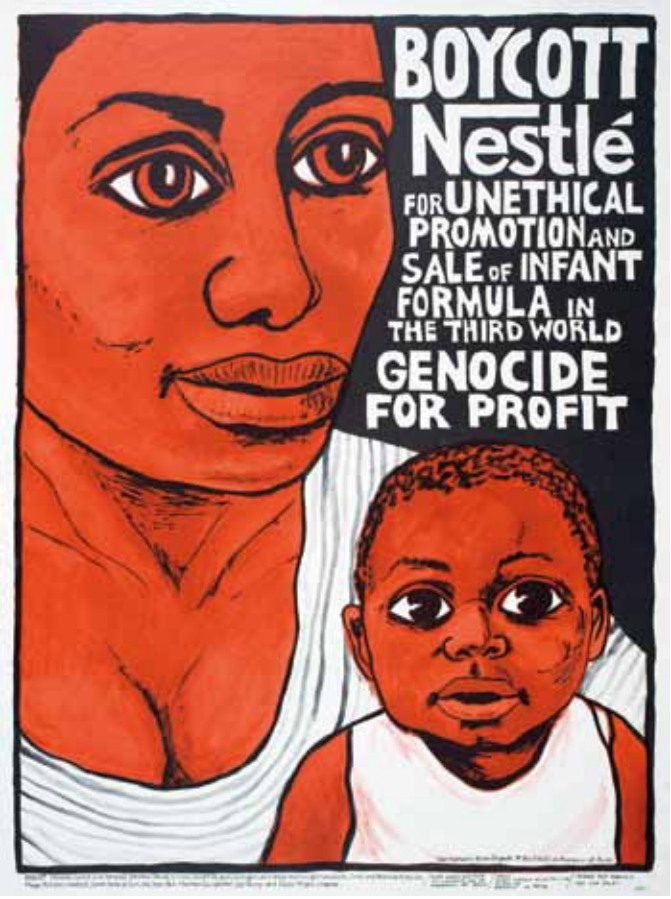
Chart 1. Share of global dairy exports



(Source: International Dairy Federation)

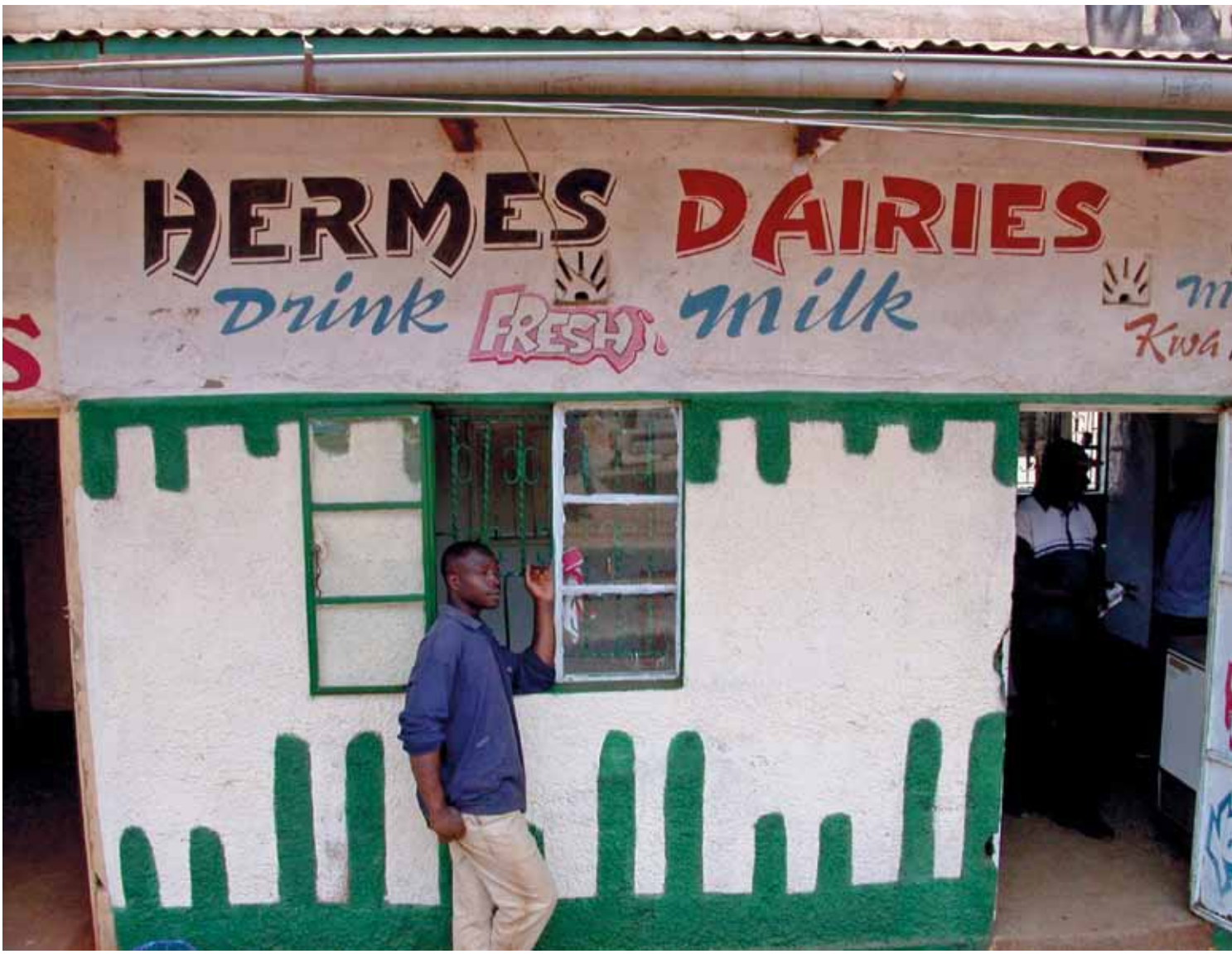
But this represents just a small drop in the bucket. While Big Dairy needs to develop some local supply chains as it expands into the South, the reality is that little of these local chains will ever be formed by the overwhelming majority of the South's dairy farmers, who hold on average just a few dairy animals.[16]

Unlike the small vendors who head deep into the countryside on motorcycles and bicycles, the big processors are unwilling to venture out to hundreds of small farms to collect milk. In the rare places where they are developing local supply chains in the South, they demand that farmers bring their milk to centralised collection centres, called milk sheds or hubs, in which the costs of refrigeration are often borne by the farmers.[17] Typically, the companies will purchase milk in the programme area only from farmers who have signed exclusive contracts, and, at the end of the day, the company holds complete control when it comes to setting the price and determining whether the milk supplied by the farmer meets the company's standards, which it often does not. In the 1990s in Brazil, for instance, when the dairy market shifted dramatically towards supermarkets and ultra-high temperature treated, vacuum-packed milk, 60,000 small scale dairy farmers were delisted by the 12 largest processors.[18]



Global activism has had considerable success in forcing Nestlé and other transnationals to tone down their aggressive, deceitful promotion of infant formula as a replacement for breastmilk. But what these companies are doing today to vilify people's milk – one of the most important sources of nutrition and livelihoods available to poor people in poor countries – is equally sinister and deadly.
Photo credit: Rachael Romero and Lincoln Cushing

16. For an example of how seriously Big Dairy takes its pilot projects to build local dairy supplies in the South, see the case study of Nestlé's contract farming project in Ha Tay Province, Vietnam. Nguyen Anh Phong, "Viet Nam: The emergence of a rapidly growing industry", in Smallholder dairy development: Lessons learned in Asia, FAO, Bangkok, January 2009.
17. Manuel Poitras, "The concentration of capital and the introduction of biotechnology in La Laguna dairy farming", Sociedades Rurales, Produccion y Medio Ambiente, 1 (1), 2000.
18. Thomas Reardon and Julio A. Berdegué, "The Rapid Rise of Supermarkets in Latin America: Challenges and Opportunities for Development", Development Policy Review, 20 (4), 2002.



A milk bar in Kenya, serving fresh, locally produced milk. (Photo: ILRI/Elsworth).

Nestlé refuses even to purchase milk from Kenya's traditional dairy farmers, despite the centuries of experience they have in producing high-quality milk. The company says that the milk produced and processed in Kenya does not meet its standards, so it relies instead on imported powdered milk, mainly from New Zealand. Recently the company launched a pilot project to start developing local milk collection, but participating farmers have to adopt the exotic animal breeds and high-cost, high-production and, ultimately, high-risk model that the company wants.[19]

Farmers in Kenya can turn to the people's milk sector to avoid such corporate tactics. In other countries, where the dairy market is fully controlled by the big processors, farmers are in a much more vulnerable position. Milk is a highly perishable product, leaving farmers with few options but to sell immediately whatever they produce in excess of their families' needs, at whatever price is offered. In many countries of the North and several countries of the South, farmers acted to

19. "Nestlé to add factories in Africa, cut imports", Reuters, 15 April 2011.

In a closed national market, co-operatives, especially if armed with supply controls, can exercise some influence over price, and even ensure that other considerations are taken on board, such as protections for small farms and the environment. But the moment that national markets are opened up to imports, there is little hope for ensuring fair prices.

The power of powder.

The basic problem is that international prices for dairy are far below the costs of production for nearly all countries. The price is artificial, based on heavily subsidised surplus production in Europe and the US, and a low-cost model of export production in New Zealand and Australia, which farmers in many other countries cannot compete with.

Although the international trade in dairy is quite small as a proportion of the overall global dairy market, its impacts are huge. Access to imports of cheap powdered milk and other milk "products" (see photo) allows processors and retailers to exert downward pressure on local milk prices, often forcing farmers to accept prices below the costs of production.

Say "Cheez"! Milk protein concentrates (MPCs) are created by putting milk through an ultra-filtration process that removes the liquid and small molecules, including certain nutritional minerals. Not only does it sell cheaply on the international market, it can also fall outside dairy tariffs. That's why the big dairy companies are using more and more of it. In the US, where imports of MPCs have skyrocketed in recent years, companies like Kraft and Nestlé use MPC to make cheap processed cheese products, like cheese slices (above) that they export to Mexico and other countries. In Canada, the dairy companies import a product called butteroil-sugar blend as a substitute for butterfat in making ice cream. Since the blend is 51% sugar, it is viewed as a confectionary product and not subjected to Canadian import tariffs on dairy.

In Vietnam, for example, where the dairy market is dominated by a few large processors, and powdered milk imports make up 80% of the national market, the processors set their local procurement prices according to international powdered-milk prices. Those prices are at or below the costs of production for the average Vietnamese farmer.[20] The national representative for Dutch-based Friesland Campina, one of the biggest dairy processors in Vietnam, said that Vietnamese farmers should stop complaining, as they are getting a price that would make Dutch farmers "jealous".[21] He didn't mention that the price his company pays to Dutch farmers is even further below the costs of production, and that the only reason Dutch farms can survive such prices is through heavy subsidies, to which Vietnamese farmers have no access.

There is little hope that the dynamics of the global dairy market are going to change. The looming reform of EU dairy policies are likely to increase exports, while doing nothing to address artificially low prices. And several other countries, such as Uruguay, Chile, India and Kenya, are emerging as new zones for low-cost export production to supplement the cheap exports coming out of the US, New Zealand and Australia.

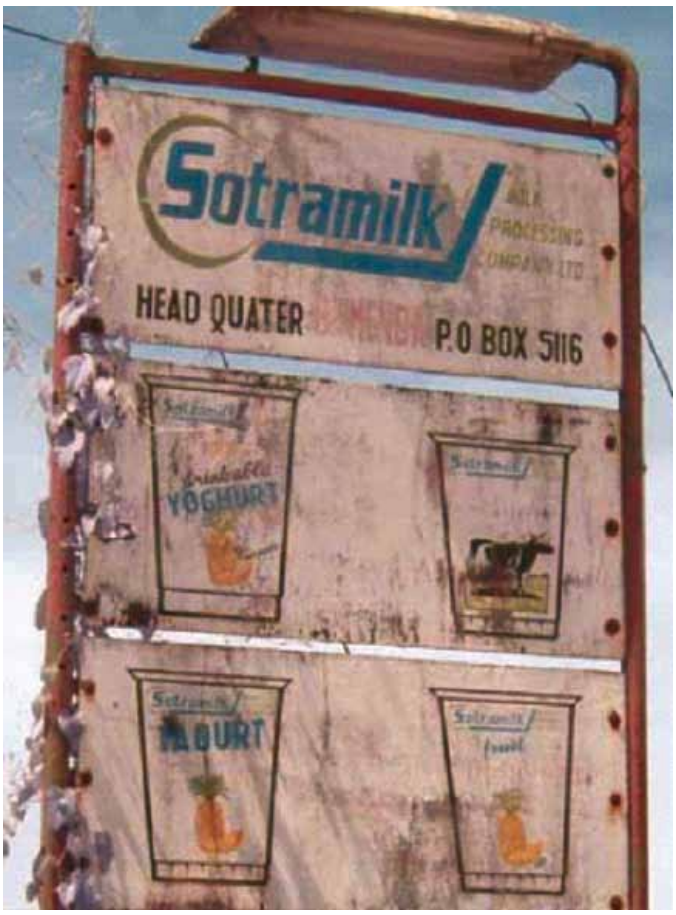
At present, the only thing holding back the growth of global trade are national tariffs on dairy and other protective measures, which remain significant and widespread. The average tariff protection level for dairy products is 80%, compared with an overall average for agricultural commodities of 62%. Such tariffs have been crucial to the growth of people's milk in Southern countries like India, Colombia and Kenya. Where there are no significant tariff and trade protections, such as in Sri Lanka or Cameroon, local dairy production has suffered.

The potential for countries of the South to maintain or implement tariffs or other trade protections on dairy are under threat from the multitude of bilateral and regional trade agreements being implemented and negotiated around the world. In negotiations for such trade deals, the EU, Australia, New Zealand, the US, Argentina and other exporters insist that importing countries open their markets to their dairy products and comply with other demands that protect exporters' interests. Not that the EU or the US will subject their own domestic dairy industries to the same foreign competition.[22] Many governments in the South, however, have proved all too willing to sacrifice local dairy production in trade negotiations for other perceived benefits.

Colombian Agriculture Minister Andrés Fernández admits that the FTA that his government has initiated with the EU will adversely affect more than 400,000 farming families across Colombia. But he says that it should be viewed as a sacrifice,

20. Nguyen Anh Phong, "Viet Nam: The emergence of a rapidly growing industry", in Smallholder dairy development: Lessons learned in Asia, FAO, Bangkok, January 2009.
21. "High dairy prices explained", LookAtVietnam, 19 October 2009.

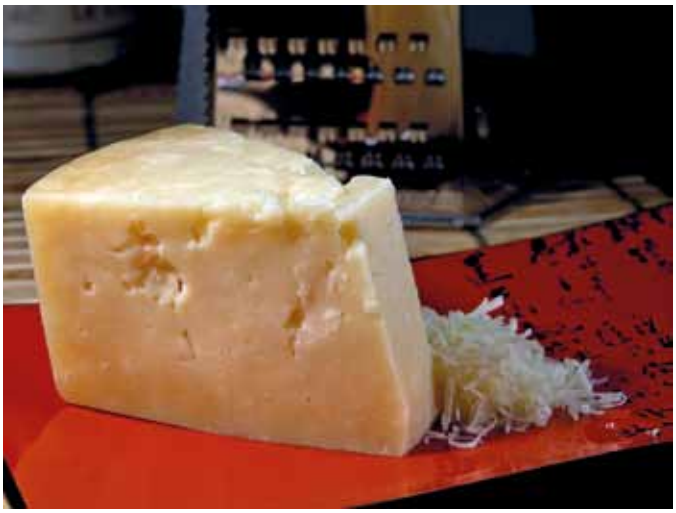
22. Talks are currently under way for a deal to expand the Trans-Pacific Partnership trade agreement between New Zealand, Brunei, Chile and Singapore to include the US, Australia, Peru and Vietnam. The US dairy industry says that New Zealand engages in anti-competitive practices in dairy farming that could potentially cost US producers billions of dollars if dairy is included in the deal. The New Zealand government and Fonterra flatly deny the accusations. But given the US sugar industry's success in keeping sugar out of the trade deal with Australia, it is quite possible that the US dairy industry will similarly get its way. For more information see: Dustin Ensinger,"TPP Could Cost U.S. Dairy Farmers Billions", Economy in Crisis, 23 March 2010; "NZ rejects US senators' claims on dairy trade", Associated Press, 22 March 2010: http://www.bilaterals.org/spip.php?article17028



Efforts to develop local supply chains for domestic dairy processors in Cameroon have failed because of competition from cheap imports of powdered milk from the EU. A national company, Sotramilk, began operations in the north-west of Cameroon in 1995, with hopes of producing yoghurt from local milk. Competition from other companies relying on imported powdered milk, however, forced the company to increase its use of imported powdered milk as well, and to reduce the local procurement price to the point where it was no longer possible for farmers to sell their milk to the company. In 2008, the company closed down. According to Tilder Kumichii of the Association Citoyenne de Défense des Intérêts Collectifs, "The EU export subsidies are only part of the problem of 'cheap imports', but they send a clear message to all domestic investors to keep out of the dairy economy and let the world market profit from the huge opportunities offered by the Cameroon dairy market."*

** Brot für die Welt, "Milk Dumping in Cameroon", October 2010.*

The basic problem is that international prices for dairy are far below the costs of production for nearly all countries.



Antigo Stravecchio Parmesan cheese. Under the EU's system of geographic indicators (GI), cheese sold as Parmigiano-Reggiano can be produced only in Parma, Reggio Emilia, Modena, Bologna or Matua. In 2008, however, the EU ruled that the same applied to all cheese produced under the name "Parmesan", a generic term widely used for cheeses produced around the world. The EU issued a similar ruling for Feta, claiming that it could be produced only within Greece, despite the name "Feta" having become generic or customary in many non-EU countries where cheeses sold as "Feta" are also produced.

This repatriation of generic terms has become a major part of the EU's international trade negotiations. In the agreement negotiated with South Korea, for instance, the EU insisted on repatriation of a long list of cheese names, including Provolone, Parmesan, Romano, Roquefort, Feta, Asiago, Gorgonzola, Grana and Fontina. US cheese producers have rightly signalled that such a deal threatens their exports of these products to Korea, the US's second-largest cheese export market, and, in June 2011, they got Ron Kirk, the US Trade Representative, to get a written guarantee from Kim Jung-hoon, Korea's trade minister, that Korea will not stop importing certain cheeses from the US because of European GIs under the EU–Korea FTA. Kim declared in writing that Korea considers names such as Brie, Camembert, Cheddar, Mozzarella, Gorgonzola, and Parmesan as generic and not the exclusive property of European cheese makers. How will the EU react? It is too early to tell. But with other products, the EU's repatriation efforts have extended even to local translations and variations of generic terms. For instance, the EU is insisting in its free trade negotiations with the Ukraine that Ukrainian winemakers stop labelling the sparkling white wines made in the Ukraine as "shampanskoye", even though this local variant on the name "champagne" has been in common use for decades (Photo: AP).†*

** The letters are here: http://www.ustr.gov/countries-regions/japan-korea-apec/korea/exchange-letters-between-ambassador-kirk-and-trade-minister*

† Sources: Thitapha Wattanapruttipaisan, "Trademarks and Geographical Indications: Policy Issues and Options in Trade Negotiations and Implementation", Asian Development Review, vol. 26, no. 1, pp. 166-205; "Petri protests threat to state cheese industry", Fond du Lac Reporter, 8 October 2010; Shaun Walker, "The bubble bursts for Ukraine's 'Champagne'", Independent, 28 February 2011.

Photo courtesy PDPhoto.org

since other industries such as tobacco and coffee stand to gain from the FTA. "The dairy industry itself is exposed, we cannot lie to the country, but we can't stop signing trade agreements with other countries just because one sector is severely affected", said Fernández.[23]

Similarly, the Thai government, fully aware of the impacts that free trade in dairy with Australia would have on local production, accepted a substantial reduction in tariffs on imports of Australian dairy produce as part of an FTA that the two countries signed in 2005. The impacts were swift. According to Witoon Lianchamroon of BIOTHAI: "Within one year of the signing of the FTA, the Thai dairy farmers' association issued a report that said that one-third of the members' dairy farms collapsed because of this FTA. They had to change their livelihoods to look for another job."[24]

The Chilean government, prompted by the trade deals that it sought with major dairy exporters, was one of the first to liberalise its dairy sector. From the mid-1980s to the early 2000s, Chile reduced its tariffs on dairy products from 20% to 6%. The national price for milk at the farm gate plummeted as a result, falling below the cost of production. While farmers protested, the government argued that its actions would force a modernisation of the sector, and that farmers would soon benefit from the development of export markets. In the ensuing years, Chile has indeed become an exporter of milk, but imports have also grown. More importantly, the entire sector has been dramatically transformed.

Before liberalisation, the Chilean dairy industry was characterised by small farms and a thriving local dairy processing industry, composed of small units producing almost entirely for local markets. The Pinochet dictatorship had destroyed many of the country's co-operatives, but co-operatives and non-profit producer groups still had a significant presence in the national market, and the presence of multinationals was quite small. When the market was opened up, however, the small-scale processors, reliant on local milk production, could not compete with the bigger players, who were able to use imported powdered milk to keep their prices down. Corresponding changes to foreign investment laws also allowed international players, such as Fonterra, to swoop in and pick up the leading national dairy processors.[25] In just a few short years, Fonterra and Nestlé, who have a formal collaboration for their dairy operations throughout most of Latin America, had taken over 45% of the national milk supply.[26] Both companies have made efforts to merge their Chilean operations, but this has so far been blocked by the national competition tribunal. Still, Chilean dairy farmers are convinced that the two companies collude to set prices, and regularly engage in other uncompetitive practices to keep prices down. Today the price of retailed milk in Chile is six times what farmers receive at the farm gate.[27]

A RECENT STUDY FROM THE US SHOWS A SUBSTANTIAL DIFFERENCE IN THE NUTRITIONAL QUALITY OF MILK FROM COWS RAISED IN FACTORY FARMS AND COWS RAISED ON PASTURE IN ORGANIC SYSTEMS.

Make way for mega-farms.

It goes without saying that the liberalisation of Chile's dairy market has led to the disappearance of many small dairy farms in the country. What is perhaps more surprising is what has taken their place. The low prices and trade flows that are so toxic to small farmers have been a tonic for the foreign companies and local business elites that have started to build up corporate farming in the country.

"Along the five kilometres of road from my mother's dairy farm to the nearest town there used to be eight families with small dairy farms", says Max Thomet, a director of the Chilean organisation CET–SUR.[28] "Now one big farm has taken over these lands and it is controlled by a Chilean business magnate who made his fortune in life insurance."

23. Brett Borkan, "Dairy industry to protest Colombia–EU FTA signing", Colombia Reports, 18 May 2010: http://bilaterals.org/spip.php?article17393

24. "Behind every FTA lie the TNCs: examples from Thailand", interview with Witoon Lianchamroon of BIOTHAI, conducted by Aziz Choudry of bilaterals.org, for Fighting FTAs, November 2007.

25. Elinor Chisholm, "Fonterra in Latin America: a Case Study of a New Zealand Company Abroad", Political Science 61 (19), 2009: http://pnz.sagepub.com/cgi/content/abstract/61/1/19

26. CORFO, "Oportunidades de Inversion en Sector Lácteo y Quesos en Chile – 2007", 2007. By July 2010, the two companies controlled 48% of the national milk supply (Fedeleche).

27. Personal communication with Max Thomet, a director of CET–SUR, July 2011.

28. Centro de Educación y Tecnología para el Desarrollo del Sur.

Fazenda Leite Verde in Bahia, the largest pastoral-based dairy farm in Brazil. The farm, which now covers 5,500 ha and holds 3,500 cows, was established in 2008 by former Fonterra executive Simon Wallace, with more than US$10 million in funding from one of New Zealand's richest internet entrepreneurs, Sam Morgan. In 2010, the New Zealand-owned company opened a milk processing plant, which sells milk under the brand name Leitíssimo. The company is in the process of a farm expansion that will triple the size of its farming operations. Wallace sees no conflict between what his company is doing and his home country's dairy export ambitions. "The value of Fonterra is not that milk is produced in New Zealand; it is that milk is produced in a lot of places and then traded around the world. New Zealand dairy farmers have a massive investment in a global business, not just a few dairy farms in New Zealand. We have done this since the start; it's just that sometimes in the semantics and discussion that goes on we get a little bit protective or focused on the land holding."*

** Vincent Heeringa, "Sam Morgan's South American adventure," Idealog, 7 July 2011: http://idealog.co.nz/blog/2011/07/our-milk-powder-problem; Andy Kenworthy, "The Milky Way," Idealog, 1 August 2011: http://idealog.co.nz/magazine/34/milky-way*

Photo: Georges van Hoegaerden

When fast-food chains like McDonald's move into new markets in the South, so do their global suppliers. McDonald's main global suppliers of dairy products, Schreiber Foods and Erie Foods, entered India in the late 1990s to develop a regional supply base for the restaurant. At the behest of McDonald's, the companies partnered with the wealthy Goenka family to establish a large dairy-processing company in Maharashtra, now called Schreiber-Dynamix. The company began by setting up contract farming and collection centres to collect milk from local farmers, but then began building its own large-scale farm to supply its needs. In November 2010, the company inaugurated a "future ready" 6,000-cow dairy farm on 300 acres in Pune District, with backing from the State Bank of India. Dynamix also supplies Danone, Nestlé, Yum! and KFC (Photo: USC).

Over the past few years, the country's richest families, with holdings in retail, media and telecommunications, have been rapidly taking over dairy farms in Chile's most important dairy zones. So too have foreign investors, especially from New Zealand. In 2005, former Fonterra chairman Henry van der Heyden and 14 other large dairy-farming families from New Zealand established a fund, called Manuka, to purchase dairy farms in the Osorno region of Chile. The fund began by buying 13 farms of 150–500 ha, and then took over Chile's largest dairy operation, Hacienda Rupanco. Today, the fund's farming operations cover more than 22,000 ha, producing 82 million litres of milk per year, most of which is sold to Fonterra's subsidiary Soprole. Now Manuka's owners are seeking to expand by bringing in additional investors.

These massive new farms, owned by absentees, represent the future for the supply of milk to the transnationals that now dominate the Chilean dairy market. Already the Ancali farm (see photo) and the Manuka farms account for nearly 10% of Chile's national dairy production.[29] With their high volumes, these farms can turn a profit even when prices for milk are low, especially given that the big processors pay higher prices for farms that supply in higher volumes.[30] Chile may one day become an export power in dairy, as the government said it would, but small farmers will no longer have any place in the industry.

What is happening in Chile is not an isolated case. It is part of a global trend. Around the world, in the North and in the South, corporations and big financial players are moving to set up mega-farms and capture the global milk supply.

If this shift to mega-farms continues in the South, it will be brutal for small farmers. In the EU and the US, and also in Southern countries like Chile and Argentina, where there is little left of the people's milk system, the industrialisation and concentration of milk production wiped out huge numbers of small farmers. The US lost 88% of its dairy farms between 1970 and 2006, while the original nine countries of the EU lost 70% between 1975 and 1995. The pace of destruction has not slowed. In Argentina, Australia, Brazil, Europe, Japan, New Zealand, South Africa and the US, the number of farms decreased by between 2% and 10% per year in 2000–2005. Contrast this with most developing countries, where the transna-

29. National dairy production recorded by the industry in 2009 was 1,772 million litres. Source: Ministry of Agriculture 2010.

30. Fedeleche, Informa 4 (37), Julio 2010: www.fedeleche.cl

Cheese, cheese, cheese. Borough Market, Neal's Yard Dairy, UK. Photo: Stephanie Watson.

tional dairy processors and mega dairy farms are still hardly present. During the same years, the number of farms in these countries increased by between 0.5% and 10% per year.[31]

The shift to large-scale farms would also be an environmental and health catastrophe. Such farms guzzle enormous quantities of water, often at the expense of other farms and communities that depend on the same sources.[32] They also require a lot of land – not for their cows to live on, but to produce their feed.[33] And they produce massive amounts of waste. On average, a cow produces about 20 times the waste of a human: so an industrial farm with 2,000 cows produces as much waste as a small city. Most of the excrement goes untreated and ends up in big lagoons next to the farm. These attract flies and create an odour that makes it unbearable to live nearby. Much of the waste in the lagoons will eventually be sprayed on fields, but, all too often, some of it will run off into water courses, contaminating local supplies. The manure lagoons are also major sources of greenhouse gas emissions. One study found that an industrial farm using manure lagoons loses 40 times the methane – a potent greenhouse gas – emitted by an organic farm where cows are pastured.[34]

The impact of industrial farming on animal health is also well-documented. As animals in these farms are pushed to produce more, through the use of high-protein feeds, frequent milking and production-enhancing hormones and drugs, they become stressed and susceptible to disease and injury. To compensate, the animals are fed high levels of antibiotics and other veterinary drugs. One result is the emergence on these farms of antibiotic-resistant superbugs that can infect humans, such as MRSA.[35] But these practices also directly affect the quality of milk. A recent study from the US shows a substantial difference in the nutritional quality of milk from cows raised in factory farms and cows raised on pasture in organic systems.[36] Moreover, the hormones and antibiotics used in industrial farms can end up in the milk supply, or produce nasty side effects.[37]

31. International Farm Comparison Network, Dairy Report, 2010.
32. See the example from Mexico in Luís Hernández Navarro, "La Laguna: la nueva guerra por el agua", La Jornada, 12 November 2004: http://www.jornada.unam.mx/2004/11/12/048n1soc.php?origen=soc-jus.php&fly=1.
33. Data on land use is available in Charles Benbrook et al., "A Dairy Farm's Footprint: Evaluating the Impacts of Conventional and Organic Farming Systems", November 2010: http://www.organic-center.org.
34. See ibid.
35. Tom Levitt, "'Routine antibiotic use' linked to new MRSA strain found in UK dairy cows", The Ecologist, 3 June 2011. The article points to a new study in the medical journal The Lancet that provides evidence of MRSA in dairy farms in the UK.
36. Charles Benbrook et al., "A Dairy Farm's Footprint: Evaluating the Impacts of Conventional and Organic Farming Systems", November 2010: http://www.organic-center.org
37. Regulations typically require dairy processors to test for elevated levels of certain antibiotics and hormones in their milk supply. These regulations, however, may not cover many of the antibiotics, hormones and other drugs that are commonly used in industrial dairy farms and potentially dangerous to human health. High levels of drug residues found in dairy cows at the point of slaughter prompted the US Food and Drug Administration to propose tests on cows on dairy farms for about two dozen antibiotics beyond the six that are typically tested for. The testing would also look for a painkiller and anti-inflammatory drug popular on dairy farms, called flunixin, which often shows up in slaughterhouse testing. But due to fierce resistance from the dairy industry, these measures have not been implemented. See William Neuman, "F.D.A and Dairy Industry Spar Over Testing of Milk", 25 January 2011:
http://www.nytimes.com/2011/01/26/business/26milk.html

PART 3: KEEPING MILK OUT OF CORPORATE HANDS

Recombinant bovine growth hormone (rBGH), for example, a production-enhancing drug that is widely used on industrial farms in the US, South Africa and Mexico, but banned in Australia, Canada, Europe, Japan and New Zealand, is linked to increased levels of carcinogenic and antimicrobial substances in milk that make it a risk to human health.[38]

People's milk is an engine of poverty alleviation and health. It provides livelihoods and safe, affordable, nutritious foods. The revenues earned are distributed evenly and consistently throughout the sector. Everyone wins with people's milk, except for big business, and this is why there is such pressure to destroy it.

What does Big Dairy have to offer? Instead of fresh, high-quality milk produced and supplied in the most sustainable ways, we are offered powdered and processed milk produced on highly polluting mega–farms and sold in all kinds of packaging – at double the cost!

Still, every government seems hell-bent on following the New Zealand model and joining the club of exporters. What is so great about New Zealand's experience? The continuing boom in dairy production is causing severe pollution to the country's waterways. The constant push to expand export markets means that other sectors of the economy, sensitive to liberalisation, have been sacrificed in trade and investment policy. And the majority of the benefits have been captured by the 11,000 or so dairy farm owners that control Fonterra. Nearly a third of these "farmers" are absentee investors, and a growing number are corporations, some of them foreign.[39] New Zealanders, faced with rising prices for milk at home, may well ask if there's another model that could serve them better.

New Zealand is in fact so different from any other major dairy-producing country that it is silly even to make comparisons. In other countries, millions – not thousands – of farmers are engaged in dairy production. There, milk is not a commodity, but an essential food source, which can make the difference between misery and dignity for those engaged in its production and distribution. The opportunity for most countries is not in exports, but in clearing the way for local people to serve local markets, as they have done time and again wherever those opportunities arise.

The way forward, then, requires putting the brakes on the dumping of cheap imported powdered milk and dairy products. High, comprehensive tariffs, such as those already in place in Europe, are a necessity. There is no reason why such tariffs have to lead to higher prices for consumers. What they protect against is periodic dumping, and the big processors' use of cheap, processed dairy products or non-dairy fats as a substitute for real milk. Big processing companies may suffer from such measures, but consumers and farmers will not.

Cattle crossing a street in Thika, Kenya. Photo: K. Dafalias

Such trade measures, however, are not enough. People's milk is also under threat from food safety standards and regulations designed for the industrial processors. A people's milk system needs an appropriate system of food safety, based around trust and local knowledge. There are plenty of examples of such models of food safety around the world, each particular to its local culture. Supermarkets, however, are typically unwilling to adjust to such local cultures, and they impose their own standards. Taking action against supermarkets, whether by putting pressure on them or by supporting local markets, is thus essential to the success of people's milk.

So too is the question of investment. Money from multiple sources, both local and foreign, is currently flowing into the construction of mega-farms. Money is also flowing from donors and NGOs into programmes to bring small farmers into the supply chains of the big processors. Those dollars, rupees and shillings are deadly. There is no future for small-scale sustainable farming and local markets in this scenario, as countless examples from around the world demonstrate. It leads to the concentration of farms and processing. Industrial farming generates disease and pollution, and wipes out biodiversity. Local breeds of dairy animals that supply the people's milk system, whether cattle, goats, buffaloes or camels, have the resilience and low-input efficiency that small farmers and pastoralists need to withstand the precarious conditions cre-

38. EU Scientific Committee on Veterinary Measures relating to Public Health, "Report on Public Health Aspects of the Use of Bovine Somatotrophin", March 1999: http://ec.europa.eu/food/fs/sc/scv/out19_en.html

39. Personal communication with Bill Rosenberg, 16 August 2011, and James Ritchie, Secretary of the New Zealand Dairy Workers' Union, 6 September 2011; and, "Who owns farming in NZ?", Greenpeace: http://www.greenpeace.org/new-zealand/en/campaigns/climate-change/smart-farming/agriculture-and-climate-change/nz-farming/

1 Milk products for the "sub-groups"

Nestlé had a problem in Pakistan: children in the cities were drinking fresh whole milk, instead of Nestlé's NIDO powdered milk product. "Only 4% of the 21 million children in urban Pakistan were consuming NIDO milk products, mostly in the higher income families", complained a company report. So Nestlé did some market research. With iron deficiency rates high among urban children in Pakistan (30%), the company realised that by fortifying their NIDO powdered milk with iron and investing heavily in TV advertising and education campaigns, they could convince poor Pakistani mothers that NIDO was a better choice for their children's health. Sales took off, increasing fivefold in 2009, when the new marketing programme was launched.

NIDO, which Nestlé markets as "nutritious milk for growing kids", is one of the company's "popularly positioned products" (PPPs). These are products that Nestlé makes for the half of the world's population it classifies as "poor" or "low food spenders". "PPPs target the biggest and fastest growing consumer base in emerging markets as well as important subgroups in developed markets", says Nestlé.[1] The company is not alone. Danone, Kraft, General Mills – all the biggest dairy corporations – have a range of cheap products targeted at the poor.

The companies keep these products cheap by using cheap ingredients. They are designed to entice people away from locally sourced fresh milk (and breastmilk) and fresh milk products, like cheese and yoghurt, into buying processed milk products, made with industrial ingredients sourced from around the world. One of the commonest practices is to use imported skimmed milk powder instead of fresh milk, and then to reconstitute it with palm oil or another cheap vegetable oil. In Mexico, where imported skimmed milk powder from the US dominates the dairy market, this process is called "filling", and up to 80% of milk fat is replaced in some products.[2] Developing countries account for nearly all imports of skimmed milk powder.[3]

Fonterra, which leans heavily on New Zealand's global reputation for high-quality milk, regularly blends its powdered milk with vegetable oil in its products for poor consumers. "If you can make a product that has a substantive part of the nutrition of a full cream milk powder – but it's just a different cost base and a lower unit price – there is a market for that", says Mark Wilson, Fonterra's managing director of the multinational's Asia–Middle East arm. "While we are a dairy, we also need to be cognisant of satisfying consumer demands."

The big companies spend vast amounts of money to create demand for their processed products. In the poor north-east of Brazil, Nestlé and Danone have hired PR firms to help them to build local strategies to attract poor consumers. Nestlé has a programme called "até voce" ("reaching you") where salespeople go from door to door selling packs of cookies, dairy products, yoghurt and desserts. According to the advertising magazine Adage, "the vendors are trained to act as nutrition consultants, helping consumers understand healthful eating".[4]

1. http://www.nestle.com/Common/NestleDocuments/Documents/R_and_D/News/Popularly%20Positioned%20Products.pdf
2. B. Kris Schulthies and Robert B. Schwart, "The US-Mexico Free Trade Agreement: Issues and implications for the US and Texas dairy industry", TAMRC, August 1991.
3. Pro-poor Livestock Policy Institute, "Developing Countries and the Global Dairy Sector, Part I: Global Overview", 2005.
4. http://adage.com/article/global-news/brazil-s-northeast-land-laziness-china/228070/

ated by climate change. It is their livestock systems that require support, not the "investors", who get all kinds of generous tax breaks, donor funds, and other incentives from governments.

Workers in the dairy industry are also suffering from the same trends. Greater concentration in the industry means fewer jobs. More powdered milk, which is produced by mechanised processes that require little labour, means less work with fresh milk, which is labour-intensive. And, as can be seen in the campaigns of the International Union of Food Workers (IUF) against Nestlé, the transnational dairy companies that are busy taking over national dairy industries in the South are some of the worst offenders against workers' rights. The IUF points out that, for all the talk about the benefits from foreign investment, corporations like Nestlé plough the profits they reap from dairy markets into the pockets of their shareholders.

"Nestlé in 2008 spent CHF [Swiss francs] 8.7 billion buying back its own shares on the stock market in order to reduce the number of shares in circulation and boost the earnings per share ratio", says the IUF. "That's over half of what the company claims to have spent on wages and salaries, and nearly double the capital expenditure for the year! Together with the enormous dividend hike, this is money that was not invested in research, new capacity, training, improved wages and pensions or other benefits for what Nestlé calls 'our people'. What it actually represents is the growing diversion of enormous amounts of cash to shareholders, against a background of persistent violations of trade union rights."[40]

The way to stop Big Dairy and strengthen people's milk will

40. IUF press release, 10 June 2009.

The Nestlé Indonesia Workers Union – Panjang, a member of the IUF, waged a successful two-year campaign for the right to negotiate wages, despite the company's intense pressure on union members and their families. The IUF has been campaigning against Nestlé's policy of wiping out permanent jobs and replacing them with outsourced and subcontracted work, and its refusal to accept the IUF as a valid interlocutor representing workers before the company globally. The IUF's New Zealand local, on the other hand, has developed a co-operative relationship with Fonterra, formalised in a framework agreement regulating labour relations in the company signed in 2002 between Fonterra, the IUF and the New Zealand Dairy Workers' Union (NZDWU). So what happens when Fonterra and Nestlé come together, as they have in Latin America under their Dairy Partners of America joint venture? According to NZDWU Secretary General James Ritchie, Fonterra acts like any other transnational corporation when it comes to its overseas operations, and his union has been unable to get the cooperative to move ahead with the implementation of its framework overseas. For more information see the website of the IUF (www.iuf.org) or the website it created, NestleWatch (www.iuf.org/cms/). (Photo: IUF)

vary from country to country. Dairy in countries like Pakistan and Uganda is almost entirely in the hands of the people's milk sector. In other countries, such as the Ukraine or Brazil, there is a mix of both. In most countries in the North, dairy is almost all handled by large industrial processors. But even in countries where industrial production dominates, there are ways to move towards a more equitable dairy system.

In these countries, dairy workers' unions struggle against concentration; rural communities fight polluting mega-farms; consumers demand safe, affordable, nutritious food; and farmers want a fair price for what they produce. Supply management is being proposed as a way to address these concerns in Europe. This would be a great step forward, which would also help countries outside the EU by curtailing dumping. But, as the Canadian experience shows, if the supply management system is not articulated around the needs of small farmers and local processors and markets, it will do little to stop concentration in the sector.

Beyond these national efforts, there is a need for concerted global action against Big Dairy. The nasty tactics being used to destroy people's milk verge on the criminal. The time is ripe for campaigns against the worst offenders, such as Nestlé, Danone, and Tetra Pak. Such campaigns can build on some of those already being waged, such as those around breast milk or workers' rights. NGOs that work with the Big Dairy companies should be shamed into pulling out. There are also many opportunities for people in these corporations' home countries to apply pressure, bearing in mind that the home country is not necessarily any longer in Europe or North America, but can also be Singapore or Brazil. And the big cooperatives need to come under pressure, as they are doing as much as the big processors to destroy people's milk. Since some of these cooperatives are still ultimately controlled by farmers, there may be some scope to influence their overseas expansion plans.[41]

Dairy is a cornerstone in the construction of food sovereignty. It touches so many people: estimates are that around 14% of the world's population depend directly on dairy production for their livelihoods.[42] And this is where the opportunity lies for resistance and transformation. The strong alliance among the vendors, consumers and farmers of Colombia is an inspiration. Similar alliances now need to be forged everywhere, and across borders. Milk must remain in the hands of the people.

41. Unfortunately, many of the the big co-operatives that operate internationally, such as Fonterra and Grupo Lala, are increasingly controlled by large landowners and corporate farms.
42. International Farm Comparison Network, Dairy Report 2010.

2 Corporate dairy farming goes global

In Vietnam, the market for dairy products is booming, but the country's dairy farmers, 90% of whom farm under contract to processors, have recently been obliged to cut back on their herds because the processors are forcing them to accept prices below their costs of production. So, to meet the growing demand, the processors are importing more powdered milk and investing in their own farms. TH Milk, a company recently established by Vietnamese businesswoman Thai Huong, director of one of the country's top private banks, is in the process of constructing the largest dairy farm in Asia in Vietnam's Nghia Dan district. Already 12,000 cows have been imported from New Zealand, and every 50 days another 1,000 cows are shipped in. By 2012 the company aims to have 45,000 cows and a plant capacity of 500 million litres of milk a year. By 2017, its objective is to have 137,000 cows on its farm, supplying 30% of national milk consumption. The whole operation is being implemented and managed by the Israeli company Afimilk.[1]

TH Milk's main domestic rival, Vinamilk, has five large-scale farms of its own, with a total of 6,000 cows. But the company expects most of its supply to continue to come from overseas. For this reason, Vinamilk has started to invest in overseas processing and production, acquiring a 19% stake in the Miraka dairy company in Taupo, northern New Zealand. Vinamilk trades on the Ho Chi Minh Stock Exchange, and is 49% controlled by foreign investors.

In Pakistan, many of the country's wealthiest families have recently begun large-scale dairy farming, with the support of the government's various corporate farming programmes and the main dairy processors, such as Nestlé, and packaging companies.[2] Foreign investors, particularly from the Gulf States such as the Emirates Investment Group, have also shown interest.[3] So too have the processors. Engro Foods, the leading packaged-milk company in Pakistan and a subsidiary of Pakistan's fertiliser giant Engro Corporation, launched its own large-scale dairy farm in Sukkur District in 2008. The farm began with 2,200 cows imported from Australia, and the company plans to increase the herd "to 150,000 over the next several years so that it can control its own supply chain".[4] Engro, which is expanding its food operations overseas, eventually wants to export dairy products from Pakistan.[5]

1. Ben Bland, "Milking it in Vietnam", Financial Times, 17 March 17 2011: http://www.ft.com/cms/s/0/6587212e-50c8-11e0-9227-00144feab49a.html

2. Some of the family holding companies investing in dairy farms include Gulistan Group, Monnoo Group, MK Sons, Muneer Din Group, and Sitara Group. One of the most active supporters of the development of large-scale dairy farming in Pakistan is DeLaval, a subsidiary of the Tetra Pak Corporation. Nestlé too has actively supported the development of larger commercial dairy farms, even setting up its own 120-cow farm as a training centre. "We see more and more dairy farms of bigger scale coming up and farmers are getting better knowledge", says Ian Donald, managing director at Nestlé Pakistan. "This is slowly beginning to close that gap on demand" (Daily Times, 14 August 2011).

3. Lesley Springall, "Dairy expertise exported in Middle East venture", Dominion Post, 28 January 2010: http://farmlandgrab.org/post/view/10648

4. "Agro-Industry in Pakistan finally taking off", Express Tribune, 17 May 2010: http://tribune.com.pk/story/13713/agro-industry-in-pakistan-finally-taking-off/

5. Engro Foods PR, 24 May 2008: http://engro.com/2010/02/06/engro-foods-holds-ground-breaking-ceremony-to-setup-dairy-farm/

In Egypt, the country's largest dairy farm is owned by Dina Farms, a dairy company set up by one of the regions top private equity firms, Citadel Capital. The farm is located in the desert off the main highway between Cairo and Alexandria. It has 7,000 dairy cows, but Citadel wants to have 12,000 by 2012. Other big-time dairy investors are also flocking to the desert. Danone is in the process of constructing a mega-farm there, its second large-scale farm operation, after building one in the desert in Saudi Arabia. "Participation in the organisation of large farms is a new direction for us", says Danone Director Jean Christophe Laugée. It's also new for PepsiCo, which started making major moves into dairy only in the last few years. PepsiCo's subsidiary, International Dairy and Juice Ltd (IDJ), bought up the Egyptian company Beyti in 2010, taking over its large-scale dairy farm. PepsiCo jointly owns IDJ with Saudi dairy giant Almarai, which operates six mega-farms in the Saudi desert, holding 100,000 cows, or two-thirds of the dairy cattle in the country, as well as a dairy farm in Jordan, which is now part of IDJ.[6]

Building water-intensive dairy farms in the middle of the Egyptian desert sounds crazy. Even more so when the farms are planning to draw their future water needs from the Nile, which is already a source of tension between the various countries and communities that depend on it for food production. "I don't worry about a shortage of Nile water", says Dr Mohamed Waeed, a manager with Dina Farms. "I know the Ethiopians want to use more Nile water. But it won't work for them. I've been there, it's such a mountainous country, there's no space for extensive agriculture ... No, the future of agriculture in Northern Africa is in the Egyptian desert. Who knows, we might become big exporters of agricultural and dairy produce to the region."[7]

In Uruguay, foreign investment in dairy processing and dairy farms is exploding. The leading investors include Bom Gosto of Brazil, global fast-food-chain supplier Schreiber Foods of the US, Cresud of Argentina, Inlacsa of Mexico, and the Grupo Maldonado of Venezuela, which is a partner of Fonterra and Nestlé. Bom Gosto and Schreiber alone now handle a quarter of Uruguay's milk production. The rise of foreign investments has turned Uruguay into a major centre for dairy exports. Today, two-thirds of Uruguayan dairy products are exported, primarily to Brazil, Venezuela and Mexico. But if production is rising, the number of farms and the area devoted to dairy farming is declining rapidly, leading to more concentration. Farms larger than 500 hectares now represent 5% of all dairy and account for 28% of the national milk supply. Many of these bigger farms are in the hands of foreign investors, such as New Zealand Farming Systems Uruguay, which was set up by New Zealand investors until it was taken over by the Olam Group of Singapore in 2011. The company's 31 dairy farms produce around 70 million litres of milk per year, but it plans to acquire more farms and increase this to 300 million litres within the next few years – around 20% of Uruguay's total milk production![8]

6. Global Investment House, "Almarai Company", March 2009: http://www.gulfbase.com/site/interface/SpecialReport/Almarai%20March%202009.pdf

7. Jeroen Kuiper, "Egypt's biggest dairy farm", Disputed Waters, 17 March 2011: http://www.disputedwaters.com/blog/17/03/2011/egypts-biggest-dairy-farm

8. For a detailed account of the foreign takeover of the Uruguayan dairy sector, see: "Agazzi: un mala leche", El Muerto Blog, 21 June 2009: http://elmuertoquehabla.blogspot.com/2009/06/agazzi-un-mala-leche.html

going further

Punjab Lok Sujag, *The political economy of milk in Punjab: A people's perspective*, August 2003: www.grain.org/e/4428

Aurelio Suárez Montoya, *Colombia, una pieza más en la conquista de un 'nuevo mundo' lácteo*, November 2010: http://www.recalca.org.co/Colombia-una-pieza-mas-en-la.html

Food safety for whom?

Corporate wealth versus peoples' health

Schoolchildren in the US were served 200,000 kilos of meat contaminated with a deadly antibiotic-resistant bacteria before the nation's second largest meat packer issued a recall in 2009. A year earlier, six babies died and 300,000 others got horribly sick with kidney problems in China when one of the country's top dairy producers knowingly allowed an industrial chemical into its milk supply. Across the world, people are getting sick and dying from food like never before. Governments and corporations are responding with all kinds of rules and regulations, but few have anything to do with public health. The trade agreements, laws and private standards used to impose their version of "food safety" only entrench corporate food systems that make us sick and devastate those that truly feed and care for people, those based on biodiversity, traditional knowledge, and local markets. People are resisting, whether it's movements against GMOs in Benin and "mad cow" beef in Korea or campaigns to defend street hawkers in India and raw milk in Colombia. The question of who defines "food safety" is increasingly central to the struggle over the future of food and agriculture.

The growing global menace.

Food should be a source of health, not harm. But food can maim, cripple, and kill. The leading cause of food poisoning in the United Kingdom today is *Campylobacter*, a tiny bacterium, rife throughout the country's chicken supply, that causes in humans diarrhoea, fever, abdominal pain and cramping, and in some cases chronic, even life-threatening, conditions. People get it from touching raw poultry or eating undercooked birds. Some 85% of the chicken population in the UK may be infected. In the United States, the top culprits these days are *Norovirus*, mostly transmitted from dirty hands, and *Salmonella*, contracted from eating food with faeces on it. *Norovirus* will give you acute vomiting and diarrhoea, while *Salmonella* causes vomiting, fever and cramps.

Among the more notorious food safety incidents in recent years was the melamine scandal in China in 2008. Six babies died and 300,000 others got horribly sick with kidney problems when the industrial chemical melamine got into the commercial milk distribution circuit. There was also a dioxin scandal in Germany in January 2011, where the German authorities shut down more than 4,000 farms after it was discovered that a German company had sold 200,000 tonnes of dioxin-tainted animal feed, which had subsequently entered the food chain. Dioxins are cancer-causing poisons formed in the burning of waste and other industrial processes.[1]

How bad is the problem globally? Believe it or not, there are no global statistics or tracking mechanisms on food safety incidents worldwide; reliable data on their frequency and impact are grossly inadequate. Nevertheless, the available data do show that food poisoning is quite common in most countries (*see* Graph 1).[2] According to the Singaporean authorities, who run a pretty tight food hygiene system, roughly 1.5 billion people worldwide are affected by food-borne disease outbreaks each year, resulting in 3 million deaths.[3]

The price of this food safety mess is huge. The UK puts the annual costs to the British economy at £1.2 billion (US$1.92 billion), which its Food Standards Agency bluntly calls "too much". Australia's annual bill is A$1.2 billion (US$1.23 billion). The World Health Organisation says that the annual cost to Vietnam is US$210 million. In the US, the Centers for Disease Control (CDC) has long given the figure of US$35 million per year, but a new study released by

1. "Germany approves anti-dioxin action plan", Reuters, 19 January 2011, http://af.reuters.com/article/worldNews/idAFTRE70I2CC20110119?sp=true

2. The FAO and WHO collaborate on these issues, particularly through INFOSAN, but there is no global database or tracking tool. Individual countries have (or don't have) their own alert systems, plus they band together in various groupings. Australia and New Zealand share competency on food safety, and the EU as a whole has, apart from its highly contested European Food Safety Authority, what seems to be an extremely effective rapid alert system. See http://ec.europa.eu/food/food/rapidalert/index_en.htm

3. Agri-Food and Veterinary Authority of Singapore, "Importance of Food Safety", 13 April 2010, http://www.ava.gov.sg/FoodSector/FoodSafetyEducation/About-FoodSafetyPublicEduProg/ImptFoodSafety/index.htm

the Pew Charitable Trusts at Georgetown University in 2010 puts the figure astronomically higher, at US$152 billion.[4]

What makes food unsafe?

What constitutes safe or unsafe food is a controversial question. A range of things can make food unsafe: bad practices (poor hygiene, animal abuse, reliance on antibiotics and pesticides), unproven or risky technologies (genetic modification, nanotechnology, irradiation, cloning), deliberate contamination (such as tampering), or just poor supervision. One thing is clear though: the industrial food system is – in and of itself – the biggest source of food safety problems, because of its intensive practices, its sheer size, and the level of concentration and power that it has accumulated.

A small farm that produces some bad meat will have a relatively small impact. Networks of small and mid-sized farms producing food for regional consumption spread risk widely, diluting it. A global system built around geographically concentrated factory-sized farms does the opposite: it accumulates and magnifies risk, subjecting particular areas to industrial-style pollution and consumers globally to poisoned products (*see* Box: "Superbugs and megafarms").

SOME 85% OF THE CHICKEN POPULATION IN THE UK MAY BE INFECTED. IN THE UNITED STATES, THE TOP CULPRITS THESE DAYS ARE *NOROVIRUS*, MOSTLY TRANSMITTED FROM DIRTY HANDS, AND *SALMONELLA*, CONTRACTED FROM EATING FOOD WITH FAECES ON IT.

Both large- and small-scale systems are capable of producing tainted foods, but the potential impact is inherently different. There is simply bigger risk attached to bigger scale. In addition, the corporate food industry – as opposed to small farms and food operators – is highly integrated. This also generates higher risk, because it relies on combining and handling foods through a range of manufacturing, processing and distribution activities. Of course, people can get food poisoning anywhere, in school canteens or in their own homes. But the industrial food system has itself more and more become the problem, given the type of practices and the issue of scale and concentration (*see* Box: "Food safety in the fast food nation").

This is "food safety"?

Government and industry action on food safety gives little indication that they recognise any fundamental problem with industrial food production. Rarely do their regulations or standards hinder corporate practices in any significant way. On the contrary, they tend to reinforce the power of large industry while undermining, or even criminalising, small-scale production and local food cultures. Colombia, for instance, is in the process of implementing legislation to prevent the sale of raw milk in urban areas. Well over two million farmers and vendors depend for their livelihoods on these sales of raw milk, and around 20 million Colombians, most of them poor, depend on raw milk as an affordable and essential source of nutrition, easily made safe by boiling it at home. Hard pressed to justify its moves on public health grounds, the government says that the legislation is part of its commitment to the WTO, and that it will help to "modernise" the dairy sector, making it better able to compete with imports when a looming free trade agreement with the EU kicks in.[5]

These days, in Colombia and elsewhere, "food safety" policy has little to do with public health or consumers. It has become a battleground among contesting interests, the site of power struggles for control over food and agriculture, with decisions being increasingly taken far from producers and consumers, in the obscure world of trade negotiations and multilateral agencies, where politics and commerce, not science and public health, are what drives things.

Consider the case of bovine spongiform encephalopathy (BSE), the fatal brain-wasting condition popularly known as mad cow disease. People get the human strain of it by eating the meat of cows that have been fed diseased animals as a cheap source of protein – a practice common in industrial feedlots since the 1970s. The US and Canada lost Japan, Korea

4. The data do not reflect the increasing privatisation of food safety. To give just one example of a private legal cost generated by the failings of the US food system: in April 2010, Cargill settled a lawsuit with Stephanie Smith, a 22-year-old dancer who was paralysed for life after eating an Escherichia coli-tainted hamburger made from Cargill beef. The amount of the settlement will never be known, but it is said to provide for Ms Smith's lifelong health costs related to coping with her affliction (and she is committed to walking again.) In the US context, this may climb to millions of dollars.

5. Aurelio Suarez Montoya, "Colombia, una pieza mas en la conquista de un 'nuevo nundo' lacteo", RECALCA, November 2010, http://www.recalca.org.co/Colombia-una-pieza-mas-en-la.html

US Department of Agriculture education people about food safety. Photo: USDAgov

and several other major export markets for beef when BSE was found in their herds in 2003, and have had a tough time regaining those markets because risks remain from their industries' feeding practices.[6] Indeed, in March 2011, a new case of BSE was identified in a Canadian cow.[7] But through constant pressure, particularly at the trade negotiating table, both countries have secured some concessions to allow certain parts of the cow, or the meat of younger animals, to cross borders freely. Both countries also went to the Organisation for Animal Health (OIE) in Paris, which has a similar role to Codex Alimentarius Commission in Rome but for the animal kingdom, to get their beef declared generally safe for consumption. Where does that leave Japan? Unmoved. It says that its standards are higher than those of the OIE or the US, and have to be given priority.

And then there's the case of ractopamine, a growth promoter added to pig feed. China and the European Union, which together produce 70% of the world's pork, say that it is not safe for humans and have banned its use in meat production. The same is true for more than 150 other countries. In the United States, however, home to Eli Lilly, the pharmaceutical giant that produces ractopamine by way of its subsidiary Elanco, the drug is fed every day to pigs, cows, and turkeys and Washington fights tooth and nail to defend the interests of US corporations and prevent countries from rejecting US pork for containing residues of the stuff. The US and Eli Lilly are working hard to try to convince Codex to declare it safe for human consumption.

Beijing, for its part, has so far refused to budge. But that doesn't mean that Chinese consumers are getting ractopamine-free pork. The same government fighting off ractopamine-laced US pork, is aggressively pushing, in the name of "food safety", a consolidation and modernisation of the country's pig production based on the US factory farm model. China's two largest, vertically-integrated pork producers, Yurun and Shineway, both of whom have been heavily funded by the US bank Goldman Sachs, were implicated in recent food safety incidents involving ractopamine and clenbuterol (another banned drug added to pig feed for the same purposes). In March 2011, Chinese consumers were shocked when a CCTV television report uncovered how ractopamine and clenbuterol are widely used in all the factory farms supplying Shineway in Henan Province. The report found that Shineway was actually offering farmers higher prices for pigs fed ractopamine.

Food safety and global trade: Europe and the US impose their standards.

As the two examples above help to show, trade agreements have become the core mechanism to expand and enforce food safety standards around the world. Since the 1980s and the Uruguay Round of GATT negotiations, which gave rise to the World Trade Organisation (WTO), agricultural markets have been profoundly liberalised, with tariffs and quotas coming down, particularly in developing countries.[8] This has led to a boom in global food trade, with few countries free to impose tariffs or take similar measures to regulate the flow of imports and exports any more. As a result, governments and corporations have turned to other measures to manipulate market access and control. In agriculture, food safety is the major method.

6. US regulation now forbids feeding cow protein to cows, but allows the feeding of "poultry litter", which can contain "restricted feed ingredients including meat and bone meal from dead cattle". See "Downright Scary: Cows fed chicken feces, recycled cow remains", Consumers Union, 29 October 2009, http://www.consumersunion.org/pub/core_food_safety/015272.html

7. Lee Eun-joo, "New mad cow disease case in Canada noted", JoongAng Daily, 7 March 2011, http://joongangdaily.joins.com/article/view.asp?aid=2933089

8. The rich countries still use subsidies to protect and promote their own agricultural businesses.

In essence, as quantitative restrictions no longer exist (as a tool to open and close markets), qualitative ones have been invented to take their place. The WTO has played a direct role in this shift. (*See* Annex: "Who does what?") But today, it is mainly through so-called Free Trade Agreements, negotiated at the bilateral or regional level, that governments recalibrate the rules of food safety. Too often, the food safety rules that emerge from trade negotiations become mechanisms to force open markets, or backdoor ways to limit market access; they do little to protect public health, serving only corporate growth imperatives and profit margins.

Take the EU, which has become expert at defending some of the most ridiculous standards, just to keep competition out and protect European businesses. In the late 1990s, the EU banned fishery products from India because of unacceptable sanitation risks supposedly found there. But the EU's definition of "sanitary" can be absurd. It demanded, for instance, that the floors and ceilings of fish landing units be washed with potable water[9] – this in a country where a sizeable fraction of the population lacks access to potable water. For Indian fishers and processors, the point of such rules is not to protect the end consumer; it is to discourage access to the EU market for Indian companies, by imposing conditions that only EU companies can comply with.

Experiences in Africa bear this out. According to the United Nations, Tanzanian fishermen dependent on exports to the EU lost 80% of their income under a ban similar to the one placed on India.[10] Uganda, in the same situation, lost almost US$40 million. Did the Europeans stop eating fish? No. In fact, while these bans were conveniently in place, EU firms, such as the Spanish group Pescanova, aggressively expanded their fishing activities in African waters to serve the lucrative European market by buying up quotas and licenses.[11] Today, with Brussels pursuing a flurry of new generation trade deals, things are getting worse

Consider peanuts. The EU has long posed problems to the rest of the world with its excessively high standards related to aflatoxins. Aflatoxins are mycotoxins produced from certain kinds of fungus or mould. In humans they can attack or even shut down the liver, as well as cause cancer. While adults have a high tolerance to aflatoxin poisoning, children do not, and can be exposed to it through grains, nuts, fruit, or cheese. With the growing prominence of food safety as a concern for EU authorities, Brussels has set tolerance limits for aflatoxins grossly out of proportion to the risks.[12] This has hit Iranian pistachio producers, Gabonese peanut exporters, Bolivian brazil nut harvesters and Filipino coconut farmers. The World Bank calculates that the exaggerated aflatoxin tolerance level imposed by the EU costs African countries US$670 million a year in export losses.[13] For many observers, it is hard to square those losses against the benefit of preventing the potential death of 0.7 people in a population of 500 million per year.[14] In fact, there are cases where the overzealous aflatoxin restrictions have only led to bidding wars to drive peanut prices down – for the benefit of European importers, of course.[15]

The United States is slightly different in its demands. To begin with, the US is generally seen to have lower standards than Europe with regard to pesticide and chemical residues. In fact, Brussels seems constantly to be engaged in some spat with Washington DC. For instance, US poultry destined for export is routinely dunked in chlorine just before it is shipped. This is to kill the bacteria that have accumulated in the birds' carcasses through the quintessentially American "factory farming" production process.[16] The Europeans do not allow the import of chickens bathed in chlorine, so no US poultry enters the EU market. The US also carries out fewer physical checks on its

GOVERNMENTS AND CORPORATIONS HAVE TURNED TO OTHER MEASURES TO MANIPULATE MARKET ACCESS AND CONTROL. IN AGRICULTURE, FOOD SAFETY IS THE MAJOR METHOD.

9. Veena Jha, chapter on South Asia in Environmental regulation and food safety: Studies of protection and protectionism, International Development Research Centre, Ottawa, 2006, http://www.idrc.ca/en/ev-93090-201-1-DO_TOPIC.html

10. Gumisai Mutume, "New barriers hinder African trade", Africa Renewal, January 2006, http://www.un.org/ecosocdev/geninfo/afrec/vol19no4/194trade.html

11. This process has been dubbed the "Senegalisation" of EU fishing vessels, because of where it began. See ActionAid, "SelFish Europe", June 2008, http://www.actionaid.org/main.aspx?PageID=1114, and Jean Sébastien Mora, "L'Europe pêche en eaux troubles", Politis, 27 May 2010, http://www.bilaterals.org/spip.php?article17454.

12. For peanuts, the level adopted by the EU in the 1990s was 4 parts per billion (ppb). The level recommended by Codex Alimentarius is 15 ppb. Many countries practise the standard of 15 (Canada, Australia, Peru), 20 (Thailand, US, China) or 30 (India, Brazil). Data from the Almond Board of California, November 2009, http://californiaalmonds.fr/Handlers/Documents/Intnl-Aflatoxin-Limits.pdf

13. Timothy Josling, Donna Roberts and David Orden, "Food regulation and trade: toward a safe and open global system", Institute for International Economics, Washington DC, 2004, p. 113.

14. T. Otsuki et al., "Saving two in a billion: quantifying the trade effect of European food safety standards on African exports", Food Policy, Vol. 26, No. 5, October 2001, pp. 495–514.

15. See Veena Jha (ed.), Environmental regulation and food safety: Studies of protection and protectionism, International Development Research Centre, Ottawa, 2006, p. 16.

16. It is also to get rid of slime and odour.

Open air kitchen.
Photo: Development Fund Norway.

own food imports. It examines only 2% of all incoming fish shipments, for instance, even though some 80% of fish consumed in the US is imported. This laxity exemplifies a US food safety system which has long relied on self-regulation by the industry, particularly through Hazard Analysis and Critical Control Points (HACCP) checks, rather than public oversight and accountability.[17]

At the trade negotiating table, the US government is well known –and feared– for pushing lax standards on genetically modified foods. Indeed, a diplomatic cable uncovered by Wikileaks shows that the George W. Bush administration pressured the French government to ease its stance against GMOs. In a 2007 cable, the US ambassador to France went so far as to suggest that "we calibrate a target retaliation list that causes some pain across the EU since this [acceptance of GMOs] is a collective responsibility, but that also focuses in part on the worst culprits ". He added: "The list should be measured rather than vicious and must be sustainable over the long term, since we should not expect an early victory".[18]

Such "diplomacy" is for the clear and direct benefit of Monsanto, DuPont and other agricultural biotechnology corporations that do not like foreign countries banning GM seeds or foods, much less requiring labels that inform consumers of the presence of GM ingredients. US firms, especially the members of the Biotechnology Industry Organisation, religiously use FTA talks by Washington officials as a platform to secure market access for GMOs through aggressive regulatory reforms.[19]

Besides GMOs, US trade policy is also seen as destabilising other countries' sovereignty over food safety and health matters, insofar as Washington regularly demands relaxation of rules against the import of US farm products that others deem risky, such as beef (BSE, hormones), veal (hormones), chicken (chlorine) and pork (swine flu).

The US and the EU have much in common, though. Both are attached to the process of inspecting and accrediting specific farms, fisheries or manufacturers as matching or surpassing US or EU standards for exporting food to them. While this might seem extraordinarily protective of EU or US consumers, it also invites corporate takeover and concentration. For example, when the EU lifted a six-year import ban on Chinese poultry in 2008, in reality it gave the nod to only a handful of meat factories in Shandong Province certified to export to the EU, one of which had been taken over just two weeks before by Tyson, the world's second-largest meat company.[20] Both the US and the EU also create bilateral committees with their trade partners to continue the conversation on "harmonisation", in order to develop further not only mutually agreed food safety practices but also standards, including new international standards. The EU is using these mechanisms to pursue its agenda of introducing "animal welfare" into the pool of world food trade norms.

Free Trade Agreements (FTAs) are used to fight food safety battles not only by the US and the EU, of course. Countries like India or Australia or Brazil are not just on the receiving end of US or EU pressures. They have their own sanitary standards, agendas and needs. India, for instance, through a gradually maturing FTA strategy, is fighting an uphill battle to increase foreign inward investment and yet still control agricultural markets. During US President Obama's visit to India in November 2010, Indian Agriculture Minister Sharad Pawar made it clear that the United States can produce all the scientific studies it wants, and they will be respectfully reviewed, but India will not import US dairy products that offend

17. HACCP is a method of controlling risks in a food production process by identifying the key points to monitor, and keeping an eye on them. It was developed by the Pillsbury Corporation to create foods suitable for NASA space flights, so one can imagine the ramifications! It is basically just a system of private checklists.
18. "Subject: France and the WTO ag biotech case", Wiki-leaks cable Reference ID 07PARIS4723, dated 14 December 2007, http://213.251.145.96/cable/2007/12/07PARIS4723.html
19. For details, see bilaterals.org and GRAIN, "FTAs and biodiversity", in Fighting FTAs, 2008, http://www.bilaterals.org/spip.php?article15225, and GRAIN, "Food safety: rigging the game", Seedling, July 2008, http://www.grain.org/seedling/?id=555
20. GRAIN, "Big Meat is growing in the South", Seedling, October 2010, http://www.grain.org/seedling/?type=82

1 Food safety in the Fast Food Nation

Does US-style production represent the future of global food? Possibly. Certainly, elite Western opinion shapers and policymakers – the editors of *The Economist*, the directors of the Bill and Melinda Gates Foundation, certain key elements in the Obama administration – think it should. So it is worthwhile to consider how the US food safety regime has responded to the dilemmas of scale in recent years.

In an industrialised, highly consolidated food system geared to maximising profit by selling vast volumes of cheap food, pressure exists at every phase of the production chain to cut costs by cutting corners, including safe food practices. Moreover, the very scale of modern food production means that seemingly isolated lapses can become quite grave, subjecting millions of people to danger based on the actions of a single production facility.

The case of Peanut Corp. of America demonstrates the perils of scale. Until recently, the company ran two plants: one in Texas, one in Georgia. These two facilities processed 2.5% of the peanuts produced in the United States, and sold "peanut paste" to the entire US processed food industry. By late 2007, the company had evidently given up trying to maintain hygienic conditions at its facilities. In late 2008, people started coming down with *salmonella* from a dizzying array of products containing Peanut Corp.'s paste, prompting the FDA to initiate a "voluntary recall". By the time all was said and done, the recall affected no fewer than 1,800 supermarket brands. The tainted products killed nine people and officially sickened around 700 – half of them children – in 46 US states. The Centers for Disease Control (CDC) reckons that for every reported case of *salmonella*, another 38 cases go unreported – so the real number of people made ill from the output of just two facilities may be up to 26,000. In the wake of the fiasco, US journalists showed that the FDA had "outsourced" inspection of the Georgia plant to state authorities, and then ignored the state inspectors' findings of atrocious hygiene practices. Moreover, it turned out that the company's own testing had found *salmonella* in huge batches of peanut paste, which it proceeded to send out anyway.[1]

In another incident in 2009, a company called Beef Packers, owned by transnational agribusiness giant Cargill, had to declare two "voluntary recalls" involving over 500 tonnes of ground beef infected with antibiotic-resistant *salmonella*.[2] The USDA announced that consuming the suspect meat could cause "treatment failure"[3] – that is, death – because of its ability to withstand drugs. At least 39 people in 11 states reported getting sick, and more than 200,000 thousand kilos of the tainted meat was served to school children through the National School Lunch program.[4]

The official response to such incidents has been minimal. In January 2011, a hotly debated piece of legislation called the Food Safety Modernisation Act was signed into being. The intention of the original Bill was to update and inject some resources into the US food safety system. It basically called for more inspections, gave the government authority to mandate food recalls, and provided some traceability to an otherwise fairly unregulated industrial sector. Who would oppose such a move? The fat cats from the food industry, you might think – the Cargills and the Tysons, who don't want to be controlled. But you would be wrong. The new rules would hardly affect them.

According to an analysis by the US NGO Food & Water Watch, nothing in the Act would have prevented the Peanut Company of America from sending out its tainted paste. Worse, the rules would not even touch the meat sector, the biggest source of food-borne illness in the United States.[5] The main opponents of the bill throughout the debate were small family

1. "Peanut Corp. Shipped Product After Finding *Salmonella*", Bloomberg News, 27 January 2009, http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aeXwqlMnIWU0; and "Peanut Plant Had History of Health Lapses", New York Times, 26 January 2009, http://www.nytimes.com/2009/01/27/health/27peanuts.html?_r=1&ref=health

2. "Antibiotic-resistant *salmonella*, school lunches, and Cargill's dodgy California beef plant", Grist, 10 December 2010, http://www.grist.org/article/2009-12-10-meat-wagon-cargill-salmonella/

3. "California Firm Recalls Ground Beef Products Due to Possible *Salmonella* Contamination", USDA Food Safety and Inspection Service, 9 December 2009, http://www.fsis.usda.gov/ News_&_Events/Recall_065_2009_Release/index.asp

4. "Why a recall of tainted beef didn't include school lunches", USA Today, 2 December 2009, http://www.usatoday.com/news/education/2009-12-01-beef-recall-lunches_N.htm

5. Responsibility for food safety in the US is divided between two agencies. The US Department of Agriculture is responsible for meat, poultry and egg products, which accounts for 20% of the US food supply. The Food and Drug Administration, within the US Department of Health, takes care of the rest. The Food Safety Modernisation Act addresses only the work of the

farm activists who, because of the way the bill was framed, saw themselves falling under these controls when they are not the problem. So instead of instigating real food safety reform in a country where one out of four people gets sick and 5,000 people die from eating contaminated food each year, the law might do next to nothing.

In the absence of stricter public action around food safety, corporations have moved to fill the void – sometimes to tragi-comic effect. A case in point: in the mid-2000s, a company called Beef Products Inc. had an ingenious idea: it would buy slaughterhouse scraps – which are extremely likely to be infected by bacterial pathogens – from large-scale beef processors at cut-rate prices. It would purée those parts into a paste, which it would then mix with ammonia to kill bacterial pathogens. It would sell the product back the the beef industry as a cheap filler for ground beef, with the added feature that the ammonia in the paste would sterilise the ground beef it was mixed with. The beef industry had found a "solution" to the problem of bacterial pathogens in ground beef! The product, known in the industry as "pink slime" for its distinctive look, could be found in 70% of hamburgers consumed in the United States by the end of the decade. The USDA's Food Safety Inspection Service, which oversees meat safety, applauded – it recognised "pink slime" as safe without requiring testing, on the grounds that it had been sterilised by ammonia. But in 2009, a *New York Times* exposé found that pink slime in fact tended to be ridden with pathogens – and was actively adding to the pathogen load of the ground beef it was mixed with. Beef Products Inc. responded by merely upping the ammonia dose for its mix. To this day, the product remains widely used in the vast US ground beef market, including at fast-food chains nationwide.[6]

If the official US response to highly visible manifestations of food poisoning, like *Salmonella*-tainted meat and peanut butter, has been underwhelming and industry-friendly, then the response to low-level exposure to pathogens that cause cumulative damage has been virtually non-existent. The first kind causes spectacular, impossible-to-ignore symptoms like vomiting and diarrhoea; the second entails subtle, easy-to-ignore ones that can cause significant long-term damage. Corporate-led food safety regimes like the one in the United States have to at least gesture at the first kind; the second kind, not so much.

It turns out that the USDA's Food Safety Inspection Service (FSIS), which oversees the safety of the US meat supply, routinely endorses meat that it knows to be tainted with residues of "veterinary drugs, pesticides, and heavy metals", the USDA Inspector General revealed in a 2010 report.[7] The damning report was met with silence by the US media – probably because small amounts of substances like heavy metals don't cause dramatic immediate symptoms, but rather hard-to-trace, slow-to-develop conditions like cancer. As the report puts it, the "effects of residue are generally chronic as opposed to acute, which means that they will occur over time, as an individual consumes small traces of the residue". In its report, the USDA Inspector General's office expressed confidence that the FSIS would redouble efforts to keep heavy metals and antibiotic traces out of the meat supply going forward. Yet it had expressed the same thing, after exposing the same problem, in its report two years earlier.[8]

Another example is the US Food and Drug Administration's refusal to act on mounting evidence that Bisphenol A, an industrial compound found in many food containers, is an endocrine disrupter. If the food safety regime for spectacular pathogens could be described as porous, that for the second, more subtle, kind barely exists at all.

Written with contributions from Tom Philpott, senior writer on food and agriculture for Grist magazine.

FDA. The top sources of food poisoning in the United States are, however, poultry, beef and leafy vegetables (in that order, 2007). See: "Can Congress make a food-safety omelette without breaking the wrong eggs? ", Grist, 25 October 2010.

6. "Safety of Beef Processing Method Is Questioned", New York Times, 30 December 2009, http://www.nytimes.com/2009/12/31/us/31meat.html?_r=1&partner=rss&emc=rss&pagewanted=all; See also, "Lessons on the food system from the ammonia-hamburger fiasco", Grist, 5 January 2010, http://www.grist.org/article/2010-01-05-cheap-food-ammonia-burgers

7. "FSIS National Residue Program for Cattle", Office of the Inspector General, US Department of Agriculture, http://www.usda.gov/oig/webdocs/24601-08-KC.pdf

8. "USDA Inspector General: meat supply routinely tainted with harmful residues", Grist, 15 April 2010: http://www.grist

2 Superbugs and megafarms

"Superbug" is a term used to describe bacteria that have acquired the ability to resist commonly used antibiotics. One of the most notorious is Methicillin-resistant *Staphylococcus aureus* (MRSA), which emerged in the 1960s in the UK and has since spread around the world, with deadly consequences. In the US alone, 17,000 people died from MRSA infection in 2005.[1]

MRSA is typically associated with hospitals, where the superbug has a tendency to get into open wounds and cause difficult-to-heal infections. But in recent years these superbugs have found another place to thrive: industrial pig farms.[2]

In 2004, Dutch researchers identified a new strain of MRSA, later labelled ST398 or "pig MRSA", which they found in people in close contact with Dutch pig farms. Within two years ST398 become a leading source of human MRSA infection in the country, accounting for more than one in five human MRSA cases. Studies showed that these cases were closely connected to pigs, and further research revealed that ST398 was running rampant in pigs on Dutch farms. A 2007 survey found ST398 in 39% of pigs and 81% of local piggeries.[3]

New surveys of farms outside of the Netherlands have turned up similar numbers.[4] The first ever EU-wide survey for MRSA on pig farms in 2009, using a method that "largely underestimates MRSA prevalence", found ST398 in more than two-thirds of EU member states. Spain and Germany had the highest incidence, with over 40% of pig holdings testing positive for MRSA.[5] Not surprisingly, given the European pig industry's heavy exports overseas, ST398 is turning up in pigs beyond Europe's borders, too. A study of pigs in the Canadian province of Ontario, for instance, found ST398 in a quarter of local pigs, as well as in one-fifth of the pig farmers tested.[6] Only one study has been conducted in the US so far: it was a pilot study of two large hog operations in the midwest that found ST398 in 49% of the pigs and 45% of the workers.[7]

MRSA has the potential to evolve in very dangerous ways in its new home on pig farms. The density of animals in factory farms allows the bacteria to evolve rapidly and in diverse ways. Also, the use of antibiotics on factory farms is ubiquitous. Pigs are routinely fed antibiotics in their feed and water, often as a preventive measure against disease outbreaks and even simply to increase growth rates.

In the US, 80% of all antibiotics consumed annually are consumed by livestock.[8] In China, the figure is nearly 50%.[9] Even in the EU, where the non-therapeutic use of antibiotics for animals is banned and where the types of antibiotics

1. E. Klein, D.L. Smith, R. Laxminarayan, "Hospitalizations and Deaths Caused by Methicillin-Resistant Staphylococcus aureus, United States, 1999–2005", Emerg. Infect. Dis. Vol. 13, No. 12, 2007, pp. 1840–46.
2. Ed Yong, "MRSA in pigs and pig farmers", 23 January 2009, http://scienceblogs.com/ notrocketscience/2009/01/mrsa_in_pigs_and_pig_farmers.php
3. X.W. Huijsdens et al., "Community-acquired MRSA and pig-farming", Ann. Clin. Microbiol. Antimicrob., Vol. 5, No. 26, 2006; A.J. de Neeling et al., "High prevalence of methicillin resistant Staphylococcus aureus in pigs", Vet. Microbiol., Vol. 122, No. 3–4, 21 June 2007, pp. 366–72; I. van Loo et al., "Emergence of methicillin-resistant Staphylococcus aureus of animal origin in humans", Emerg. Infect. Dis., Vol. 13, No. 12, 2007, pp. 1834–9.
4. Danish Integrated Antimicrobial Resistance Monitoring and Research Programme, http://www.danmap.org/pdfFiles/Danmap_2009.pdf
5. "Pig MRSA widespread in Europe", Ecologist, 25 November 2009; Broens et al., "Diagnostic validity of pooling environmental samples to determine the status of sow-herds for the presence of methicillin-resistant Staphylococcus aureus (MRSA)", Poster presented at the ASM–ESCMID Conference on Methicillin-resistant Staphylococci, in Animals: Veterinary and Public Health Implications, London, 2009.
6. "Guelph Researchers Find MRSA in Pigs", University of Guelph, 8 November 2007, http://www.uoguelph.ca/news/2007/11/post_75.html.
7. T.C. Smith, M.J. Male, A.L. Harper, J.S. Kroeger, G.P. Tinkler et al., (2009) "Methicillin-Resistant Staphylococcus aureus (MRSA) Strain ST398 Is Present in Midwestern US Swine and Swine Workers", PLoS ONE, Vol. 4, No. 1, 2009.
8. See "New FDA Numbers Reveal Food Animals Consume Lion's Share of Antibiotics", Center for a Liveable Future, Johns Hopkins University, 23 December 2010,. http://www.livablefutureblog.com/2010/12/new-fda-numbers-reveal-food-animals-consume-lion%E2%80%99s-share-of-antibiotics
See also Margaret Mellon, Charles Benbrook, Karen Lutz Benbrook, "Hogging it!: Estimates of antimicrobial abuse in Livestock", Union of Concerned Scientists, 2001, http://www.ucsusa.org
9. "Half of China's antibiotics fed to animals: expert", Xinhua, 26 November 2010.

allowed for livestock are controlled, the use of antibiotics for animals still exceeds their use for humans. In Germany, for example, three times as many antibiotics are given to animals as to humans.[10] Such widespread use of antibiotics in factory farms speeds up the development of antibiotic resistance among bacteria. Unlike other strains of MRSA, ST398 can already withstand tetracyclines, a group of antibiotics that is given heavily and regularly to pigs on factory farms. The medical profession is getting increasingly worried about what this will mean for the future of human health care, as antibiotics may become useless. The WHO now calls it "the greatest threat to human health".[11]

The good news, however, is that ST398 still hasn't shown much virulence in humans, nor is it easily transmitted between people. Not yet, at least.

In 2010, a 14-year-old girl in France, recovering in hospital from pneumonia, was infected with a superbug. She soon began having serious respiratory problems, her lungs started bleeding, and within six days she died. The superbug that killed her was a clone of MRSA ST398 that is known to circulate in humans. The most alarming issue for the French doctors studying the case was that this was the first incident on record in which this strain of MRSA had acquired the capacity to produce a lethal toxin in humans, something that certain other strains of superbugs are able to do. They reasoned that if the clone of MRSA ST398 could do it, then surely "pig MRSA" has the same capacity.[12]

It is not much of a stretch to imagine a situation where "pig MRSA" passes from a pig to a farm worker carrying another MRSA strain with virulence to humans, mixes with that strain, and acquires its capacity for virulence. The new virulent strain of ST398 could then easily pass back into the pigs, where it would rapidly amplify and spread. ST398 is transmitted to humans not only through contact with live pigs: the bacteria is also present in meat sold in supermarkets and can be carried over large distances by the insects that pass in and out of farms.[13]

The EU is slowly starting to take action to defend against such a possibility. It has implemented several measures to restrict the use of antibiotics in livestock production and, at national and at EU level, some surveillance of farms is being carried out. In 2009, a panel of the European Food Safety Authority recommended that the EU move towards "systematic surveillance and monitoring of MRSA in intensively reared animals". South Korea, for its part, banned the use of seven antibiotics in animal feed in 2008, and implemented a national programme to reduce the use of antibiotics on livestock farms. But such restrictions on the use of antibiotics for livestock hardly exist in the US, although proposed legislation restricting the non-therapeutic use of certain antibiotics in feed is currently before Congress. As for surveillance, the US National Antimicrobial Resistance Monitoring System doesn't even test for MRSA.[14] Outside the industrialised countries, where the meat industry is expanding most rapidly, there is an almost complete absence of controls on the use of antibiotics in agriculture and of surveillance for pathogens such as MRSA.

Enhancing surveillance and cutting back on the use of antibiotics on factory farms are important measures. But they aren't enough to deal effectively with the threat posed by MRSA and the myriad other pathogens that thrive on factory farms. A staggering 61% of all human pathogens, and 75% of new human pathogens, are transmitted by animals, with many of the most dangerous – such as bird flu, BSE, swine flu and the Nypah virus – having emerged from intensive livestock farms.[15] It is the way that animals are farmed that is fundamentally at issue.[16]

10. Kristen Kerksiek, "Farming out Antibiotics: The fast track to the post-antibiotic era", Infection Research, Germany, 22 March 2010, http://www.infection-research.de/perspectives/ detail/pressrelease/ farming_out_antibiotics_the_fast_track_to_the_post_antibiotic_era/

11. AAP, "Greatest threat to human health", Sydney Morning Herald, 16 February 2011, http://www.smh.com.au/lifestyle/well-being/greatest-threat-to-human-health-20110216-1awai.html

12. Frédéric Laurent, "Les souches de staphylococcus aureus ST398 sont-elles virulents", Bull. Acad. Vét. France, Vol. 163, No. 3, May 2010.

13. See Aqeel Ahmad et al., "Insects in confined swine operations carry a large antibiotic resistant and potentially virulent enterococcal community", BMC Microbiology, 2011, http://www.biomedcentral.com/1471-2180/11/23/abstract

14. Maryn McKenna, "Alarm over 'pig MRSA' – but not in the US", Wired, 30 October 2010, http://www.wired.com/wiredscience/2010/10/alarm-over-pig-mrsa-%E2%80%94-but-not-in-the-us/

15. John McDermott and Delia Grace, "Agriculture-Associated diseases: Adapting Agriculture to improve Human Health", ILRI, February 2011.

16. GRAIN, "Germ warfare: Livestock disease, public health and the military-industrial complex", Seedling, January 2008

Food safety, strictly speaking, is a matter of preventing illness.

domestic religious sensitivities.[21] The Japanese government, in its zeal to sign FTAs, especially with Australia and the US, also has a difficult tightrope to walk on the issue of GMOs, as it needs to respect its own electorate's preference for GM-free foods. Southern African states such as Namibia have raised serious questions about how to be proactive in pushing their own "development" strategies and needs in trade negotiations with the EU, where Sanitary and Phytosanitary Standards (SPS) requirements – which are very costly to comply with – can undermine local benefits. The difference is that these countries are not out to change others' food safety standards. The US and the EU most clearly are.

New standards open new markets.

Food safety, strictly speaking, is a matter of preventing illness. But the boundaries of what we bundle under this concept can be stretched to include broader issues of food quality. Halal, GM-free, cruelty-free and organic foods are all examples of growing markets that are generally handled, for practical purposes, by the current food safety regime (standards, audits, certification, traceability and dispute mechanisms). Similarly, at the policy level these considerations are regulated by food safety authorities, and in trade talks they form part of sanitary and phytosanitary chapters or agreements.[22] Many of these broader food quality concerns are not necessarily about product standards, but processes. Therefore they tend to get defined and controlled through schemes rather than standards per se. And if care is not taken, they can be quite arbitrarily defined to suit the needs of transnationals like Cargill or Carrefour, rather than the needs of local communities or of public health generally.

While demands for GM labelling and organic foods are relatively more integrated into food safety or food marketing regimes, a shake-out is needed soon with regard to halal foods and animal welfare issues.[23]

The halal food market, currently valued at around US$600 billion, or 16% of the global food retail market, is expanding fast, and will continue to grow in the coming years.[24] But what constitutes halal food is a highly contested issue. There is no global standard, and within any given country there may be different or even competing standards.[25] At the international level, the Organisation of the Islamic Conference is the forum that needs to come to terms with this. In 2008, Malaysia and Turkey agreed to develop jointly some harmonised or common standards, for adoption by the OIC at large, but this is unlikely to pass uncontested.

Animal welfare is another issue altogether. It seems to be a predominantly European regulatory concern, but this alone means that it is fast becoming a responsibility for the rest of the world. By 2013, the EU will implement new standards on animal slaughter, including stunning, and these new norms will have to be followed by anyone planning to export meat to the EU. As already noted, the EU increasingly includes animal welfare in its bilateral trade agreements, making explicit demands on partners to work with the EU to draw up international standards in this area. So far, Chile, Korea, Colombia, Peru, and Central America have accepted the EU's demands, particularly working with the Europeans to draw up global legal standards.[26]

Internationally, the OIE is expected to adopt, very soon, some recommended set of principles for animal welfare in international trade.[27] But who defines these principles, and who enforces them as international norms? There are no international legal standards for animal welfare. At OIE, the debate is divided along North–South lines. The major complaint from

21. This includes milk of cattle fed with feeds produced from internal organs, blood meal and tissues of ruminant origin or products that may contain animal rennet. See Gargi Parsai, "No import of US dairy products for now", The Hindu, 15 November 2010, http://www.bilaterals.org/spip.php?article18483

22. They also fall under the remit of Technical Barriers to Trade (TBT) disciplines, the close cousin of SPS. TBT rules govern labelling, and many food safety and broader food quality issues require proper labelling.

23. The same is true for nanomaterials.

24. Exact figures of the market size vary, but come to US$550–630 billion per year. The main reasons why this market is booming are population growth and conversion rates. But practicalities facing the food service industry also weigh in. For instance, the catering firms that supply the airline industry at the world's major hubs (e.g. Heathrow and Frankfurt) are increasingly opting to use only halal meat.

25. Whether GMOs – like cloning and other new technologies – are halal or haram has long been an issue of debate, and the answer often depends on the country or the authority giving it.

26. Outside the SPS arena, Canada filed a WTO dispute in August 2010 against the EU's seal trade ban. While this conflict is not over food safety, it does challenge how far the EU can go in pushing its animal welfare standards on other countries. This issue will also have to be dealt with in the current EU–Canada FTA negotiations.

27. This involves not just food but testing and cosmetics.

the South is that OIE's proposed animal welfare framework is based on private standards. Developing countries already have bad experience with private standards on animal health and expect more of this if the task of drawing up animal welfare norms falls to non-public entities.[28]

In these emerging fields, the question truly is: whose norms are we talking about – and for whose benefit?

Food safety, now on offer at Walmart.

It would be wrong to take diplomatic or legislative wrangling as evidence that governments are getting serious about food safety. While they spare no expense in ensuring that regulations do not harm export markets for their food companies, when it comes to managing the risks generated by the industrial food system, deregulation and hands-off attitudes are very much the order of the day. Governments may define and administer the legal framework of food safety and similar standards, but the action and the agenda are very much left in the hands of the private sector. One could even say that food safety is hardly a matter of public policy at all any more, as so much revolves around private standards, voluntary controls and obscure industry bodies, all under the thumb of the largest food corporations.

Consider beef. The US government insists that US beef is the safest in the world, but buyers know better. "If you look at food recalls over the past two years, there's been a significant increase", says Frank Yianna, vice-president for food safety at Walmart, one of the country's largest beef retailers. The US government's response to this alarming rise in meat recalls: no new measures. Walmart's response: a set of its own new standards to which its US beef suppliers will have to conform by June 2012. Walmart says that its standards will provide its customers with an "additional layer" of protection beyond the tests for *Escherichia coli* and other pathogens that the meat industry already conducts. "This is really a response to long-term trends in beef recalls", says Yianna.[29]

US beef regulations, and even the regulations that the Japanese government imposes on US beef imports, aren't good enough for Japan's food service sector. Although Tokyo lifted, in 2006, its ban on US cattle aged 20 months or younger, Zensho, Japan's largest food service company, wants US beef suppliers to provide it with special safeguards, particularly concerning BSE. In December 2010, Zensho announced that it had struck a deal with JBS, a Brazilian company that is one of the largest beef producers in the US, to provide Zensho with beef from cattle certified to have been raised without feed containing "BSE-responsible material". Under the terms of the agreement, JBS must segregate "Zensho cattle" during the transportation, finishing and processing stages. JBS must also ensure that "Zensho cattle" are processed only at the beginning of a production shift and only after the equipment and facilities have been specially sanitised. Zensho inspectors will be physically present to monitor the process, and the final product will be marketed in Japan as "Zensho SFC beef".[30]

Along the same lines, French supermarket behemoth Carrefour announced in November 2010 that it will start labelling 300 of its own-brand, animal-based products sold in its stores as "Fed GM-free" ("*Nourri sans OGM*").

The customers of these companies may appreciate such measures. But what about everyone else? The only accountability in such a system is to shareholders, not the public; private standards are all about the bottom line. To give one example of how this can play out, poultry companies in South Africa regularly take frozen chicken that is past its best-before date from supermarkets in wealthy neighbourhoods, recycle it by thawing, washing and injecting it with flavouring, and then sell it to shops in black townships. The poultry companies deny that the practice is racist, and claim that they are actually following standards higher than those required by the Department of Health.[31]

Small farmers at the losing end.

More and more of the food that people buy is delivered to them through the supply chains of transnational supermarkets and food service corporations. These companies now wield enormous power in deciding where food is produced and where it is sold, and they increasingly want to dictate exactly how it is produced and handled. Food standards have become a central way for them to organise global markets.

Supermarket standards for fresh fruit and vegetables reveal much about who wins and loses within the corporate regulatory apparatus. Fresh fruit and vegetables are extremely important to retailers because they bring shoppers into their stores on a more regular basis, keeping overall sales up. Supermarkets have tried to capture this market by offering low costs and quality assurances. Their main strategy in this regard has been to source from "preferred suppliers" that can provide large volumes from low-cost production areas, assure traceability of the produce all the way back to the farm, and ensure that it was grown according to the standards stipulated by the supermarkets.

Today, big food retailers such as Tesco, Walmart, Carrefour or Lotte are focusing on expanding their operations in the South, where markets are growing. India, China, Brazil and Indonesia are among the prime targets. In these and other developing countries, however, produce markets are still dominated by informal supply chains, from peasants and small co-operatives to local wholesalers and street vendors. So the

28. Their main concerns are lack of harmonisation, lack of transparency, lack of scientific basis and no consultation. For OIE's overview of the discussion process, see "Implications of private standards in international trade of animals and animal products", updated 23 June 2010, http://www.oie.int/eng/normes/en_Implications%20of%20private%20standards.htm
For an account of developing country concerns, see the final report of the OIE questionnaire on private standards, http://www.oie.int/eng/normes/A_AHG_PS_NOV09_2.pdf

29. Bruce Blythe, "Walmart will require stricter safety tests for beef suppliers", Drovers CattleNetwork, 29 April 2010, http://www.cattlenetwork.com/cattle-news/latest/wal-mart-will-require-stricter-safety-tests-for-beef-suppliers-114326579.html

30. Zensho statement of 30 November 2010, http://www.zensho.co.jp/en/ZENSHO_SFC_20101130.pdf

31. "South African poultry makers 'racist', politician says", BBC, 29 December 2010, http://www.bbc.co.uk/news/world-africa-12090741

supermarkets impose their own procurement models, using a common set of standards as a basis for restructuring. They also have to deal with the competition from local and regional elites, such as the Matahari chain in Indonesia, or Big C in Thailand.

The basic picture of these global supply chains is arranged as follows. At the top stand the big retailers – the word "big" here being an understatement. Walmart, the globe's largest food retailer, rings up annual food sales of US$405 billion – more than the annual GDP of Austria, Norway, Saudi Arabia, Iran, Greece, Venezuela, Denmark, or Argentina. The four largest global food retailers – Walmart, Carrefour, Metro, and Tesco – have combined annual food sales of US$705 billion. That's more turnover than the annual output of Turkey or Switzerland. Their sheer size and buying power gives them tremendous leverage over the entire global food system: they are able to dictate terms to all their suppliers, from farmers to food processors.[32]

They work together, with input from the biggest food companies and agribusiness firms, to develop common standards for foods (from farming to packaging) that their suppliers have to follow. An example is GlobalGAP. In the context of a largely *laissez-faire* – or at least industry-friendly – global food safety policy regime, these standards are emerging as the shadow food safety structure for much of the world. And to emphasise a key point, these gigantic companies are accountable to their shareholders – and to a small extent their customers – but to no one else.

Below the supermarket giants are the suppliers. These are large companies that source and ship from around the globe, and increasingly from their own farms or from contract production schemes that they manage. Then there are the producers. More and more, production is centralised in "hubs" or "zones" where production of specific fruits or vegetables is cheap and organised according to the standards dictated by the supermarkets. Some well-known examples are grapes in Chile, green beans in Kenya, and apples in China.

Much has been said about how countries can position themselves to benefit from this global supermarket expansion. To gain access to supermarket shelves, local governments and donors devote huge resources to trying to build production capacity in poor countries. Supermarket growth is even portrayed as an "opportunity" for small growers. The reality is quite different.

First, foreign retailers moving into southern countries compete directly with local and traditional markets. As they expand, they capture space from small vendors, traders and farmers' markets, which are served primarily by small-scale growers and vendors. Developing countries are not merely sites for export production to Western supermarket supply chains. They are increasingly becoming the consumers of these markets as well.

Second, supermarkets have access to global procurement networks through which they can access cheap produce and force down prices. If local oranges are too costly for its Indonesian stores, Carrefour can bring in oranges from its suppliers in Pakistan or China. A whopping 70–80% of the fruits sold in supermarkets in Indonesia are imported, mostly from regional supermarket supply hubs in Thailand and China.[33]

Third, the suppliers that serve supermarkets, and the standards that they are obliged to follow, leave no room for traditional farming. The only window of opportunity for a small-scale grower who wants to sell to supermarkets is tightly controlled contract production, where the company dictates everything, from the seeds to the pesticides used. Such contract farming schemes erode biodiversity and local food systems and cultures. But even this option is usually not possible, as compliance is generally too costly and impractical for small-scale growers. So more and more of the actual farming is being carried out and managed by the "preferred suppliers" themselves, with heavy involvement from the supermarkets.

Of course, many domestic supermarkets and supply chains – from ShopRite of South Africa to DMA of Brazil – are implementing this model as well. And while some will surely grow and become regional giants, they are easy prey for buyout by Northern cousins.

US-based Fresh Del Monte Produce is one such "preferred supplier" of fresh fruit and vegetables to global supermarket chains. According to the company's CEO, Mohammad Abu-Ghazaleh, "Retailers today are more inclined to work with someone who can assure them that his product has come from his own farm, has been packed under his own packing plant, with shipping under his control and delivering it to his customer, also under his control". His company produces 39% of its bananas, 84% of its pineapples, and 81% of its melons on its own plantations, mainly in Central America, and runs a vertically integrated poultry business in Jordan that supplies retailers and transnational corporations (TNCs) in the Middle East. In 2009, 13% of the its total sales were to Walmart.

Peru is described as a success in penetrating supermarket supply channels. It was prodded into the business under Washington's so-called "war on drugs" 20 years ago. Since then, exports of asparagus to the EU and North America have taken off. But this has dramatically transformed local agriculture. Asparagus used to be produced by small-scale farmers, but today they account for less than 10% of the country's production, which is now dominated by large-scale export-oriented firms. Just two companies – Del Monte and Green Giant, both of the US – today control a quarter of Peru's asparagus exports.[34]

In 2000, Ghana tried a similar programme, but with a focus on the production of pineapples for European supermarkets. In the first four years, exports of pineapples to Europe surged, from around 20,000 tonnes to around 50,000 tonnes, and much of it was supplied by small Ghanian farmers and mid-sized traders.[35] But in 2005, Ghana's market crumbled. Without warning, European retailers, lobbied by Del Monte, unilaterally decided to begin purchasing only the

32. For an excellent discussion of Walmart's role in the US food system, see Barry C. Lynn, "Breaking the chain: the antitrust case against Wal-Mart", Harper's, July 2006, http://www.harpers.org/archive/2006/07/0081115

33. Thomas Reardon, Spencer Hensen and Julio Berdegué, "'Proactive fast-tracking' diffusion of supermarkets in developing countries: implications for market institutions and trade", Journal of Economic Geography, Vol. 7, No. 4, 2007.

34. GRAIN, "Global agribusiness: two decades of plunder", Seedling, July 2010, http://www.grain.org/seedling/?type=81

35. Niels Fold, "Transnational Sourcing Practices in Ghana's Perennial Crop Sectors", Journal of Agrarian Change, Vol. 8, No. 1, January 2008, pp. 94–122.

MD2 variety of pineapple, and no longer to accept the Sweet Cayenne variety produced in Ghana. They also began requiring the EurepGAP certification from their suppliers, especially on pesticide residues. The sudden shift was too much for Ghana's pineapple farmers and exporters. Both EurepGAP certification and the MD2 variety, due to the high costs of plantlets and the extra logistics required, were beyond their reach. They were forced to shut down, and TNCs moved in. In 2004 there were 65 pineapple exporters in Ghana. Today, just two companies control nearly 100% of Ghana's pineapple exports: Dole of the US, which sources mainly from its own farms, and HPW Services of Switzerland, which sources from three large growers.[36]

In Vietnam, small fish breeders and businesses trying to ride the wave of popularity of Tra – or catfish, as it is now being marketed (as a cheap family food) in Europe and North America – have had to jump a number of hurdles. In the US, a massive campaign run by domestic catfish producers, who cannot compete with the low priced Tra, tries to paint Vietnamese fish as "filthy". In Europe, the World Wide Fund for Nature (WWF) put Tra on its "red list" of products that conscientious consumers should avoid. The boom in intensive Tra farming for these lucrative new export markets has indeed attracted the worst of practices and people. But to be fair, a number of businesses have been trying to meet the global standards. The problem is, precisely, these standards. One Tra fish farmer, Nguyen Huu Nghia, bitterly called it a "labyrinth".[37] He and other small fish breeders were told first to follow the Safe Quality Food (SQF) standards, run by a private certification outfit in the US. Then they were told to follow something called SQF-1000. Then it was recommended that they adopt GlobalGAP standards. And now, in order to shake off the bad name given to Vietnamese fish by WWF, they are told to comply with the WWF's criteria through the Aquatic Stewardship Council (ASC). If all Tra producers followed, say, the GlobalGAP and the ASC standards for a squeaky clean product that is safe for international consumption, it would cost the Vietnamese no less than US$22 million per year![38] Apart from the bewildering array of private standards that no one can really vouch for, who can afford this and what is the point?

Bigger players will pay the extra costs for the GlobalGAP "stamp" because, for them, privileged access to the expanding empires that supermarkets are building is worth the price. As one Kenyan exporter puts it, "I tend to be particularly positive about this [certification]. It might sound a bit cynical, but it's an entry barrier to the business. The more standards there are, the less competition we are going to have".[39] Tough luck for Kenyan small outgrowers, more than half of whom were

MORE AND MORE OF THE FOOD THAT PEOPLE BUY IS DELIVERED TO THEM THROUGH THE SUPPLY CHAINS OF TRANSNATIONAL SUPERMARKETS AND FOOD SERVICE CORPORATIONS.

36. Peter Jaeger, "Ghana export horticulture cluster strategic profile study", prepared for World Bank, Ghana Ministry of Food and Agriculture and EU ACP Agricultural Commodities Programme, 2008.

37. See "Don't let Vietnam's Tra fish be 'stricken down'" , Voice of Vietnam, 13 February 2011, http://english.vovnews.vn/Home/Dont-let-Vietnams-Tra-fish-be-stricken-down/20112/123832.vov

38. Ibid. WWF's ASC certification alone costs US$7,500 per 5 hectares per year.

39. Spencer Henson and John Humphrey, "The Impacts of Private Food Safety Standards on the Food Chain and on Public Standard-Setting Processes", paper prepared for FAO/WHO, May 2009.

dropped immediately once supermarkets began demanding adherence to their GAP norms.[40]

It needs to be emphasised that it is not just in exports that this concentration is happening. As supermarkets take over larger shares of the food markets in the South, the distinction between export markets and domestic markets is disappearing, with the same standards being applied for both. This leaves small farmers, and the biodiversity they maintain, with a dwindling space in which to survive.

Privatised Food Safety in the Global South.

In China, where supermarkets are expanding at a furious pace, these trends are biting hard. The major supermarket chains, both foreign and domestic, are working hand-in-glove with suppliers and local governments to develop farms to supply fruit and vegetables. As part of a drive to improve food safety and integrate its 700 million small-scale farmers into "high value food chains" with "scientific methods of farming", the Chinese government has been pursuing the establishment of fruit- and vegetable-growing bases in partnership with the private sector. In each of these designated production zones, local authorities negotiate deals with private companies whereby the company comes in, leases an area of land from the farmers currently occupying it, or acquires their land use rights, and then sets up large-scale production, hiring the displaced farmers as labourers or in contract production arrangements.

Hong Kong Yue Teng Investment is one of these companies. Over the last few years it has emerged as a major vegetable producer in China's Guizhou Province, where it has two large-scale production bases that supply vegetables to Walmart's stores in southern China. Walmart's preferred fruit supplier is the Xingyeyuan Company, which has several thousand hectares of orchards north of Dalian City. For eggs, Walmart deals with Dalian Hongjia, a massive factory farm complex with 470,000 laying hens and an annual production capacity of 7,400 tons of fresh eggs.

Walmart has 56 such "direct purchase bases" with companies in 18 provinces and cities in China, covering a total of at least 33,000 ha of farmland. It calls its network the "Direct Farm Program" and claims that, by 2011, these arrangements will bring benefits to one million farmers. Of course, Walmart does not actually deal directly with farmers, but with companies that hire and manage farmers for their large-scale operations.

Walmart's moves in agriculture are part of its overall strategy to source more directly and reduce costs in its supply chain. The companies supplying Walmart have to ensure that production happens strictly in accordance with Walmart's demands, and the company runs training programmes to show the companies and the farmers working for them exactly how they want farming done. "As a multinational corporation with a strong sense of local social responsibility, we have helped farmers to better adapt to market conditions, encouraged them to choose standardised and scaled production methods, and provided instructions on ways to preserve the environment in production activities via sustainable agriculture programs", says Ed Chan, president and CEO of Walmart China.[41]

Chongqing Cikang Vegetables and Fruits, which manages Walmart's Direct Farm operation in Chongqing Province, says that its production process is fully monitored by third party inspectors approved by Walmart, from variety selection to harvesting and storage. The same goes for companies in China supplying Carrefour, which runs its own direct farm program, called the Carrefour Quality Line, or national retailer Wumart, which has a direct farm programme in the Shandong Province.[42]

What do these companies mean by "sustainable agriculture"? Well, for Walmart, at least with its Direct Farm Programs in India and Honduras, it has handed that task over to one of the world's largest pesticide companies and GMO seed producers, Bayer CropScience of Germany. In Honduras, Bayer, through its Food Chain Partnership programme, trains 700 growers who supply Walmart on "responsible agricultural practices". In India, the company operates 80 of these Food Chain Partnership projects with Walmart and other retailers, covering an area of 28,000 ha. Participating farmers must use a Bayer "passport" to keep track of their practices.[43]

Bayer says that it has 250 Food Chain Partnership projects around the world. In Colombia it works with Carrefour, while in Mexico it directly partners with the national certification authority, Calidad Suprema, a "Civil Association without lucrative ends" that helps the Mexican government with "strengthening the competitiveness of the countryside" and the "promotion of the trademark *México Calidad Suprema*", which is owned by the government.[44] Bayer trains *Calidad Suprema* officials on good agricultural practices, using its BAYGAP tool, and the two sides conduct joint farm visits.[45] Not to be outdone, Syngenta, the world's second-largest pesticide company, has a food chain programme of its own, called "Fresh Trace", that it is implementing in Thailand, and both companies are active members of GlobalGAP.

40. Clare Narrod, Devesh Roy, Belem Avendano and Julius Okello, "Impact of International Food Safety Standards on Smallholders: Evidence from Three Cases", in McCullough, Pingali and Stamoulis (eds), The Transformation of Agri-Food Systems: globalization, supply chains and smallholder farmers, London, Earthscan, 2008.

41. Walmart press release, 25 October 2010, http://en.prnasia.com/pr/2010/10/25/10098491l.shtml

42. "Large Corporations Engaging Small Producers – Fruits and Vegetables in India and China", live case prepared and presented by Nancy Barry, President of NBA Enterprise Solutions to Poverty, at the Harvard Business School Forum on the Future of Market Capitalism, 9–10 October 2009, http://www.scribd.com/doc/24650313/Case-on-India-and-China-Corporations-and-Small-Farmers-fin%E2%80%A6

43. See Bayer's Food Chain Partnership promotional video for India, http://www.youtube.com/watch?v=oVRMmYTqsCE ; "Wal-Mart Centroamérica y el Grupo Bayer firman convenio para impulsar agricultura", La Tribuna, 15 January 2010, http://www.latribuna.hn/web2.0/?p=86331

44. See México Calidad Suprema website at http://www.mexicocalidadsuprema.com.mx/nosotros.php

45. Bayer CropScience, "An exceptional collaboration with Mexico Calidad Suprema", http://www.bayercropscience.com/bcsweb/cropprotection.nsf/id/EN_Mexico_Calidad_Suprema_English/$file/MEXICO_CS_web_EN_NEW.pdf

With the pesticide industry so intimately involved in developing and implementing supermarket standards, it's hardly surprising that pesticide contamination remains prevalent on supermarket produce. Tests done by Greenpeace in China in 2008 and 2009 on popular vegetables and fruit found far more serious pesticide pollution on those collected from Walmart and the other major supermarkets than on those collected at wet markets.[46]

People's resistance to corporate food safety.

In recent years we have seen some amazing social struggles and really solid initiatives emerge to counteract this corporate hijack of food safety policy-making. Some of them have been triggered by the restructuring of international food trade, such as the resistance to US beef waged by citizens' movements in Taiwan, Australia, Japan or South Korea. Others have been reactions to domestic nightmares, such as the social activism in China following the melamine milk tragedy. Occasionally, all countries get rocked by short-lived food poisoning outbreaks. But we are increasingly seeing much more structural and political questioning of the industrial food system, of capitalist development and of who decides what, because people's health and livelihoods are being directly affected.

The struggles around mad-cow beef and GMOs are good examples. Many times, social movements have organised to keep them out of their countries not so much because of the health or food safety implications per se, but because of the broader social and economic directions that these symbols of industrial agriculture, corporate power or Western imperialism represent. The Korean people's resistance to US beef has grown into an expression of profound distrust toward Korea's system of representational democracy, including the state's relationship with the US, not an irrational fear of prions.[47] In Australia, the campaign has been more about keeping Australian food within Australian hands, a concern that many peoples across the world share with regard to governance and control of their own country's food supplies. As to anti-GMO struggles, they are as diverse as the anti-US beef campaigns, but they have also been about profound issues of democracy, the survival of local cultures and food systems against the onslaught of Western "solutions", about keeping seeds and knowledge alive in communities' hands and challenging whole models of development.

On a deeper level, people are organising to overcome the health, environmental and social costs of the expanding industrial food system. Movements and campaigns for organic food or to "go local", in other words to buy food produced nearby and boycott products shipped from far away, have been spreading in many countries. The alarming rise in obesity, type 2 diabetes, cancers and other diseases that are directly linked to unhealthy eating is mobilising many people to change their lifestyles and work with others to promote more wholesome food and farming options. Specific campaigns and actions to stop the demonisation and destruction of local alternatives to an over-sanitised food system, such as street hawkers, raw foods and backyard or traditionally raised livestock, are also growing in popularity. The global peasant and smallholder rights group La Vía Campesina has mounted a campaign to establish the concept of food sovereignty: 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".[48] Following the lead of Vía Campesina, several townships in the US state of Maine have recently declared their "food independence". [49] Food safety and broader aspects of food quality are clearly central to these developments.

Certainly, the defence and development of peasant agriculture and non-industrial food systems, particularly in industrial countries, require their own approaches to food safety. This doesn't mean working outside the mainstream in the sense of breaking laws or creating dangerous underground economies, although some corporate groups try to vilify and eradicate raw foods and other tradition-conscious food cultures.[50] The challenge is to ensure that different knowledge systems and criteria can exist outside the monopolistic grip of supermarkets and their supply chains. As French farmer Guy Basitanelli of La Confédération Paysanne, puts it:

> For small businesses that have few staff and operate at an artisanal level, the management of food safety risks hinges on training and direct human contact. Managing microbial balances, and protecting and producing specific flora based on a respect for traditional and local practices, are what best guarantees safety. You do not get safety from a "zero tolerance" approach to microorganisms and sterilisation equipment that destroy these balances.[51]

Many producer organisations and consumers groups, not to mention large movements like Slow Food, are convinced that biodiversity and ecological complexity – as opposed to

46. Greenpeace, "Pesticides: not your problem?", 9 April 2009, http://www.greenpeace.org/eastasia/news/China-pesticides

47. See Jo Dongwon, "Real-time networked media activism in the 2008 Chotbul protest", Interface, Vol. 2, No. 2, November 2010, pp. 92–102.

48. See the Via Campesina web site: http://viacampesina.org

49. David Gumpert, "Maine towns reject one-size-fits-all regulation, declare 'food sovereignty'", Grist, 15 March 2011: http://www.grist.org/article/2011-03-15-maine-towns-reject-one-size-fits-all-regulation-declare-food

50. The armed raid on Rawesome Foods in the US in 2010, which was captured on security camera and circulated over the internet, is one example (see http://www.youtube.com/watch?v=X2jgpGyyQW8). In France, two years earlier, industrial dairy processors that want a bigger share of the market tried to dismantle the rule that only raw milk can be used to make Camembert cheese, on the ground that it's not safe. They were quickly defeated, including with regards to the lack of scientific data that there is any meaningful safety problem with raw-milk cheese. This debate has also flared up in Canada, but the government of Quebec also decided to keep the production of raw-milk cheese legal.

51. Quoted by Cécile Koehler in "Le risque zéro: du 'sur mesure' pour l'agriculture industrielle", Campagnes solidaires, FADEAR, Bagnolet, November 2008. This dossier also points out that no study can show a correlation between heavy investment in industrial and administrative practices and a high level of food safety.

extreme hygiene – are the keys to healthy and stable systems. Nature abhors a vacuum, after all. Of course, these sounder approaches to food safety also rely on short distribution circuits, getting food from the farm or the small-scale processing plant into people's homes through less complex, more direct distribution schemes (food clubs, all sorts of community-support agriculture systems, co-ops, and so on).

Another big part of people's resistance to the corporate takeover of food safety and food cultures consists of the campaigns, investigative work and public education efforts devoted to exposing how supermarkets – and the supply chains that they dictate to if not run – really operate, stopping the spread of big retail and protecting street vendors from annihilation. Walmart's anti-union culture is well known all over the world, thanks to decades of civic activism which today informs groups trying to resist Walmart's entry in new markets such as India. In fact, India has a vibrant movement of hawkers and street vendors who stand to lose their livelihoods if the central government allows foreign retailers to come in. They have the support of farmers, intellectuals and civil society groups that are part of a growing fabric of resistance against TNCs coming in and taking over India's food supply. Investigative research into and political work concerning other corporate structures, like Carrefour or Tesco, has also been important to help civil society, not to mention legislators, to understand better how big retail works and the exploitative pressures it puts on biodiversity, farmers and food workers.[52]

Food industry workers – from seasonal harvesters to the women and men involved in slaughtering or processing – are just as central to what food safety is or should be. After all, they are on the front line of the work, and they are usually paid as little as possible. They often suffer difficult organising conditions, especially migrant workers, children or illegal immigrants. When they do manage to organise and get support from other groups, their capacity to secure changes can be huge. The struggle of migrant farmworkers in Immokalee, Florida, for instance, has been phenomenal. Apart from securing higher wages for tomato pickers, the Coalition of Immoklalee Workers has helped demonstrate that the industrial food system, which was set up to provide cheap food, is the problem – socially, environmentally and in terms of safety and health.[53] Today, there is a significant momentum across the US to change the way food is produced, including the food safety standards, by reviving the use of anti-trust legislation. It may turn out to be a smart way to break up the industrial food system and return power to smallholders, local processors, regional markets, and other more democratic structures.

Conclusion.

In most countries around the world, farming sectors are being rapidly restructured to make way for more agribusiness. With food safety standards playing a critical role in justifying new forms of corporate control, it is high time to reassess what food safety means. At present, it translates into "audit culture", involving a transfer of power from people (consumers, small farmers, local food shops, markets, eateries) to the private sector (Cargill, Nestlé, Unilever, Walmart... the list goes on). It can instead be about local control and more community-based food and farming systems. In fact, it can be much more aggressively and explicitly integrated into people's food sovereignty campaigns and initiatives. In that process, we may want to stop talking about food safety altogether and assert instead our own demands for food quality, or something similarly more holistic.

Food safety, or food quality in broader terms, is a ground on which big corporate agriculture and supermarket cultures cannot outperform small producers and local markets. The challenge is to ensure that the small and the local can remain alive and turn today's heightened concerns for food safety in our favour.

52. Western journalists and academics such as Christian Jacquiau, Marion Nestle, Felicity Lawrence and Michael Pollan have been doing a great job in helping the public to understand how supermarkets and food safety systems really work, and how citizens can retake control of such matters.

53. "Historic breakthrough in Florida's tomato fields", joint press release from Coalition of Immokalee Workers and the Florida Tomato Growers Exchange, 16 November 2010, http://www.ciw-online.org/FTGE_CIW_joint_release.html See also: "The human cost of industrial tomatoes", Grist, 6 March 2009, http://www.grist.org/article/Immokalee-Diary-part-I/

going further

GRAIN, "Food safety: rigging the game", Seedling, July 2008, http://www.grain.org/seedling/?id=555

Christine Ahn and GRAIN, "Food safety on the butcher's block", Foreign Policy In Focus, Washington DC, 18 April 2008, http://www.grain.org/o/?id=83

The SPS-food safety section of the activist website bilaterals.org has a range of highly focused articles tracking how countries use bilateral trade and investment agreements to move food safety standards and policies in favour of their corporations. http://www.bilaterals.org/spip.php?mot185

Sunita Narain, "Control your food. It's your business", Centre for Science and Environment, New Delhi, 1 October 2010, http://www.cseindia.org/content/control-your-food-it-your-business

Susan Freidberg, "Supermarkets and imperial knowledge", Cultural Geographies, 2007, http://www.dartmouth.edu/ffigeog/facstaff/CVs/Freidberg/ImpKnowledge.pdf

Photo: Development Fund Norway

Big Meat is growing in the South

People in the South appear to be eating a lot more meat these days. The UN Food and Agriculture Organization (FAO) says that per capita meat consumption in developing countries doubled between 1980 and 2005, while the consumption of eggs more than tripled. What happened? According to some, the main factor has been rising incomes in Asia. But the bigger factor is on the supply side. Agribusiness corporations, backed by massive subsidies and government support, have ramped up global industrial meat production to formidable levels over recent decades, with devastating consequences for people, animals and the environment. Much of this is now happening in the South, where a rising group of home-grown transnational corporations (TNCs) is joining ranks with the older firms from the North to push Big Meat into every corner of the planet.

What is fuelling the galloping market for meat in the countries of the South? The short answer is an abundance of cheap, factory-farmed meat, behind which stands an abundance of cheap feed. Today's explosion in meat consumption in the South is really just round two of what happened years ago in the North, when companies began setting up factory farms and feedlots to convert mountains of subsidised cereals and oilseeds into animal protein for fast-food kitchens and supermarket aisles. The excess meat, from frozen chicken legs to cow entrails, was – and continues to be – dumped on poorer countries.

Big Meat – a collective name for the large corporations running meat production and trade – gets all kinds of subsidies in the US and Europe. Some argue that the actual price of a pound of hamburger meat in the United States should be around US$30 instead of the US$1–2 it sells for at mass retail centres.[1] If subsidies on feed alone were removed, the operating costs for US meat companies would be about 10% higher, and you would likely start seeing fruit and vegetable stands replacing KFCs and McDonald's in poor neighbourhoods.[2] Meanwhile, the average cow in the European Union gets US$2.50 per day in subsidies, while two-thirds of the people in sub-Saharan Africa live on less than US$2 a day.[3] People in the US and Europe, especially the poor, are pretty much forced to eat cheap meat. And that model is now being pushed the world over.

Cheap feed is the bedrock of the US and European meat industry, and the lobbies of the transnational meat corporations such as Cargill, Tyson and Danish Crown and their allies in food service and retail are bent on making sure that these subsidies will not disappear soon. Of course, new sources of cheap feedstock have been opened up – especially the new expanses of soya production in the Argentine Pampas and the Brazilian Amazon – but this has not altered the dynamics. It has only fuelled the expansion of the meat industry to other parts of the globe.

Soya production has grown tenfold since 1960 (*see* Graph 1). The amount of fertile land devoted to producing this animal feed crop increased by 58% since 1990, most of it in Brazil and Argentina. During the same period, the amount of land available for crops that people can eat directly has been in steady decline.[4] Moreover, soya is just one of the commodities typically turned into animal feed. Cassava, maize and other cereals have also witnessed a tremendous expansion in their production and use as industrial animal feed.

Table 1 shows the growth in the use of commercial feed around the world over the past 20 years. What is striking is the growth in the South. This increase in commercial feed mirrors an increase in industrial meat production. It tells us that factory farming is booming in

1. This is claimed by Moby and Miyun Park in their book Gristle, New York, The New Press, 2009.

2. "Below-cost feed crops: An indirect subsidy for industrial animal factories", IATP, June 2006: http://www.agobservatory.org/library.cfm?refid=88122. KFC stands for Kentucky Fried Chicken.

3. Gumisai Mutume, "Mounting opposition to Northern farm subsidies", Africa Recovery, Vol.17, No. 1, May 2003, http://www.un.org/ecosocdev/geninfo/afrec/vol17no1/171agri4.htm

4. See GRAIN, "Global agribusiness: two decades of plunder", Seedling, July 2010, http://www.grain.org/seedling/?id=693

Table 1: Use of feed concentrate by region, 1980 and 2005 (million tonnes)

	1980	2005
Developed countries	**668.7**	**647.4**
Former centrally planned economies	296.5	171.9
Other developed countries	372.2	475.4
Developing countries	**239.6**	**602.7**
East and South-east Asia	113.7	321.0
China	86.0	241.4
Rest of East and South-east Asia	27.7	79.6
Latin America and the Caribbean	64.3	114.1
Brazil	33.4	54.9
Rest of Latin America and the Caribbean	30.9	59.3
South Asia	20.9	49.7
India	15.5	37.1
Rest of South Asia	5.4	12.6
Near East and North Africa	25.8	70.1
Sub-Saharan Africa	15.0	47.6
WORLD	**908.4**	**1,250.1**

Source: FAO

poorer countries. People around the world are not just eating more meat, they are eating more industrial factory-farmed meat, and the implications of this are huge.

Big Meat, developed by corporations in the North, is now a global phenomenon. And, as we shall see, in its rampage across new frontiers its armies are now often marching with flags of countries from the South. The old North–South lens needs some readjustment.

A new crop of meat giants.

One of the reasons why industrial meat production is booming in the South is that the large meat conglomerates, like corporations in other sectors, have been using the architecture of neoliberal globalisation to shift their operations to poorer countries where they can produce more cheaply. US-based Smithfield, the largest pork producer in the world, has set up farms in Mexico and Eastern Europe. Another giant US meat company, Tyson, began producing poultry in China in the 1990s on a relatively small scale until 2010, when it brought two new poultry farms into production that will produce a total of 150 million birds per year. At around the same time, Tyson established a joint venture in India, bought into cattle feedlot operations in Argentina and took over three major poultry producers in Brazil. Several European poultry companies have also outsourced their operations to Brazil. The French company Doux, which led the transformation of the French poultry industry into a heavily industrialised export producer, began shifting its operations to Brazil in 1998 through the acquisition of a Brazilian poultry company – with generous incentives from the Brazilian government. By 2002, Doux, the world's fifth largest poultry company, was producing half of its total output in Brazil.[5] Japanese meat companies, for their part, have been actively relocating much of their production to China, while Danish pork producers have been relocating production to eastern Europe.

But it's not just a story of big companies from the North. Increasingly, the fresh capital being put on the table to build factory farms and feedlots, produce and transport the feed and set up the meat-packing plants is flowing from and through companies from the South. As the United Nations Conference on Trade and Development (UNCTAD) points out, 40% of all global cross-border investment in agricultural production in 2008 was South–South.[6] In the process, a number of meat companies based in the South have grown into full-fledged transnationals, with their own aggressive overseas expansion strategies.

Graph 2 gives the global ranking of the top meat companies, and shows how transnational corporations from the South have joined the big boys' meat club. But a graph cannot convey the speed at which they are buying each other up, nor the complexity of their relations.

Engines of expansion.

A company needs capital to grow. And, as of late, the global finance industry, which sits on most of the world's money, has been eager to funnel its investment into meat production in the South. Since the financial crisis of 2008, private investors, from hedge funds to pension funds, have developed a big appetite for equity stakes in meat and dairy companies in the South, and even for direct investment in farms. For example, Goldman Sachs and Deutsche Bank have invested hundreds of millions of dollars buying into China's top pork producers over the past few years, as the market is in full growth. Barclays Bank is among several institutional investors that have acquired major stakes in Zambeef, Zambia's largest agribusiness company. Further north, Citadel Capital, an Egyptian private equity fund buying up land for food production across Africa, has taken over a domestic farm of 11,000 cows (*see* Box 1).

But there is also a great deal of government manoeuvring to boost the bank accounts of meat companies in the South. Some governments, most notably Brazil's, are determined to develop their own multinational meat giants that can take on the TNCs from the North in supplying international markets and fast-food chains. Brazil's National Economic and Social Development Bank (BNDES) has dished out US$4.4 billion in financing to the four biggest Brazilian meat companies since 2008.[7] The bank now owns 20% of JBS and 14% of Marfrig, the country's two largest meat multinationals.

Other governments are more motivated by long-term food security issues. The governments of Libya and South Korea, for instance, are working with national companies to acquire farmland overseas to produce food for export back home or to the international market. When it comes to meat, this means both promoting offshore crop production to grow feed for domestic livestock and investing in livestock production over-

5. Tristan Coloma, "Quand les volailles donnent la chair de poule", Le Monde Diplomatique, July 2008, http://www.monde-diplomatique.fr/2008/07/COLOMA/16084

6. UNCTAD, World Investment Report 2009, Geneva, September 2009.

7. Stuart Grudgings, "Cattle a tough target in Amazon protection fight", Reuters, 1 June 2009.

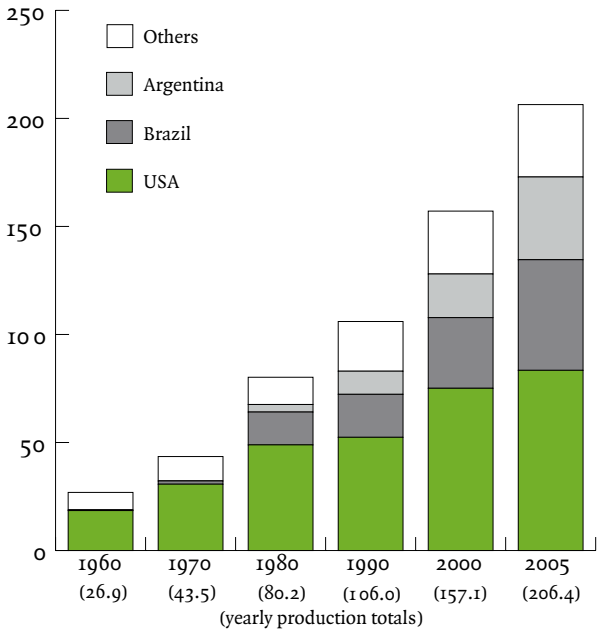
1 Foreign investors take over Uruguayan farms

Uruguay's beef and dairy sectors, prized for their export potential, have become hot destinations for foreign investors. Exports of beef from Uruguay have more than quadrupled since 1995. But in the same period, the industry has been taken over by foreign meat packers, and even the country's cattle ranches are being bought up by foreign investors. Around 60% of Uruguay's beef exports are controlled by foreign companies, with Brazil's Marfrig alone controlling nearly 30%.

When it comes to dairy, Uruguay is the world's fastest-growing producer and the fifth-largest exporter. Here, too, a similar surge of foreign investment has occurred. One company buying into Uruguayan dairy operations is New Zealand Farming Systems Uruguay. It was set up by Kiwi investors, but is now the subject of a hostile takeover bid from one of the world's largest commodity traders, Olam, of Singapore, which already owns around 14% of the company's shares. In August 2010 there was a rival bid for the company from a Uruguayan firm. But appearances deceive. The firm in question, Union Agriculture Group, is hardly Uruguayan at all. Its two founders from Montevideo control just 14% of the shares. The rest is owned by BlackRock, Deutsche Bank and other foreign financial investors who have poured money into UAG as a way to boost their portfolios.[1]

1. Marta Steeman, "Competing offer drives up shares", Business Day, 17 August 2010.

Graph 1: Global soya production, 1960–1985
(million tonnes)



seas. China, for example, is securing land for the production of feed crops in Brazil and Argentina while negotiating livestock projects in the Bahamas and Tanzania. And its state-owned commodity trading giant COFCO is rapidly becoming one of the largest meat and dairy producers within China, while also getting a foot in the door overseas by taking a 5% stake in the US pork producer Smithfield in 2007. Paradoxically, Singapore is looking to China for its future pork supplies. In 2010, a subsidiary of Temasek, Singapore's sovereign wealth fund, announced a massive investment in a joint venture project with China's largest pork producer that will eventually churn out one million pigs per year at farms in Jilin province, mainly for export to Singapore.

Many countries in the Middle East, with their populations booming and having limited access to arable land and water, are extra nervous about the vulnerability of their meat supplies. Meat imports have skyrocketed, as have imports of feed. Diplomatic assurances of future supplies from Brazil, New Zealand, the US and other major meat and feed exporters do not seem to be having the desired effect, since several governments in the region are continuing to support, if not actively promote, their private companies' efforts to invest in meat and feed production overseas. Saudi Arabia's fourth-largest poultry company, HADCO, which is owned by the Kingdom's largest dairy company, Almarai, has started producing cereals and fodder on 10,000 hectares of land in Sudan, and says it will eventually raise production to 100,000 ha. State-owned Hassad Food is building new livestock farms in its home market of Qatar, while it acquires overseas lands for feed production and livestock projects in Australia, Brazil, Turkey and Uruguay. Iran, too, has joined the rush. In November 2009, the Brazilian government rejected a formal request from Iran to purchase farmland in the country. A few months later, it was reported that Iranian investors were launching a US$40-million cattle and feed mill operation in southern Russia, and contemplating the construction of a 1.2-million-bird poultry facility there.[8]

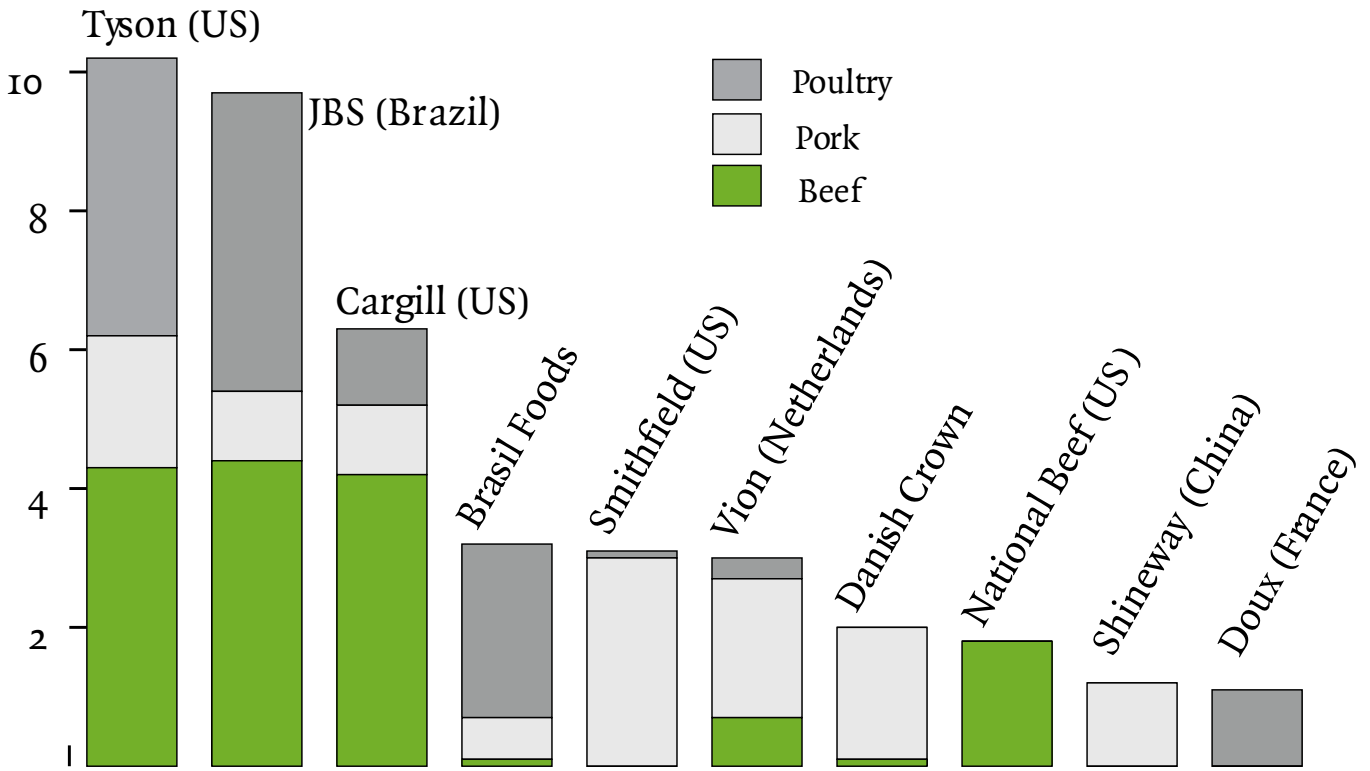
But these various governmental initiatives are just creating space for the big guys to move in. The global food system is run and managed by corporations, and corporate strategies define the investment flows. As Kentucky Fried Chicken expands in China, so does DaChan, one of Asia's largest poultry companies and a KFC supplier. As African supermarket leader Shoprite sets up shops in Nigeria, Zambeef, its main supplier for southern Africa, constructs meat-packing plants nearby. As Wal-Mart expands into Mexico, so does Pilgrim's Pride, the largest US poultry company, now owned by Brazil's JBS. Likewise, when JBS buys feedlots and builds packaging plants in Uruguay, the US or Australia, it does so to be better able to supply beef to its global clients like McDonald's and Carrefour in markets that are closed to Brazilian exports because of restrictions on foot-and-mouth disease (*see* Box: McMarfrig, p. 8).

Flags of convenience.

The role of governments in this game is mainly to help their companies and elites to navigate these markets, whether by signing bilateral trade and investment agreements or launching diplomatic missions to overturn import restrictions. The Thailand–Australia Free Trade Agreement, for instance, was

8. See http://farmlandgrab.org/cat/iran.

Graph 2: The top ten global meat corporations' production, 2009
(million tonnes)



Source: Gira, Rabobank, GRAIN

mainly a horse trade (so to speak): Australian dairy companies took over the Thai dairy market, and Charoen Pokphand (CP), the Thai agribusiness giant, got the Australian poultry market.[9] Or consider the recent trade negotiations between Brazil and China on poultry. In May 2009, when Brazil's President Lula was in Beijing, he succeeded in getting the Chinese government to lift the trade sanctions it had imposed on Brazilian poultry imports because of outbreaks of Newcastle disease. This does not mean that "Brazil" is now free to export poultry to China, but that the five meat plants in Brazil authorised to export to China can resume exports. The first shipment to arrive in China after the embargo was lifted consisted of 300 tonnes of chicken sent by the French company Doux from its Brazilian subsidiary Frangosul.

Similarly, in 2008, the EU lifted a six-year import ban on Chinese chicken by allowing in exports from Shandong province. An official with Shandong's provincial department of foreign trade remarked, "It is good news for Chinese producers and especially farmers." But this was hardly a victory for Chinese farmers. The European decision came just two weeks after Tyson took over one of Shandong's largest poultry exporters – one of six companies that the European Commission has authorised for exports of chicken meat from China.[10]

If corporate chickens have identity issues, so do cattle. Ever since mad cow disease was confirmed in US herds in 2003, many countries closed their borders to US beef. Both Washington and the American meat industry lobby made enormous efforts in the years since to sweet-talk, if not arm-twist, foreign governments to open their borders again.[11] They even rewrote the rules at the World Organisation for Animal Health (OIE), the global standard-setting body, to declare US beef safe.[12] Nevertheless, citizen concern about not only the health implications but also the socio-economic and political impacts of US beef imports – primarily local farmers being pushed out of business – has had many campaigns going in Korea, Australia and Taiwan. So strong have these social movements been that "US beef" is commonly called "mad cow beef". The terms, at least in Asia–Pacific, are interchangeable. However, what people often do not realise is that Brazil's JBS has progressively bought up the largest position in the US beef-packing industry. Cattle may come from independent US farms, but the feedlots, abattoirs and processing plants are mostly run and controlled by Brazilian executives.

Counting the costs.

What all these investment flows amount to is more industrial meat: more factory farms, faster assembly lines and more fast food. The cost to people and the planet is devastating.

9. "Behind every FTA lie the TNCs: examples from Thailand", interview with Witoon Lianchamroon of BIOTHAI, conducted by Aziz Choudry of bilaterals.org, for Fighting FTAs, November 2007: http://www.bilaterals.org/

10. The three companies are Shandong Zhucheng Foreign Trade, Qingdao Nine-Alliance and Anqiu Foreign Trade.

11. Arm-twisting is when the US government tells Taiwan or Korea that unless they open their markets to US beef the US will not give them a free trade agreement.

12. See GRAIN, "Food safety, rigging the game", Seedling, July 2008, http://www.grain.org/seedling/?id=555

2 McMarfrig

McDonald's was an early mover in setting up meat supplies from Brazil. Back in 1982 it sent its main US beef supplier, OSI Group, to open an operation in Brazil to produce for its restaurants in the Middle East. This company, Braslo Produtos de Carnes Ltda, became the exclusive supplier of beef and chicken products to McDonald's restaurants in Saudi Arabia, the United Arab Emirates, Oman, Bahrain, Lebanon and Pakistan. In 2008, Braslo was acquired from OSI by Marfrig, one of Brazil's largest meat companies, along with OSI's European poultry operations. The European buyout included the massive Moy Park operation in northern Ireland, which sells about 200 million chickens per year. Marfrig thus became the largest global meat supplier to McDonald's outside the US, while OSI acquired a seat on Marfrig's board of directors and around 10% of the company's shares.

Shortly after, Marfrig moved even deeper into McDonald's orbit by taking over Cargill's Brazilian poultry company, Seara, in 2009 and Keystone Foods in the US in 2010. Keystone is one of the main suppliers of meat to McDonald's US and global restaurants. It has 54 meat plants in the US, New Zealand, Australia, EU, Asia and the Middle East. Its Malaysian subsidiary, MacFood, ships seven million pounds of halal meat to the Middle East every year. Keystone says that it supplies more than 28,000 fast-food restaurants around the world, bringing in net sales of US$6.4 billion in 2009.

With these acquisitions, plus the 35 previous acquisitions it made between 2006 and 2008, Marfrig has become Brazil's second-largest meat company and the world's largest supplier of meat to McDonald's, which claims to serve 1.6 billion people a day. All of this has, of course, only happened with the blessing of McDonald's. In fact, Marfrig's expansion strategy is primarily based on satisfying the needs of McDonald's and other major global clients, who want to source meat as cheaply as possible from a few suppliers. To this end, Marfrig has to be able to produce meat outside Brazil. For beef, for example, 61% of the global market is closed to Brazilian exports, because of restrictions against foot-and-mouth disease. Now, thanks to its recent acquisitions, Marfrig can turn to its operations in Australia, Uruguay or the US to send beef to the restaurants that its fast-food clients operate in the markets that are closed to Brazilian beef. The company can also use its global spread to put pressure on workers. Workers at a Marfrig meat plant in Argentina, for instance, are locked in a labour dispute over what they feel are "inhuman" working conditions at the plant.[1]

To go global, Marfrig also had to globalise its ownership. The company sold off shares and offered ownership as a way to fund its expansion. It also borrowed heavily from foreign banks. From a private, family -owned company in 2006, Marfrig has become a publicly traded corporation with only 43% of the firm still in the hands of its Brazilian founders, 13% owned by BNDES and the rest held by OSI and other foreign investors.

1. "Pré-conflito em um frigorífico da Marfrig", REL–UITA, 19 May 2010: http://www.rel-uita.org/sectores/frigorificos/preconflicto_en_un_frigorifico_de_marfrig-por.htm

Farmers are the first casualties. In the countries importing cheap meat, local farmers lose markets. In the countries where these companies set up operations, local farmers lose their livelihoods and simply get wiped out. The rise of China's industrial poultry companies since the mid-1990s has forced 70 million small farmers to abandon poultry production.[13] In a country like Romania, the opening of its markets to imports and the entry of corporations into pork production, by both foreign and domestic firms, has resulted in the dramatic loss of 90% of its pig farmers between 2003 and 2007 – 480,000 farmers dwindled to 50,000 in just four years.[14]

Those farmers who remain in business have to accept the dictates of contract production arrangements or a precarious existence at the margins, where corporate concentration and private standards make it increasingly difficult for them to access markets and continue their traditional farming practic-

13. FAO, "The state of food and agriculture, 2009", http://www.fao.org/publications/sofa/en/

14. Doreen Carvajal and Stephen Castle, "A US hog giant transforms Eastern Europe", New York Times, 5 May 2009.

es.[15] Measures to combat bird flu in Vietnam, for instance, exclude small-scale poultry producers from major urban markets and prohibit backyard poultry, placing the livelihoods of millions of Vietnamese peasants in jeopardy. The measures are all the more ridiculous given that a CP farm is known to have been the source of an outbreak that led to the spread of the disease in northern Vietnam.[16]

Workers also suffer badly. In the US, workers in the meat-packing industry were able to organise unions and force the companies to provide decent wages and working conditions in the 1980s. But the meat packers fought back, using heavy union-busting tactics and hiring migrant workers whose precarious legal status made union organising more difficult. The companies were able to push down wages to half of what they were in the 1980s while vastly speeding up production. Today, the average worker in a US poultry plant repeats the same movements from 10–30,000 times per shift, and the meat industry has become the most dangerous place to work in America.[17]

The US model is now being globalised. Meat workers' unions in Europe are fighting similar battles against outsourcing, the hiring of migrant workers and the relocation of operations to countries with poorer wages and working conditions.[18] In Brazil, where unions in the meat industry are strong, negotiations with the country's meat companies are becoming more difficult as these firms go global. The last decade of export-oriented growth has been particularly nasty for workers in the poultry sector, most of whom are women.[19] Sérgio Irineu Bolzan, a worker at a Cargill poultry plant in the state of Mato Grosso do Sul, says that the pace of work has doubled since he began working at the plant in 1997. He says that, as a result, repetitive strain injury among workers has risen exponentially, particularly among women, because they tend to occupy positions that demand high motor skills. A recent national study in Brazil found that a quarter of women working in Brazil's poultry plants had serious repetitive strain injury, and that this was directly related to depression. Nearly 40% of women in Brazil's poultry industry suffer from depression.[20] Workers say that the companies have created "epidemics" of severe health problems for them.[21]

Indeed, from a public health standpoint, industrial meat is a disaster. The crowding of large numbers of animals in factory farms, an obscene treatment of animals in its own right, causes the overuse of antibiotics and facilitates the emergence and spread of dangerous pathogens. It makes food that is toxic for people, and its scale means that when something goes wrong huge numbers of people are affected, as the recent *salmonella* outbreak in the US egg supply shows (*see* "A high-risk food system", in Seeds, p. 26). Factory farms also make life miserable for local communities, releasing odours and hazardous gases that cause respiratory problems and pollute local water supplies. In China, where factory farms are expanding faster than anywhere else, the country's first national pollution census, released in 2010, shocked many people when it reported that agriculture was a bigger source of water pollution than industry, with the authors putting the blame squarely on factory farms.[22] It is for these reasons that companies generally locate their barns in poor communities with little political power.[23]

Big Meat, developed by corporations in the North, is now a global phenomenon. And, as we shall see, in its rampage across new frontiers its armies are now often marching with flags of countries from the South. The old North–South lens needs some readjustment.

15. GRAIN, "Contract farming in the world's poultry industry", Seedling, January 2008; Isabelle Delforge, "Contract farming in Thailand: A view from the farm", a report for Focus on the Global South, 2008; "Thailand Livestock Report", Italia Trade Commission, 2008: http://www.ice.gov.it/paesi/asia/thailandia/upload/177/Thailand%20Livestock%20Report.pdf

16. GRAIN, "Bird flu: a bonanza for 'Big Chicken'", Against the grain, March 2007.

17. Ana Grabowski of the UFCW, speaking in Brazil, 1 July 2008: http://www.rel-uita.org/; Tom Philpott, "How the meat industry thrives, even as costs rise", Grist, 13 September 2007: http://www.grist.org/article/hog-futures/

18. See, for example, the Italian union CGIL FLAI Modena: http://www.nuovocaporalato.it/

19. Work in Brazil's beef sector is not necessarily better. In 2007, 60% of the allegations of slave labour or degrading treatment received by the Pastoral Land Commission occurred in the cattle industry. See REL–UITA: http://www.rel-uita.org/sociedad/hambre/hombres_esclavizados_ganado_subsidiado-por.htm

20. See REL–UITA: http://www.rel-uita.org/agenda/encontro_setor_avicola-2008/con_sergio_bolsan.htm

21. Carta de Atibaia, "Declaración Final del Encuentro Internacional de los Trabajadores en la Industria Avícola", 18 June 2008: http://www.rel-uita.org/agenda/encontro_setor_avicola-2008/carta_de_atibaiahtm

22. Jin Zhu, "Animal waste a threat to clean water supply", China Daily, 15 July 2010; Mindi Schneider, "China: agriculture a bigger polluter than industry", Pig Penning, 20 July 2010: http://pigpenning.wordpress.com/

23. For more information, see the excellent interview with David Kirby on Democracy Now!, "The looming threat of industrial pig, dairy and poultry farms on humans and the environment", 24 August 2010: http://www.democracynow.org/2010/8/24/david_kirby_on_the_looming_threat or Fabrice Nicolino, Bidoche : L'industrie de la viande menace le monde, Editions LLL, September 2009. For an important documentary on the community of La Gloria, Mexico, and its experiences with nearby hog farms, see Télévision Suisse Romande, "H1N1: Why did it strike the Mexicans first?", September 2009: http://www.grain.org/articles/?id=58

One of Brazil's new feedlots

The scale of the environmental devastation is huge. Factory farming is driving the loss of animal biodiversity (industrial pig production, for instance, relies on only five breeds),[24] spewing out greenhouse gases (the meat industry is responsible for 18% of total greenhouse gas emissions)[25] and mowing down forests (both directly, by clearing forest for cattle, and indirectly, through the clearing of forest for the production of crops for animal feeds).[26] Overall, the global boom in industrial meat is responsible for a massive expansion of industrial production of commodity crops such as soya, which push local communities off their lands and convert small-scale sustainable farms into corporate plantations, transforming and destroying rural landscapes in the process.

Upsetting the meat cart.

Fortunately, struggles that challenge the expansion of industrial meat production in and from the South are underway. Groups in Thailand have joined together to take on CP and have started reaching out to groups in other countries where CP has operations, just as groups in Brazil that monitor and challenge the investments by the BNDES in Brazilian multinationals are starting to make connections with people in African countries where the companies are active. At the local level, communities in Mexico affected by factory pig farms are linking their struggles to national networks for social and environmental justice. And, from within the leading Southern meat

What all these investment flows amount to is more industrial meat: more factory farms, faster assembly lines and more fast food. The cost to people and the planet is devastating.

24. For a larger analysis of the issue, see Susanne Gura, "Livestock breeding in the hands of corporations", Seedling, January 2008, http://www.grain.org/seedling/?id=528

25. GRAIN, "The international food system and the climate crisis", Seedling, October 2009, http://www.grain.org/seedling/?id=642

26. During Brazil's beef export boom, 1990–2002, the total cattle herd grew from 26 million to 57 million, and 80% of this growth was in the Amazon. See Sven Wunder, Benoit Mertens, Pablo Pacheco and David Kaimowitz, "Hamburger connection fuels Amazon destruction", CIFOR, 2004, http://www.cifor.cgiar.org/publications/pdf_files/media/Amazon.pdf

3 New kids on the block: emerging meat TNCs

Brasil Foods (Brazil)

Brasil Foods was formed in 2009 through the merger of Brazil's two largest poultry companies, Perdigao and Sadia. The merger was viewed as a desperate attempt to rescue Sadia from the huge losses it suffered when the financial crisis spoiled its US$1.3 billion-worth of bets on currency derivatives. With the merger, Brasil Foods surpassed Tyson Foods to become the world's largest poultry producer. It operates 42 plants in five countries and has sales offices in 17 countries across Europe, South America, the Middle East and Asia. Exports account for 42% of total sales. BNDES, which provided the financial backing to facilitate the merger, now owns 2.6% of the company.

Charoen Pokphand (Thailand)

Charoen Pokphand (CP) is a Thai conglomerate founded and still tightly controlled by business tycoon Danin Chearavanont, Thailand's richest individual. CP began as a small vegetable seed company and has grown into one of south-east Asia's largest corporations, with involvement in agribusiness, retail, real estate, finance, industry and telecommunications. UNCTAD ranks it as the fifth-largest agriculture-based TNC in the world. Its overseas operations account for a quarter of the revenues for its agribusiness and food sector, and CP says that it plans on increasing this to 40% within the next five years through a US$1-billion expansion strategy.

CP's core business is meat. It is the world's largest producer of animal feed and one of the world's largest poultry exporters. It controls nearly one third of the Thai commercial poultry market, three quarters of the chicken processed in Indonesia and four-fifths of the industrial poultry farmed in Vietnam. It also has significant poultry operations in Bangladesh, Burma, Cambodia, India, Laos and Turkey. In recent years, CP has been expanding aggressively in pork production, with large-scale pig farms soon to come into operation in China, Russia, the Philippines, Laos and Vietnam.

In China, CP is pursuing a project with the Chinese government and China's Development Bank to develop "model farms" in Jilin province that will eventually produce an annual total of five million birds and one million pigs. In Russia, it signed an agreement with the Governor of Moscow to build and operate a large US$200-million pig farm outside the capital. CP says that by the end of 2013 it will have up to one million pigs on its farms in Russia. Other livestock projects are in the works in Pakistan, where it has acquired land in Sindh, and in Kenya and Tanzania, where CP has set up subsidiaries each with an initial capital of US$5 million.

Over the past two years, CP has met regularly with government officials and business representatives from Bahrain to discuss the country's strategies for securing long-term food supplies. In 2009, CP signed a memorandum of understanding with Bahrain's Al Salam Bank to form a strategic alliance for agro-industrial investments.

DaChan Great Wall (Taiwan)

Great Wall Enterprise is a Taiwanese conglomerate involved in grain and oilseeds trade and processing, shrimp farming, poultry and fast-food chains throughout Asia. In 1990, it established DaChan Food to develop its poultry and animal feed business in China. By 2005, DaChan was the largest chicken producer and one of the top ten animal-feed producers in China. It was also the second-largest supplier of animal feed in Malaysia and the third-largest in Vietnam. DaChan is registered in the Cayman Islands and listed on the Hong Kong Stock Exchange. Great Wall owns around 53% of its shares, and other major investors include the US agribusiness corporation ContiGroup, which owns 6% of the company, and the Singapore government's investment arm, GIC, which also owns 6%. All three are considered founding members of the DaChan Group.

DaChan operates ten poultry farms in China, each with an average annual capacity of 20 million birds, and the company plans to build another 50 farms of similar size. For now, more than 80% of its poultry production in China is still outsourced to around 4,000 contract farmers.

DaChan has grown by hitching on to the expansion of foreign fast-food companies in China, where it is the main poultry-meat supplier to McDonald's and responsible for one-third of the chicken-meat supply for KFC. In June 2009, US-based Yum! Co. signed a three-year US$250-million purchasing agreement with DaChan. DaChan is also a major supplier of processed poultry meat to Japanese companies, mainly through its Chinese joint venture, Dalian Investment, with Japanese trading house and agribusiness giant Marubeni. DaChan is the largest processed-food exporter from China for Ito-Yokado and 7-Eleven in Japan.

In May 2010, DaChan entered into a joint venture with companies owned by the governments of Singapore and China to establish a fully integrated pork operation in Jilin province, China. The farms are expected to produce one million pigs per year. The joint venture is part of a US$1.5-billion project that the Singapore government is pursuing in Jilin to secure its own food supplies and to develop export markets in Japan and Korea.

International Foodstuffs Company (UAE)

The International Foodstuffs Company (IFFCo) is a private company run by Emirates businessman Iqbal Othman estab-

lished in the UAE in 1975 by its holding company, the Allana Group. The Allana group, owner of Allanasons, is one of India's largest exporters of agricultural products and the world's largest producer of halal buffalo meat. Two members of the wealthy Allana family sit on the IFFCo board. IFFCo's poultry farms in the UAE produce around 2.5 million birds per year.

In 2009, the company began to step up its international meat operations. It launched a 50:50 joint venture with Oman Flour Mills to build one of the largest poultry farms in the Gulf, with a capacity of 15,000 tonnes of chicken and two million hatching eggs per year. The farm is to be set up on 6,000 ha of land in Oman, along the border with the UAE. Also in 2009, IFFCo purchased a 20% stake in the Australian Agricultural Company (AACo), making it the main shareholder of the largest cattle breeding company in Australia, with approximately 610,000 cattle and ownership of over seven million ha of land. IFFCo has since transferred its shares in AACo to a 50:50 Malaysian joint venture with the world's largest oil palm plantation company, the Federal Land Development Authority (Felda) of Malaysia. A year later, Felda and IFFCo announced the creation of another 50:50 joint venture, Felda Global Ventures Livestock Sdn Bhd, which will rear livestock on 850,000 ha of Felda palm oil estates in Malaysia.

JBS (Brazil)

The origins of JBS date back to the early 1950s when José Batista started buying cattle in central Brazil and selling them to meat packers. He established a small slaughterhouse in 1957, gradually expanding over the next four decades into one of Brazil's largest beef companies, with a kill capacity of 5,000 cattle per day by 2000. It was at that point that JBS embarked on a massive expansion strategy. Over the next five years, it brought several Brazilian meat plants into its fold and picked up five plants in Argentina that were struggling in the country's economic crisis. By 2006, it had boosted its daily slaughter capacity to 22,600 cattle, making it the largest beef processing company in South America.

But things were just getting going for JBS. In March 2007, after changing its name from Friboi to JBS, the company went public on the São Paulo Stock Exchange, raising US$800 million for its expansion plans. Soon after, it began a multi-billion-dollar spending spree that would see it take over some of the largest beef companies in the US, Europe, and Australia, as well as one of its main Brazilian competitors, Bertin. It also picked up a major lamb company in Australia and Pilgrim's Pride of the US (which, until recently, was that country's largest poultry company and a major producer in Mexico).

JBS is now the largest meat company in the world, with annual revenues of around US$29 billion (ten times its 2006 revenues) and a slaughter capacity of 47,000 cattle per day. It is the largest beef company in Brazil, the largest beef packer in Australia (21% market share), the largest beef packer in the US (32% market share), the largest lamb processor in Australia, one of the largest poultry companies in the US and Mexico, and the third-largest pork producer in the US. Its acquisition of the Italian meat packer Inlaca in 2007 increased its presence in the growing markets of Russia, Eastern Europe and North Africa, while its Australian acquisitions gave it greater access to the Middle East, Europe, Japan and other Asian markets. In 2009, JBS announced that it would be opening its first Russian operation – a US$119-million hamburger plant that will supply McDonald's Russian restaurants.

JBS's most recent acquisition was in July 2010, when it acquired a feed mill and feedlot operation in the US with the capacity to confine more than 130,000 head of cattle at any one time. All told, JBS now controls more than 10% of the world's meat processing capacity.[1]

"We have already passed Tyson and we're just starting", says JBS CEO Joesley Batista, the 37-year-old son of the founder, who is now in charge of one out of ten of the world's industrial beef cattle.

JBS is now pushing to develop more US-style feedlots in Brazil. In July 2008, the company opened JBS Bank, which will offer US$4 billion in loans to finance the construction of feedlots by 4,000 farmers who are main suppliers to JBS. JBS plans to extend its banking operations to Europe and Australia, and expects about 60% of its cattle suppliers to be using feedlots in two years, up from about 40% today.

JBS is controlled by the Mendonça Batista family through its holding companies, J&F Participações and the ZMF Fund. But BNDES, which has bankrolled much of JBS' acquisitions over the years, now holds around 20% of the company.

New Hope Group (China)

New Hope is a Chinese conglomerate based in Sichuan province. It has over 60,000 employees and close to 400 subsidiaries involved in everything from agribusiness and chemicals to real estate. The company was founded in 1982 as a poultry breeding enterprise by Liu Yonghao and his three brothers, one of the first private companies allowed to operate under new rules adopted by the communist government. The company grew rapidly, and by 2009 Liu Yonghao was China's 17th-

1. Lucia Kassai, "Pilgrim's may absorb JBS's US unit in reverse merger, CEO Batista says", Bloomberg, 17 August 2010, http://www.bloomberg.com/news/2010-08-16/jbs-says-reverse-merger-of-jbs-usa-pilgrim-s-pride-units-is-possible.html

richest individual. He also climbed the political ladder, taking on key positions within some of China's most influential national committees and associations.

New Hope is China's largest producer of animal feed and one of the country's top producers of poultry and pork. In 2002, it entered into the dairy industry and today has a herd of at least 100,000 dairy cows. It began expanding overseas in 1996 and now has operations in Vietnam, Bangladesh, the Philippines, Indonesia and Cambodia, where it has a joint-venture feed operation with Japan's Sojitz. The World Bank's International Finance Corporation invested US$45 million in New Hope in 2005.

In May 2010, the New Hope Group bought 115,000 tonnes of genetically modified maize from the US for its feed mills – the largest purchase of GM maize to enter China in over a decade.[2]

Zambeef (Zambia)

The Zambeef Products PLC Group is the largest agribusiness corporation in Zambia, controlling 65% of the market for beef, 25% for poultry, 15% for eggs and 20% for dairy. It also grows crops on 6,500 ha of land it owns in Zambia, and is developing a palm oil plantation on another 20,000 ha. Zambeef's growth has occurred largely through an exclusive supply agreement it has with Shoprite, one of the largest retail chains in Africa. It is in the process of building a US$5-million beef abattoir and poultry operation on 200 ha of land it has acquired outside Lagos, Nigeria, which will supply Shoprite stores in West Africa.

Zambeef trades on the Zambian Stock Exchange. One of its largest institutional investors is Barclays Bank. In April 2010, it was reported that the World Bank's IFC would be providing US$7 million in debt equity to Zambeef and would be purchasing another US$3 million in equity, making IFC one of Zambeef's major shareholders. The IFC investments will be used to fund Zambeef's expansion programmes in Zambia and Nigeria.

2. Mindi Schneider is compiling profiles of New Hope and other Chinese meat companies on her website Pig Penning: http://pigpenning.wordpress.com/

multinationals, workers are building bridges across borders through their unions, as the Marfrig and JBS workers in Brazil are doing with their counterparts in Uruguay, Argentina and Europe.

It is crucial to support, learn from and build upon this alliance-building. Greater attention also needs to be paid to the flurry of deal-making going on between governments of the South. And more needs to be done to forge connections and cooperation between groups standing up to meat multinationals from the South and people affected by their overseas expansion strategies. The stakes are high. Big Meat is too much of a big disaster to let its growth in the South go unchecked.

Unravelling the “miracle” of Malawi’s green revolution

Malawi’s green revolution success story has been lauded around the world. While it is good to see a government investing in local food production, it is doubtful whether the achievements will be sustainable unless radical changes are implemented. Above all, land needs to be redistributed so that farmers have holdings that are big enough to produce surpluses, and the government needs to move away from its narrow focus on chemical fertlisers and hybrid maize seeds.

ENOUGH IS ENOUGH. I AM NOT GOING TO GO ON MY KNEES TO BEG FOR FOOD. LET US GROW THE FOOD OURSELVES.

Bingu wa Mutharika, President of Malawi, 4 June 2008[1]

1. M. Nyekanyeka and A. Daudi, Malawi: Renewed Maize Surplus, Government of Malawi report, October 2008.

Malawi has recently been hailed as the "miracle" of Africa and a role model for other countries. After four years of chronic food shortages, Malawi turned itself around and started producing enough maize to fulfil its national requirements in 2006 and even to export maize in 2007. The reason for the turnaround? According to the Alliance for a Green Revolution in Africa (AGRA), the biotech corporate giant Monsanto, and US economist Jeffrey Sachs, the Malawi miracle came about because the government followed the green revolution model, subsidising the distribution of chemical fertilisers and hybrid maize seeds. The Malawi story has become a very powerful marketing tool for their promotion of a new green revolution in Africa.

Others praise the government for defying its foreign donors, and giving direct support to small farmers. The government pumped millions of dollars into its programme to provide farmers with vouchers for subsidised maize seeds and fertilisers, and farmers responded by increasing production significantly. No one can dispute the dramatic impact the programme has had on boosting domestic food production. It is a testament to what can be achieved when a government invests in its farmers.

But Malawi's success story does not go much further than that, and it is also important to keep in mind that the increase in maize production is dramatic compared with the 2002–4 crisis, but not so dramatic when compared with averages over decades. It is not a new model, neither is it a model for resolving the country's or the continent's complex problems of hunger and poverty, as some would have us believe. Rather, the government's programme has benefited from a few exceptionally good years of weather, but it is beset in the long term by limitations that, if not addressed, will doom any good intentions to failure. The three most important limitations are: the pressing issue of access to land, the reliance on costly imported inputs, and their impact on the soil.

Malawi's 30-year green revolution, and counting.

When Malawi gained independence in the mid-1960s, the government of President Hastings Kamuzu Banda inherited an agriculture structure split between commercial estates, which dominated the production of tobacco, tea, sugar and other cash crops, and smallholder farms producing mainly for subsistence. The government did little to alter the colonial patterns of power. Its policies continued to favour exporters and its land reforms only furthered the expansion of estates on to communal land, turning the rightful occupants into tenants and generating a new class of landless people. Peasants were also pushed off their land by the state to make way for wildlife parks and other "protected areas", which have mainly served to support tourism. Between 1967 and 1994 more than one million hectares of customary lands held by local communities were transferred to the state and to commercial estate owners.

Even though Malawi's economy grew during the 30 years of Banda's regime, and the country was mostly self-sufficient in maize, these macro-economic figures mask the self-enrichment of the political elite and the escalating poverty of Malawi's rural population.[2] Dur-

2. More than 60% of Malawi's people are classified as chronically poor; life expectancy has been falling from 48 years in 1990 to below 40, because of the HIV/Aids pandemic and increasing levels of poverty

Table 1: Malawi's rollercoaster Green Revolution interventions since the early 1970s

Date	Programme	Number of affected and number of beneficiaries	Disasters and cost
1970–1980s	State control over agricultural inputs, subsidised 20–60% of cost	Benefit better off farmers, marginalise poor	Up to 3% of national budget
1981–90	Structural adjustment (SAP), subsidies reduced.		
1987–90	SubsidiesFood Aid	1.4–2.8 million people affected	Drought
1990–91	Shift to smallholder tobacco production – USAID funds transition from maize to tobacco		Economic stratification accelerates, maize production down.
1992–93	Food Aid to millionsDrought Recovery Inputs Project (DRIP)	5–7 million people affected1.3 million given seeds and fertilisers	Southern African drought + 1 million refugees from Mozambique
1994	Subsidies discontinued	3 million people affected and receive food aid	Drought
1994–96	Supplementary Inputs Project	Up to 800,000 per year receive subsidies	
1996–97		400,000 affected	Floods
1998–2000	Starter Pack – all smallholders receive seed and fertiliser for 0.1 ha	2.8 million receive subsidies per season	US$20–25 millionSurplus production, 2.5 MT maize per season
2000–2002	Donor pressure – scale down to Targeted Input Programme that targets specific farmers (10–20% of fertiliser subsidised).	1–2 million receive subsidies per year2002: thousands die of hunger	US$7.5–13 millionGood production in 2000–2001, but erratic rain and floods in 2002
2003–5	Extended Targeted Input Programme	1.7–2 million receive subsidies5 million people hungry	US$12 million
2005–6	Agriculture Input Subsidy Programme (75% subsidy of fertilisers and maize seed)	1.3 million receive vouchers	MK5.6 billionNo donor support
2006–7	Agriculture Input Subsidy Programme	1.7 million receive vouchers	MK7.5 billionUS$91 million
2007–8	Agriculture Input Subsidy Programme	2.2 million receive vouchers1.5 million food insecure because of high prices	MK12 billionUS$200 millionSurplus production
2008–9	Agriculture Input Subsidy Programme	1.7 million receive vouchers1.5 million classified as vulnerable	MK17.8 billion
2009–10	Agriculture Input Subsidy Programme	140,000 receive food aid	39% reduced budget for AISP

Source: Jane Harrigan, "Food insecurity, poverty and the Malawian Starter Pack: Fresh start or false start?", in Food Policy, Vol. 33, No. 3, June 2008, 237–49. Abstract available at http://tinyurl.com/yaemcmg; supplemented with data from Malawi: Renewed Maize Surplus, Malawi Government report, October 2008 and EM-DAT: The OFDA/CRED International Disaster Database, Université Catholique de Louvain, Brussels, Belgium.

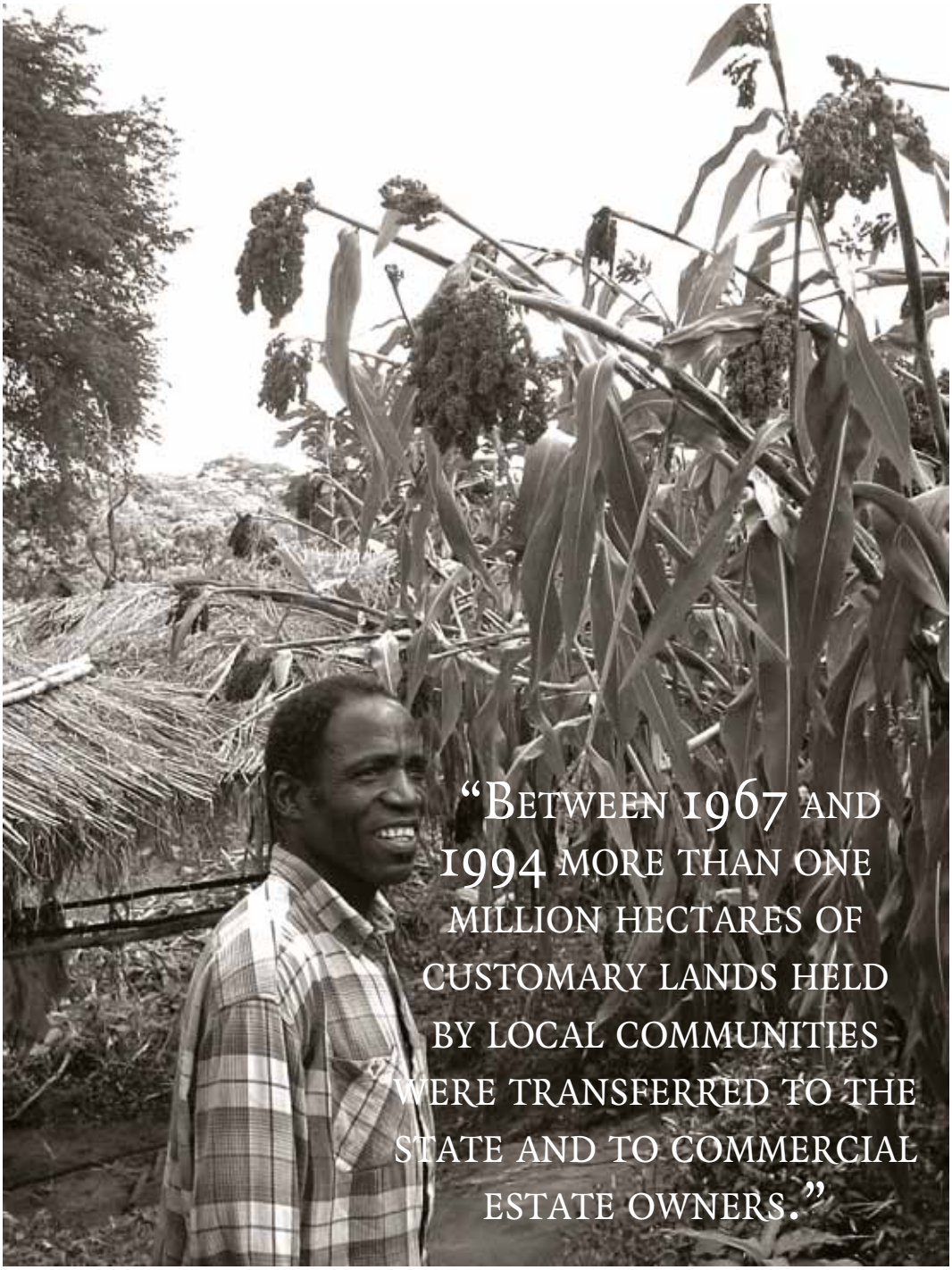
ing the 1980s the World Bank and IMF started imposing structural adjustment programmes on Africa; in Malawi this meant phasing out subsidies for fertilisers and maize seeds, and removing price controls, creating a very volatile maize market. Less food was produced, it became more expensive, and a food crisis was in the making. In 1987, the government was forced to start importing maize in a big way.[3] At the same time, the local currency was continually devalued, making fertilisers unaffordable for most farmers.

But Malawi's government, without ever putting in place a coherent, long-term food security strategy, could never completely abandon state intervention because it frequently had to react to recurring natural disasters and droughts. Between 1987 and 1995, subsidised fertiliser and hybrid seed programmes were again put in place. The devastating droughts of 1991 and 1993 reduced maize production by half, and, to add to the pressure, a million refugees arrived from Mozambique. By 1994 donor pressure to liberalise the markets intensified again and subsidies were scaled down, the credit market collapsed, food expenditure doubled and structural vulnerability intensified. Selling their labour for miserable wages to estate owners became one of the key strategies for the poor to make ends meet, but being a labourer on someone else's land (*ganyu*) meant that they did not have time to work their own land adequately, so yields fell.

The 1990s and early 2000s were characterised by a number of ad hoc, reactive

and inequality.

3. Jane Harrigan, "Food insecurity, poverty and the Malawian Starter Pack: Fresh start or false start?", in Food Policy, Vol. 33, No. 3, June 2008, 237–49. Abstract available at http://tinyurl.com/yaemcmg



Enoch Chione, a smallholder in Ekwendeni, northern Malawi, with his sorghum. He also intercrops maize with pigeon pea and other plants in order to improve soil fertility (see Box 5).
Photo: GRAIN.

projects by government and donors to subsidise fertilisers and hybrid seeds. US donor intervention always aimed at stimulating the private seed and fertiliser sector, and if a programme did not achieve this fast enough, it was changed, regardless of the impact on farmers.

Then drought, floods and hunger struck again in the period 2002–5. What is important to understand about this dramatic period is that it was largely a human-made disaster, the result of extremely bad donor policies and a corrupt government that sold off the country's grain reserves and dithered in responding to the crisis. Since independence, successive governments had overseen decades of land concentration, migration out of the countryside, and unfair taxing of smallholder farmers, resulting in an extremely vulnerable and impoverished rural population. These conditions, high rates of HIV/AIDS, and the general rise in food prices created a "perfect storm" of extreme food shortages for almost half the population, giving birth to Malawi's image as a country on the verge of starvation and collapse.

It was in this context that President Bingu wa Mutharika came to power in 2004 and launched a new fertiliser coupon system in 2005–6. His programme provided a voucher for two 50-kg bags of fertiliser and 2 kg of hybrid or 4.5 kg of open pollinated seed to about 2.8 million beneficiaries at a quarter of the actual price. Seed for some legumes was also provided. This was the much-hailed new Green Revolution initiative, but in essence there was little separating it from previous seed and fertiliser subsidy programmes. Perhaps of greater importance was that, beginning with the 2005–6 season, Malawi had several years of above-average rainfall. As maize is a

A doubly new green revolution in Malawi?

1

Some argue that the supposed increases in maize production in Malawi have been exaggerated. Researchers from Michigan State University claim that some of the figures used by the government are an overestimation of actual production. "It is widely believed that the 2007 Malawi harvest was overestimated by at least 25%. If the government had been able to produce a more accurate estimate of crop production, it might not have arranged to export maize, which in turn might have avoided the huge price surge in late 2007/early 2008 which caused great hardship for maize buying households."[1] They also maintain that maize production estimates are routinely exaggerated for political reasons. An indication of this is that the private sector could not source enough maize to meet the government's export promise, and imports have been streaming into the country from Mozambique and Tanzania almost continuously since mid-2007.

Yet others point to the discrepancy between the lack of food at the local level while the government maintains that there is enough maize to export. IRIN quotes a Malawi official in a southern district: "Maize shortages are a big political issue. As you can see, there is no maize in our particular district, but we cannot say anything. It is all very sensitive – the election is only about two months away."[2] This was in February 2009. A few months later, the government declared 2009 another season of bumper harvest with a 36% increase on the previous year.[3]

Whatever the assessment of the impact of the subsidy programmes, the bare truth is that Malawi still needs aid and many people are still hungry. The World Food Programme and various other agencies are still feeding more than a million people in Malawi, and 30% of children receive a free school meal, which aid agencies say is far too few.[4] And Malawians know that, come a drought, they will be at the mercy of the market and donors again.

1. T.S. Jayne et al., The 2008/09 food price and food security situation in Eastern and Southern Africa: Implications for immediate and longer run responses, International Development Working Paper, Michigan State University, 7 November 2008.
2. Integrated Regional Information Networks (IRIN) is a project of the UN Office for the Coordination of Humanitarian Affairs. See http://www.irinnews.org/Report.aspx?ReportId=82987
3. FEWSNET, Malawi food security update, June 2009. USAID, http://www.reliefweb.int/rw/RWFiles2009.nsf/FilesByRWDocUnidFilename/MYAI-7TR2H9-full_report.pdf/$File/full_report.pdf
4. "Growing Hunger in Malawi Stirs Food Aid Debate", http://www.pbs.org/newshour/bb/africa/jan-juneo8/malawi_05-02.html

crop which, when grown with fertilisers, needs a great deal of water to perform, this boosted yields. So the gamble paid off, the fertiliser subsidy programme responded to the good weather, and Malawi achieved surplus national maize production four years in a row.

Table 1 summarises Malawi's different subsidy programmes in the past decades, and the contexts in which they took place. It clearly shows that subsidies are nothing new for Malawi's farmers: they have been depending on them for decades and have been at the mercy of fluctuating donor policies and pressures for as long. Natural disasters introduce a huge element of risk (Malawi experienced 40 weather-related disasters between 1970 and 2006), but it is the affordability of maize that presents the biggest risk to poor Malawians, as sudden severe price hikes during the hungry season put food out of reach of the poor .[4]

No miracles without land.

All the fertilisers and seeds in the world cannot make much difference for the great mass of farmers in Malawi, who do not even have enough land to grow the food their families need. The average small farmer in Malawi cultivates less than half a hectare, while in the fertile southern part of the country the average per capita landholding is only 0.33 ha. Access to land has become dramatically worse in Malawi over the past few decades, and the problem is not population growth, of which Malawi has a relatively low rate, while it has a relatively high rate of rural exodus. By far the most important factor behind inadequate access to land is inequitable distribution of land. Only Brazil and Namibia have more unequal land distribution than Malawi. Today, half of Malawi's arable land is controlled by some 30,000 estates of 10–500 hectares.

It is simply impossible to imagine how a programme that provides costly seeds and fertilisers to small farmers who have so little land is ever going to work. These farmers, who account for the vast majority of the farmers in Malawi, can hardly produce enough for their own families' food needs, let alone enough to pay off their input costs. There is a real risk therefore that any green-revolution-style programme is going to benefit only the bigger, commercial farmers over the long term. AGRA and the other funders now promoting Malawi's success story have a not-so-secret agenda to promote the concentration of land into bigger farms in Africa. The Bill and Melinda Gates Foundation makes this quite clear: "Over time, this [strategy] will require some degree of land mobility and a lower percentage of total employment involved in direct agricultural production."[5]

An increasing number of these bigger farms in Malawi are ending up in foreign hands. "It is not a secret that foreign nationals have acquired land in

4. R. Menon, Famine in Malawi: Causes and Consequences, UNDP Human Development Report, 2007. http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/menon_roshni_2007a_malawi.pdf

5. Bill and Melinda Gates Foundation, Agricultural Development Strategy, 2008–2011, 11 July 2008, p. 2.

our districts, towns and cities and built at the expense of poor Malawians," says Undule Mwakasungula, the director of the Centre for Human Rights and Rehabilitation. "At the rate we are giving up our land, one wonders whether there will be any land left for the future generation."[6]

Some foreign land grabs in Malawi are very large. The Government of Djibouti signed a deal in 2009 with the Government of Malawi for a 55,000-ha concession of irrigated farmland. China is negotiating for a similar amount.[7] The UK farmland fund Cru Investment Management PLC recently purchased a 2,000-ha estate in Malawi to produce paprika and other crops for export to Europe. It forecasts a 30–40% return from its farms and outgrower schemes in Malawi.[8] Another UK-based company, Lonhro, says that it is negotiating a deal covering tens of thousands of hectares bordering Lake Malawi where it plans to grow rice.[9] The sugar industry is in major expansion mode as well. Villagers in Chikwawa District were recently kicked off their land without compensation by the Illovo sugar company, a subsidiary of Associated British Foods.[10]

The future of Malawi's millions of farmers cannot be built with fertilisers alone. They need access to land. A genuine agrarian reform, which redistributes land to the poor, has to precede national programmes to boost food production, whatever their form – otherwise only the big farmers will benefit.

The price of the revolution.

Beyond the land question, there are also serious concerns about how sustainable this "revolution" is. Financially, how long can Malawi afford the subsidies? And environmentally, won't all this exclusive attention on chemical fertiliser further erode Malawi's already fragile soils?

Malawi does not produce chemical fertiliser. It imports all of it from the international market. This means that the country is highly susceptible to currency and commodity price fluctuations, as well as profit-taking by the few multinational corporations that dominate the global fertiliser industry.[11] The government tried to address this in part by by-passing the companies that dominate the Malawian market, mainly Yara (Norway) and Farmers' World (Malawi), and procuring and distributing fertilisers through its parastatals. But the private

6. Nyasa Times, 7 September 2009: http://www.nyasatimes.com/national/malawi-%E2%80%98sitting-on-time-bomb%E2%80%99-campaigners-want-land-policy-to-promote-citizens-interest.html/comment-page-3
7. http://farmlandgrab.org/5111
8. http://farmlandgrab.org/2814
9. R. Moody, "Lonrho secures rice land deal; farmers will be removed", Nostromo Research, 2009: http://londonminingnetwork.org/2009/02/angola
10. http://farmlandgrab.org/5578

Agribusiness sees green

2

The private sector was initially up in arms about the fertiliser programme, out of concerns that it would be left out. During the 2005–6 programme, the government parastatal companies handled all of the procurement and distribution of fertilisers. But because of pressure from the World Bank, the government agreed to allow the private sector to take over a quarter of the retail distribution of fertilisers.[1] Moreover, the subsidies have given a tremendous boost to overall sales of fertilisers. In 2007–8 the programme distributed 217 million tonnes of subsidised fertiliser, which, on its own, is higher than an average year of total fertiliser sales in the country.

"There is no doubt that the programme is a success," says Dimitri Giannakis, chairman of the Fertiliser Association of Malawi and director of Malawi's biggest fertiliser company, Farmers' World. "Initially we thought it would be devastating to the fertiliser industry and that the government would dominate the whole process. But with dialogue between ourselves and government, we worked together and came up with a formula that will promote our business and assist government at the same time."

The seed companies are also satisfied. Seed sales are up dramatically because of the programme. In the 2007–8 season, 5,500 tonnes of subsidised maize seed were sold in the country. The Seed Traders' Association of Malawi (STAM) says that seed sales by its companies have increased by about 40% since the start of the subsidy programme.[2] The big winner here is Monsanto, which holds more than 50% of the hybrid seed market in Malawi.

1. Andrew Dorward, "Fertiliser Subsidies: Potential, Pitfalls and Practice", 3 March 2009: http://siteresources.worldbank.org/INTARD/Resources/335807-1236361651968/Dorward-FertiliserSubsidyPPPWBMar_2009.pdf
2. B. Bafana, "Going Against the Grain on Subsidies", IPS news, 5 September 2008: http://ipsnews.net/news.asp?idnews=43815

ALL THE FERTILISERS AND SEEDS IN THE WORLD CANNOT MAKE MUCH DIFFERENCE FOR THE GREAT MASS OF FARMERS IN MALAWI, WHO DO NOT EVEN HAVE ENOUGH LAND TO GROW THE FOOD THEIR FAMILIES NEED.

11. See GRAIN's analysis of the food and financial crisis: http://www.grain.org/foodcrisis/

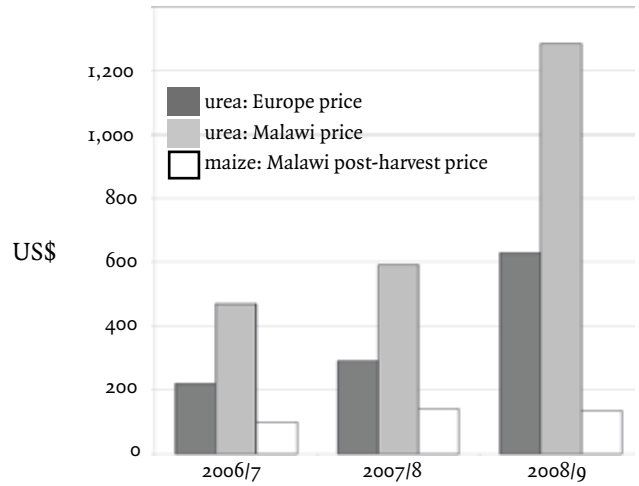
sector still holds the reins, and the price of fertilisers has skyrocketed over the past few years.

Rising international prices have had a huge impact on the ability of Malawian farmers to afford fertilisers and on the government's ability to continue with the subsidy programme at the same level. Graph 1 illustrates the tremendous increase in fertiliser prices, in relation to the price of maize.[12]

While it may be honourable for a government to provide direct support to small farmers, more dollars spent on fertilisers means less money for other public expenditure, and with the continuing high international fertiliser prices the strain on the budget can be severe.

12. I. Minde et al., Promoting Fertilizer Use in Africa: Current Issues and Empirical Evidence from Malawi, Zambia, and Kenya, 2008, accessed 5 August 2009: http://www.aec.msu.edu/fs2/inputs/.../ReSAKSS_Fert_report_final.pdf

Graph 1: Malawian maize price compared to changing urea prices, 2006–9 (US$/tonne)



Source: A. Dorward and C. Poulton, The Global Fertiliser Crisis and Africa, Future Agricultures Briefing, June 2008. www.future-agricultures.org
2009 figures from FEWSNET, June 2009.

CAPS Msukwa, showing the compost heap of a farmer near Ekwendeni. Photo: GRAIN.

3 What has tobacco got to do with food security?

In Malawi there are two important crops: tobacco and maize. And for a Malawian smallholder farmer there is a constant tension between growing tobacco or growing maize. Most of Malawi's tobacco used to be grown on big estates, and for decades these estate owners enjoyed favoured policies because of both the political power of the industry and the international donors' policy of encouraging exports.

Under Banda, another class of tobacco grower emerged: tenant farmers. Under this scheme the estate provides the farmer with seeds and fertiliser and then at the end of the season buys the tobacco from the farmer, deducting the cost of these inputs. Tenant farmers have no control over the production process and most of them have remained trapped in poverty. In 1994 the ban on growing tobacco by smallholder farmers was lifted. Since then, workers and tenants have been even more heavily exploited.[1] Indeed, the Tobacco and Tenant Workers of Malawi says that tobacco workers and tenants are getting poorer; it is estimated that Malawi has 1.4 million child labourers, many of them working on tobacco farms, exposed to the poisonous effects of nicotine from the age of five.

Small-scale tobacco farmers also exist on the margins, sometimes having a good year, sometimes not. In a good year, tobacco is a high-value crop, and there is a chance of making real money. However, buyers exploit small-scale growers: in 2009, for example, small-scale producers were paid as little as US$0.90 per kilo compared to the government's recommended price of US$2.19.[2]

Malawi is the world's biggest grower of burley tobacco, and its economy has been dependent on tobacco since the late 1800s.[3] Tobacco provides 70–80% of Malawi's foreign income, with US-based companies Alliance One and Universal Corporation the powerhouses behind the industry. Together these companies purchase over 95% of the tobacco crop and sell it to global cigarette manufacturers such as Philip Morris and British American Tobacco. The tobacco industry makes up 10% of the country's GDP. Tobacco earned Malawi US$472 million in the 2007–8 season.

In the early 1990s Malawi was in debt, and the country set about earning more foreign currency through additional tobacco exports. In alliance with the tobacco industry, USAID implemented a five-year plan with the strategic objective of increasing production by 40% by 2000. To make it easier to implement the plan, USAID provided the funding to set up the National Association of Small Farmers in Malawi (NASFAM), which encouraged farmers to switch from food crops to tobacco. The policy of the US and the World Bank has always been – and still is – that farmers should grow cash crops and buy their food on the market. They argue that in a good year farmers will make more than enough money from tobacco to cover the cost of buying the maize they need.

The tobacco industry imposes a huge human and environmental cost. According to a study by the tobacco industry, it takes 7.8 kg of wood to cure 1 kg of tobacco; or, to put it differently, every fortnight a tree is chopped down to support an average smoker's cigarette consumption.[4] Moreover, such heavy reliance on one export crop is a very risky strategy for any country; for instance, tobacco prices fell by 37% on the world market in 2009. This had a huge knock-on effect in Malawi, with foreign earnings falling heavily and small farmers who had invested in growing tobacco at the expense of food finding it difficult to cover their families' food bills.

1. M. Nyekanyeka and A. Daudi, Malawi: Renewed Maize Surplus, Government of Malawi report, October 2008, p. 21.
2. F. Jomo, "Malawi's Burley Tobacco Trading 39% Below State Price", 7 May 2009: http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aW.jbXSYz5hQ. See also Raphael Tenthani, "Malawi expels tobacco buyers for price undercuts", Mail & Guardian online, http://www.mg.co.za/article/2009-09-11-malawi-expels-tobacco-buyers-for-price-undercuts
3. F. Potani, "Growing Tobacco without puffing the benefits", posted 7 August 2009: http://www.tobacco.org/news/288292.html
4. "Malawi tobacco industry and the environment": http://www1.american.edu/projects/mandala/TED/maltobac.htm

The cost of the programme doubled – to nearly 9% of the overall national budget – in 2008 because of the jump in fertiliser prices.[13] Signs that Malawi's fertiliser programme might not last are already showing. In the 2009 budget the government announced that only food crops, not cash crops, will be subsidised, and that there will be a 39% reduction in the subsidy, with a budget of MK 17.8 billion (US$127 million).[14]

The cost of the fertiliser programme is not only financial. There is a high environmental cost as well. Healthy soil is vital to farming. Declining soil fertility in Africa is increasingly recognised as one of the biggest reasons for low production and hunger. In Malawi, maize productivity in 1997 was only 84% of what it had been in 1988. Local maize grown on fertile soil produces twice the yield that hybrids can on poor soil. Therefore the constraint for farmers was not necessarily related to seed, but rather to soil fer-

13. http://siteresources.worldbank.org/INTARD/Resources/335807-1223631651968/DorwardFertiliserSubsidyPPPWBMar_2009.pdf; Nicolas Minot, IFPRI, "Smart fertliser subsidies in Sub-Saharan Africa," 24 July 2009: http://www.slideshare.net/ifpri/minot-presentation-july-24-2009

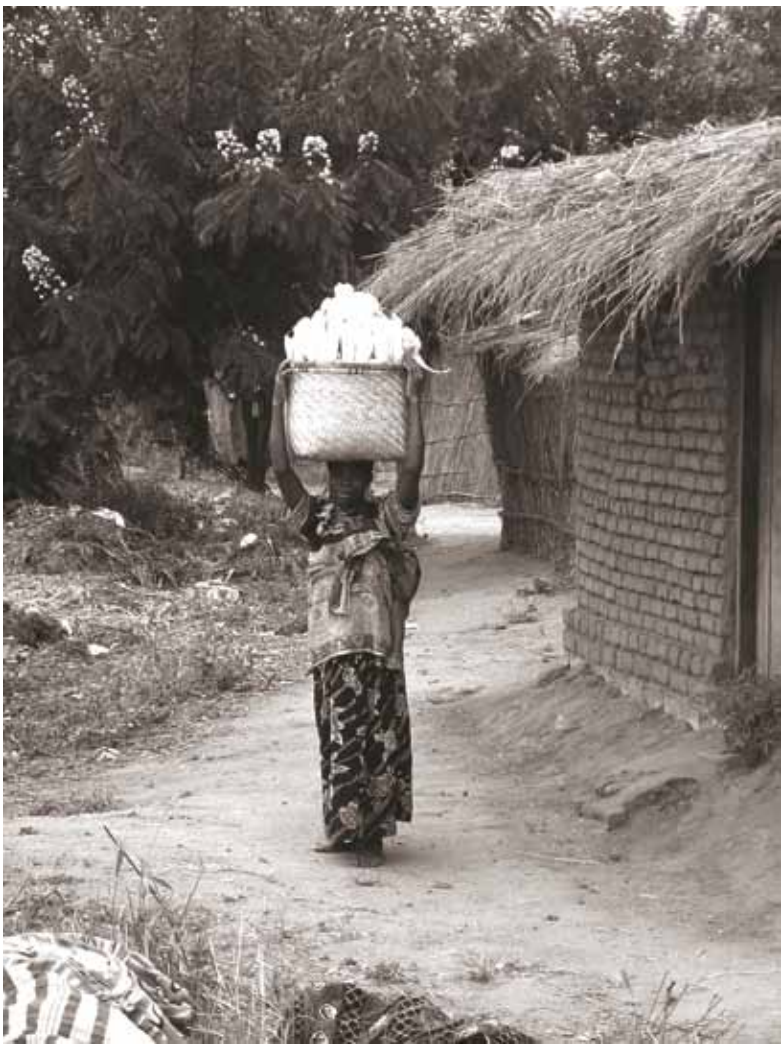
14. Nyasa Times, 3 July 2009. http://www.nyasatimes.com/national/kandondo-unveils-k257-billion-malawi-budget.html/comment-page-2

tility.[15] Owing to land pressures, farmers have been forced to deplete the soils on their farms, and because there has never been a concerted national effort to support farmers in replenishing soil organic matter, the soils have now become very poor, which means that their water-holding capacity is much lower than it once was. Continual focus on inorganic fertilisers not only deprives the soil of organic matter but also has a very detrimental effect on soil and water in the long term. Soils become hard and too acidic, and excessive nitrogen leaking into rivers and lakes eventually destroys associated ecosystems.

Sub-Saharan soil is generally not very fertile, with low soil organic matter and poor land cover and soil structure, making it susceptible to erosion. In Africa, soil fertility was traditionally managed through a system of leaving the land fallow for a few years. The basis of traditional shifting cultivation is nutrient recycling, and intercropping also plays a role. There is a great deal of skill and traditional knowledge involved in this system. A large body of scientific literature on soil fertility agrees that without traditional and organic methods such as agro-forestry, legumes, integration of crop residue and manure to increase the organic matter in soil, the soil will not regain its fertility, and even inorganic fertilisers cannot perform optimally. There is clear evidence that the starting point for improving soil fertility and productivity should be organic fertiliser technologies. Among other advantages, organic approaches to soil fertility are cheaper, the cost stays constant, and the soil stays fertile for longer, so it can be seen as a long-term investment.

Malawi cannot use large amounts of animal manure in compost as it has very little livestock. Poverty, lack of grazing, and lack of security are the main reasons why most livestock ownership is limited to chickens. On the other hand, there is considerable potential for using legumes and agro-forestry, and it is common knowledge among farmers that crops grow well near a certain species of Acacia tree.[16] Intercropping has always been widely practised in Malawi, and in the 1980s it was still found on more than 90% of Malawi's small farms. Farmers practise intercropping because it mitigates the risks of disease, market fluctuation and weather disaster. It is also a strategy that farmers use to diversify crops for dietary purposes, to reduce labour, to improve yields and to stabilise crop production.[17]

There is a clear realisation in Malawi that farmers have to move beyond fertiliser dependency and that integrated soil fertility management would be a much more viable option in terms of cost and yield.[18] Malawi's government acknowledges that fertilisers are not sustainable, and encourages farmers to make compost. But for this to work, the government needs to apply much more political will, on the same scale as for the Agriculture Subsidy Input Programme (AISP). It would be feasible, for this approach would be much cheaper to implement. Andrew Daudi, Malawi's permanent secretary for agriculture and food security, concludes his report on the AISP not with a call for more fertilisers but



A woman near Nkhotakota, Central Malawi, carries home her harvest of maize to feed her family. Photo: GRAIN.

15. A. Orr, "Green Gold? Burley Tobacco, smallholder agriculture and poverty alleviation in Malawi", World Development, Vol. 28, No. 2, 2000, 347–63.

16. Personal communication, CAPS Msukwa, May 2009. See also a press release from the recent World Agroforestry Congress, http://www.worldagroforestry.org/af/node/390 about the Acacia (Mgunga) tree, which could dramatically increase crop yields in Africa

17. S.R.Waddington et al., "Research lessons for cereal–legume intercropping", proceedings of a workshop on a research methodology for cereal–legume intercropping for Eastern and Southern Africa, CIMMYT, 1990.

18. Johannes Sauer and Hardwick Tchale, "Alternative Soil Fertility Management Options in Malawi – An Economic Analysis", International Association of Agricultural Economists, Annual Meeting, 12–18 August 2006, Queensland, Australia. This was also a recurring theme in interviews with farmers and other stakeholders in Malawi in May 2009.

4 The politics of maize

For Malawians maize = food, maize is life (chimango ndi moyo). Malawi has the highest per capita maize consumption in Africa. But it was not always so, as maize was introduced only during the colonial era; as elsewhere in southern Africa, the key staples used to be millet and sorghum. For decades there has been a constant effort to displace these crops with maize and then to displace farmers' varieties with hybrid maize, but the adoption rates of hybrid maize have been very erratic, going up mainly when there is a subsidy, and going down as soon as there is none. Today farmers still maintain some of their own varieties because they prefer the taste and because weevils do not attack them as much. Up to 40% of hybrid maize can be destroyed post-harvest.[1]

In a rain-fed system like that in Malawi, there is only one season of maize production, and because of low per capita production and little diversification, farmers experience a hungry season from October to March, when they become consumers of maize.[2] Before liberalisation, many African governments had policies to deal with the price and the supply gap during the hungry season, and had state marketing institutions in place, which kept strategic grain reserves. This allowed it to sell grain again at a ceiling price. "Unfortunately for poor rural Africans, these policies contradicted the basic principles of neo-liberal 'Washington consensus' thinking, which declared institutions like parastatals and grain reserves to be inefficient and corrupt, and policies like producer and consumer price subsidies to be fiscally unaffordable in poor countries. More generally, the Bretton Woods agencies decreed that public interventions in markets undermine incentives for private traders."[3]

Currently the government again controls the maize market by restricting exports, and the Agricultural Development and Marketing Corporation (ADMARC) is contracted by government to buy enough maize to distribute during the hungry season at a ceiling price. Malawians are still subject to extreme price fluctuations, the volatility of which is sometimes much greater than in neighbouring countries or even on the world market. In January 2009 maize sold for up to MK90 (US$0.71) per kg, but once the harvest came in and there was clearly a surplus, the price dropped in June 2009 to MK30 per kg.[4]

Malawi has been able to export maize, but there is also evidence that official crop estimates are too high.[5] Cross-border imports from Mozambique and Tanzania have been continuous, at 59,000 tons in 2007–8 and 40,000 tons in 2008–9. In October 2008 the Malawi Vulnerability Assessment Committee (MVAC) announced that 1.5 million people were vulnerable to food insecurity; subsequent speculation that the food might be scarce drove prices high.[6]

1. Personal interview, CAPS Msukwa, May 2009.
2. S. Devereaux, "Seasonality: four seasons, four solutions?" 2008: http://www.future-agricultures.org/EN/Hot%20Topics/news_hottopic_archive_seasonality.html
3. Ibid.
4. FEWSNET, Malawi food security update, June 2009; USAID, http://www.reliefweb.int/rw/RWFiles2009.nsf/FilesByRWDocUnidFilename/MYAI-7TR2H9-full_report.pdf/$File/full_report.pdf
5. FEWSNET 2008
6. T.S. Jayne et al., The 2008/09 Food price and food security situation in Eastern and Southern Africa: Implications for immediate and longer run responses, International Development Working Paper, Michigan State University, 7 November 2008.

by saying: "As the rural areas are full of materials that can be turned into manure (compost), farmers are encouraged to make compost and plant agro-forestry trees which retains fertility of the soil over a long period of time, hence reducing the need for high-cost inorganic fertilisers."[19]

The revolution that's needed.

Malawi's Green Revolution success story is being oversold, and this not only does Malawi a disservice but also shifts the focus for investment in agriculture in Africa in the wrong direction. While it is great to see a government investing in local food production, this government has elected to pursue the tried and unsustainable policies of the past. This round of subsidies will also fail small farmers and the country if nothing is done to redistribute land to ensure that farmers have enough land to produce surpluses, and if it does not move away from its narrow focus on chemical fertilisers and hybrid maize seeds, for both financial and ecological reasons.

At this point, importing fertilisers is cheaper than importing maize, but this is not where the debate lies, as dependency on any import can transform Malawi into a begging country in an instant. Malawi and many other countries in Africa need a revolutionary approach to agriculture. Investment and subsidies are needed. But they should not be of the type that is now being promoted. What is needed is a massive programme – across Africa and in the rest of the world – to improve soils, to increase organic matter and soil fertility, to support biodiversity, and to invest in the capacity of small farmers everywhere to produce food sustainably while making a decent living. That requires looking beyond the technical quick fixes. It requires developing radical policies that give small farmers access to land, protects them from market imbalances and commodity fluctuations, and helps them to produce sustainably now and in the future.

19. M. Nyekanyeka and A. Daudi, Malawi: Renewed Maize Surplus, Government of Malawi report, October 2008. p. 21.

Cartoon by Khalil Bendib. Thanks to Corpwatch, see http://www.corpwatch.org/article.php?id=14947

Malawi's Green Revolution success story is being oversold, and this not only does Malawi a disservice but also shifts the focus for investment in agriculture in Africa in the wrong direction.

Directly after harvest, a small-scale farmer has his maize weighed by private traders, who will store the maize to sell at a higher price later in the season

5 Soils, food and healthy communities

Lizzie Shumba and Rachel Bezner Kerr, Soils, Food and Healthy Communities (SFHC), Malawi

Enoch Chione is a 50-year-old smallholder who has been experimenting with different agro-ecological methods over the past five years. He intercrops different combinations to improve his soils, diversify his crops and get income for his family. This year he is trying pigeon pea and sorghum, Tephrosia, different varieties of banana, pigeon pea and maize, and pigeon pea and soya. Enoch has seen dramatic improvements in his soils, in part because he is burying the legume crop residue immediately following harvest. Enoch's food security has greatly improved from using these techniques. He estimates that he has enough food to last for two years, if the rains stopped completely. He is also teaching other farmers in his village. As the group village headman, he has tremendous influence, and the villagers also use these methods extensively.

Enoch is a member of the Soils, Food and Healthy Communities project (SFHC). Working with more than 4,000 farmers, SFHC uses agro-ecological and participatory methods to improve farmers' livelihoods in northern Malawi. Initiated by Ekwendeni Hospital in order to address child malnutrition, the project has as its main objectives the improvement of soil fertility, food security and child nutrition of farming families in the region. Farmers test intercropping different leguminous plants such as groundnut, soya, pigeon pea and mucuna.

Ekwendeni catchment area is situated in northern Malawi, with a population of about 70,000 and an area of about 600 sq km. The economy is based on smallholder farming with an average landholding of less than one hectare. Approximately 60% of Malawians live below the poverty line. The soil type is largely sandy loam, and the main crops grown are maize (the staple food) and tobacco, along with minor crops such as cassava, sweet potato, common beans and groundnut. The climate in Ekwendeni is semi-tropical, with annual rainfall of 600–1000 mm, falling primarily between November and April. In the past the rains came in October, and there were also rains in July. Nowadays the rains are much less reliable, which has made it difficult for farmers to plan and means that they cannot depend on a reasonable harvest. During the dry season some farmers have gardens by the rivers or wetlands, where they grow maize and vegetables. Those without access to rivers or wetlands grow vegetables in small kitchen gardens by their homes.

In the late 1990s there were increasing numbers of malnourished children admitted to the nutrition rehabilitation unit (NRU) of Ekwendeni Hospital. Interviews conducted with the families of these children revealed that they were experiencing severe food insecurity. Farmers were struggling with rising fertiliser costs; they relied heavily on maize and had lost knowledge of how to grow crops without fertiliser. To address this problem, legume intercrops were introduced to the farmers as one potential solution. The legumes are intercropped so as to have short- and long-duration crops, some of which are deep-rooted and add more organic matter to the soil (e.g pigeon pea) while others are high-yielding and provide more food (e.g. groundnut). The legumes favoured by the farmers are the edible ones, particularly pigeon pea, groundnut and soya. Farmers test different legumes on their own fields to determine whether they improve soil fertility and nutrition. Legume intercropping began in 2000, and it is how the SFHC project was born.

Farmers do more than test legume combinations on their fields. There is a Farmer Research Team that provides support and training to participating farmers. There are recipe days and crop residue burial days. There is also a community seed legume bank, where seed is "paid back" by participating farmers and managed by the Farmer Research Team. In the following planting season the seed is distributed to new participants and to those farmers who have lost their seeds. Another initiative is the Agriculture and Nutrition Discussion Groups, which are intergenerational discussion groups about gender, agriculture and nutrition. In these discussions, facilitated by community members, people are free to share beliefs and experiences, and analyse community and family problems. Issues such as men using the money from legume sales to buy alcohol are discussed and debated, and solutions proposed. These groups have proved to teach very effectively. "We are researchers because of this project. There is no malnutrition with SFHC farmers", Enoch says proudly.

As farmers have increased their use of legumes, they have found that their soils have improved, along with nutrition and food security. They've shared different recipes within their communities to show how families can prepare their local foods and legumes for nutrition. Today, admissions to the NRU of children under five has been dramatically reduced, and children in families involved in the project have improved growth. The farmers have formed an Ekwendeni Farmer Association to work together and to try to get fair prices for their crops, and have increased their incomes through the sale of legumes as a farmer group. As Enoch says, "We farmers in this project are not just growing to sell, like tobacco farmers. We are growing for the soil, for food, for seed and for sale. So we don't worry if we can't sell the crop. They can't compete with us!"

Since land degradation and climate change have become major challenges in Malawi and sub-Saharan Africa as a whole, it is the project's wish to extend its activities into other areas. Apart from providing legume seed to farmers, there is also a need to distribute drought-tolerant seeds for crops such as sorghum, millet, cowpea and cassava. SFHC is beginning to focus on climate-change adaptation, with several hundred farmers testing different drought-tolerant crops this coming season. Despite the challenges of a global financial crisis, climate change, HIV and government policies that work against the SFHC, farmers are rising to meet these challenges. Enoch notes proudly that lots of people are "coming and admiring here" and even the government extension workers have visited his fields to learn what he is doing. "We hope they take it and apply it", he adds.

Laws for killing off independent agriculture

From 23 to 27 February 2009, members of the Cartagena Protocol on Biosafety met in Mexico to discuss the issue of "responsibility and compensation for damages" from genetically modified organisms (GMOs). In opposition, the Network in Defence of Maize organised a Forum for the Life of the People of Maize over the same period. The document that follows is a presentation by GRAIN made to this forum. Although it focuses specifically on the situation in Mexico, it also gives insight into the scope of a global strategy aimed at eradicating independent food production and criminalising the possession, custody and free exchange of native, ancestral seeds – which have been fundamental to the lives of peasants for more than 8,000 years.

Mexico's so–called Biosafety Law is part of a wider set of laws that the Mexican state, along with many other developing countries worldwide, is in the process of approving today.

It is part of an offensive that implies the introduction of new laws, or changes and reforms to existing laws. The changes involved are by no means small: they are changes that affect the lives of all the peoples of the world in many different ways. Among those most affected are rural, peasant and indigenous communities. Indeed this offensive impacts on the rural population of the entire world.

The offensive is fairly efficiently coordinated, mainly by large multinational companies and major corporations abetted by the governments of the world, but also with active, strong and aggressive support from many international bodies, including some we are all familiar with: The World Bank, the Inter–American Development Bank, the Food and Agriculture Organization and much of the apparatus of the United Nations, as well as the World Trade Organization.

In order to understand them fully, these laws must be seen as a whole, because they shore one another up. The Biosafety law will not act in isolation, but in conjunction with many others – such as laws on seed certification, genetic resources, intellectual property, organic certification, forestry, sustainable development and water and mining, to name just a few on what could be a very long list.

The regulations arising from these laws are also important, as are related decrees and norms. Today, for example, regulations on "good agricultural practice" and "traceability" are being applied.

Why all these laws? Why this legislative fever that is attacking us globally and simultaneously? It's a veritable epidemic. And if we look at how the norms and restrictions that are being imposed take effect, one central objective emerges very clearly: to kill off independent food production.

There is an obvious reason for this. Today, despite globalisation and despite such an aggressive stance in respect to the rural population, food production remains, for the most part, in the hands of peasants and indigenous peoples. If we were to calculate the value of all the food consumed by humanity, that value would be much larger than any existing market: much bigger than oil, bigger than the auto industry – and bigger even than these combined. This potential market is not in the hands of capital, whose current objective is first to force us to buy food and second, of course, to control the resulting market.

The food market is also a captive market par excellence. We can stop buying cars, but not food. And if we cannot produce it ourselves, we will of necessity have to buy it. We may be extremely poor, but if we do not produce food, we will have to buy it. It is a market that will grow in tandem with the world population.

The fact that the peasant and indigenous populations of the world continue to be the main producers of food explains why one of the main objectives of this legislative offensive is to do away with the capacity for independence of peasants and indigenous people; a fundamental part of this process is to wipe out the independent production of food. It is also necessary to eliminate independent seeds – seeds that are not controlled by the large corporations.

Mexico approved a new law on seeds in 2007, replacing the law from 1991. The new seed law of 2007 did not come about by accident; it is extremely aggressive towards those people who are still able and willing to continue producing

food independently. The seed laws seem to be standardised from one country to the next: the content is practically the same although the order of the articles is changed slightly. These are laws dictated by the great associations of seed companies that today operate under the umbrella of a body called the International Seed Federation (ISF). In Mexico, the ISF is represented by the Asociación Mexicana de Semilleros, A.C. (AMSAC) [Mexican Association of Seed Producers], a body that has, in fact, little to do with Mexico. It defines itself as: "an association that unites the entire Mexican seed sector, giving it power and influence over government decisions, the ability to manage and participate in laws and regulations, and services and infrastructure for resolving the problems of its members". Confession renders proof irrelevant. They don't just define themselves in this way, this is how they want to be; it is their vision of themselves.

AMSAC calls itself Mexican, but in fact it brings together all the major seed multinationals. Its members include Monsanto, Syngenta, Dow, Dupont or Pioneer, Vilmorin, as well as other multinationals. To settle any remaining doubt about the importance of multinationals in AMSAC, we note that Dow and Syngenta are represented on its board of directors, while – worse still – Monsanto and Vilmorin are represented on its board of honour and justice.

AMSAC in Mexico is clearly a very efficient lobby, and the Mexican seed law, called the Mexican Law for the Production, Certification and Trading of Seeds (Ley Mexicana de Producción, Certificación y Comercio de Semillas), faithfully fulfils the objectives set by the multinational federation. There are as yet no regulations (no secondary legislation) under this law. When we specifically investigated this law, we tried to obtain the related regulations and – despite the Mexican state's much–vaunted law of transparency – it has been impossible to find any information whatsoever. Regulations always worsen laws, and worsen them significantly.[1]

Through Article 34, as well as some others, the Seed Law requires all seeds to be produced on farm or bought – there is no other alternative. This means that the exchange or giving of seeds becomes illegal, and there are no exceptions. The gift and exchange of seeds is illegal because in such cases the seed is neither one's own nor has it been bought.

Some might argue that people who have their own seeds could say that they are selling them and simply carry on exchanging them, but in fact the law contains a series of articles whose demands are impossible to meet, or which kill the best of the peasant and indigenous seeds. For example, if somebody decides to sell seed, they are obliged to keep a strict record of how they produced this seed and must also keep a sample of the seed in order to pass any inspection that the Ministry of Agriculture may decide to conduct through the National Service of Seed Inspection and Certification [Servicio Nacional de Inspección y Certificación de Semillas]. Since even seed companies aren't always able to do this, how much harder would it be for rural people to do so? In short, peasants are not only prohibited from exchanging and giving seeds, but also from selling them.

1. Regulations/Code of the Federal Law of Production, Certification and Trade of Seeds was only published in September 2011, http: //www.dof.gob.mx/nota_detalle.php?codigo=5207725&fecha=02/09/2011

It would come as no surprise if the regulations under any of these seed laws ended up telling us that we were all obliged to denounce somebody if we knew or heard that they did not buy their seed from the companies.

The law also establishes the concept that good–quality seed must be uniform – in other words the same and invariable and also stable: it must not change over time. The qualification of good–quality seed, even for certification, does not factor in performance in the field at all. To put it another way, as long as it turns out identical, exactly the same, it is irrelevant whether it functions better or worse. We know that only seeds produced by the major seed companies are all identical. But the fact that they are uniform does not necessarily mean that they are better.

The law also says that seeds must be stable, and in order to keep a varietal name, they must not change. In a country like Mexico, this means that the obligation is somehow imposed on native seeds not to continue evolving. But the seeds of Mexican peasants and indigenous peoples have survived precisely because they have evolved over time. The law demands that seeds must be frozen (so to speak) and if this does not happen, legal problems can arise when they circulate from one farm to another.

Some might say: this is may be what the law says but native seed, our own seed, has always circulated – we haven't asked anybody's permission, and we're going to let it circulate the same as ever. That is a fundamental strategy that must continue to be used: the seeds must circulate with or without permission. Yet the attacks will continue – and one of the attacks already under way is the Strategic Project for the Productive Chain of Maize and Bean Producers [Proyecto Estratégico para la Cadena Productiva de los Productores de Maíz y Frijol], all of whose aid projects will stipulate the use of certified seed. Those in any doubt about which certified seed we are discussing may find it interesting to visit the web page of the Mexican National Seed Inspection and Certification Service to see what its strategic aims are – as stated by the organisation itself through its strategic plan.

The National Seed Inspection and Certification Service defines as its primary strategic aim "coordinating the dissemination and strengthening of the national capacity in technological seed assets" – which is unintelligible, but sounds nice. It says that an indicator of its achievement of this target will be that by 2025, 60% of all seed used in Mexico will be certified seed. Note that we are talking about all the seed used

The food market is also a captive market par excellence. We can stop buying cars, but not food.

in Mexico, not just maize. To clear up any remaining doubt, the second strategic aim is "managing and administering the national system for the protection of breeders' rights over plant varieties" – meaning that 60% of all seed in Mexico by 2025 must be seed that the organisation terms "protected", that is, covered by intellectual property rights. By 2020, if the multinationals have their way, intellectual property will be in the form of patents. To sum up, the strategic aim of the National Seed Inspection and Certification Service is that by 2025, 60% of all seed must be certified, and all this certified seed must be protected by patent.

This is the focus, and this is the bias with which the seed law will be applied. It will not be applied in a neutral fashion, but explicitly and strategically to defend the interests of the major multinationals which, in Mexico's case, are represented by AMSAC.

Laws also have a way of being applied that consists of first applying the carrot, the parts that are less controversial and that present potential benefits, as a way to draw in as many people as possible, with a view, among others, to dividing organisations and communities. The good side of that which is being imposed is always played up. Then, once organisations or communities have become divided, or once people have become severely indebted, that's when the stick comes into play.

AMSAC's web page defines "pirate seed" as seed that is not purchased. It adds: "You will agree that we cannot allow pirate seed to damage our lands, our heritage and our prestige as agricultural workers. Together we can and must deal with this risk, by always ensuring that we buy only original seeds, distributed by reputable commercial bodies. This will help us buy and use only quality seeds". That's the soft part – the first part of the script used to apply these laws.

It goes on to say: "It is important that when you buy original seeds, of recognised quality, you always ask the seed dealer or distributor to provide an invoice for your purchase." Why is this where the stick begins? Because implicitly those who use seed – peasants and agricultural workers – are being told that if they don't have an invoice, they'll feel the weight of the law. It continues: "We recommend notifying your seed dealer and distributor if you know or hear about this kind of illegal trade in pirate seeds". In other words, they are asking us to become informers!

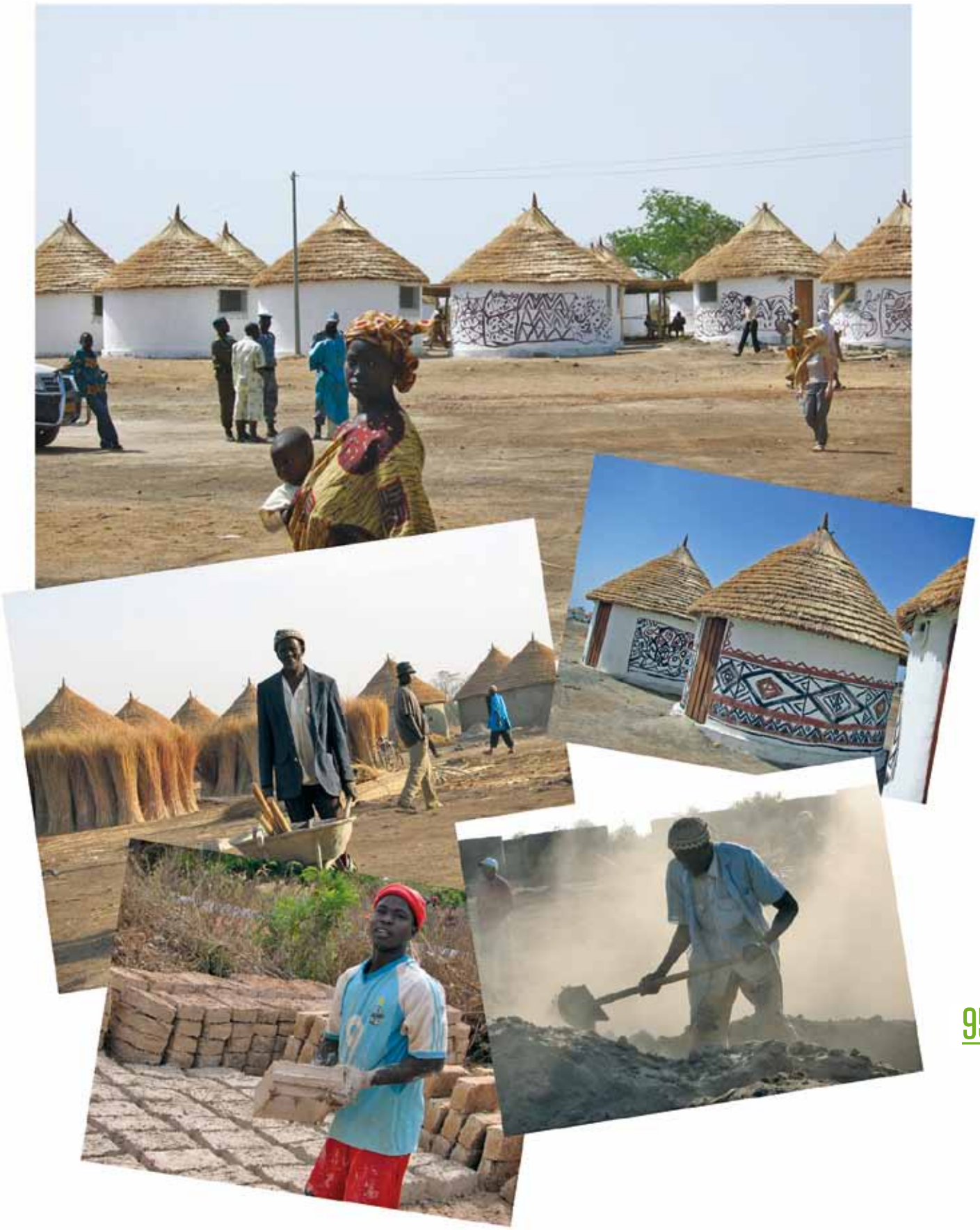
It would come as no surprise if the regulations under any of these seed laws ended up telling us that we were all obliged to denounce somebody if we knew or heard that they did not buy their seed from the companies. And this is no exaggeration – because current intellectual property laws oblige people to act as informers.

Later come the sanctions. As expressed in the law, the punishment for infraction currently stands at 500,000 Mexican pesos (about US$50,000), and the confiscation of the seed and the harvest itself. That's in Article 39. Article 41 states that this does not rule out the possibility of penal sanctions – in other words, it is possible that non–compliance with this law may also lead to a jail sentence.[2]

If we combine this with other laws – for example those on the certification of meat and milk, organic certification and biosafety and intellectual property laws – the aim is to destroy independent agriculture, to destroy – above all – independent food production and thereby arrive at a position where contract agriculture is the only option. And anyone who has lived in the countryside knows that contract agriculture is slavery in all but name. It is therefore no surprise that one of the key aims of the master plan for maize publicised in Mexico is to make contract agriculture more widespread.

It is not easy for states to implement these laws because they require the monitoring of many people: people who've been resisting, battling and producing food for centuries. Consequently, these laws – no matter how terrible they are – are still nothing more than ink on paper and will remain just that as long as we continue to produce food independently. But as we loosen our hold on the production of food and leave production to be controlled by the multinationals, these laws will become very real. It will be a tough struggle but, on the other hand, we must remember that the attack is only this ferocious and implacable because the capacity of the peasant and indigenous peoples of the world to produce food is extremely significant. If the amount of food they currently produce were trivial, there would be no need for these laws – the rural and indigenous communities would be left to die away of their own accord. The intensity of the attack arises from the importance of what the indigenous and peasant communities still hold in their hands. This is why, today more than ever, it is important to keep our own seed and maintain all the collective systems that allow this seed to remain alive and continue to evolve.

2. The regulations, as Camila Montecinos accurately predicted, include a whole chapter on inspection, vigilance and sanctions, including the destruction or decommissioning of "instruments, seeds or products related directly to the commission of the infraction", see Section XI, articles 105–120 of the relevant regulations.



In February 2007, the Nyeleni World Forum for Food Sovereignty was held in Sélingué, a village two hours away from Bamako, Mali. This choice was made to allow the debate on food and agriculture to take place in a rural and agricultural context. Meeting facilities and accomodation to host over 600 participants, were build from scratch by people from the village and local artisans decorated the buildings. The Forum was a big success and estabished Food Sovereignty firmly on the agenda of many social movements. The facility is still used by the Malian farmers organisation CNOP and others for conferences and training seminars. Photos: Development Fund Norway, Jean-Marc Desfilhes, and Forum participants.

F

FOOD AND THE CLIMATE CRISIS

Food and climate change:
the forgotten link

Food is a key driver of climate change. How our food gets produced and how it ends up on our tables accounts for around half of all human-generated greenhouse gas emissions. Chemical fertilisers, heavy machinery and other petroleum-dependent farm technologies contribute significantly. The impact of the food industry as a whole is even greater: destroying forests and savannahs to produce animal feed and generating climate-damaging waste through excess packaging, processing, refrigeration and the transport of food over long distances, despite leaving millions of people hungry.

A new food system could be a key driver of solutions to climate change. People around the world are involved in struggles to defend or create ways of growing and sharing food that are healthier for their communities and for the planet. If measures are taken to restructure agriculture and the larger food system around food sovereignty, small scale farming, agro-ecology and local markets, we could cut global emissions in half within a few decades. We don't need carbon markets or techno-fixes. We need the right policies and programmes to dump the current industrial food system and create a sustainable, equitable and truly productive one instead.

Climate change endangers food security in Himalayan communities such as Dunche, in Nepal's Rasuwa District. In this photo Tamang women pound and sift wheat. (Photo credit: Minority Rights Group/Jared Ferrie).

Food and climate: piecing the puzzle together.

Most studies put the contribution of agricultural emissions – the emissions produced on the farm – at somewhere between 11 and 15% of all global emissions[1]. What often goes unsaid, however, is that most of these emissions are generated by industrial farming practices that rely on chemical (nitrogen) fertilsers, heavy machinery run on petrol, and highly concentrated industrial livestock operations that pump out methane waste.

The figures for agriculture's contribution also often do not account for its role in land use changes and deforestation, which are responsible for nearly a fifth of global GHG emissions[2]. Worldwide, agriculture is pushing into savannahs, wetlands, cerrados and forests, plowing under huge amounts of land. The expansion of the agricultural frontier is the dominant contributor to deforestation, accounting for about 70-90% of global deforestation[3]. This means that some 15-18% of global GHG emissions are produced by land-use change and deforestation caused by agriculture. And here too, the global food system and its industrial model of agriculture are the chief culprits. The main driver of this deforestation is the expansion of industrial plantations for the production of commodities such as soy, sugarcane, oilpalm, maize and rapeseed.

Since 1990, the area planted with these five commodity crops grew by 38%[4] though land planted to staple foods like rice and wheat declined.

Emissions from agriculture account for only a portion of the food system's overall contribution to climate change. Equally important is what happens from between the time food leaves the farm until it reaches our tables.

Food is the world's biggest economic sector, involving more transactions and employing more people by far than any other. These days food is prepared and distributed using enormous amounts of processing, packaging and transportation, all of which generate GHG emissions, although data on such emissions are hard to find. Studies looking at the EU conclude that about one quarter of overall transportation involves commercial food transport[5]. The scattered

1. The IPCC says 10-12%, the OECD says 14% and the WRI says 14.9%. See:
—IPCC, Climate Change 2007: Mitigation of Climate Change. Chapter 8: Agriculture (http://tinyurl.com/ms4mzb).
—Wilfrid Legg and Hsin Huang. OECD Trade and Agriculture Directorate, Climate change and agriculture (http://tinyurl.com/5u2hf8k).
—WRI, World GHG Emissions Flow Chart (http://tinyurl.com/2fmebe).

2. See: WRI, World GHG Emissions Flow Chart (http://tinyurl.com/2fmebe), and: IPCC. 2004. Climate Change 2001: Working Group I: 3.4.2 Consequences of Land-use Change (http://tinyurl.com/6lduxqy).

3. See: FAO Advisory Committee on Paper and Wood Products – Forty ninth Session – Bakubung, South Africa, 10 June 2008; and M. Kanninen et al., "Do trees grow on Money? Forest Perspective 4", CIFOR, Jakarta, 2007.

4. See: GRAIN, "Global Agribusiness: two decades of plunder", in: Seedling, July 2010.

5. See: Eurostat. From farm to fork – a statistical journey along the EU's food chain. Issue number 27/2011 (http://tinyurl.com/656tchm) and (http://tinyurl.com/6k9jsc3).

figures on transportation available for other countries, such as Kenya and Zimbabwe, indicate that the percentage is even higher in non-industrialised countries, where food production and delivery accounts for 60-80% of the total energy – human plus animal plus fuel – used.[6] With transportation accounting for 25% of global GHG emissions, we can use the EU data to conservatively estimate that the transport of food accounts for at least 6% of global GHG emissions. When it comes to processing and packaging, again the available data is mainly from the EU, where studies show that the processing and packaging of food accounts for 10-11% of GHG emissions[7], while refrigeration of food accounts for 3-4%[8] of total emissions and food retail another 2%[9].

15-18% of global GHG emissions are produced by land-use change and deforestation.

Steep hillside farming and deforested mountains in the Philippines. (Photo credit: Trees for the Future)

Playing it conservative with the EU figures and extrapolating from the scarce figures that exist for other countries, we can estimate that at least 5-6% of emissions are due to food transport, 8-10% due to food processing and packaging, around 1-2% due to refrigeration, and 1-2% due to retail. This gives us a total contribution of 15-20% of global emissions from these activities.

Not all of what the food system produces is consumed. In the trip from farms to traders, food processors, stores and supermarkets, up to half the production of the industrial food system is discarded or lost. This is enough to feed the world's hungry six times over[10]. A lot of this waste rots away on garbage heaps and landfills, producing substantial amounts of greenhouse gases. Various studies indicate that something like 3.5 - 4.5% of global GHG emissions come from waste, and that over 90% of them come from materials originating in agriculture and their processing[11]. This means that the decomposition of organic waste originating in food and agriculture is responsible for 3-4% of global GHG emissions.

Turning the food system upside down.

Clearly, we will not get out of the climate crisis if the global food system is not urgently and dramatically transformed. The place to start is with the soil.

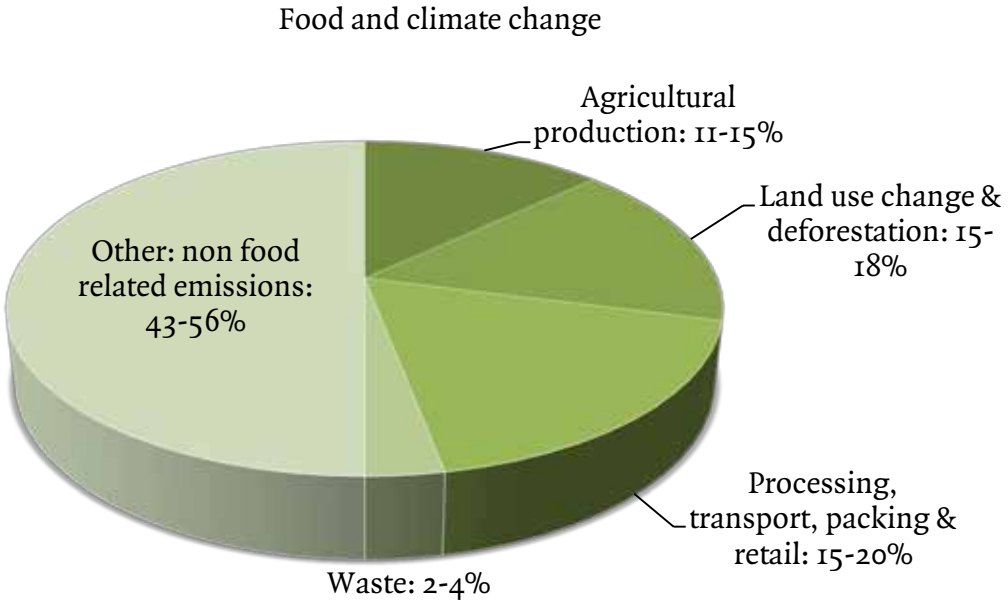
Food begins and ends with soil. It grows out of the soil and eventually goes back in it to enable more food to be produced. This is the very cycle of life. But in recent years humans have ignored this vital cycle. We have been taking from the soil without giving back.The industrialisation of agriculture, starting in Europe and North America, replicating later through the Green Revolution in other parts of the world, was based on the assumption that soil fertility could be maintained and increased through the use of chemical fertilisers. Little attention was paid to the importance of organic matter in the soil.

A wide range of scientific reports indicate that cultivated soils have lost from 30 to 75% of their organic matter during the 20th century, while soils under pastures and prairies have typically lost up to 50%. There is no doubt that these losses have provoked a serious deterioration of soil fertility and productivity, as well as contributing to worsening droughts and floods.

Taking as a basis some of the most conservative figures provided by scientific literature, the global accumulated loss of soil organic matter over the last century may be estimated to be between 150 to 200 billion tonnes[12]. Not all this organic matter

6. FAO. Stephen Karekezi and Michael Lazarus, "Future energy requirements for Africa's agriculture". Chapters 2, 3, and 4. (http://www.fao.org/docrep/V9766E/v9766e00.htm#Contents).
7. For EU, see: Viktoria BOLLA, Velina PENDOLOVSKA, Driving forces behind EU-27 greenhouse gas emissions over the decade 1999-2008. Statistics in focus 10/2011. (http://tinyurl.com/6bhesog).
8. Tara Garnett and Tim Jackson, Food Climate Research Network, Centre for Environmental Strategy, University of SurreyFrost Bitten: an exploration of refrigeration dependence in the UK food chain and its implications for climate policy (www.fcrn.org.uk/frcnPubs/publications/PDFs/Frostbitten%20paper.pdf).
9. S.A. Tassou, Y. Ge, A. Hadawey, D. Marriott. Energy consumption and conservation in food retailing. Applied Thermal Engineering 31 (2011) 147-156 and Kumar Venkat. CleanMetrics Corp. The Climate Change Impact of US Food Waste.
CleanMetrics Technical Brief. (www.cleanmetrics.com/pages/ClimateChangeImpactofUSFoodWaste.pdf) and Ioannis Bakas, Copenhagen Resource Institute (CRI). Food and Greenhouse Gas (GHG) Emissions. (www.scp-knowledge.eu/sites/default/files/KU_Food_GHG_emissions.pdf).
10. Tristram Stuart, "Waste: Uncovering the Global Food Scandal", Penguin, 2009, (http://tinyurl.com/m3dxc9).
11. Jean Bogner, et. al. Mitigation of global greenhouse gas emissions from waste: conclusions and strategies from the IPCC. Fourth Assessment Report. Working Group III (Mitigation) (http://wmr.sagepub.com/content/26/1/11.short?rss=1&ssource=mfc).
12. Figures used for calculations were:

Add the above figures together, factor up the evidence, and there is a compelling case that the current global food system, propelled by an increasingly powerful transnational food industry, is responsible for around half of all human produced greenhouse gas emissions: anywhere from a low of 44% to a high of 57%. The graph below illustrates the conclusion:



The industrial food system is responsible for 44 to 57% of all global GHG emissions

ended up in the air as CO_2, as significant amounts have been washed away by erosion and have been deposited in rivers and oceans. However, it can be estimated that at least 200 to 300 billion tonnes of CO_2 have been released to the atmosphere due to the global destruction of soil organic matter. In other words, 25 to 40% of the current excess CO_2 in the atmosphere comes from the destruction of soils and their organic matter.

There is some good news hidden in these devastating figures. The CO_2 that we have sent into the atmosphere by depleting the world's soils can be put back into the soil. All that is required is a change of agricultural practices – from those that deplete soil organic matter to those that build it up.

We know this can be done. Farmers around the world have been engaging in these very practices for generations. GRAIN research has shown that if the right policies and incentives were in place worldwide, soil organic matter content could be restored to pre-industrial agriculture levels within a period of 50 years, which is roughly the same time that frame industrial agriculture took to reduce it.[13] The continuing use of these practices would allow the offset of about 24-30% of current global annual GHG emissions[14].

The new scenario would require a radical change from the current industrial agriculture model. The changed model would focus on techniques such as diversified cropping systems, better integration between crop and animal production, increased incorporation of trees and wild vegetation, and so on. Such an increase in diversity would, in turn, increase the production potential, and the incorporation of organic matter would progressively improve soil fertility, creating virtuous cycles of higher productivity and higher availability of organic matter. The capacity of soil to hold water would increase, which would mean that excessive rainfall would lead to fewer, less intense floods and droughts. Soil erosion would become less of a problem. Soil acidity and alkalinity would fall progressively, reducing or eliminating the toxicity that has become a major problem in tropical and arid soils. Additionally, increased soil

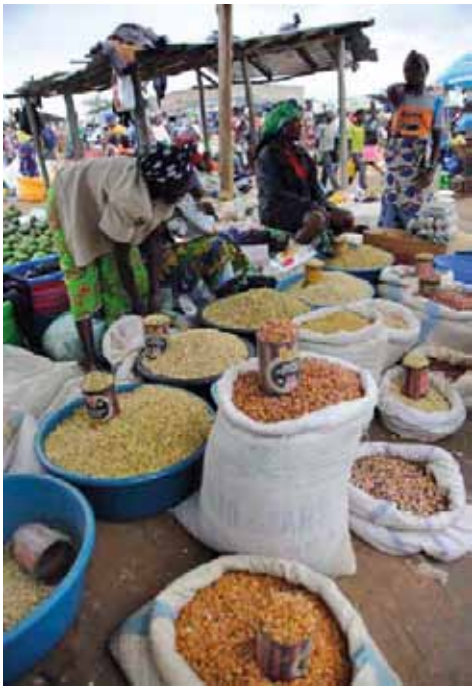
a) an average loss of 4.5- 6 kg of SOM/m^2 of arable land and 2-3 kg of SOM/m^2 of agricultural land under prairies and not cultivated.
b) an average soil depth of 30 cm, with an average soil density of 1 gr/cm^3.
c) 5,000 million ha of agricultural land worldwide; 1,800 million ha of arable land, as stated by FAO.
d) a ratio of 1.46 kg of CO_2 for each kg of destroyed SOM.

13. See: "Earth matters: tackling the climate crisis from the ground up". In: Seedling October 2009. (http://www.grain.org/e/735).
14. The conclusion is based on the assumption that organic matter incorporation would reach an annual global average rate of 3.5 to 5 tonnes per hectare of agricultural land. For more detailed calculations, see: GRAIN, "Earth matters: tackling the climate crisis from the ground up". In: Seedling October 2009, table 2.

biological activity would protect plants against pests and diseases. Each of these effects implies higher productivity and hence more organic matter available to soils, thus making possible, as the years go by, higher targets for soil organic matter incorporation. More food would be produced in the process.

To be able to do it, we would need to build on the skills and experience of the world's small farmers rather than undermining them and forcing them off their lands, as is now the case.

A global shift towards an agriculture that builds up organic matter in the soil would also put us on a path to removing some of the other major sources of GHGs from the food system. There are three other mutually reinforcing shifts that need to take place in the food system to address its overall contribution to climate change. The first is a shift to local markets and shorter circuits of food distribution, which will cut back on transportation and the need for packaging, processing and refrigeration. The second is a reintegration of crop and animal production, to cut back on transportation, the use of chemical fertilisers and the production of methane and nitrous oxide emissions generated by intensive meat and dairy operations. And the third is the stopping of land clearing and deforestation, which will require genuine agrarian reform and a reversal of the expansion of monoculture plantations for the production of agrofuels and animal feed.



Shorter circuits of food distribution could cut back on transportation and the need for packaging, processing and refigeration.

25 to 40% of the current excess CO_2 in the atmosphere comes from the destruction of soils.

If the world gets serious about putting these four shifts into action, it is quite possible that we can cut global GHG emissions in half within a few decades and, in the process, go a long way towards resolving the other crises affecting the planet, such as poverty and hunger. There are no technical hurdles standing in the way – the knowledge and skills are in the hands of the world's farmers and we can build on that. The only hurdles are political, and this is where we need to focus our efforts.

Street market in Kumasi.Woman carrying yams and chickens at market in Kumasi, Ghana.
Photo: Peter Kosina.

The international food system and the climate crisis

Today's global food system, with its high-tech seeds and fancy packaging, cannot fulfil its most basic function of feeding people. Despite this monumental failure, there is no talk in the corridors of power of changing direction. Large and growing movements of people clamour for change, but the world's governments and international agencies keep pushing more of the same: more agribusiness, more industrial agriculture, more globalisation. As the planet moves into an accelerating period of climate change, driven in large part by this very model of agriculture, such failure to take meaningful action will rapidly worsen an already intolerable situation. But in the worldwide movement for food sovereignty, there is a promising way out.

The rationale and urgency for an overhaul of the world's food system has never been more stark.

This year more than one billion people will go hungry, while another half a billion will suffer from obesity. Three-quarters of those without enough to eat will be farmers and farm workers (those who produce food), while the handful of agribusiness corporations that control the food chain (those who decide where the food goes) will amass billions of dollars in profits. Now the latest scientific studies are predicting that, in a business-as-usual scenario, rising temperatures, extreme climate conditions and the severe water and soil problems related to them will push many more millions into the ranks of the hungry. As population growth raises demand for food, climate change will sap our capacities to produce it. Certain countries already struggling with severe hunger problems could see their food production cut by half before the end of this century. Yet where elites gather to talk about climate change, very little is being said about such consequences for food production and supply, and even less is being done to address them.

There is another dimension to this interaction between climate change and the global food system that reinforces the urgent need for action. Not only is today's dysfunctional food system utterly ill-equipped for climate change, it is also one of the main engines behind it. The model of industrial agriculture that supplies the global food system essentially functions by converting oil into food, producing tremendous amounts of greenhouse gases (GHGs) in the process. The use of huge amounts of chemical fertilisers, the expansion of the industrial meat industry, and the ploughing under of the world's savannahs and forests to grow agricultural commodities are together responsible for at least 30% of the global GHG emissions that cause climate change.[1]

But that is only a part of the current food system's contribution to the climate crisis. Turning food into global industrial commodities results in a tremendous waste of fossil-fuel energy in transporting it around the world, processing it, storing it and freezing it, and getting it to people's homes. All these processes are contributing to the climate bill. When added together, it is not an exaggeration to say that the current global food system could be responsible for nearly half the world's GHG emissions.

The rationale and urgency for an overhaul of the world's food system has never been more stark. From a practical point of view, there is nothing preventing transition to a saner system, and people everywhere are showing willingness to change – whether they be consumers searching out local foods or peasants barricading highways to defend their lands. What stands in the way is the structure of power – and it is this, more than anything, that requires transformation.

The forecast is for famine.

In 2007, the Intergovernmental Panel on Climate Change (IPCC) issued its long-awaited report on the state of Earth's climate. The report, while stating in unequivocal terms that global warming is happening and saying that it is "very likely" that humans are responsible for it, cautiously forecasts that the planet will heat up by 0.2° Celsius (C) per decade if nothing is done to reduce our

1. International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), Global Report, 2008, (http://tinyurl.com/6r82ry).

1 The roots of deforestation

The reason that land-use change is often lumped in with agriculture in the statistics on factors responsible for climate change is that much of it occurs through the conversion of forest or grassland to crop production or cattle raising. The FAO estimates that 90% of deforestation is caused by agriculture, nearly all of it in developing countries. Even so, farmers are conserving significant areas of forest. A recent study using detailed satellite imagery, carried out by the World Agroforestry Centre, shows that 46% of the world's farmland contains at least 10% tree cover.[1] "The area revealed in this study is twice the size of the Amazon and shows that farmers are protecting and planting trees spontaneously", said Dennis Garrity, the Centre's director-general. These trees already play an important role in protecting farmers against climate change and could help more, particularly as farmers in the tropics have a staggering 50,000 different tree species to choose from. "When crops and livestock fail, trees often withstand drought conditions and allow people to hold over until the next season", said Tony Simons, the Centre's deputy director-general.

There are clearly other important reasons, apart from farming, why forests get cut down. Logging, mining, roads, urban sprawl and dams are also major causes of deforestation. So too is small-scale collection of fuel-wood, which is often driven by lack of access on the part of the poor to public sources of energy. In many countries, deforestation is camouflaged as agricultural development by companies who want to acquire land concessions for the timber. Palm oil and rubber companies also are notorious for clearing virgin forest for timber, while not following through on promises to develop the land for agriculture.[2]

That said, farmers do cut down forests to get at new farm lands. But we have to ask why they do so. Population pressures are only one part of the story. As the World Rainforest Movement has extensively documented, more often the problem is not a lack of agricultural land, but the concentration of land or resources in the hands of an elite, or the expulsion of communities to make way for development projects.[3] Deforestation tends to happen when communities lose control over their resources. Where deforestation occurs, there are usually local communities trying to stop it – especially communities of indigenous people. And where poor people clear forest for farmland, they were often pushed off of their former lands – and the odds are that they tried to resist the process, as witnessed by the backlog of court cases and petitions over land conflicts in countries such as Vietnam and China.

Moreover, those converting forests and grasslands to agriculture are not, in many cases, small farmers but transnational corporations (TNCs), or large-scale farmers producing for TNCs. The expansion of oilpalm plantations in Indonesia's rain forests or sugarcane plantations in Brazil's *cerrado* are two obvious examples.[4] Indeed, it is hard to imagine how small farmers could cause large-scale deforestation when, in many countries, they occupy only a small percentage of the agricultural land. In Latin America, in countries where such data is available, small farmers occupy only 3.5% of the agricultural land in Ecuador, 8.5% in Brazil and 5% in Chile.[5] In Colombia and Peru, where small farmers own most of the farms (82% and 70%, respectively, of the holdings), they occupy only a modest share of the farmed land (14% and 6%, respectively).[6]

1. Robert J. Zomer et al., Trees on Farm: Analysis of Global Extent and Geographical Patterns of Agroforestry, ICRAF Working Paper No. 89, World Agroforestry Centre, Nairobi, 2009, http://www.worldagroforestry.org/af/newsroom/for_journalists/agroforestry_assessment_report
2. See for example, Chris Lang, "The expansion of industrial tree plantations in Cambodia and Laos," Focus Asien, 26 December 2006, http://chrislang.org/2006/12/26/the-expansion-of-industrial-tree-plantations-in-cambodia-and-laos/
3. See, for example, World Rainforest Movement, "Zambia: Causes of Deforestation linked to government policies", Bulletin No. 50, 2001, http://www.wrm.org.uy/bulletin/50/Zambia.html
4. Almuth Ernsting, "Agrofuels in Asia: Fuelling poverty, conflict, deforestation"; GRAIN, "Corporate power: Agrofuels and the expansion of agribusiness", Seedling, July 2007, http://www.grain.org/seedling/?type=68
5. Ecuador: Breve análisis de los resultados de las principales variables del censo nacional agropecuario 2000, http://www.sica.gov.ec/censo/contenido/estud_an.htm, III Censo agropecuario del Ecuador, 2000, http://www.sica.gov.ec/censo/docs/nacionales/tabla1.htm Serafín Ilvay, Foro brasileño por la reforma agraria: "Repartir la tierra y multiplicar el pan", 13 June 2000, http://movimientos.org/cloc/mst-br/show_text.php3?key=10. Censo Agropecuario y Forestal de Chile, http://www.censoagropecuario.cl
6. Edelmira Pérez Correa and Maniel Pérez Martínez, "El sector rural en Colombia y su crisis actual", http://redalyc.uaemex.mx/redalyc/pdf/117/11704803.pdf

GHG emissions. The report warns that a rise in temperature of 2–4°C, which may be reached by the end of the century, would produce a dramatic rise in sea levels and a sharply increased frequency of climatic catastrophes.

Now, just two years later, it appears that the IPCC was too optimistic. Today's scientific consensus is that a 2°C increase over the next few decades is already a virtual certainty, and that the business-as-usual scenario could heat up the planet by as much as 8°C by 2100, pushing us over the tipping point and deep into what is described as dangerous and irreversible climate change.[2] Already, the impact of much milder climate change is hitting hard. According to the Geneva-based Global Humanitarian Forum, climate change is seriously affecting 325 million people a year – with 315,000 dying from hunger, sickness and weather disasters induced by climate change.[3] It predicts that the annual death toll from climate change will rise to half a million by 2030, with 10% of the world's population (700–800 million people) seriously affected.

Food is and will remain at the centre of this unfolding climate crisis. Everyone agrees that agricultural production has to continue to rise significantly over coming decades to feed the growing population. Climate change, however, is likely to put agricultural production into reverse. In the most comprehensive survey of studies modelling the impact of global warming on agriculture to date, William Cline estimates that by 2080, in a business-as-usual scenario, climate change will reduce the potential output of global agriculture by more than 3.2% as compared with today. Developing countries will suffer the most, with a potential 9.1% decline in agricultural output. Africa will suffer a 16.6% decline. These are horrific numbers, but, as Cline says, the actual impacts are likely to be much worse than even these figures suggest.[4]

Table 1: Estimates for impact of global warming on world agricultural output potential by the 2080s (%)

	without carbon fertilisation	*with carbon fertilisation*
Global		
output-weighted	–15.9	–3.2
population-weighted	–18.2	–6.0
median by country	–23.6	–12.1
Industrial countries	–6.3	7.7
Developing countries	–21.0	–9.1
median	–25.8	–14.7
Africa	–27.5	–16.6
Asia	–19.3	–7.2
Middle East/North Africa	–21.2	–9.4
Latin America	–24.3	–12.9

Source: edited table taken from William R. Cline, Global Warming and Agriculture, p. 96

A major weakness in the forecasts of the IPCC and others when it comes to agriculture is that their predictions accept a theory of "carbon fertilisation", which argues that higher levels CO_2 in the atmosphere will enhance photosynthesis in many key crops, and boost their yields. Recent studies show that this is a mirage. Not only does any initial acceleration in growth slow down significantly after a few days or weeks, but the increase in CO_2 reduces nitrogen and protein in the leaves by more than 12%. This means that, with climate change, there will be less protein for humans in major cereals such as wheat and rice. There will also be less nitrogen in the leaves for bugs, which means that bugs will eat more leaf, leading to important reductions in yield.[5]

When Cline removed carbon fertilisation from his calculations, the results were much more gruesome (*see* Table 1). Global yields would decline by 15.9% by the 2080s, with yields declining 24.3% in Latin America, 19.3% in Asia (38% in India) and 27.5% in Africa (more than 50% in Senegal and Sudan).[6]

But even this dreadful forecast may be an underestimate. Cline's study, like the IPCC report and other major reports dealing with agriculture and climate change, did not factor in the looming water crisis associated with climate change. Currently 2.4 billion people live in highly water-stressed environments, and recent predictions indicate that this number will rise to 4 billion by the second half of this century. Sources of water for agriculture have run out or are dangerously low in many parts of the world, and global warming is predicted to compound the problem, as higher temperatures generate drier conditions and increase the amount of water needed for agriculture.[7] It is going to get much harder to sustain current levels of food production even as demand grows with increasing populations.[8]

Also outside Cline's forecast are the effects of the increase in extreme

2. Chris Lang, "The gaping chasm between climate science and climate negotiations", World Rainforest Movement Bulletin, No. 143, June 2009.
3. Global Humanitarian Forum, Human Impact Report, May 2009, (http://tinyurl.com/lqvs6v).
4. William R. Cline, Global Warming and Agriculture: Impact Estimates by Country, Center for Global Development and the Peterson Institute for International Economics, 2007, (http://tinyurl.com/nc4hsr).
5. John T. Trumble and Casey D. Butler, "Climate change will exacerbate California's insect pest problems", California Agriculture, Vol. 63, No. 2, (http://tinyurl.com/m3qf85).
6. William R. Cline, Global Warming and Agriculture: Impact Estimates by Country, Center for Global Development and the Peterson Institute for International Economics, 2007, (http://tinyurl.com/nc4hsr).
7. According to Cline, evapotranspiration (the combined loss of moisture from soil through evaporation and plants through stomatal transpiration) increases with temperature.
8. According to the report of the IAASTD, irrigation water supply reliability is expected to decline in all regions, with a global decrease from 70% to 58% from 2000 to 2050. International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), Global Report, 2008, (http://tinyurl.com/6r82ry).

weather that climate change will foster. Droughts, floods and other "natural" disasters are expected to increase in frequency and intensity, wreaking havoc with agriculture. The World Bank forecasts that the intensification of storms caused by climate change will make an additional three million hectares of farmland in coastal areas vulnerable to inundation.[9] At the same time, wild fires, which already affect an estimated 350 million hectares of land each year[10], are expected to increase dramatically as a result of global warming, creating a serious problem of carbon aerosol pollution, which would further aggravate the greenhouse effect. One study foresees a 50% increase in wild fires in the western USA by 2055 as a result of the predicted increase in air temperature.[11]

And then there is the market to consider. The global food supply is increasingly controlled by a small number of transnational corporations that exert near-monopoly positions all along the food chain – from seeds to supermarkets. The amount of speculative capital in agricultural trade is also on the rise. In this context, any disruptions to the food supply, or even perceived disruptions, lead to tumultuous price increases and extreme profit-taking by the speculators, which make food inaccessible to the urban poor and derails agricultural production in the countryside.[12] Indeed, talk of a looming global food shortage is already attracting private equity speculators into agriculture and impelling a global farmland grab, the like of which has not been since since the colonial era.[13]

FOOD IS AND WILL REMAIN AT THE CENTRE OF THIS UNFOLDING CLIMATE CRISIS. EVERYONE AGREES THAT AGRICULTURAL PRODUCTION HAS TO CONTINUE TO RISE SIGNIFICANTLY OVER COMING DECADES TO FEED THE GROWING POPULATION.

We are moving into an era of severe disruption of food production. There has never been a more pressing need for a system that can ensure that food is distributed to everyone, according to need. Yet never has the world's food supply been more tightly controlled by a small group, whose decisions are based solely on how much money they can extract for their shareholders.

Cooking the planet for dinner.

Proponents of the Green Revolution boast of how its basic recipe of uniform plant varieties and chemical fertilisers saved much of the world from starvation. Defenders of the so-called Livestock and Blue (aquaculture) Revolutions sell a similar story about uniform breeds and industrial feeds. The narratives, however, sound less convincing today, with nearly a quarter of the planet going hungry and with crop yields stuck on a plateau since the 1980s. In fact, they read more like horror stories when the environmental consequences are considered, especially as the world learns more about the contribution that these transformations in agriculture and the larger food system make to changing the climate.

The scientific consensus is that agriculture is now responsible for around one third of all human-made GHG emissions. But lumping all forms of farming into a single pile hides the truth. In most agriculture-based countries, agriculture itself makes little contribution to climate change. Those countries with the highest percentages of rural populations and whose economies are most dependent on agriculture tend to make the lowest GHG emissions per capita.[14] For instance, although Canadian agriculture is said to account for only 6% of the country's overall GHG emissions, this works out at 1.6 tonnes of GHG per Canadian, whereas in India, where agriculture is much more important to the national economy, per capita GHG emissions from all sources are only 1.4 tonnes, and only 0.4 tonnes from agriculture.[15] There is a difference therefore in the kind of agriculture that is practised, and one cannot just point a finger at agriculture in general.

Moreover, when we break down agriculture's overall contribution to climate change we see that just a small section of activities accounts for almost all of agriculture's GHG emissions. Deforestation caused by land use changes accounts for around half the total, while, with on-farm emissions, the biggest culprits by far are livestock production and fertilisers. All of these sources of GHGs are closely linked to the rise of industrial agriculture and the expansion of the corporate food system, as is our food system's heavy reliance on fossil fuels and the significant carbon footprint generated by trucking and shipping inputs and food all around the world, wrapped in all manner of plastics (*see* Box 1, "Earth matters", and the article "Real problems, false solutions").

Since most of the energy used in the industrial food system comes from fossil fuels, the amount of energy it uses

9. Susmita Dasgupta, Benoit Laplante, Siobhan Murray, David Wheeler, "Sea-Level Rise and Storm Surges: A Comparative Analysis of Impacts in Developing Countries," The World Bank, Development Research Group, Environment and Energy Team, April 2009.
10. FAO, "The wildland fire problem", Rome, 27 July 2009, (http://tinyurl.com/n4qfcv).
11. American Geophysical Union and Harvard University, "Damage, pollution from wildfires could surge as western US warms", 28 July 2009, (http://tinyurl.com/l53keg).
12. See GRAIN's resources web page on the food crisis, (http://www.grain.org/foodcrisis/).
13. See GRAIN's resources web page on the global land grab, (http://www.grain.org/landgrab/).
14. Wikipedia, list of countries by carbon dioxide emissions per capita, 1990–2005, (http://tinyurl.com/yzh39x).
15. Greenpeace Canada, "L'agriculture ... pire que les sables bitumineux! Rapport de Statistique Canada", 10 June 2009, (http://tinyurl.com/nkd5pp).

Five key steps towards a food system that can address climate change and the food crisis.

2

1. Move towards sustainable, integrated production methods

The artificial separations and simplifications that industrial agriculture has brought upon us have to be undone, and the different elements of sustainable farming systems must be brought together again. Crops and livestock have to be reintegrated on the farm. Agricultural biodiversity has to become the cornerstone of food production again, and local seed saving and exchange systems need to be reactivated. Chemical fertilisers and pesticides must be replaced by natural ways of keeping soil healthy, and pests and diseases in check. The restructuring of the food system along these lines will help to create the conditions for near-zero emissions on farms.

2. Rebuild the soil and retain the water

We have to take the soil seriously again. We need a massive global effort to build organic matter back into the soils, and bring back fertility. Decades of soil maltreatment with chemicals in many places, and mining of soils in others, have left soils exhausted. Healthy soils, rich in organic matter, can retain huge amounts of water, which will be needed to create resilience in the farming system and to deal with the climate and water crises that are already encroaching on us. Increasing organic matter in soils around the world will help to capture substantial amounts of the current excess CO_2 in the atmosphere (see “Earth matters”, p. 9).

3. De-industrialise agriculture, save energy, and keep the people on the land

Small-scale family farming should become the cornerstone of food production again. By allowing the build-up of mega-industrial farm operations that produce commodities for the international market rather than food for people, we have created empty countrysides, overpopulated cities, and destroyed many livelihoods and cultures in the process. De-industrialising agriculture would also help to eliminate the tremendous waste of energy that the industrial farming system now produces.

4. Grow close by and cut the international trade

One principle of food sovereignty is to prioritise local markets over international trade. As we have seen, international trade in food, and its associated food processing industries and supermarket chains, are the food system’s chief contributors to the climate crisis. All of these can largely be cut out of the food chain if food production is reoriented towards local markets. Achieving this is probably the toughest fight of all, as so much corporate power is concentrated on keeping the trade system growing and expanding, and so many governments are happy to go along with this. But if we are serious about dealing with the climate crisis, this has to change.

5. Cut the meat economy and change to a healthier diet

Perhaps the most profound and destructive transformation that the industrial food system has brought upon us is in the livestock sector. What used to be an integral and sustainable part of rural livelihoods has become a mega-industrial meat factory system spread around the world, but controlled by a few. The international meat economy, which has grown five-fold in recent decades, is contributing to the climate crisis enormously. It has also helped to create the obesity problem in rich countries, and destroyed – through subsidies and dumping – local meat production in poor countries. This has to stop, and consumption patterns, especially in rich countries, have to move away from meat. The world needs to return to a decentralised system of meat production and distribution, organised according to people’s needs. Markets that supply meat from smaller farms to local markets at fair prices need to be restored and reinvigorated, and international dumping has to stop.

In most agriculture-based countries, agriculture itself makes little contribution to climate change.

translates directly into the emission of GHGs. The US food system alone is calculated to account for a formidable 20% of the country’s fossil fuel consumption. This figure includes the energy used on the farm to grow the food and the post-agricultural components of transporting, packaging, processing, and storing food. The US Environmental Protection Agency reported that US farmers emitted as much carbon dioxide in 2005 as 141 million cars in the same year! This hopelessly inefficient food system uses ten non-renewable fossil-fuel calories to produce one single food calorie.[16]

The difference in energy use between industrial and traditional agricultural systems could not be starker. There is much talk of how efficient and productive industrial agriculture is compared with traditional farming in the global South, but, if one takes into consideration energy efficiency, nothing could be

16. Data in this paragraph is from Food & Water Watch, “Fuels and Emissions from Industrial Agriculture”, Washington, November 2007, (http://tinyurl.com/mdgypy).

3 The clash of two worlds in the Peruvian Amazon

The Peruvian government chose the symbolic date of World Environment Day to launch a bloody attack on the peoples of the Amazon. The reason for this repression? The steadfast opposition of Amazonian communities to the invasion of their territory by socially and environmentally destructive industries such as mining, oil drilling, and monoculture plantations of trees and agrofuel crops.

On the 9th of April local communities throughout the Peruvian Amazon had begun what they called an "indefinite strike" in protest against the failure of the Peruvian Congress to review a series of legislative decrees that endanger the rights of indigenous peoples. These decrees were issued by the executive branch in the framework of the implementation of the Free Trade Agreement signed with the United States.

By unleashing this massacre on World Environment Day, Alan García's government showed the world how little concern it has for environmental protection and how highly it values the large corporations that hope to exploit – and simultaneously destroy – the country's natural resources. Even worse, it publicly declared its contempt for the lives of the indigenous people struggling to defend what little has been left to them by the advance of a "development" model that has proved to be socially and environmentally destructive.

As a result of this bloody repression and the public attention it attracted worldwide, the Peruvian Amazon became a symbol of the clash between two contrasting conceptions of the present and future of humanity, played out on the international stage.

On one side of this conflict is the world of economic interest, which signifies social and environmental destruction, imposition by force, violation of rights. Obviously, this world is not controlled by the Peruvian president, who is merely a temporary and disposable assistant to the corporations – a fact now made evident by the fate of ex-president Fujimori. Nevertheless, the role played by these assistants is very important, since they are the ones who lend the necessary trappings of "legality" to actions that clearly violate the most basic human rights.

On the other side is the world of those who aspire to a future of solidarity and respect for nature. In this case, they were symbolised by the indigenous people of the Amazon, but they can also be found in similar struggles around the world, confronting other governments who are also at the service of the economic interests of big corporations. To mention just a few examples, we could point to the current struggle in south-east Asian countries to defend the Mekong river – which provides sustenance for millions of people – from destruction by giant hydroelectric dams; the struggle of the peoples of Africa against oil-drilling and logging; the struggle of the tribal peoples of India to protect their forests from mining.

In this confrontation, the hypocrisy of those striving to impose the destructive model seems unbounded. In the case of Peru, President Alan García, who now wants to open up the Amazon to extractive industries, declared just over a year ago that he wanted "to prevent this basic wealth that God has given us from being degraded by the works of man, by the incompetence of those who work the land or exploit it economically, and that is why we created this Ministry of the Environment."

Governmental hypocrisy is evident all around the world, especially with regard to climate change. During an endless international process that began in 1992, the governments of the world agreed that climate change is the worst threat facing humankind. They also agreed that the two main causes of climate change are greenhouse gas emissions created by the use of fossil fuels and deforestation. Finally, they agreed that something must be done about it. After signing the relevant agreements and flying back to their countries, they have done everything in their power to promote oil-drilling and deforestation.

Without needing to create ministries of the environment or participate in international processes to combat climate change, people around the world are taking action to defend the environment and the climate. In almost all cases, their actions are criminalised or repressed – in both the South and the North – by those who should be encouraging and supporting them: their governments.

In the now symbolic case of Peru, the peoples of the Amazon – with the support of thousands of citizens around the world – have won an important battle in this clash between two worlds. No one believes that this is the end of the struggle. But it is a victory that provides hope for others fighting for similar goals, and ultimately for the whole world, because the outcome of this confrontation between two worlds will determine the fate of all of humanity.

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further from the truth. The FAO calculates that, on average, farmers in industrialised countries spend five times as much commercial energy to produce one kilo of cereal as do farmers in Africa. Looking at specific crops, the differences are even more spectacular: to produce one kilo of maize, a farmer in the US uses 33 times as much commercial energy as his or her traditional neighbour in Mexico. And to produce one kilo of rice, a farmer in the US uses 80 times the commercial energy used by a traditional farmer in the Philippines![17] This "commercial energy" that the FAO speaks of is, of course, mostly the fossil-fuel oil and gas needed for the production of fertilisers and agrochemicals, and that used by farm machinery, all

17. FAO, "The energy and agriculture nexus", Rome 2000, Tables 2.2 and 2.3, (http://tinyurl.com/2ubntj).

of which emit substantial amounts of GHGs.[18]

But then, agriculture itself is responsible for only about a quarter of the energy used to get food to our tables. The real waste of energy and the pollution happen in the broader international food system: the processing, packaging, freezing, cooking, and moving of food. Crops for animal feed may be grown in Thailand, processed in Rotterdam, then fed to cattle somewhere else that are eaten in a McDonalds in Kentucky.

Transporting food consumes huge amounts of energy. Looking at the USA again, it is calculated that 20% of all the commodity transport within the country involves moving food, resulting in 120 million tonnes of CO_2 emissions. The US import and export of food accounts for another 120 million tonnes of CO_2. Add to that moving supplies and inputs (fertilisers, pesticides, etc.) to industrial farms, transporting plastic and paper to the packaging industries, and moving consumers to increasingly faraway supermarkets, and we get a picture of the tremendous amount of GHGs produced by the industrial food system's transport requirements alone. Other big GHG producers are the food processing, freezing, and packaging industries, which account for 23% of the energy consumed in the US food system.[19] It all adds up to an incredible waste of energy. And on the subject of waste, the industrial food system discards up to *half* of all the food that it produces in its journey from farms to traders, to food processors, to stores and supermarkets! This is enough to feed the world's hungry six times over.[20] Nobody has begun to calculate how much GHG is produced by the rotting of all this thrown-away food.

Much of this tremendous global waste and destruction could be avoided if the food system were decentralised and agriculture oriented more towards local and regional markets. Small farmers and consumers would get closer together again, and large agribusiness would be cut out of the food system. Healthier food, happier producers and consumers, and a sustainable planet would be the result.

The potential for such a transformation is being borne out by thousands of projects and experiments in communities around the world.

Yet, as today's decision-makers contemplate what to do in the face of the current food crisis and the accelerating collapse of the planet's life-giving systems, all they offer is more of the same, with the addition of a few useless techno-fixes. The corporate food order is thus clearly at a dead end. It proposes industrial agriculture and globalised food chains as a solution to the food crisis. But these activities drive climate change, thereby severely intensifying the food crisis. It is a vicious spiral that spews out extremes of poverty and profits, with the chasm between the two growing ever wider. It is way past time to overhaul this global food system.

Which way out?

At a most basic level, the climate crisis means that "business as usual" has to stop, now. The profit motive, as an organising principle for our societies, is bankrupt, and we have to build alternative systems of production and consumption organised according to the needs of the people and life on the planet. When it comes to the food system, such a transformation cannot happen when power is vested in corporations, as it currently is. Nor can we trust our governments – since the mismatch between what the scientists say must be done to stop catastrophic climate change and the actions that politicians take becomes ever more preposterous. The force for change rests with us, in our communities, organising to take back control of our food systems and territories.

In the struggle for another food system our main obstacles are political, not technical. We can put seeds back in the hands of farmers, eliminate chemical fertilisers and pesticides, integrate livestock into mixed farms, and organise our food systems so that everyone has enough safe, nutritious food to eat – without plastics. The potential for such a transformation is being borne out by thousands of projects and experiments in communities around the world. Even the World Bank-led International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) has admitted as much. At the farm level, ways for dealing with climate change and the food crisis are pretty straightforward (*see* Box 2).

The political challenges are more difficult. But here, too, much is already happening. Even in the face of violent repression, local communities are resisting large-scale projects for dams, mines, plantations and timber (*see* Box 3). Although rarely given due credit, this resistance is at the core of climate action. So too are campaigns such as the movement for food sovereignty that are coming together to resist the imposition of neo-liberal policies and to develop collective visions for the future. It is in these spaces and through such organised resistance that the alternatives to today's destructive food system will emerge, and where we will find the collective strength and strategies to transform power in the food system.

18. GRAIN, "Stop the agrofuel craze!", Seedling, July 2007, (http://www.grain/seedling/?id=477).

19. Data in this paragraph is from Food & Water Watch, "Fuels and Emissions from Industrial Agriculture", Washington , November 2007, (http://tinyurl.com/mdgypy).

20. Tristram Stuart, "Waste: Uncovering the Global Food Scandal", Penguin, 2009, (http://tinyurl.com/m3dxc9).

Earth matters

Tackling the climate crisis from the ground up

"We know more about the movement of celestial bodies than we do about the soil underfoot."
Leonardo da Vinci

"Look after the soil, and everything else will look after itself."
Farmers' proverb

Some things have not changed much since da Vinci's time, 500 years ago. For many, soil is a mix of dirt and dust. But in reality soils are one of Earth's most amazing living ecosystems. Millions of plants, bacteria, fungi, insects and other living organisms – most of them invisible to the naked human eye – are in a constantly evolving process of creating, composing and decomposing organic living matter. They are also the unavoidable starting point for anyone who wants to grow food.

Via Campesina has argued that agriculture based on small-scale farming, using agro-ecological production methods and oriented towards local markets, can cool the planet and feed the population.

Soils also contain enormous amounts of carbon, mostly in the form of organic matter. On a global scale soils hold more than twice as much carbon as is contained in terrestrial vegetation. The rise of industrial agriculture in the past century, however, has provoked, through its reliance on chemical fertilisers, a general disrespect for soil fertility and a massive loss of organic matter from the soil. Much of this lost organic matter has ended up in the atmosphere in the form of carbon dioxide (CO_2) – the most important greenhouse gas.

The way that industrial agriculture has treated soils has been a key factor in provoking the current climate crisis. But soils can also be a part of the solution, to a much greater extent than is commonly acknowledged. According to our calculations, if we could manage to put back into the world's agricultural soils the organic matter that we have been losing because of industrial agriculture, we would capture at least one third of the current excessive CO_2 in the atmosphere. If, once we had done that, we were to continue rebuilding the soils, we would, after about 50 years, have captured about two thirds of the excess CO_2 in the atmosphere. In the process, we would be constructing healthier and more productive soils and we would be able to do away with the use of chemical fertilisers, which are another potent producer of climate change gases.

Via Campesina has argued that agriculture based on small-scale farming, using agro-ecological production methods and oriented towards local markets, can cool the planet and feed the population (*see* Box 1). They are right, and the reasons lie largely in the soil.

Soils as living ecosystems.

Soils are a thin layer that covers more than 90% of the land surface of the planet and, contrary to what many people think, is a living, dynamic ecosystem. Healthy soil teems with microscopic and larger organisms that perform many vital functions, including converting dead and decaying matter (and minerals) into plant nutrients. Different soil organisms feed on different organic substrata. What distinguishes this living system from dust is that it can retain and slowly provide the nutrients needed by plants to grow. It can store water and slowly release it into rivers and lakes or into the microscopic surroundings of plant roots, so that rivers can run and plants can absorb water long after rain has fallen. If soils did not

1 Small scale sustainable farmers are cooling down the earth[1]

Current global modes of production, consumption and trade have caused massive environmental destruction, including global warming, which is putting our planet's ecosystems at risk and pushing human communities into disasters. Global warming shows the failure of a development model based on high fossil-energy consumption, overproduction and trade liberalisation.

Via Campesina believes that solutions to the current crisis have to emerge from organised social groups who are developing modes of production, trade and consumption based on justice, solidarity and healthy communities. No technological fix will solve the current global environmental and social disaster. Sustainable small-scale farming is labour-intensive and requires little fuel; it can contribute to cooling down the earth.

All around the world, we practise and defend small-scale sustainable family farming and we demand food sovereignty. Food sovereignty is the right of peoples to healthy, culturally appropriate food produced through ecologically sound, 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. Food sovereignty prioritises local and national economies and markets, and empowers peasant and family farmer-driven agriculture, artisan-style fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability.

We urgently demand of local, national and international decision makers:

The complete dismantling of agribusiness companies: they steal the land of small producers, produce junk food and create environmental disasters.

The replacement of industrialised agriculture and animal production by small-scale sustainable agriculture supported by genuine agrarian reform programmes.

The promotion of sane and sustainable energy policies. This includes consuming less energy, and producing solar and biogas energy on farms – instead of heavily promoting agrofuel production, as is currently the case.

The implementation of agricultural and trade policies at local, national and international levels supporting sustainable agriculture and local food consumption. This includes a ban on subsidies that lead to the dumping of cheap food on markets.

1. Extracted from La Via Campesina's statement on climate change, (http://www.viacampesina.org/main_en/index.php?option=com_content&task=view&id=457&Itemid=37).

allow these processes to take place, life on earth as we know it simply wouldn't exist.

A key component of what makes soils function is known as soil organic matter (SOM). It is a mixture of substances that originate from the decomposition of plant and animal materials. It includes substances excreted by fungi, bacteria, insects and other organisms. As manure and dead organisms decompose, they gradually liberate nutrients that can be taken up by plants and used in their growth and development. As all these substances get mixed into the soil, they form new molecules that give the soil new characteristics. Molecules of SOM can absorb up to 100 times as much water as those of dust, and they can retain and later release to plants a similar proportion of nutrients.[1] Organic matter also provides binding molecules that keep soil particles together, thus protecting the soil against erosion and rendering it more porous and less compact. These characteristics are what allows soils to absorb rain and slowly release it to lakes, rivers and plants. They also allow plant roots to grow. As plants grow, more stubble reaches or stays in the soil and more organic matter is formed, thus creating a continuous cycle that accumulates organic matter in the soil. This process has taken place for millions of years, and the accumulation of organic matter in soils was a key factor in low-

Crops destroyed by drought. Photo: Practical Action

1. C.C. Mitchell and J.W. Everest, "Soil testing and plant analysis", Southern Regional Fact Sheet, Department of Agronomy & Soils, Auburn University, (http://tinyurl.com/lbg6st).

ering the amount of CO_2 in the atmosphere millions of years ago, thus making possible the emergence of current forms of life on Earth.

Organic matter is mostly found in the top layer of soil, which is the most fertile. Being on the top, it is prone to erosion and needs to be protected by a plant canopy, which is in turn a permanent source of additional organic matter. Plant life and soil fertility have thus been mutually enhancing processes,

Rural peoples around the world have a deep understanding of soils.

Table 1: Capturing carbon dioxide by building soil organic matter (SOM)

CO_2 in the atmosphere (1)	2,867,500 million tonnes
Excess CO_2 in the atmosphere (2)	717,800 million tonnes
World's agricultural land (3)	5,000 million hectares
World's cultivated land (4)	1,800 million hectares
Typical reported SOM loss in cultivated land	2 percentage points
Typical reported SOM loss in prairies and non-cultivated land	1 percentage point
Amount of organic matter lost from the soils	150,000–205,000 million tonnes
Amount of Co2 that would be sequestered if these losses were recuperated	220,000–300,000 million tonnes

1. See Carbon Dioxide Information Analysis Center, http://cdiac.ornl.gov/pns/graphics/c_cycle.htm
2. Calculations based on concentration changes over time.
3. Information from FAOSTAT, http://faostat.fao.org/site/377/default.aspx#ancor
4. Ibid.
Source: GRAIN calculations

and organic matter has been the bridge between the two. But organic matter is also the food of bacteria, fungi, small insects and other organisms that live in the soil. They are the ones that turn manure and dead tissue into nutrients and the amazing substances described above, but they are also the ones that decompose organic substances in the soil. So organic matter must be replenished constantly; if it is not, it will slowly disappear from the soil. When micro-organisms and other living beings in the soil decompose organic matter, they produce energy for themselves and release minerals and CO_2 in the process. For each kilogram of organic matter that decomposes, 1.5 kilograms of CO_2 are released into the atmosphere.

Rural peoples around the world have a deep understanding of soils. They learned through experience that soil has to be cared for, nurtured, fed and rested. Many common practices of traditional agriculture reflect this knowledge. The application of manure, crop residues and compost feed the soil and renovate organic matter. Leaving some land unplanted (fallow) in a system of rotation, especially when spontaneous wild vegetation is encouraged (covered fallow), allows the soil to rest, so that the decomposition processes can take place properly. Limits on tilling, terraces, mulching and other conservation practices protect the soil against erosion, so that organic matter is not washed or blown away. Forest cover is often kept intact, altered as little as possible or mimicked, so that trees can protect the soil against erosion and provide additional organic matter. At those times in history when these practices have been forgotten or laid aside, a high price has been paid. This seems to have been one of the main causes of the disappearance of the Maya kingdom in Central America. It may have also been behind a number of crises in the Chinese empire, and it is certainly a central cause of the dust bowl in the United States and Canada.

The industrialisation of agriculture and the loss of soil organic matter.

The industrialisation of agriculture, which started in Europe and North America and was later replicated in the Green Revolution that took place in other parts of the world, was based on the assumption that soil fertility can be maintained and increased through the use of chemical fertilisers. Little attention was paid to the importance of organic matter in the soil. Decades of industrialisation in agriculture and the imposition of industrial technical standards on small farming have weakened the processes that ensure that soils obtain new supplies of organic matter and that protect the organic matter already stored in the soil from being washed or blown away. The effects of not renovating organic matter and applying fertilisers initially went unnoticed because of the large stocks of organic matter within the soils. But over time, as these stocks have been depleted, the effects have become more visible – with devastating consequences in some parts of the world. From a global point of view, the pre-industrial equilibrium between air and soils was that for every tonne of carbon in the air, approximately 2 tonnes existed in soils. The current ratio is down to approximately 1.7 tonnes in soils for each tonne in the atmosphere.[2]

Soil organic matter is measured in percentages. One% means that in every kilogram of soil, 10 grams are organic matter. Depending on soil depth, this is equivalent to 20–80 tonnes

2. Y.G. Puzachenko et al., "Assessment of the Reserves of Organic Matter in the World's Soils: Methodology and Results", Eurasian Soil Science, Vol. 39, No. 12, 2006, pp. 1284–96, (http://tinyurl.com/npd648).

2 The growing problem with industrial fertilisers

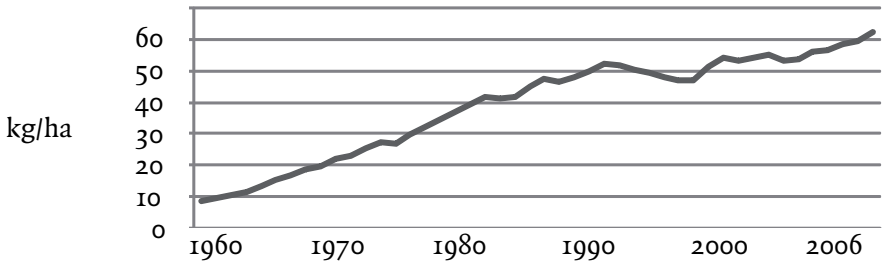
An important factor in the destruction of soil fertility has been the tremendous global increase in the use of chemical fertilisers in farming, with consumption more than quintupling since 1961.[1] Graph 1 tracks the increase of world consumption of nitrogen per hectare, a seven-fold increase since the 1960s.[2] But a lot of this extra nitrogen does not reach the plants, and ends up in groundwater or the air. The more nitrogen fertiliser is applied, the less efficient it becomes. Graph 2 shows the relationship between yields and nitrogen fertiliser consumption for corn (maize), wheat, soya and rice, the four crops that cover almost a third of all cultivated land. For all of them, the yield per kilo of nitrogen applied is today about one third of what it was in 1961, when fertiliser use started to expand worldwide.

The ever decreasing efficiency of industrial fertilisers should come as no surprise. Soil experts and farmers have long known that chemical fertilisers destroy soil fertility by destroying organic matter. When chemical fertilisers are applied, soluble nutrients become immediately available in huge amounts, provoking a surge of microbial activity and multiplication. This increased microbial activity, in turn, speeds up the decomposition of organic matter, as it is consumed at high speed, and CO_2 is released into the atmosphere. When nutrients from fertilisers become scarce, most micro-organisms die, and the soil is left with less organic matter. As this process has been going on for decades, and is reinforced by tilling, soil organic matter is depleted. It is made worse because the same technological approach that promotes chemical fertilisers rules that crop residues should be discarded or burnt, not put back into the soil.

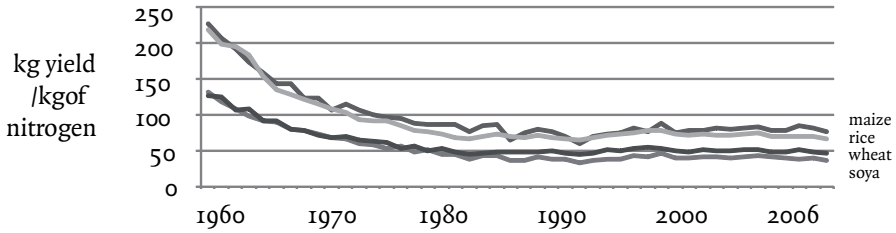
As soils lose organic matter, they become more compact, absorb less water and have a diminished capacity to retain nutrients. Roots grow less and have less capacity to absorb nutrients, nutrients are more easily lost from the soil, and less water in the soil is available for growth. The result is that the use of nutrients from fertilisers becomes less and less efficient, and the only way to overcome such inefficiency is to increase fertiliser doses, as world trends show. But increased application only compounds the problem; inefficiency and soil destruction continue apace. It is not uncommon to hear organic farmers say that they turned organic because their yields collapsed after years of heavy industrial fertiliser use.

Problems with industrial fertilisers do not end there. The forms of nitrogen provided by chemical fertilisers are readily transformed in the soil, so that nitrous oxides are emitted into the air. Nitrous oxides have a greenhouse effect more than two hundred times as strong as that of CO_2,[3] and they are responsible for more than 40% of the greenhouse effect caused by current agricultural practices. Worse, nitrous oxides also destroy the ozone layer.

Graph 1: Increasing nitrogen fertilisation: from a world average of 8.6 kg/ha in 1961 to 62.5 kg/ha in 2006.[4]



Graph 2: For each kg of nitrogen applied, 226 kg of maize were obtained in 1961, but only 76 kg in 2006. The figures were, respectively, 217 and 66 kg for rice, 131 and 36 kg for soya, and 126 and 45 kg for wheat.[5]



1. See website of the International Fertilizer Industry Association (IFA), (http://www.fertilizer.org/ifa/Home-Page/STATISTICS).
2. Data obtained by GRAIN based on statistics provided by IFA (see note 1), and FAO, (http://faostat.fao.org/default.aspx).
3. P. Forster et al., "Changes in Atmospheric Constituents and Radiative Forcing", in S. Solomon et al. (eds), Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, London and New York, Cambridge University Press, 2007, p. 212.
4. Data from IFA website (see note 1).
5. Data obtained by GRAIN based on statistics provided by IFA (see note 1) and FAO (see note 2).

per hectare. The amount of organic matter necessary to ensure fertility varies widely, according to how the soil was formed, what other components it has, climatic conditions, and so on. It can be said, however, that generally 5% organic matter is a good minimum for healthy soil, but for some soils the best growing conditions will be reached only when the organic matter content is more than 30%.

According to a wide range of studies, agricultural soils in Europe and the United States have lost, on average, 1–2 percentage points of organic matter in the top 20–50 cms.[3] This figure may well be an underestimate, as most often the point of comparison is the organic matter level in the early twentieth century, when many soils had already been subjected to industrialised processes, and could have already lost large amounts of organic matter. Some soils in the agricultural mid-west in the USA contained 20% carbon in the 1950s, and are now down to a mere 1–2%.[4] Studies in Chile, Argentina[5], Brazil[6], South Africa[7], and Spain[8] report losses of up to 10 percentage points. Data provided by researchers of the University of Colorado indicate that the world average for organic matter loss in cultivated land is 7 percentage points.[9]

The industrialisation of farming that has destroyed SOM has been going on for more than a century in industrialised countries. The global process, however, really started with the Green Revolution in the 1960s.

The climate calculation.

Let us suppose, as a conservative estimate, that soils around the world have lost, on average, 1–2 percentage points of organic matter in the top 30 cm since the beginning of industrial agriculture. This would amount to some 150,000–205,000 million tonnes of lost organic matter. If we were to manage to put this organic matter back into the soil, we would take 220,000–330,000 million tonnes of CO_2 from the air. This represents a remarkable 30% of the current excess CO_2 in the atmosphere. Table 1 summarises the data.

In other words, actively recovering SOM would effectively cool the planet, and the cooling potential is significantly higher than that presented in these figures, as many soils could store – and benefit from – a larger amount of organic matter than the 1–2 percentage point recuperation rate used in this example.

Can it be done? Bringing organic matter back into the soil

The industrialisation of farming that has destroyed SOM has been going on for more than a century in industrialised countries. The global process, however, really started with the Green Revolution in the 1960s. So the question is: how long would it take to counteract the effects of, say, 50 years of soil deterioration? Recovering one percentage point of SOM means that around 30 tonnes of organic matter per hectare would have to enter the soil and remain there. But, on average, around two thirds of organic matter added to agricultural soils will be decomposed by soil organisms (and the resulting minerals will feed the crops), so in order to add permanently 30 tonnes of SOM, a total of 90 tonnes of organic matter per hectare would be needed. This cannot be done quickly. A gradual process is required.

What is the realistic amount of organic matter that farmers throughout the world could incorporate into the soil? The answer will vary widely from place to place, from cropping system to cropping system, and from one ecosystem to another. A production system that relies exclusively on annual, non-diversified crops can provide 0.5–10 tonnes of organic matter per hectare per year. If the cropping system is diversified, and pastures and green manures are incorporated, that amount can easily be doubled or tripled. If animals are added, the amount of organic matter will not necessarily increase, but it will make the cultivation of pastures and green manures economically feasible and profitable. Moreover, if trees and wild plants are also managed as part of the cropping system, not only will crop

3. R. Lal and J.M. Kimble, "Soil C Sink in U.S. Cropland", (http://tinyurl.com/muurmc).
P.Bellamy. "UK losses of soil carbon – due to climate change?", Natural Resources Department, Cranfield University, (http://tinyurl.com/l9zcjx).
4. Tim J. LaSalle and Paul Hepperly, "Regenerative Organic Farming: a solution to global warming", Rodale Institute, 2008, (http://tinyurl.com/mle5nq).
5. I. Gasparri, R. Grau, E. Manghi. "Carbon Pools and Emissions from Deforestation in Extra-Tropical Forests of Northern Argentina Between 1900 and 2005", abstract available at (http://tinyurl.com/ljrjyo).
J. Galantini. "Materia Orgánica y Nutrientes en Suelos del Sur Bonaerense. Relación con la textura y los sistemas de producción", (http://tinyurl.com/nkjhfh).
6. Carlos C. Cerri, "Emissions due to land use changes in Brazil", EU Conference on Soil and Climate Change, 12 June 2008, (http://tinyurl.com/m3dmyz).
7. C. S. Dominy, R. J. Haynes, R. van Antwerpen, "Loss of soil organic matter and related soil properties under long-term sugarcane production on two contrasting soils", Biology and Fertility of Soils, Vol. 36, No. 5, November 2002, pp. 350–56, abstract available at (http://tinyurl.com/kp9gav).
8. E. Noailles and A. de Veiga, "Pérdida de Fertilidad de un Suelo de Uso Agrícola", Instituto de Suelos, Argentina, abstract available at (http://tinyurl.com/nc92cl).
9. K. Paustian, J. Six, E.T. Elliott and H.W. Hunt, "Management options for reducing CO_2 emissions from agricultural soils", Biogeochemistry, Vol. 48, No. 1, January 2000, pp. 147–63, abstract available at (http://tinyurl.com/nlzekf).

Table 2: Impact of the progressive incorporation of oil organic matter (SOM) into world's agricultural soils

Number of years	1–10	11–20	21–30	31–40	41–50
Tonnes of organic matter incorporated (per hectare per year)	1.5	3	4	4.5	5
Total organic matter incorporated in world's agricultural land by the end of the period (cumulative, in million tonnes)	75,000	225,000	425,000	650,000	900,000
Average increase of organic matter in the soil at the end of the period (in percentage points)	0.15	0.50	0.94	1.4	2.0
Total CO_2 captured per year (in million tonnes)	3,750	7,500	10,000	11,250	12,500
Total CO_2 captured across the period (cumulative, in million tonnes)	37,500	112,500	212,500	325,000	450,000

Source: GRAIN calculations

production increase but additional organic matter will also be produced. As organic matter increases in the soil, soil fertility will improve and more organic matter will become available. When they start converting to organic farming, many farmers incorporate fewer than 10 tonnes per hectare per year, but they may end up after a few years producing and adding up to 30 tonnes of organic matter per hectare.

So, if proactive agricultural policies and programmes were drawn up to promote the widespread incorporation of organic matter into the soil, initial goals might have to be rather modest, but progressively more ambitious goals could be set. Table 2 gives an example of how organic matter could be incorporated into the soil.

The example is completely feasible. Today agriculture around the world produces each year at least two tonnes of usable organic matter per hectare. Annual crops alone produce more than one tonne per hectare[10], and recycling urban organic waste and waste water could add approximately 0.2 tonnes per hectare.[11] If the recuperation of SOM became a central goal of agricultural policies, it would be perfectly possible and reasonable to set as an initial goal the incorporation on average throughout the world of 1.5 tonnes per hectare per year. The new scenario would require a change in approach, with the use of techniques such as diversified cropping systems, better integration between crop and animal production, increased incorporation of trees and wild vegetation, and so on. Such an increase in diversity would, in turn, increase the production potential, and the incorporation of organic matter would progressively improve soil fertility, creating virtuous cycles of higher productivity and higher availability of organic matter. The capacity of soil to hold water would increase, which would mean that excessive rainfall would lead to fewer, less intense floods and droughts. Soil erosion would become less of a problem. Soil acidity and alkalinity would fall progressively, reducing or eliminating the toxicity that has become a major problem in tropical and arid soils. Additionally, increased soil biological activity would protect plants against pests and diseases. Each of these effects implies higher productivity and hence more organic matter available to soils, thus making possible, as the years go by, higher targets for SOM incorporation. More food would be produced in the process.

But even the very modest initial goal would have far-reaching effects. As Table 2 shows, the process would start with the annual incorporation of 1.5 tonnes of organic matter in the first 10 year period, which means that 3,750 million tonnes of CO_2 would be captured each year. This is about 9% of the current total annual human-made emissions.[12] Two other forms of reduction in greenhouse gases (GHGs) would simultaneously take place. First, nutrients equivalent to more than all of current world fertiliser production would be captured in the world's agricultural soils.[13] The elimination of the current production and use of chemical fertilisers would have the potential to reduce yet further GHG emissions by reducing both emissions of nitrous oxide (equivalent to approximately 8% of all GHG emissions and, after deforestation, by far the most important contribution made by agriculture to the greenhouse effect) and the worldwide production and trans-

10. Calculations by GRAIN based on world production of annual crops. Figures obtained using data provided by J.B. Holm-Nielsen (http://tinyurl.com/l4nqra) and the Oak Ridge National Laboratory of the US Department of Energy (http://tinyurl.com/t4x96) at least double the amount of annual crop residues. The same figures can be arrived at using data provided by the University of Michigan at (http://tinyurl.com/38mrkw).

11. Calculations based on figures provided by K.A. Baumert, T. Herzog and J. Pershing, "Navigating the Numbers: Greenhouse Gas Data and International Climate Policy", World Resources Institute, http://tinyurl.com/m5e7kb).

12. Calculations based on figures provided by the Greenhouse Gas Bulletin No. 4, (http://tinyurl.com/m4apxz).

13. Calculations based on the following contents of nutrients in organic matter and efficiency of recovery: nitrogen: 1.2–1.8%, 70% efficiency; phosphorus: 0.5–1.5%, 90% efficiency; potassium: 1.0–2.5%, 90% efficiency.

The NPK mentality – poor soils, poor food

3

We now know that plants absorb 70–80 different minerals from a healthy soil, while most chemical fertilisers add no more than a handful. In the mid-nineteenth century, German chemist Justus von Liebig conducted experiments in which he analysed the composition of plants in order to understand which elements were essential for their growth. His primitive equipment identified only three: nitrogen, phosphorus and potassium, known by their chemical symbols as NPK. Although von Liebig later acknowledged that many other minerals are present in plants, his experiments laid the foundations for a lucrative agrochemical industry, which sells NPK fertilisers to farmers with the promise of miraculously increased yields. NPK fertilisers have certainly revolutionised agriculture, but at the cost of a tragic degradation of the quality of the soil and our food.

In 1992, the official report of the Rio Earth Summit concluded "there is deep concern over continuing major declines in the mineral values in farm and range soils throughout the world". This statement is based on data showing that, over the last 100 years, average mineral levels in agricultural soils had fallen worldwide, by 72% in Europe, 76% in Asia and 85% in North America. Most of the blame lies with the massive use of the artificial chemical fertilisers instead of more natural methods of promoting soil fertility. Apart from the direct depletion that the NPK mentality provoked, chemical fertilisers also tend to acidify the soil, thus killing many soil organisms that play a role in converting soil minerals into chemical forms that plants can use. Pesticides and herbicides can also reduce the uptake of minerals by plants, as they kill certain kinds of soil fungi that live in symbiosis with plant roots (called mycorrhiza). The micorrhiza symbiosis give plants access to a vastly greater mineral extraction system than is possible by their roots alone.

The net result of all of this is that most of the food we eat is mineral-deficient. In 1927, researchers at the University of London's King's College started to look into the nutrient content of food. Their analyses have been repeated at regular intervals since, giving us a unique picture of how the composition of our food has changed over the last century. The table summarises their alarming results: our food has lost 20–60% of its minerals.

Reduction in average mineral content of fruit and vegetables in the UK between 1940 and 1991

Mineral	Vegetables	Fruit
Sodium	–49%	–29%
Potassium	–16%	–19%
Magnesium	–24%	–16%
Calcium	–46%	–16%
Iron	–27%	–24%
Copper	–76%	–20%
Zinc	–59%	–27%

A new study published in 2006 shows that mineral levels in animal products have suffered a similar decline. Comparing levels measured in 2002 with those present in 1940, the iron content of milk was found to have declined by 62%, while calcium and magnesium in Parmesan cheese had each fallen by 70%, and copper in dairy produce had plummeted by a remarkable 90%.

From: Marin Hum, "Soil mineral depletion", in Optimum nutrition, Vol. 19, No. 3, Autumn 2006.

4 Climate solutions from organic farming

For more than 50 years, the Rodale Institute in Pennsylvania, USA, has been carrying out research into organic farming. Nearly 30 years of Rodale Institute soil carbon data show conclusively that improved global terrestrial stewardship – including regenerative organic agricultural practices – is the most effective available strategy for mitigating CO_2 emissions. Below are some of their impressive conclusions.[1]

"During the 1990s, results from the Compost Utilisation Trial (CUT) at Rodale Institute – a 10-year study comparing the use of composts, manures and synthetic chemical fertiliser – show that the use of composted manure with crop rotations in organic systems can result in carbon sequestration of up to 2,000 lb/acre/year. By contrast, fields under standard tillage relying on chemical fertilisers, lost almost 300 lb of carbon per acre per year. Storing – or sequestering – up to 2,000 lb/acre/year of carbon means that more than 7,000 lb of carbon dioxide are taken from the air and trapped in that field soil.

"In 2006, US carbon dioxide emissions from fossil fuel combustion were estimated at nearly 6.5 billion tons. If 7,000 lb/CO2/ac/year sequestration rate was achieved on all 434 million acres of cropland in the United States, nearly 1.6 billion tons of carbon dioxide would be sequestered per year, mitigating close to one quarter of the country's total fossil fuel emissions."

"Agricultural carbon sequestration has the potential to substantially mitigate global warming impacts. When using biologically based regenerative practices, this dramatic benefit can be accomplished with no decrease in yields or farmer profits. Even though climate and soil type affect sequestration capacities, these multiple research efforts verify that practical organic agriculture, if practised on the planet's 3.5 billion tillable acres, could sequester nearly 40% of current CO_2 emissions."

1. From: Tim J. LaSalle and Paul Hepperly, Regenerative Organic Farming: A Solution to Global Warming, Rodale Institute, 2008, (http://www.rodaleinstitute.org/files/Rodale_Research_Paper-07_30_08.pdf).

portation of fertilisers, which is currently responsible for more than 1% of world GHG emissions.[14] Second, if organic waste was returned to agricultural soils, methane and CO_2 emissions from landfills and waste water (equivalent to 3.6% of total current emissions)[15] could be significantly reduced. In sum, even such a modest start would have the potential to reduce global GHG emissions by approximately 20% per year.

And we are talking only about the first ten years. Table 2 shows that, if we were to increase progressively the reincorporation of organic matter into our agricultural soils, within 50 years we would increase the share of organic matter in the soil by two percentage points. This is about the same amount of time that was taken to reduce it. In the process we would have captured 450 billion tonnes of CO_2, more than two thirds of the current excess CO_2 in the atmosphere!

It can be done, but it needs the right policies.

The climate crisis requires a political response, with many broad social and economic changes. Even though the recuperation of SOM is a feasible and beneficial way to cool the earth, climate change will continue to accelerate unless we have fundamental changes in our patterns of production and consumption. The process of returning organic matter to the

THE CLIMATE CRISIS REQUIRES A POLITICAL RESPONSE, WITH MANY BROAD SOCIAL AND ECONOMIC CHANGES. EVEN THOUGH THE RECUPERATION OF SOM IS A FEASIBLE AND BENEFICIAL WAY TO COOL THE EARTH, CLIMATE CHANGE WILL CONTINUE TO ACCELERATE UNLESS WE HAVE FUNDAMENTAL CHANGES IN OUR PATTERNS OF PRODUCTION AND CONSUMPTION.

14. See "Navigating the Numbers: Greenhouse Gas Data and International Climate Policy", World Resources Institute, (http://tinyurl.com/m5e7kb).

15. Ibid. See also (http://tinyurl.com/lfrcx4).

soil will not be possible if current trends towards increased land concentration and homogenisation of the food system continue. The daunting goal of returning to the soil over 7 billion tonnes of organic matter every year will be feasible only if it is undertaken jointly by millions of farmers and farming communities. This, first and foremost, requires fundamental agrarian reforms that give small farmers – the vast majority of farmers around the world – access to land, and makes it economically and biologically possible for them to make the necessary crop rotations and utilise covered fallow and pastures. It also requires dismantling current anti-farmer policies that drive farmers off the land, such as laws that foster the monopolisation and privatisation of seeds, and regulations that protect corporations but kill off traditional food systems. The global growth of hyper-concentrated industrial animal production – which creates mountains of manure and lakes of slurry that spew millions of tonnes of methane and nitrous oxide into the air – must be reversed and replaced by decentralised animal husbandry integrated with crop production. As we have shown in other articles, the current international food system, one of the central drivers of climate change, requires nothing short of a complete overhaul. If this is done, then the climate crisis has a possible solution: the soil.

5 Building organic matter: fungi at work

"Researchers are fleshing out the mechanisms by which soil carbon sequestration takes place. One of the most significant findings is the high correlation between increased soil carbon levels and very high amounts of mycorrhizal fungi. These fungi help to slow down the decay of organic matter. Beginning with our Farming Systems Trial, collaborative studies by the USDA's Agriculture Research Service (ARS), led by Dr David Douds, show that the biological support system of mycorrhizal fungi are more prevalent and diverse in organically managed systems than in soils that depend on synthetic fertilisers and pesticides. These fungi work to conserve organic matter by aggregating organic matter with clay and minerals. In soil aggregates, carbon is more resistant to degradation than in free form, and thus more likely to be conserved. These findings demonstrate that mycorrhizal fungi produce a potent glue-like substance called glomalin that stimulates increased aggregation of soil particles. This results in an increased ability of soil to retain carbon."[1]

1. From: Tim J. LaSalle and Paul Hepperly, Regenerative Organic Farming: A Solution to Global Warming, Rodale Institute, 2008, (http://www.rodaleinstitute.org/files/Rodale_Research_Paper-07_30_08.pdf).

Photo: Development Fund Norway

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LAND GRABBING AND THE FUTURE OF AGRICULTURE

The new farm owners:

Corporate investors lead the rush for control over overseas farmland.

A background article on land grabbing by GRAIN, published as a chapter in the Monthly Review Press book *Agriculture and food in crisis*. 121

"I'm convinced that farmland is going to be one of the best investments of our time. Eventually, of course, food prices will get high enough that the market probably will be flooded with supply through development of new land or technology or both, and the bull market will end. But that's a long ways away yet."
George Soros, June 2009.

FROM THE UNITED NATIONS HEADQUARTERS IN NEW YORK TO THE CORRIDORS OF EUROPEAN CAPITALS, EVERYONE IS TALKING ABOUT MAKING THESE DEALS 'WIN–WIN'.

Land grabbing has been going on for centuries. One has only to think of Columbus "discovering" America and the brutal expulsion of indigenous communities that this unleashed, or white colonialists taking over territories occupied by the Maori in New Zealand and by the Zulu in South Africa. It is a violent process very much alive today, from China to Peru. Hardly a day goes by without reports in the press about struggles over land, as mining companies such as Barrick Gold invade the highlands of South America or food corporations such as Dole or San Miguel swindle farmers out of their land entitlements in the Philippines. In many countries, private investors are buying up huge areas to be run as natural parks or conservation areas. And wherever you look, the new biofuels industry, promoted as an answer to climate change, seems to rely on throwing people off their land.

Something more peculiar is going on now, though. The two big global crises that erupted in 2008 —the world food crisis and the broader financial crisis that the food crisis has been part of[1]— are together spawning a new and disturbing trend towards buying up land for outsourced food production.

For the past two years, investors have been scrambling to take control of farmland in in Asia, Africa and Latin America. In the beginning, during the early months of 2008, they talked about getting these lands for "food security", their food security. Gulf State officials were flying around the globe looking for large areas of cultivable land that they could acquire to grow rice to feed their burgeoning populations without relying on international trade. So too were Koreans, Libyans, Egyptians and others. In most of these talks, high-level government representatives were directly involved, peddling new packages of political, economic, and financial cooperation, with agricultural land transactions smack in the centre.

But then, towards July 2008, the financial crisis grew deeper, and alongside the "food security land grabbers" another group of investors started buying up farmland in the South: hedge funds, private equity groups, investment banks and the like, many of them based in the US. They were not concerned about food security. They figured that there is money to be made in farming because the world population is growing, food prices are bound to stay high over time, and farmland can be had cheaply. With a little bit of technology and management skills thrown into these farm acquisitions, they get portfolio diversification, a hedge against inflation and guaranteed returns – both from the harvests and the land itself.

To date, well over 40 million hectares have changed hands or are under negotiation – 20 million of which are in Africa alone. And GRAIN calculates that over $100 billion have been put on the table to make it happen. Despite the governmental grease here or there, these deals are mainly signed and carried out by private corporations, in collusion with host country officials. Although we have been able to compile various sample data sets of who the land grabbers are and what the deals cover, most of the information is kept secret from the public, for fear of political backlash.

1. See GRAIN, "Making a killing from hunger", Against the grain, Barcelona, April 2008, (http://www.grain.org/articles/?id=39).

In this context, and with all the talk about "food security" and distorted media statements like "South Korea leases half of Madagascar's land,"[2] it often goes unrecognised that the lead actors in today's global land grab for overseas food production are not countries or governments but corporations. So much attention has been focused on the involvement of states, like Saudi Arabia, China or South Korea. But the reality is that while governments are facilitating the deals, private companies are the ones getting control of the land. And their interests are simply not the same as those of governments.

Take one example. In August 2009, the government of Mauritius, through the Ministry of Foreign Affairs, got a long-term lease for 20,000 ha of good farmland in Mozambique to produce rice for the Mauritian market. This is outsourced food production, no question. But it is not the government of Mauritius, on behalf of the Mauritian people, that is going to farm that land and ship the rice back home. Instead, the Mauritian Minister of Agro Industry immediately sub-leased the land to two corporations, one from Singapore (which is anxious to develop the market for its proprietary hybrid rice seeds in Africa) and one from Swaziland (which specialises in cattle production, but is also involved in biofuels in southern Africa).[3] This is typical. And it means that we should not be blinded by the involvement of states. Because at the end of the day, what the corporations want will be decisive. And they have a war chest of legal, financial and political tools to assist them.

Moreover, there's a tendency to assume that private-sector involvement in the global land grab amounts to traditional agribusiness or plantation companies, like Unilever or Dole, simply expanding the contract farming model of yesterday. In fact, the high-power finance industry, with little to no experience in farming, has emerged as a crucial corporate player. So much so that the very phrase "investing in agriculture", today's mantra of development bureaucrats, should not be understood as automatically meaning public funds. It is more and more becoming the business of ... big business.

The role of finance capital.

GRAIN has tried to look more closely at who the private sector investors currently taking over farmlands around the world for offshore food production really are. From what we have gathered, the role of finance capital – investment funds and companies – is truly significant. In October 2009, we released a table outlining over 120 investment structures, most of them newly created, which are busy acquiring farmland overseas in the aftermath of the financial crisis.[4] Their engagement, whether materialised or targeted, rises into the tens of billions of dollars. That table was not exhaustive, but it did provide a sample of the kinds of firms or instruments involved, and the levels of investment they are aiming for. (See table 1 on page 126).

Private investors are not turning to agriculture to solve world hunger or eliminate rural poverty. They want profit, pure and simple. And the world has changed in ways that now make it possible to make big money from farmland. From the investors' perspective, global food needs are guaranteed to grow, keeping food prices up and providing a solid basis for returns on investment for those who control the necessary resource base. And that resource base, particularly land and water, is under stress as never before. In the aftermath of the financial crisis, so-called alternative investments, such as infrastructure or farmland, are all the rage. Farmland itself is touted as providing a hedge against inflation. And because its value doesn't go up and down in sync with other assets like gold or currencies, it allows investors to successfully diversify their portfolios.

But it's not just about land, it's about production. Investors are convinced that they can go into Africa, Asia, Latin America and the former Soviet bloc to consolidate holdings, inject a mix of technology, capital and management skills, lay down the infrastructures and transform below-potential farms into large-scale agribusiness operations. "The same way you have shoemakers and computer manufacturers, we produce agricultural commodities," says Laurence Beltrão Gomes of SLC Agrícola, the largest farm company in Brazil.

In many cases, the goal is to generate revenue streams both from the harvests and from the land itself, whose value they expect to go up. In the words of Susan Payne, CEO of Emergent Asset Management, an investment fund in the UK targeting farmland in Mozambique and other Africa countries: "The first thing we're going to do is to make money off of the land itself . . . We could be moronic and not grow anything and we think we'd make money over the next decade."

What these investors are driving forward here is a totally corporate version of the Green Revolution, and their ambitions are big. "My boss wants to create the first Exxon Mobil of the farming sector," said Joseph Carvin of Altima Partners' One World Agriculture Fund to a gathering of global farmland investors in New York in June 2009. No wonder, then, that governments, the World Bank and the UN want to be associated with this. But it is not their show.

From rich to richer.

Today's emerging new farm owners are private equity fund managers, specialised farmland fund operators, hedge funds, pension funds, big banks and the like. The pace and extent of their appetite is remarkable – but unsurprising, given the scramble to recover from the financial crisis. Consolidated data are lacking, but we can see that billions of dollars are going into farmland acquisitions for a growing number of "get rich quick" schemes. And some of those dollars are hard-earned retirement savings of teachers, civil servants and factory workers from countries such as the US or the UK. This means that a lot of ordinary citizens have a financial stake in this trend, too, whether they are aware of it or not.

It also means that a new, powerful lobby of corporate interests is coming together, which wants favourable conditions to facilitate and protect their

2. It was not South Korea, but Daewoo Logistics.

3. See GRAIN, "Mauritius leads land grabs for rice in Mozambique", Oryza hibrida, 1 September 2009. (http://www.grain.org/hybridrice/?lid=221). Available in English, French and Portuguese.

4. The table covers three types of entities: specialised funds, most of them farmland funds; asset and investment managers; and participating investors. We are aware that this is a broad mixture, but it was important for us to keep the table simple: (http://www.grain.org/m/?id=266).

In fact, the high-power finance industry, with little to no experience in farming, has emerged as a crucial corporate player.

farmland investments. They want to tear down burdensome land laws that prevent foreign ownership, remove host-country restrictions on food exports and get around any regulations on genetically modified organisms. For this, we can be sure that they will be working with their home governments and various development banks to push their agendas around the globe through free trade agreements, bilateral investment treaties and donor conditionalities.

Indeed, the global land grab is happening within the larger context of governments, both in the North and the South, anxiously supporting the expansion of their own transnational food and agribusiness corporations as the primary answer to the food crisis. The deals and programmes being promoted today all point to a restructuring and expansion of the industrial food system, based on capital-intensive large-scale monocultures for export markets. While that may sound "old hat", several things are new and different. For one, the infrastructure needs for this model will be dealt with. (The Green Revolution never did that.) New forms of financing, as our table makes plain, are also at the base of it. Thirdly, the growing prominence of corporations and tycoons from the South is also becoming more important. US and European transnationals like Cargill, Tyson, Danone and Nestlé, which once ruled the roost, are now being flanked by emerging conglomerates such as COFCO, Olam, Savola, Almarai and JBS.[5]

A recent report from the UN Conference on Trade and Development pointed out that a solid 40% of all mergers and acquisitions in the field of agricultural production last year were South–South.[6] To put it bluntly, tomorrow's food industry in Africa will be largely driven by Brazilian, ethnic Chinese and Arab Gulf capital.

Exporting food insecurity.

Given the heavy role of the private sector in today's land grabs, it is clear that these firms are not interested in the kind of agriculture that will bring us food sovereignty. And with hunger rising faster than population growth, it will not likely do much for food security, either. One farmers' leader from Synérgie Paysanne in Benin sees these land grabs as fundamentally "exporting food insecurity". For they are about answering some people's needs – for maize or money – by taking food production resources away from others. He is right, of course. In most cases, these investors are themselves not very experienced in running farms. And they are bound, as the Coordinator of MASIPAG in the Philippines sees it, to come in, deplete the soils of biological life and nutrients through intensive farming, pull out after a number of years and leave the local communities with "a desert".

The talk about channelling this sudden surge of dollars and dirhams into an agenda for resolving the global food crisis could be seen as quirky if it were not downright dangerous. From the United Nations headquarters in New York to the corridors of European capitals, everyone is talking about making these deals "win–win". All we need to do, the thinking goes, is agree on a few parameters to moralise and discipline these land grab deals so that they actually serve local communities without scaring investors off. The World Bank even wants to create a global certification scheme and audit bureau for what could become "sustainable land grabbing", along the lines of what's been tried with oil palm, forestry and other extractive industries.

At its annual land conference in Washington D.C. at the end of April 2010, the World Bank, along with the FAO, IFAD and UNCTAD, will put forward a set of "seven principles" to try to make land grabs, or what it calls "large-scale agriculture investments", more socially acceptable. The Bank's main objective with these voluntary principles is to reduce risks for investors, since these are, after all, highly risky investments, and dilute the social backlash that is accompanying these deals wherever they transpire and which is starting to link into a global movement.

All this talk of "win-win" is simply not realistic. It promises transparency and good governance as if foreign investors would respect communities' rights to land when local governments don't. It speaks of jobs and technology transfer when those are not the problems (not to mention that little of either may materialise). It is shrouded in words like "voluntary", "fear" and "could" instead of "guaranteed", "confidence" and "will". And the win-win camp is itself divided about what should happen in case of food pressures in the host countries, a more than likely scenario. Should countries be allowed to restrict exports, even from foreign investors' farms? Or should so-called free trade and investors' rights take precedence? No one that we have talked to among concerned groups in Africa or Asia takes this "win-win" idea seriously.

When we look at who these investors are and what they are after it becomes impossible to imagine that, with so much money on the line, with so much accumulated social experience in dealing with mass land concessions and conversions in the past, whether from mining or plantations, and given the central role of the finance and agribusiness industries here, these investors are suddenly going to play fair. Just as hard to believe is that governments or international agencies will suddenly be able to hold them to account.

The "win-win" discussion is just a dangerous distraction from the fact that today's global food crisis will not be solved by large scale industrial agriculture, which virtually all of these land acquisitions aim to promote. But the governments, international agencies, and corporations steering the global food system are bankrupt when it comes to solutions to the food crisis. After dec-

5. COFCO is based in China, Olam is based in Singapore, Savola is based in Saudi Arabia, Almarai is based in Saudi Arabia, and JBS is based in Brazil.

6. *World Investment Report 2009*, UNCTAD, Geneva, September 2009, p. xxvii. Most foreign direct investment takes place through mergers and acquisitions.

ades of their Green Revolution projects and structural adjustment programmes, we have more hungry people on the planet than ever. Rather than question the model, the World Bank and others have decided that the only way to keep the global food system from coming apart at the seams is to fly forward, follow the money and install large scale agribusiness operations everywhere, particularly where they have not yet taken root. This is what today's land grab is all about: to expand and entrench the Western model of large scale commodity value chains. In other words: more corporate-controlled food production for export.

The global land grab is thus only going to make the food crisis worse-with or without "principles" and "guidelines". It pushes an agriculture based on large scale monocultures, chemicals, fossil fuels, and slave-like labour. This is not an agriculture that will feed the planet; it's an agriculture that feeds speculative profits for a few and more poverty for the rest. As climate change takes us into an era of severe disruption of food production, there has never been a more pressing need for a system that can ensure that food is distributed to everyone, according to need. Yet never has the world's food supply been more tightly controlled by a small group, whose decisions are based solely on how much money they can extract for their shareholders.

Of course we need investment. But investment in food sovereignty, in a million local markets and in the three billion farmers and farm workers who currently produce most of the food that our societies rely on – not in a few mega-farms controlled by a few mega-landlords.

For the past two years, investors have been scrambling to take control of farmland in Asia, Africa and Latin America. In the beginning, during the early months of 2008, they talked about getting these lands for food security, their 'food security'.

Bringing the harvest home. Photo: Development Fund Norway.

*Table 1. Investment vehicles purchasing farmland in Africa, Asia, Latin America and Eastern Europe.**

Investment vehicle	Legal base	Participating investors	Details
Altima One World Agriculture Fund	Cayman Islands/US	- Altima Partners (UK) - IFC (World Bank)	The Altima One World Agricultural Fund is a US$625 million fund created by Altima Partners, a US$3 billion hedge fund, to invest in agricultural land and farming operations in emerging market countries. Altima invests in agribusinesses in Latin America and the Russia/Ukraine/Kazakhstan (RUK) region. Three-quarters of its portfolio goes into farm companies (producing agricultural crops) and 25% goes into publicly-listed ag companies. In February 2009, the World Bank's private investment arm, the International Finance Corporation, announced that it was partnering with the Altima fund through a $75 million equity infusion. Altima owns 40% of the Argentine company El Tejar, which owns and leases well over 200,000 ha of farmland in Argentina, Brazil, Uruguay, Paraguay and Bolivia. El Tejar plans to start production in Colombia in 2010. In 2009, the Capital Group invested $150 million in El Tejar to acquire 13 percent of the company's shares. In March 2010, El Tejar announced it was considering an IPO in New York.
APG Investment	Netherlands		APG (All Pensions Group) was established in March 2008 and is one of the largest managers of pension assets in the world, handling about 217 billion Euros from the pensions of 2.7 million Dutch. APG recently established a Farmland Fund to invest in "structures that lease out farmland as well as structures where farmland is operated". It also has a Forestry Fund, established in 2007, that invests in both forests and farms. According to their agricultural fund manager Frank Asselbergs: 'When we talk about investing in farms you shouldn't think about some quaint Dutch smallholding you can drive a tractor around in an hour. These are enormous tracts of land, mainly in Latin America. And they're not run by a farmer we hire in, but by professional companies. We recently bought a farm as big as the entire Veluwe region of the Netherlands. That's tens of thousands of ha. We're active in Uruguay, Paraguay, Brazil and Argentina. They're the agricultural heartland of the future. We also have farms in Australia, and we're now looking at other regions. Europe included."
BKK Partners	Australia	- Indochina Gateway Capital Ltd (Cambodia)	BKK is planning a $600 million investment to acquire 100,000 ha in Cambodia for the production of rice, bananas and sugar. The company is in negotiations with the Government of Cambodia and has already begun looking at possible sites.
Calyx Agro	Argentina	- Louis Dreyfus (France) - AIG (US)	Louis Dreyfus is one of the world's top grain traders. It established Calyx Agro in 2007 as a fund for farmland acquisitions in southern Latin America. Louis Dreyfus Commodities already owns 60,000 ha of farmland in Brazil, to which it has committed US$120 million. AIG invested US$65 million into the fund in 2008. The fund focuses on identifying, acquiring, developing, converting and selling farmland in Brazil, Argentina, Uruguay and Paraguay. Louis Dreyfus is also investing in land in Africa and the Ukraine.
Citadel Capital	Egypt	- Leading investors and family offices from Egypt, the Gulf Cooperation Council and North Africa	Citadel Capital makes private equity investments in the Middle East and North Africa and has more than US$ 8.3 billion in investments under its control. In 2008, Citadel set up a fund called Sabina, which holds Citadel Capital's agricultural investment near Kosti, White Nile State, Sudan, where it has obtained a 99-year freehold on a 255,000-feddan (107,000 ha) plot of fertile land, including 37 kilometres of Nile River frontage. Part of the land has been designated specifically for the cultivation of sugarcane and the rest will be used for various other crops. Some 32,000 feddans (13,440 ha) of the land are already cultivated. The plot is in close proximity to a river port owned by Keer Marine, a Citadel Capital investment. Citadel says it is also considering investments in Uganda, Kenya and Ethiopia. Citadel owns Egypt's largest milk producer, Dina Farms, with a herd of 11,000 cows. It intends to double this herd within 3- 5 years. Dina Farms is a subsidiary of the Gozour Holding Company set up by Citadel with other regional investors.

Investment vehicle	Legal base	Participating investors	Details
Emergent Asset Managagement	UK	- Toronto Dominion Bank (Canada)	Emergent operates an Africa Agricultural Land Fund, with offices in Pretoria and London. As of June 2009, Emergent controlled over 150,000 ha in Angola, Botswana, Mozambique, South Africa, Swaziland and Zambia.
International Farmland Holdings / Adeco Agropecuaria	US/Argentina	- George Soros (US) - Pampa Capital Management (UK) - Halderman (US)	International Farmland Holidings, also known as Adeco, is a farm investment company created by Alejandro Quentin and Soros Fund Management. It has invested more than US$600 million in Argentina, Brazil and Uruguay to acquire 263,000 ha of farmland.
Jarch Capital	Virgin Islands	- Phillippe Heilberg and other wealthy US individuals	In 2009, Jarch took a 70% interest in the Sudanese company Leac for Agriculture and Investment and leased approximately 400,000 hectares of land in southern Sudan claimed by General Paulino Matip of the Sudan People's Liberation Army. Soon after, Jarch announced that it aimed to lease another 400,000 hectares of land by the end of 2009 in Africa.
NCH Agribusiness Partners	US	- NCH Capital (US)	NCH Capital manages over $3 billion from university endowments, corporate and state pension funds, foundations, and family investment offices. It has a $1.2 billion agribusiness fund focused on acquiring farms in eastern Europe. In Ukraine, NCH controls and operates a portfolio of over 350,000 hectares. In Russia, NCH has more than 80,000 hectares.
Pharos Miro Agricultural fund	UAE	- Pharos Financial Group (Russia) - Miro Holding International (UK)	Pharos Miro Agricultural Fund is a US$350 million fund, which will focus initially on rice farming in Africa and cereal cultivation in eastern Europe and former Soviet countries. It is in the process of acquiring a 98-year lease on 50,000 ha of farmland in Tanzania for rice production.
Teachers Insurance and Annuity Association, College Retirement Equities Fund (TIAACREF)	US	- COSAN (Brazil)	TIAA-CREF is the largest US manager of retirement funds. As of December 2008, it is said to have invested US$340 million in US farmland. TIAA-CREF has also created a holding company in Brazil, called Mansilla, which invested US$150 million in COSAN's farmland fund, Radar Propriedades Agricolas, in 2008. Radar is buying up agricultural land for conversion to sugarcane production and for speculation. The fund is 81.1% owned by TIAA, but entirely controlled by COSAN, the largest sugar producer in Brazil and one of the largest in the world. Radar spent the first US$200 million it raised within 4 months and is has now raised another US$200 million. It has 2,000 farms in its portfolio.
Tiris Euro Arab	UAE		In November 2009, the Abu Dhabi-based investment house Tiris signed a contract with the Government of Morocco to lease up to 700,000 ha of farmland near the south-western town of Guelmim. It plans to invest $44 million in the project, and to export the produce to the Middle East and Europe.
Feronia Inc	Canada	-TriNorth Capital Inc. (Canada)	TriNorth is a Canadian investment company managed by Lawrence Asset Management Inc.. Its subsidiary Feronia Inc. was established to invest in agricultural production and processing facilities in South Africa, Uganda, Zimbabwe and the DR Congo. It is working with Brazilian experts to develop plantations of soybean, sunflower, oil palm and other crops on land it acquires in Africa. In September 2009 it acquired a 100,000 ha plantation in the DR Congo through the purchase of Plantations et Huileries du Congo S.C.A.R.L. TriNorth also owns the Wild Horse Group, which is engaged in purchasing and consolidating farmland in Canada and "intends to be one of Canada's largest owners and operators of irrigated farmland in Saskatchewan".

*This table is an extraction from a more complete table compiled by GRAIN in October 2009. It also includes several new entries.

The US's Millennium Challenge Corporation (MCC)

Turning African farmland over to big business

"MCC African partner countries are open for business"
Ambassador John Danilovich, CEO of the MCC, June 2008

When the European powers invaded Africa they brought with them their systems of private property. Laws were established based on these systems in order to justify, entrench and facilitate the takeover of lands from local communities. But such laws were hardly ever applied or respected beyond the boundaries of the European farms and plantations. With independence, although the Western laws often stayed on the books, the African states assumed ultimate and often sole ownership of all lands in their territories. But in practice they did not have the power to manage these lands. So the vast majority of land in the African countryside, through the colonial period and up until today, has been governed according to local communities' customary land practices.[1]

These customary practices are often complex and rarely static. They have evolved over time, shifting with local power politics and adapting to new pressures, such as urbanisation, migration, deforestation or the fragmentation of lands. They are based on varied and overlapping rights and responsibilities, and profoundly integrated with local farming, fishing and pastoral practices. In official circles, these systems of land management have been marginalised and condemned for years, but today they are under unprecedented attack.[2]

Africa has become the new frontier for global food (and agrofuel) production. Billions of dollars are being mobilised to create the infrastructure that will connect more of Africa's farmland to global markets, and billions more are being mobilised by investors to take over that farmland to produce for those markets. To get a sense of the extent of what is transpiring, one need only look at the massive oil palm plantation planned for Liberia by the world's largest palm oil companies, or the joint Japanese–Brazilian project to transform vast areas of Mozambique into Brazilian-style soya plantations.[3] There is no place for Africa's millions of small farmers in this new vision. And, like the colonial powers that came before, the new wave of invaders needs a legal and administrative structure to justify and facilitate the takeover of these lands.

For more than a decade now, the World Bank, USAID and a slew of other international agencies and foreign donors have been laying the foundations for this conquest. Although there are subtle differences in their approaches, the land programmes of these various agencies converge around the same goal of creating commercial land markets based on private property titles in the areas of Africa targeted by foreign investors. Teams of consultants are constantly being parachuted across the continent to

1. According to Philippe Lavigne Delville, an anthropologist with GRET (France), "80–95% of the rural lands remain managed according to local principles and procedures". See Philippe Lavigne Delville, "Customary to modern transition," presentation to the World Bank Regional Workshops on Land Issues, 2002: (http://www.landcoalition.org/pdf/wbtdelv.pdf).

2. See "Declaration of FO platforms members of ROPPA", issued after the workshop on land security for family farms at Ouagadougou, 13 April 2008: (http://www.roppa.info/IMG/pdf/ Declaration_of_FO_platforms_members_of_ROPPA.pdf).

3. "JICA development model to encourage increased agricultural production in Africa", Japan International Cooperation Agency, 17 March 2010: http://farmlandgrab.org/11756; "Liberia: GOL, Golden Veroleum in US$1.6bn negotiation," Liberian Observer, 12 January 2010: (http://farmlandgrab.org/10208).

rewrite laws, register titles and set up satellite mapping and cadastral systems to smooth the way for foreign investors to acquire African farmland. Now, with the scramble for Africa's land resources at a feverish level, some of these players are turning up the heat to ensure that the corporate interests they defend get their piece of the pie. For US investors eyeing land in Africa, one programme stands out above the rest: the US government's Millennium Challenge Corporation (MCC). As the experiences with its land projects in Mali, Ghana, Mozambique and Benin make plain, the MCC is playing a key role in commodifying Africa's farmlands and opening them up to US agribusiness.

The new face of structural adjustment.

Near the end of his first term in office (2001–5), US President George W. Bush came forward with a proposal for a new structure to administer his government's overseas aid. He wanted something separate from USAID, something more like a private corporation than a government programme. It would have its own CEO and a Board of Directors which, while it would report to Congress and include the Secretary of State, the Secretary of the Treasury, the US Trade Representative, and the USAID Administrator, would also contain four private-sector representatives.

The MCC, as it came to be known, was created by the US Congress in January 2004. The MCC's approach is hard-hitting and akin to a structural adjustment programme. It has a large budget (which Congress has increased under the Obama administration, by 26% in 2010). This money is disbursed in the form of grants, not loans, to specific countries that the MCC deems eligible for funding. So there is a big carrot dangling to lure countries in. But even to become a candidate for funding, a country must first pass an MCC scorecard test, which looks at such criteria as "Encouraging Economic Freedom" and is based on indicators taken from neo-liberal institutions like the World Bank, the Heritage Foundation and the International Monetary Fund (IMF). If a country achieves a high enough score, it may then be promoted by the MCC to "threshold status", where it will gain access to small funds for use in implementing the policy reforms that the MCC says are necessary for full eligibility.

Having passed through these hoops, a country can then move into the process of developing and signing a Compact with the MCC, which will specify four or five projects for MCC funding. The way this usually works is that a team of US consultants flies in to guide the government in crafting the Compact proposal, pointing it towards those areas that are most salient to opening the country up to foreign investors. Once the Compact is approved, the money starts to flow, although the tap can quickly be turned off if the government changes direction in a manner that does not suit Washington. MCC funding to Nicaragua was cut off when the Sandinistas were elected to power, but was maintained in Honduras after the illegal coup d'état of 2009.[4]

Table 1. Countries that have signed Compacts with MCC that include a land reform project

Country	Date of Compact with MCC
Madagascar	2004
Nicaragua	2005
Benin, Ghana, Mali	2006
Lesotho, Mongolia, Mozambique	2007
Burkina Faso	2008

With the signing of the Compact, the recipient government must set up an institution to administer the funds, often called a Millennium Challenge Account (MCA), which operates autonomously, with its own Board of Directors, yet under the oversight of a designated ministry. The Compact lasts typically for five years, with regular evaluations and strict targets that have to be met, each year or so, before new tranches of funding are released. Vincent Basserie, a land specialist with Le Hub Rural in Senegal, who has seen the MCC in action, likens it to a "bulldozer" – pursuing a strict ideological agenda, without regard for previous experiences.

As most of MCC's Compacts have so far been signed with African countries, it is not surprising that they focus on agriculture, where there is currently a great deal of interest from foreign investors. Nearly half of MCC's overall budget of US$6.8 billion supports what it calls "market-based solutions to food security". Its Compacts finance projects such as the certification of outgrowers for fruit exports, or the construction of transport infrastructure to facilitate access to international markets, as in the case of the Port of Cotonou, Benin. In the African Compacts, there is almost always a land component that is central: while these land projects may vary from country to country, MCC's overriding objective with all of them is to privatise the land, and, in this way, to make it a marketable commodity from which investors can make profits.

Local markets have no place in the MCC scheme. Photo: Development Fund Norway.

4. Alexander Main and Jake Johnston, "The Millennium Challenge Corporation and Economic Sanctions: A Comparison of Honduras With Other Countries", Center for Economic and Policy Research, Issue Brief, August 2009: (http://www.cepr.net/documents/publications/mcc-sanctions-2009-08.pdf).

MCC and the Alliance for a Green Revolution in Africa (AGRA)

1

In June 2008, the MCC and AGRA signed a Memorandum of Understanding (MoU) that establishes a framework for their cooperation in Africa. Under the MoU, both sides agree to:

- jointly assess and make recommendations for changes in policy and regulations governing the food and agriculture system in a given country to remove constraints to economic growth;
- coordinate the planning of the implementation of their programmes for specific geographical and functional areas;
- communicate regularly with each other to coordinate their efforts.

MCC and AGRA are also collaborating on several specific projects, including:

- seed policy reform in Ghana;
- rice seed production and distribution in Madagascar;
- provision of seeds and extension services for farmers in MCA–Mali's project in the Office du Niger;
- a US$100-million fund with Standard Bank to provide farmers with loans in Ghana, Mozambique, Tanzania and Uganda.

First steps in Madagascar.

In 2004, Madagascar became the first country to sign a Compact with the MCC. The government of President Marc Ravalomanana, given its zeal to open up the country to foreign investors, was an easy fit for the MCC. Initially, the MCC and Madagascar's government agreed that the Compact should focus on increasing investment in agriculture, and that it should include a project to expand land titling. But a national land reform process oriented towards decentralised land management and the allocation of land certificates (not titles) had already begun before the MCC arrived, and those involved were able to get MCA–Madagascar to support this process, even as the other components of the Compact maintained their focus on developing agribusiness and facilitating foreign investment. The contradiction exploded into public view in December 2008, however, when it became apparent that the same government that was using MCC funds to allocate certificates to thousands of rural Malagasy under the National Land Programme was also selling off these lands to foreign investors.

The people of Madagascar were shocked to learn, via the international media, that their government had allocated a 1.3 million hectare land concession to the Korean company Daewoo Logistics, and that it was negotiating another agreement with the Indian company Varun, covering several hundred thousand hectares, both for large-scale farming projects. The Daewoo deal included lands where certificates had already been allocated through the MCC-funded programme, while Varun was proposing that the land programme be extended to the area it was targeting, so that certificates could be awarded to farmers on condition that they make their lands available to Varun![5] In fact, the government had signed away, or was in the process of signing away, nearly 3 million hectares of agricultural land to foreign investors through a system of long-term leases (up to 99 years) that it established in 2008 as part of a new investment law supported by its donors.[6]

The government of President Ravalomanana and the MCA–Madagascar programme came to a dramatic end in March 2009 by way of a coup d'état, which had certainly been facilitated by popular anger over the Daewoo deal. The MCC immediately cancelled the Compact and its funding for the National Land Programme. It was the first and last time that the MCC would let a national process steer its land project.

MCC's fiefdom in Mali.

The programme in Mali offers a more clear-cut example of MCC's land activities and what it seeks to accomplish. Millennium Challenge Account–Mali (MCA–Mali) has taken over its own area of land in Mali's Office du Niger – the most important irrigated land scheme in the country, and perhaps in the whole of West Africa. On the 20,000 or so hectares that it has secured, MCA–Mali has set up what is essentially an extraterritorial zone, where it is putting in place its own system of land management.

The Office du Niger Authority of the Malian government is the sole agency responsible for allocating lands and regulating irrigation water in the Office du Niger. Farmers gain access to land by paying fees to the Authority for irrigated water. But within the MCA–Mali zone, the lands, which are currently not irrigated, are to be irrigated and divided into parcels, to which people will be sold individual land titles. During a first phase, beginning in 2010, 6,000 ha of land will be irrigated and divided into 5-ha plots. Titles to these 5-ha parcels will be allocated, first, to the people currently living in the area who wish to stay and, second, to small farmers who wish to move

5. André Teyssier, Landry Ramarojohn and Rivo Andrianirina Ratsialonana, "Des terres pour l'agro-industrie internationale ? Un dilemme pour la politique foncière malgache" EchoGéo, No. 11, February 2010: (http://farmlandgrab.org/11420).

6. GTZ, Foreign Direct Investment (FDI) in Land in Madagascar, December 2009.

2 Golden carpet for corporations

Ghana's pineapple industry took off in the first years of the 21st century, as corporations started looking to Africa as a secondary source of exports to Europe, and as political turmoil disrupted supplies from Côte d'Ivoire. Exports of pineapple from Ghana to Europe surged from about 20,000 tonnes in 2000 to about 50,000 tonnes in 2004. Unlike in Costa Rica, not all of this production was dominated by big plantations owned by or under the umbrella of a few transnational corporations. Ghanaian farmers and medium-sized traders accounted for a significant share of the country's pineapple exports.[1]

But in 2005, Ghana's European market crumbled. Without warning, European retailers, lobbied by transnational pineapple companies such as Dole and Delmonte, unilaterally decided to begin purchasing only the MD2 variety of pineapple (known as "Golden"), and no longer to accept the Sweet Cayenne variety produced in Ghana. They also began to insist more forcefully on EurepGAP certification from their suppliers. The sudden shift was too much for Ghana's pineapple farmers and exporters. Both EurepGAP certification and the MD2 variety, due to the high costs of plantlets and the extra inputs required, were beyond their reach. They were forced to shut down, and the big foreign corporations moved in.

In 2004 there were 65 pineapple exporters in Ghana. Today just two companies control nearly all of Ghana's pineapple exports: Dole/Compagnie Fruitière and HPW Services of Switzerland, which is supplied by three large outgrowing plantation companies.[2] Compagnie Fruitière, a French-based company that is 40% owned by Dole, began operations in Ghana in 2003 when it took over a local pineapple planation. It expanded from 150 ha to 600 ha by 2006, and plans to develop more plantations over the 3,000 ha that it says it has purchased in Ghana for pineapple production. It also produces bananas in Ghana, and today is estimated to control 88% of the country's banana exports and 40% of its fresh pineapple exports (all MD2 variety). The company has "free-zone" status, and as such qualifies for all kinds of investor incentives and protections, including an exemption from income tax.[3] Other multinationals are now eager to follow: Chiquita is working directly with MCC to ease its entry into Ghana's pineapple industry.[4]

1. Niels Fold, "Transnational Sourcing Practices in Ghana's Perennial Crop Sectors," Journal of Agrarian Change, Vol. 8, No. 1, January 2008, pp. 94–122.
2. Peter Jaeger, "Ghana Export Horticulture Cluster Strategic Profile Study," prepared for the World Bank, The Republic of Ghana Ministry of Food and Agriculture, and European Union All ACP Agricultural Commodities Programme, 2008.
3. See http://www.gfzb.com.gh/
4. MCC Annual Report, 2008: http://pdf.usaid.gov/pdf_docs/PCAAB908.pdf

to the area. These people will have to buy the titles from the MCA, although families currently living in the area who are being displaced by the project will be "given" two of the five hectares. The second phase will bring another 5,000 ha under irrigation in 2011 and these lands will be divided into 10-ha parcels. Finally, phase three, which is planned for 2012, will bring 5,000 more hectares under irrigation, which will be divided into seventy 30-ha plots and thirty large-scale plots of more than 30 ha each.[7] While the MCA plans to divide and sell off the plots as individual titles, ownership will remain entrusted to a special authority created by the MCA until the title owners have entirely paid off their loans, which are to be amortised over 20 years.[8]

The local farmers' organisation, Sexagon, has many members in the area that MCA–Mali has taken over.[9] One of its leaders, Faliry Boly, says that the local people were not consulted and are in fact opposed to the project. "These people are pastoralists who have no desire to start farming", says Boly. "They won't pay a cent to the MCA for the land that the MCA is taking from them and they'll most likely be forced to leave."

MCC is clearly setting out to remake agriculture in the zone. A US firm is being parachuted in to teach "modern" farming to the Malians participating in the project, and it will be working with the Alliance for a Green Revolution for Africa (AGRA) to provide farmers with a starter pack of seeds and other inputs for the first year (see Box 1). The small farmers involved in the first phase, if they stay, are likely to run into debt, and most will probably end up selling their land to the bigger farmers and companies that move in under the second and third phases of the project. And the door is open for foreign investors to come in: the final report of the project plan carefully omits any requirement for the third wave of investors – those with parcels of 30 ha and more – to be citizens of Mali.[10]

Indeed, the Office du Niger is already being heavily targeted by foreign investors: Libya has taken over 100,000 ha; Chinese investors 6,000 ha; Saudi investors are considering 50,000–100,000 ha; there is an initiative by the regional body the West African Economic and Monetary Union (WAEMU)[11] following

7. Millennium Challenge Corporation–Mali, Alatona Agricultural Systems Development Project: Final Report, Prepared by CDM, July 2007.
8. Ibid.
9. The Syndicat des exploitants agricoles de l'Office du Niger (SEXAGON) was created in 1996. Today it represents more than 12,000 peasants in the zone.
10. Millennium Challenge Corporation–Mali, Alatona Agricultural Systems Development Project: Final Report, Prepared by CDM, July 2007.
11. In French, the Union économique et monétaire ouest-africaine (UEMOA).

a similar approach to the MCA project on 11,000 ha; another regional formation, the Economic Community of West African States (ECOWAS),[12] is talking about a public–private-sector project that would cover another 100,000 ha. Meanwhile local farmers are struggling to access more than 1 ha per family, and competition for access to water is intensifying, since all irrigation in the Office du Niger is dependent on the same source of water.[13]

In this context, Sexagon is advocating another vision, which would provide sufficient access to land and water for family farms, and ensure the country's food sovereignty. They want a system based on long-term leases that would provide each family farm with around 3 ha. This system would prevent the development of a land market – something that Sexagon opposes.[14]

Conflict with MCA–Mali is thus bound to intensify for the small farmers in the Office du Niger. MCC wants its zone to serve as a launching pad for a transformation of the entire region, and Sexagon is determined to stop it. "The MCC project is destined to fail", says Boly. "We will eventually get our lands back."

A golden opportunity for US agribusiness in Ghana.

The MCC's land project in Ghana is much the same as that in Mali. Its Compact with Ghana is heavily oriented towards building up the country's horticulture exports, with a particular focus on bringing more foreign investment into pineapple production. But the corporations that dominate the global pineapple trade have made it clear that they won't invest in the country without significant incentives: changes in the ways land is managed is at the top of their list. The MCC Compact is designed to make this happen.

As in Mali, the land component revolves around an initial pilot project in a zone accorded special status by the central government. The pilot area is located not far from the capital, Accra, in the pineapple-producing rural district of Awutu Efutu Senya. As planned in a detailed Roadmap, signed by the government in September 2007, the project began by using satellite technology to map and delimit the zone.[15] A consultant was hired to carry out sensitivity and information exercises to assure the cooperation of the local people. Then, when MCC and the Millennium Development Authority (MiDA), which is Ghana's implementing agency for the Compact, judged the political climate to be ripe, the Minister of Lands declared the district a "compulsory Title Registration Area", a first in rural Ghana.[16]

Faliry Boly, head of Sexagon, in an onion field in the Office du Niger. Photo: L. Lewalle / SOS Faim

From there MiDA has moved into the "implementation phase". The district is being surveyed in detail, lands and rights are being identified and mapped, conflicting claims are being managed by an "alternative dispute resolution system" established and managed by another team of consultants, and titles are being registered and handed out. By September 2009, a first round of 100 land titles had been allocated. Meanwhile, MiDA has even set up a special office to provide information and assess the value of land for prospective investors.

The local people did not request this project. They were not seeking land titles. They have, however, been extremely worried about the expansion of pineapple plantations in the area, and what this is doing to local food production and their access to land.[17] Such local trepidation concerns the foreign investors and elites keen to take over land for pineapple production; they do not want the local people and their customary land practices to stand in the way of profits.

The MCC's project in Awutu Efutu Senya is integrated into a larger MCC programme bent on expanding export pineapple production in the area. MCC funds are being used to upgrade roads linking the district to the airport and the harbour, to build a local packhouse and other post-harvest facilities, to improve the port, to put in place investment incentives and extension programmes, to supply irrigation and even to increase access to potable water, which is essential for growers to achieve EurepGAP certification.[18] Five years ago the MCC

12. In French, the Communauté Economique Des Etats de l'Afrique de l'Ouest (CEDEAO).

13. AGTER, "Appropriation et concentration de droits fonciers à grande échelle-Le cas du Mali", janvier 2010: http://farmlandgrab.org/10462; Chantal Lavigne, "Mali : La ruée vers les terres," reportage vidéo, Une heure sur terre, Radio Canada, 12 March 2010: (http://farmlandgrab.org/11739; Via Campesina, Libyan land grab of Mali's rice-producing land, 10 September 2009: http://farmlandgrab.org/7483).

14. For further details see, SOS Faim, "Mali – Office du Niger: Can the farmers' movement push back agribusiness?", Farming Dynamics, No. 20, April 2009.

15. Implementing Entity Agreement by and between the Millennium Development Authority and the Ministry of Lands, Forestry and Mines, 18 September 2007.

16. By way of the Minister, supported by MiDA,Legislative Instrument 1914 was adopted by Parliament to declare the Awutu Senya District as a pilot registration area in accordance with the provision of the land title registration law, PNDC 152. Section 5 of PNDC Law 153 mandates the Minister to, by a Legislative Instrument, declare an area as a Registration District so that land titling can take place in the delimited area.

17. See for instance, GNA, "Workshop on poverty reduction ends", GhanaWeb, 21 December 2003: (http://www.ghanaweb.com/GhanaHomePage//regional/artikel.php?ID=48673).

18. EurepGAP is an internationally recognised set of farm standards that are supposed to guarantee good agricultural practices (GAP). In 2007 its name was changed to GLOBALGAP. Under Ghana's

might have been able to make the case that small farmers and local businesses in the area would see some benefits from this programme, but today Ghana's pineapple industry is totally dominated by a few foreign companies (see Box 2).

Turning the law against the people in Mozambique.

"The first thing we're going to do is to make money off of the land itself ... We could be moronic and not grow anything and we think we'd make money over the next decade" - Susan Payne, CEO of Emergent Asset Management, an investment fund in the UK targeting farmland in Mozambique and other African countries.[19]

In Mozambique, where the MCC has another major land project, foreign investment in land is booming, and fuelling a massive rise in land grabbing. The World Bank estimates that applications for concessions made over the past 18 months cover 13 million hectares, with over 1 million hectares having been approved.[20] Land use and benefit rights (DUATs),[21] which were created under Mozambique's 1997 land law and which are supposed to be tightly regulated by the state, are being handed out left, right and centre, with little transparency and supervision.

DUATs are rights of occupation allotted by the state to communities in perpetuity, or to investors (both foreign and corporate) as long-term concessions (50 years, with an option to renew for another 50 years), as long as these investors provide and carry out an approved economic development plan. According to the law, the investors are also required to consult the local people to confirm that the land is available, and to set up partnerships with the local community. People struggled hard to ensure that such protection for communities was incorporated in the 1997 law. Increasingly, however, concessions are being allocated to local elites and foreign investors without local people's consent.

The MCC is not averse to DUATs, even though these are not land titles in the orthodox sense. The World Bank, which has a longer experience trying to reform Mozambique's land laws, seems also to have decided that this is the best that can be had for now, given the huge resistance to its push for commercial land markets. According to the MCC's Jolyne Sanjak:

"What we're working with the government on is ensuring that those lease-holds are secure, that the process for expiring the lease and transferring the lease is efficient ... In Mozambique, we had very interesting discussions with lawyers who work with commercial clients looking for land on which to build their businesses. And they found that their clients' start-up costs can be 60–90 % higher because of all the runaround that they had to go through to try to identify whether the land could be acquired with secure, registered rights of use."[22]

In other words, the MCC is aiming to modify the national laws, regulations and institutions governing land until there is hardly any difference between a DUAT and a land title. Specifically, the MCC is targeting two Articles (15 and 16) of the Land Law Regulations to make it easier for an investor to transfer (i.e. sell) DUATs, or for a company to transfer its DUATs by transferring a majority of the shares in the company, thus creating a major loophole for foreign investment. They also want to modify another Article (18) so that concessions will automatically be renewed after the first 50 years.[23]

When it comes to changing the institutions, the MCC is working through its typical strategy of starting with particular areas and building from there. MCA–Mozambique has identified what it calls "hotspots" in twelve "priority districts" in northern Mozambique, where its infrastructure and agribusiness projects are increasing investor interest in farmland.[24] They are now proceeding to map and delimit these hotspots, which they will then formalise through the registration of DUATs – "for private sector use".[25] With the maps and DUATs in place and the information entered into the national cadastre, MCA will set up services to provide investors with up-to-date information about the availability of land in the areas and help them to acquire land from the local communities or whoever it is to whom the MCA allocates the DUATs.

"With this process of titling, farmers will sell their land as soon as they are in financial trouble, and women will be the worst affected", worries Diamantino Leopoldo Nhampossa of Mozambique's National Small Scale Farmers Union (UNAC). "Local farmers are unhappy about this process. Land for us is understood as a common good."

Compact proposal, the primary objective of improving water sanitation is for treating horticultural produce. People's access to clean water is listed as an "indirect benefit".

19. See Susan Payne's presentation at the AgriPods Conference in London, February, 2010: (http://farmlandgrab.org/11247).

20. Presentation by the World Bank's Klaus Deininger, "Land grabbing - International community responses", 16 July 2009: (http://farmlandgrab.org/6293).

21. An abbreviation of the Portuguese Direito de Uso e Aproveitamento de Terra.

22. "The Housing Crisis that No One is Talking About: Secure Land Tenure and Poverty Reduction", transcript from Millennium Challenge Corporation public outreach meeting, 13 November 2008: (http://www.mcc.gov/mcc/bm.doc/transcript-111308-habitat-landtenure.pdf).

23. Chemonics, "Mozambique General Services Contract, Land Tenure Services: Final Report", Prepared for MCC, October 2006: (http://69.147.245.78/en/index.php?option=com_docman&task=doc_download&gid=40&Itemid=10).

24. From MCC's preparatory document on land for its Compact with Mozambique: "A capacity to respond quickly to this increase in demand [for land] and for intended investments not to be blighted by uncertainties or conflicts regarding land tenure issues is important." Chemonics, "Mozambique General Services Contract, Land Tenure Services: Final Report", Prepared for MCC, October 2006: (http://69.147.245.78/en/index.php?option=com_docman&task=doc_download&gid=40&Itemid=10).

25. According to the MCC Monitoring and Evaluation Plan for Mozambique, one of the main indicators for the Land Tenure Services Project are the "hectares of rural land formalized through the provision of DUATs, for private sector use." (http://www.mcc.gov/mcc/bm.doc/ mozambique-mande-plan-14aprilo9_approved-2.pdf).

3

Exporting the US sub-prime crisis

Few people in Benin know that Stewart International, the company guiding the reworking of Benin's land policy for MCA–Benin, is a major multinational corporation with a direct interest in commodifying African lands.[1] It is one of the largest title insurance and mortgage service companies in the US and in recent years it has been aggressively expanding globally. Advising governments such as Benin's on land and real estate polices is a side business for the company's international division, albeit a growing one.[2] It also sells the technology for cadastral systems and land record systems, and the core of its business is selling title insurance.

Title insurance was once an obscure product confined to the US real estate market, but it is quickly becoming a global industry. Foreign investors buying property in developing countries want title insurance to protect their investments, in case of competing claims on ownership of or rights to the property. For example, Stewart sells a special title insurance to Americans purchasing property on ejido lands in Mexico – lands that are owned collectively by Mexican indigenous communities and that were only recently opened up to outside investors through a change in the national land laws. As is common with title insurance in poorer countries, the terms of the title insurance for ejido lands are governed by the laws of the US, not Mexico.[3]

Most often, however, title insurance is demanded by mortgage lenders, not individuals. Last year's sub-prime mortgage crisis exposed how US banks and other mortgage lenders bundle their mortgages together and sell them on as securities called collateralized mortgage obligations (CMOs). This is referred to as the secondary mortgage market, and, in recent years, the real estate industry has been trying to develop such markets around the world. But these markets only work where land is governed by private titles and when these titles are backed up by title insurance – so that those buying the CMOs can have a level of confidence in these risky mortgage bundles. Stewart and other title insurance companies actually provide banks with blanket title insurance for their entire mortgage portfolios. "Stewart serves mortgage lenders by reviewing and insuring entire portfolios, making it possible to securitize the portfolios, and thus enabling the secondary mortgage market in a country with a developing financial industry", says Stewart.[4]

It thus becomes possible to imagine how the same sharks that engineered and profited from the US sub-prime crisis could recreate the scenario in the South, even in Africa. The potential profits are immense. It is said that 45–75% of the wealth of developing countries is made up of land and real estate – and this wealth has been largely inaccessible to global capital.[5] Stewart and other US title insurance corporations, such as First American, are part and parcel of a major effort that includes banks and finance houses, that is trying to open up this market through the creation of a "global real estate market" – with the support of the MCC.

"MCC is interested in synchronizing and collaborating on private sector initiatives by assisting with upfront legal reform to pave the way for land titling", said MCC's Jolyne Sanjack at a recent meeting of the American Land Title Association. "The ultimate goal is a more connected global marketplace."[6]

1. Stewart International website: http://www.stewart.com/
2. Stewart has engaged in title registration and privatisation projects in Georgia, Hungary, Mexico, Moldova, Serbia, Slovakia, St. Lucia, Trinidad & Tobago, and Ukraine.
3. Mitch Creekmore, Stewart International – México Division, "A U.S. standard of title assurance on Mexico Land", Arizona Journal of Real Estate & Business, May 2005: http://www.pacificboutiqueproperties.com/Documents/US%20Standards%20Aricle.pdf
4. Kevin Knai Chester, "The Globalization of Developing-Nation Real Estate Markets – A Current Perspective", MIT, June 2004: http://dspace.mit.edu/bitstream/handle/1721.1/17858/56607596.pdf?sequence=1
5. Ahmed Galal and Omar Razzaz, "Reforming Land and Real Estate Markets", The World Bank Policy Research Working Paper 2616.
6. http://www.alta.org/press/release.cfm?newsID=7336

Benin's farms, one click from Wall Street.

The MCC hired two US companies, Chemonics and International Land Systems, to develop the Mozambican government's proposal for the land component of its Compact. In Mali, another US firm, CDM, wrote up the draft proposal for the section of the Compact dealing with land. The hands of US companies, all well experienced in preparing the terrain for US corporations through USAID programmes, appear everywhere in the design and implementation of the MCC land programmes. In Benin, one US company, Stewart International, is even overseeing the development of a whole new national land policy framework under the MCC programme.

The MCC's Compact with Benin makes the dispersal of funds, including a major grant for the development of the Port of Cotonou, conditional on the endorsement of a White Paper that is supposed to be the basis for the development of a new Land Code. The Compact spells out clearly what this new policy framework must look like: it "will enable a progressive transition between customary and administrative land management

to markets and a title registration system". To ensure that the process goes according to plan, MCA–Benin brought in Stewart International to oversee the writing of the White Paper.

The White Paper was recently completed. One consultant from Benin who witnessed the process from the inside told GRAIN that it was heavily biased towards foreign investors and agribusiness. Dissenting views were silenced, and, in the end, the White Paper posits land titles as the sole system of land management in the country, completely marginalising customary practices, even though these are strongly recognised in the 2007 national land law. "The White Paper, which aims to make the use of land titles ubiquitous, proposes a model that is imported and not adapted to Benin's social and economic context", argues the peasant organisation Synergie Paysanne. "It provides a green light for multinationals and other financial powers."

As the White Paper gets translated into legislation, MCA–Benin is already pushing the use of land titles in specific districts. As in Ghana and Mozambique, the MCC is using the space generated by recent land reforms, which were overseen by the World Bank and other donors, to map out and delimit land, register titles and facilitate the purchase of land by private investors. The programme is subverting provisions made in Benin's 2007 land law that enable local communities collectively to identify and define the land rights in their area by way of Plans Fonciers Rurales (PFRs). For groups like Synergie Paysanne, the PFRs are valuable mechanisms for communities in sorting out access to land and improving the ways in which rights and responsibilities are distributed, taking into consideration food security, livelihoods, gender and the environment. But, in the MCA target districts, the PFRs are being reduced to cadastral exercises that divide land into parcels of private property to be bought and sold on the market, and the White Paper intends to generalise this process throughout the country.[26]

Foreign agribusiness investors are ecstatic about the MCC's programme. French businessman Roland Riboux, Director General of the agribusiness company Fludor, wants to see the programme extended across the whole country. "If we want development to happen people need to be able to invest rapidly and every piece of land in Benin has to have an owner in possession of a land title", he says. "Each municipality, each department must have an agency responsible for mobilising people so that they all have land titles, as soon as possible."[27]

Benin's small farmers do not share this enthusiasm. "According to our analysis, MCA–Benin is a tool that gives investors a free hand", says Nestor Mahinou of Synergie Paysanne. "From New York, an investor can identify a farmer who owns land in Ouèssè or in Djidja because all the data about each area is digitally recorded – the owner of the land, its size and even a map of the fields."[28]

Indeed, there is both increasing interest in such transactions from foreign investors and the logistical means for accomplishing them. In Ghana, for instance, the US title insurance company First American and another US company, International Land Systems, are spearheading a pilot initiative with the Clinton Global Initiative and US-based microcredit bank Opportunity International to map out lands in poor areas of Accra by satellite.[29] Opportunity International will then take residents through a process for acquiring a paralegal form of title which can be used as collateral for its loans. It's a rapid way of bypassing government to create a property market, operating under the sanction of an international bank connected to multinational investors.[30] The promoters are now seeking to bring their project to rural Ghana.

Meanwhile, those investors and companies leading the current scramble for global farmland are already working with satellite technology to identify lands for acquisition. El Tejar, an Argentine company partly owned by US and European private equity funds, explains:

"In evaluating a potential land purchase or rental, we use satellite imaging and historical weather data to perform an initial screening of the land for quality and productivity. We seek to develop an accurate map of the property, determining its topography and the percentage of the land that can be used for agricultural production, estimating flood and other risks such as disease or drought, as well as soil quality and productivity."[31]

Shutting the door on the MCC.

The MCC is constantly expanding, with more countries signing Compacts every year. A long list of countries, in Africa and elsewhere, are in line to become eligible for MCC funds. This can only be bad news for family farms. The MCC programmes are not about supporting small farmers. Rather they are turning small farmers into sellers of their lands, paving the way for investors to come in and, at bargain prices, take over prime farmland for large-scale industrial farming or even for speculation.[32] Plus, the MCC programmes are just one part of a larger effort to facilitate corporate land grabbing that brings together a growing list of international and national agencies.

26. Volker Stamm, "Social Research and Development Policy: Two Approaches to West African Land-tenure Problems", Africa Spectrum, Vol. 44, No. 2, 2009, pp. 29–52.

27. Kokouvi Eklou, "Roland Riboux : 'La question du foncier est fondamentale pour le Bénin' ", Ebeninois.com, 9 November 2009: (http://www.ebeninois.com/Interview_r13.html).

28. H. Agathe Aline Assankpon, "La position de la Société civile sur le Projet Accès au foncier", 9 December 2009: (http://www.oecd.org/dataoecd/12/12/44174152.pdf).

29. Peter Rabley, International Land Systems, Inc., "Ghana Project Leverages GIS-Based Title Registration and Microfinance to Alleviate Poverty," ArcNews, Fall 2008: (http://en.landsystems.com/downloads/Ghana_GIS_Land_Titling.pdf).

30. It is important to note that there is already a growing market for collateralised loan obligations based on bundles of microcredit loans in poor countries. Two companies selling these investment vehicles are Blue Orchard (www.blueorchard.com) and Symbiotics (www.symbiotics.ch/). Opportunity International is working actively with both of these companies (see http://www.opportunity.net/About/Distinctives/investment_capital/).

31. (http://www.eltejar.com/en/secciones/agricultural-land_44.php&sub=0).

32. A study by Synergie Paysanne of recent land grabbing in the Commune of Djidja, Departement of Zou, Benin, found an alarming increase in land acquisitions by outsiders in 2008 and 2009. Of the 30 land grabs that they documented, only in one case did an investor subsequently pursue any development of the land. Synergie Paysanne, Rapport final - Mission d'enquête sur le foncier à Djidja : accaparement des terres, December 2009.

going further

The new farm owners – corporate investors lead the rush for control over overseas farmland, GRAIN, Against the grain, October 2009, http://www.grain.org/articles/?id=55

Seized: The 2008 landgrab for food and financial security, GRAIN Briefing, October 2008, http://www.grain.org/briefings/?id=212

Farmland Grab: Food crisis and the global land grab.This blog contains mainly news reports about the global rush to buy up or lease farmlands abroad as a strategy to secure basic food supplies or simply for profit. Its purpose is to serve as a resource for those monitoring or researching the issue, particularly social activists, non-government organisations and journalists. Although currently maintained by GRAIN, anyone can post materials or develop the blog further: http://farmlandgrab.org

Synergie Paysanne, Lecture critique du Livre Blanc du MCA–Bénin: Etude sur la Politique et l'Administration Foncières – "Projet Accès au Foncier", 26 November 2009. For a copy, contact: synergiepays@yahoo.fr

Déclaration des plates formes d'OP membres du ROPPA, suite à l'atelier régional sur la sécurisation foncière des exploitations familiales à Ouagadougou, 13 April 2008: http://www.roppa.info/IMG/pdf/ Declaration_roppa_atelier_french.pdf

Declaration of farmer organisation platforms members of ROPPA, after the workshop on land security for family farms at Ouagadougou, 13 April 2008: http://www.roppa.info/IMG/pdf/ Declaration_of_FO_platforms_members_of_ROPPA.pdf

Le Hub Rural website contains a wealth of selected documents and news articles about land issues in Africa, particularly West Africa: http://www.hubrural.org/spip.php?rubrique15

Millennium Challenge Corporation website: http://www.mcc.gov/

The stage is thus being set for a massive transfer of lands currently being used by the poor, who produce food in a sustainable way for local people, to a wealthy elite and to foreign investors, who, if they are not simply sitting on the land for speculative purposes, will mine the soils to produce agricultural commodities for export. So much is at stake, and yet most African governments are falling over themselves to woo investors and sell off their peoples' land. Hardly any African government leader has dared to speak out against the current global lang grab. Few have turned down the poisoned pills from the MCC or other donors.

This is not preventing people on the ground from taking action. Most of the land deals that have been signed in Africa over the last couple of years still exist only on paper. Where the deals have been exposed or where investors have tried physically to move on to the lands, they have met fierce local resistance – from Ethiopia to Madagascar, from Mali to Kenya. And, as more and more deals become known to local people, that resistance spreads, and becomes increasingly consolidated.

It is high time that critical pressure around the role of multilateral agencies, including the UN and its human rights machinery, as well as the more directly implicated groups like the World Bank and its International Finance Corporation, also be brought to bear on national development aid programmes and the role they are playing in today's massive land grab. The MCC is one powerful example of the kind of damage that can be done; it shows why we need to work together to stop it.

Pension funds:
Key players in the global farmland grab

Preparing to burn crop residues in harvested rice fields in SE Punjab, India, prior to the wheat season. Photo: Neil Palmer (CIAT).

Large scale agricultural land acquisitions are generating conflicts and controversies around the world. A growing body of reports show that these projects are bad for local communities and that they promote the wrong kind of agriculture for a world in the grip of serious food and environmental crises.[1] Yet funds continue to flow to overseas farmland like iron to a magnet. Why? Because of the financial returns. And some of the biggest players looking to profit from farmland are pension funds, with billions of dollars invested.

Pension funds currently juggle US$23 trillion in assets, of which some US$100 billion are believed to be invested in commodities.[2] Of this money in commodities, some US$5–15 billion are reportedly going into farmland acquisitions. By 2015, these commodity and farmland investments are expected to double.

Pension funds are supposed to be working for workers, helping to keep their retirement savings safe until a later date. For this reason alone, there should be a level of public or other accountability involved when it comes to investment strategies and decisions. In other words, pension funds may be one of the few classes of land grabbers that people can pull the plug on, by sheer virtue of its being their money. This makes pension funds a particularly important target for action by social movements, labour groups and citizens' organisations.

The size & weight of pensions.

Today, people's pensions are often managed by private companies on behalf of unions, governments, individuals or employers. These companies are responsible for safeguarding and "growing" people's pension savings, so that these can be paid out to workers in monthly cheques after they retire. Anyone lucky enough both to have a job and to be able to squirrel away some income for retirement probably has a pension being administered by one firm or another. Globally, this is big money. The biggest pension funds in the world are those held by governments, such as Japan, Norway, the Netherlands, Korea and the US (*see* Table 1).

Pensions – both the institutionally managed and individually held retirement accounts – were hit hard by the

1. See the materials from the international conference on Global Land Grabbing held on 6–8 April 2011 at the Institute for Development Studies, University of Sussex, UK, http://www.future-agricultures.org/index.php?option=com_content&view=category&layout=blog&id=1547&Itemid=978. See also John Vidal's reports for the Guardian (http://www.guardian.co.uk/world/2011/mar/21/ethiopia-centre-global-farmland-rush); Alexis Marant's film Planet for Sale (http://farmlandgrab.org/post/view/18542); the studies on land deals in Africa being released by the Oakland Institute (http://media.oakland-institute.org/land-deals-africa); the Dakar Appeal against land grabbing, drawn up by participants at the World Social Forum in February 2011 and presented to the G20 agriculture ministers in June 2011 (http://viacampesina.org/en/index.php?option=com_content&view=category&layout=blog&id=23&Itemid=36); and the collective statement against "responsible" agricultural land investments launched by La Via Campesina, FIAN, LRAN, WFF and GRAIN in April 2011 (http://www.grain.org/nfg/?id=767).

2. Sovereign wealth funds, by comparison, hold about US$4 trillion in assets.

recent financial crisis, particularly in the West. As a consequence, provident funds and pension managers are seeking to rebuild long-term holdings for their clients. Farmland is a big attraction for them. They see in farmland what they call good "fundamentals": a clear economic pattern of supply and demand, which in this case hinges on a rising world population needing to be fed, and the resources to feed these people being finite. Fund managers consider land prices to be relatively low in places such as Australia, Sudan, Uruguay, Russia, Zambia and Brazil. They see those prices moving in sync with inflation (and, importantly, wages) but not with other commodities in their investment portfolios, thus providing a diversified income stream. They see long-term pay-offs from the rising value of farmland and the cash flow that will in the meantime come from crop sales, dairy herds or meat production. If you were holding on to money that had to be paid out to workers 30 years from now, you too could see the logic.

Scale is one factor that makes the role of these funds important. Pension funds started investing in commodities, including food and farmland, only recently.[3] With both commodities and food prices so steeply on the rise (*see* Graph 1), agriculture is one clear and unmistakable source of pay-off for institutional investors.[4]

Table 1: World's top 20 pension funds (2010)

Rank	Fund	Country	Total assets (US$ millions)
1	Government Pension Investment	Japan	1,315,071
2	Government Pension Fund–Global	Norway	475,859
3	ABP	Netherlands	299,873
4	National Pension	Korea	234,946
5	Federal Retirement Thrift	US	234,404
6	California Public Employees	US	198,765
7	Local Government Officials	Japan	164510
8	California State Teachers	US	130,461
9	New York State Common	US	125,692
10	PFZW (now PGGM)	Netherlands	123,390
11	Central Provident Fund	Singapore	122,497
12	Canada Pension	Canada	122,067
13	Florida State Board	US	114,663
14	National Social Security	China	113,716
15	Pension Fund Association	Japan	113,364
16	ATP	Denmark	111,887
17	New York City Retirement	US	111,669
18	GEPF	South Africa	110,976
19	Employees Provident Fund	Malaysia	109,002
20	General Motors	US	99,200

Source: Pensions & Investments, 6 September 2010, P&I/Towers Watson World 300

According to Barclays Capital, some US$320 billion of institutional funds are now invested in commodities, compared to just US$6 billion ten years ago. Hedge funds account for an additional US$60–100 billion. These figures are expected to double in the next few years.[5]

Within this panorama, pension funds are said to be the biggest institutional investors in both commodities in general (US$100 billion of the US$320 billion indicated above) and farmland in particular.[6] According to numerous surveys within the industry, pension fund managers are seeking to invest in farmland – a new asset class offering annual returns of 10–20% – as never before.[7] This won't surprise anyone who has been monitoring the big "ag investment" seminars being held in posh hotels from Zurich to London to New York to Singapore over the last three years. Take the Global AgInvesting Conference held at the Waldorf Astoria in Manhattan just last month: the conference attracted about 600 investors, from Bunge to Deutsche Bank. Collectively, this group represented holdings of US$10.8 billion in agricultural assets worldwide, with plans to raise those holdings to US$18.1 billion (up 67%) over the next three years. Farmland is at the centre of the acquisition strategy for many of these firms.

3. Commodities are basic goods and services that are bought and sold in bulk – such as oil, gold, rice, coffee, copper or beef. "Basic" means that they can be used, like raw materials, to make other goods or services. And "in bulk" means that the item can be pooled from various sources, with a high level of uniformity. Thus a sack of rice or a barrel of oil may be composed of rice or oil coming from various fields or pumps, as long as they have similar basic qualities. Commodities, following the breakdown used by onValues Investment Strategies and Research in a recent report for the Swiss government, are often traded today in the form of futures contracts, physical stocks, so-called "real" assets (like land) and equity in firms that hold productive assets. See Ivo Knoepfel, "Responsible investment in commodities: the issues at stake and a potential role for institutional investors", project co-sponsored by the Swiss Confederation, PRI and Global Compact, Zurich, January 2011, p. 3 (available at http://farmlandgrab.org/post/view/18339).

4. Though some still try to deny it, many people – from investment bankers to civil society organisations (CSOs) – have argued and shown how commodity investors are in fact fuelling the current food price hikes, particularly since the financial meltdown of 2008. Some recent accessible CSO analyses on the matter include the World Development Movement's work on food speculation (http://www.wdm.org.uk/food-speculation) and material prepared for Oxfam's GROW campaign (http://www.oxfam.org/en/grow).

5. See Ivo Knoepfel, op. Cit., p. 2.

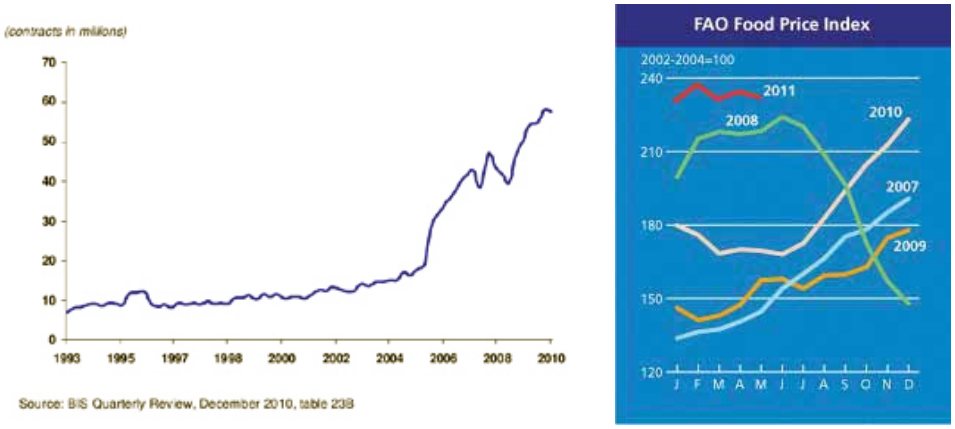
6. Ibid., p 16.

7. Many of these land deals are not investments in any productive economic sense. Rather, they are financial schemes to generate returns on capital in the form of rent. See the analysis by Hubert Cochet and Michel Merlet, "Land grabbing and share of the value added in agricultural processes. A new look at the distribution of land revenues", paper presented at the international conference on Global Land Grabbing at the Institute of Development Studies, University of Sussex, UK, 6–8 April 2011, http://www.future-agricultures.org/index.php?option=com_docman&task=doc_download&gid=1174&Itemid=971

Nearly one-third (30%) of them are pension funds.

Today, commodities like farmland make up, on average, 1–3% of pension funds' portfolios.[8] Yet by 2015, strategy decisions being taken now are expected to boost this to 3–5%, the "new optimal".[9] While figures of one, three or five% may sound terribly small, these are huge funds, where one% may amount to several billion dollars. Table 2 tries to go a bit deeper and examine some sample farmland portfolios of pension fund managers. But, as so often, the data are opaque and hard to come by.

Graph 1: Making money from agriculture – trading on commodity exchanges (L) and food prices (R) both surging



Sources: Bank for International Settlements (L) and UN Food and Agriculture Organisation (R)

Calling them down.

The big picture shows that:

1. the largest institutional investors are planning to double their portfolio holdings in agricultural commodities, including farmland;
2. they are reportedly going to do it very soon;
3. the new surge in money will push up global food prices;
4. high food prices will hit poor, rural and working-class communities hard.

It may not be easy to influence pension fund managers themselves. After all, they have no objective other than to make money – including their own cut – with the funds handed to them. But surely labour unions, employee-benefits planning bodies, pension boards, governments, and others who are responsible for decisions about how pensions should be invested and increased can and should be persuaded to divest from farmland and other agricultural commodities.

One recent experience in the US, recounted by Sarah Anderson of the Institute for Policy Studies, gives a good example:

A coalition of family farm, faith-based and anti-hunger groups, along with business associations, have initiated a campaign to persuade investors to pull out of commodity index funds. Their first target: CALSTRS, the California teachers' retirement system, which had been considering shifting $2.5 billion of their portfolio into commodities. In response to the divestment campaign, the CALSTRS board decided to adopt a different strategy. Instead of $2.5 billion, they will invest no more than $150 million in commodities for 18 months, while further studying the potential problems.[10]

Such divestment campaigns – which could aim at ensuring that pension funds do not buy into agricultural land overseas – are clearly within reach and could make a difference. And they can add their weight to the broader momentum under way in so many of our countries to rethink two vital matters: food and agricultural policies, which require constructive investment strategies; and retirement systems in general. There is too much at stake not to seize these opportunities.

PENSION FUNDS MAY BE ONE OF THE FEW CLASSES OF LAND GRABBERS THAT PEOPLE CAN PULL THE PLUG ON, BY SHEER VIRTUE OF THE FACT THAT IT IS THEIR MONEY.

8. Some of the biggest funds allocate as much as 7% of their portfolios to commodities.
9. Knoepfel, op. cit., p. 14.
10. Sarah Anderson, "Food shouldn't be a poker chip", IPS, Washington DC, 15 November 2010, http://www.ips-dc.org/articles/food_shouldnt_be_a_poker_chip. For more information, see "Stop gambling on hunger", http://stopgamblingonhunger.com/?page_id=838

Table 2: Pension funds investing in global farmland for food production

Pension fund	Country	Type	Total assets under management
Alecta Pension Fund	Sweden	Private	SEK 500 billion [US$72.3 billion]
AP2 Second Swedish National Pension Fund	Sweden	Public	SEK 220 billion [US$34.6 billion]
AP3 Third Swedish National Pension Fund	Sweden	Public	SEK 206.5 billion [US$28.8 billion]
APG (administering ABP, the National Civil Pension Fund)	Netherlands	Public	EUR 240 billion
Ascension Health	USA	Private	US$ 15 billion
Australian super funds	Australia	Public	A$ 1.3 trillion [US$ 1.27 trillion]
ÄVWL Ärzteversorgung Westfalen-Lippe (doctors)	Germany	Public? (under supervision of Min of Fin of N. Rhine-Westphalia)	EUR 8.5 billion [US$ 11.5 billion]
CalPERS California Public Employees' Retirement System	USA	Public	US$ 231.4 billion
Dow Chemical	USA	Private	
Insight Management	UK	Private	£151.3 billion [US$ 235 billion]
IPERS Iowa Public Retirees System	USA	Public	US$ 20 billion
New Zealand Superannuation Fund	New Zealand	Public	NZ$ 17.43 billion [US$ 14.2 billion]
One US "state teachers fund" - CALSTRS?	USA	Public	

Global farmland investment portion…	… and its status
Alecta own 9.3% of Black Earth Farming, a Swedish farming venture in southwestern Russia which currently controls 326,000 ha (79% of it fully owned) to produce cereals, sugar beet, sunflower, meat and dairy for the international market.	Current (2011)
US$ 500 million in grain farmlands in US, Australia and Brazil (1.4%)	Planned joint venture with TIAA-CREF. First forays into farmland investing were in 2010.
SEK 267 million [US$ 38 million] invested in companies that invest in farmland, primarily in Russia and to a lesser extent in Ukraine. Two examples are Alpcot-Agro and Black Earth Farming, which buy farmland in Eastern Europe and then oversee land managament operations. AP3 is also invested in FK Volga Farming Ltd, an offshore company holding & operating 60,000 ha for grain production in Penza, Russia. (0.1%)	Current, since 2008
EUR 1 billion (0.5%), primarily in Latin America, Australia, New Zealand and Eastern Europe. "Basically, the world is our farm," says APG's Jos Lemmens. It "just depends on the project and whether the risk/return profile is right."	Began investing in global farmland during a push for innovation in 2007. The one billion is a planned increase (from several hundred million in 2010). Targeted returns: 8-12% in most cases, but up to 20% for some crops or riskier countries. Farmland seen as a better form of exposure to commodities like corn or wheat than futures contracts because less volatile.
Less than $1.1 billion (7.5% target)	Looking to invest in farmland for the first time, to help meet a real assets target of 7.5% that is currently unmet.
They reportedly have A$ 500 million [US$ 490 million] (0.04%) invested in Australian farmland	Current. Estimate only.
US$ 100 million (0.9%) invested in farmland in Australia, Brazil and USA. They buy land and rent it out; they don't manage operations themselves.	Current.
About US$ 50 million (0.2%): - US$ 1.2 million directly invested in Black Earth Farming; - US$ 47.5 million invested in agribusiness firms with huge international farmland holdings in Africa, SE Asia and S America: Olam (US$ 6.1m), Indofood (US$ 1m), Wilmar (US$ 24.5m), Sime Darby (US$ 3.2m), Golden Agriresources (US$ 8m), IOI Corp (US$ 4.7m)	Current.
not revealed	Farmland added recently. Aimed annual returns on US holdings: 8-12%.
Not more than £1 billion (US$ 1.6 billion). Insight Management is an asset manager that works primarily for pension funds (86% of its client base). They have just created a new fund of global farmland holdings for their institutional clients. The size of the fund is less than 0.7% of their portfolio.	Sept 2011
US$ 100 million (0.5%)	In September 2011, IPERS decided to hire UBS Agrinvest to manage a new $100 million allotment for farmland. To be invested in "North America" only. This farmland fund is separate from an equally new timberland fund.
NZ$ 500 million (3%) [US$ 407 million]	The 3% allocation has been made at the Fund's strategy level. First purchases of domestic farmland have started, to be followed by overseas farmland holdings.
US$ 500 million - US$ 1 billion	

Pension fund	Country	Type	Total assets under management
PFZW Pension Fund for Care and Well-Being, formerly PGGM	Netherlands	Public	EUR 90 billion
PKA Pensionskassernes Administration	Denmark	Public	US$ 25 billion
some “national government employees pension fund”	not revealed	Public	
Sonoma County Employees’ Retirement System Association	USA	Public	
TIAA-CREF Teachers Insurance and Annuity Association - College Retirement Equities Fund	USA	Public	US$ 426 billion
Varma Mutual Pension	Finland	Private	EUR 31.2 billion

Global farmland investment portion…	*… and its status*
In 2010, PFZW placed EUR 50-100 million in Black River Asset Management, the private equity arm of Cargill, to engage in global farmland investing, plus up to EUR 50 million in Black River's Asia-focused food fund, which also engages in farm production investing, mostly for China's growing consumer market. They also have up to EUR 50 million invested in Rabo FARM, the farmland fund of Rabobank, which is buying up farmland in Eastern Europe for lease to global operators to produce food for the global market. Since 2008, they also have EUR 50-100 million invested in NY-based NCH Capital, which buys or leases small farms in Russia and Ukraine for consolidation and operation to produce cheap agricultural commodities for the global market. (0.3%)	May raise farmland allocation in 2011.
US$ 370 million (1.5%). Within its farmland portfolio, PKA has committed $47.9million (DKK250million) to SilverStreet Capital's Silverland Fund, a specialised 10-year fund engaged in farmland investment in Africa, for expected returns of 15-20%. SIlverland is primarily involved in Malawi, Mozambique, South Africa, Tanzania, Uganda, and Zambia, for production of cereals, soybeans, fruits, vegetables, sugar, tea and coffee.	By April 2012
EUR 2-5 billion	Planned soon
	Expected to allocate 3% to UBS Agrivest Farmland Fund
US$3.1 billion in 400 farms (they own 600,000 ha) in US, Australia, Brazil, Poland and Romania (0.7%)	Current. They claim annual returns of up to 12%. Jose Minaya says TIAA-CREF could easily double its farmland investements.
Varma own 1.7% of Black Earth Farming, a Swedish farming venture in southwestern Russia which currently controls 326,000 ha (79% of it fully owned) to produce cereals, sugar beet, sunflower, meat and dairy for the international market.	Current (2011)

going further

The website farmlandgrab.org is regularly updated with articles and news about pension funds going into farmland. See http://farmlandgrab.org/search?query=pension+fund&sort_order=date for a direct view. It also provides a wealth of contacts and reports of people's experiences in dealing with the global rush to get control over farmland in the context of the current food crisis.

Watch a presentation by Jose Minaya of TIAA-CREF at the World Bank's land conference in April 2011: http://vimeo.com/23314644

New agricultural agreement in Argentina: A land grabber's "instruction manual"

146 What are the implications when one of China's most powerful agribusiness firms starts acquiring thousands of hectares of land in the Province of Rio Negro, Argentina, for the production of soybeans, wheat, and oilseed rape to ship back to China? What are the consequences for the local communities that live in the region who were never consulted about these investments and commercial agreements? Why is the government paving the way for these deals, with all sorts of privileges promised to the Chinese investors, and not considering the implications for the region's food sovereignty?

An instruction manual. That's the way Argentine civil society organisations such as Foro Permanente por una Vida Digna, a community organisation based in the city of Viedma in Río Negro province, are describing an agreement signed by the provincial governor during his recent trip to China.[1] The agreement hands over thousands of hectares to Beidahuang, a Chinese state-owned corporation, for production of soybeans, wheat, and oilseed rape, among other crops.

The land will be leased so that the firm can install irrigation systems. Initially, Beidahuang will invest $20 million to irrigate and grow crops on 3,000 ha. But the project aims to reach a total investment of $1.45 billion over twenty years and to cover 320,000 ha. Simply put, Beidahuang is trying to get its hands on a twenty-year food supply.

The global land grab took off as a new phenomenon in 2007–08 when food-importing governments and profit-seeking companies began to buy up or lease vast areas of farmland in Africa, Asia, and Latin America. This new land grab differs from historical examples of the phenomenon in terms of its broader scope and stampede-like pace; its use of the land to grow staples rather than luxury crops; its being led by the private sector (though governments have a supporting role); and, most important, its having nothing to do with development. It is a matter of expanding and consolidating agribusiness control, nothing more.

The Río Negro provincial government has touted this project as a "food production agreement" and as an investment in irrigation for the province's lower valley. It says this is a necessity given the national government's refusal to fund irrigation infrastructure.[2] But in reality, the agreement is just a land giveaway for industrial soy production. The Chinese state-owned company gets a long list of unconditional benefits at no cost.

It's important to realise that when the agreement was finally made public at the end of 2010, it had already been signed. The substance of the talks with the Chinese government was kept secret for over a year after the opening of the talks were announced.

The cooperation agreement is composed of two sub-agreements: one for the agrifood investment project, and another covering the submission of an investment proposal to build a new terminal in the port area of San Antonio Oeste. There is also a schedule to the agreement whose purpose is to expedite the "cooperation timeline".

The "instruction manual" contains a set of clauses entrenching a business model that maximises the company's profits and leaves it free of liability. Some of the detailed aspects of the deal are:

- Investment guarantees: The Río Negro government offers "the best investment policy, including legislated guarantees".
- Establishment in Río Negro: The provincial government undertakes to provide office space at no cost whatsoever, as well as housing in "the domicile of the provincial government". It also offers transportation and office equipment.
- Free "viability studies": The Río Negro government undertakes to

1. Soja: China y Río Negro hacen acuerdo ilegal, http://farmlandgrab.org/17299 15-10-2010.

2. Accatino confirma el plan, molesto con los críticos, 13-10-2010 http://www.rocaportal.com.ar/blog/accatino-confirma-el-plan-molesto-con-los-criticos/

1 What is Beidahuang?

Beidahuang Group is a conglomerate of state-owned agribusinesses based in Harbin, province of Heilongjiang. It is one of China's largest rice millers and, through its subsidiary Jiusan Oil and Grain Group, one of the five largest soy processors.

According to the company's website, it owns nearly 5.5 million hectares (12% of the total area of Heilongjiang province), 418,094 head of beef cattle, 267,266 dairy cows, 1,315,000 breeding sows, 2,062,000 goats, and 6,352,000 head of poultry. It also owns 54 airports and 30 agricultural aircraft, 198 grain processing centres, 59 seed processing facilities, and 24,151 tractors.

Beidahuang is one of the few domestic soy processing companies in China that survived the country's entry into the World Trade Organisation (WTO) in 2001, when the government relinquished price controls on soybeans and imports. China became the world's largest soybean importer, and the country's domestic soy processing industry was taken over by the corporations that control world trade in soybeans: Wilmar, Cargill, ADM, Bunge, and Louis Dreyfus. Foreign companies now hold a stake in 64 of the 97 largest Chinese soy processors and control 80% of the country's total soy processing capacity.

The powerful Beidahuang Group has itself considered an alliance with foreign companies. However, the company's CEO, Tian Renli, made it clear that such an alliance would be premised on maintaining a Chinese controlling stake in the company, and that no "unfair additional terms" imposed by foreign enterprises would be accepted. In 2009 he told the Economic Observer (China) that if foreign companies disagree with him on this, he would rather build a global sales and purchasing network by himself, and complete the company's internationalisation process independently.

This appears to be the alternative for which the company has now opted. The agreement to produce soybeans in Argentina is not the only one of its kind. In 2008, Beidahuang reported that it had signed agreements with the Philippine government to develop 200,000 ha of rice, corn, and other crops in the province of Luzon. The current status of these agreements is unknown.

defray all costs related to "investment viability" studies. These comprise "the investment environment, available resources, investment policy, and economic benefits".

• Free land: To begin, the government will provide 3,000 ha "at no charge" for experimental high-yield cropping. Also to be made available immediately are 20,000 ha of "idle land equipped with irrigation channels in the region under the governance of Idevi [Instituto de Desarrollo del Valle Inferior del Rio Negro, a government agency responsible for development of the lower valley]". The great giveaway continues with the provision of information on 234,000 ha in various valleys of the province (Colonia Josefa, Negro Muerto, Guardia Mitre, Margen Norte, and La Japonesa on the Río Colorado) for future exploitation.

• Tax exemptions: The Río Negro government will make all the necessary arrangements so that it can apply rules "exempting [the company] from all provincial income taxes and other taxes or charges, such as on gross revenues, stamps, patent fees, etc". At the same time,

the government undertakes to apply to the national government for the company's investments to be exempted from "reserve requirements".

• Technical support: The Río Negro government assures Beidahuang the cooperation of all the technicians working for its water authority, and will make available all previous engineering studies and other preliminary work done on developing the port project.

• Use of the port: Until such time as the future port covered by the agreement is built, the Río Negro government offers part of the San Antonio Este port zone free of charge, and will allot 5 ha for the company's use. Here the wording is unclear, and the obligation to build the new port itself appears to rest with the company.

It is important to remember that Beidahuang is not even registered in the province, and until that situation changes, "Strong Energy", an unknown firm, will act as its representative.[3]

Once again we see the same situation as in the majority of land grabs: governments cave in to the demands of other countries or companies to occupy our land without fair compensation. No community consultation, no impact assessment: the people's interests are simply disregarded and trod upon.

And of course, when the company departs after twenty years (the term of the concession, although the port is being given away for fifty years, automatically renewable for another fifty), the land to be inherited by future generations will be degraded and depopulated. Such is the provincial government's unequivocal commitment to our descendants.

In the face of such a provocation, the people of Río Negro are not sitting quietly. Students, environmental organisations, unions, church groups, and others are joining in what has now become a worldwide clamour: NO to land grabs! YES to land for peasants, native peoples, workers, and small farmers! YES to food sovereignty!

Environmental experts in the province have denounced the project as a form of "ecocide". They have raised the alarm in regard to the high environmental and health impacts that can be expected in an area characterised by low precipitation (200 mm annually) and extremely limited water availability. They also point to irregularities in the province's zoning of native forests (National Forests Law no. 26.331), which make it possible for the project to go ahead.[4]

Once again we see the same situation as in the majority of land grabs: governments cave in to the demands of other countries or companies to occupy our land without fair compensation. No community consultation, no impact assessment: the people's interests are simply disregarded and trod upon.

Prior to the signing of the agreement, the environmental organisation Piuke de Bariloche stated that "decisions over what will be produced on our lands will be subject to the needs of the country making the infrastructure investment. No alternative to the foreign take-over ("extranjerización") of our agricultural production is being contemplated. China needs soybeans? Then soybeans will be planted. This policy flies in the face of our food sovereignty. It's not even so much the market that's deciding what we will produce: it's China, a powerful and growing global actor".

Grupo de Reflexión Rural, an Argentine civil society group that analyses

3. Se vienen los Chinos (http://www.multimedios2deabril.com.ar/?direccion_del_navegador.294.7209 , 31-1-2010).

4. Ecocidio en la Provincia de Río Negro. En el año internacional de la biodiversidad. (http://www.losquesevan.com/ecocidio-en-la-provincia-de-rio-negro.-en-el-ano-internacional-de-la-biodiversidad..724c).

The lower Río Negro valley

The Río Negro is an Argentinean watercourse flowing southeast to the Argentine Sea. The watershed is divided into upper, middle, and lower portions, this last being the one located closest to the mouth of the river. At that point the river enters a flat plain where it meanders, creating a maze of channels (some of them now dry) before reaching the ocean.

All this land was under the control of the original peoples (the Mapuche) until 1879, when the genocide known as the "Conquest of the Desert" entered its final phase. That was when this land began to be occupied by an export-oriented model of agriculture under the impetus of the governing elite of Argentina, known from that time on as the "Generation of '80".

One factor that changed the entire agricultural profile of the valley was the construction of irrigation systems. The first channels were built in 1884, allowing the eventual conversion of the upper valley into an export-oriented fruit and vegetable production zone (apples, pears, and grapes are some of the main crops). This infrastructure was not built in the lower valley, and that is the provincial government's official excuse for the current agreement with China.

3 China's role in the land grab

China is ostensibly self-sufficient in food, but its population is gigantic, its farmland is disappearing under the encroachment of industry, its water supply is under intense pressure, and the Communist Party has a long-term future to think about. With 40% of the world's farmers but only 9% of its farmland, China has understandably made food security one of the main points on its agenda. And with over $1.8 trillion in currency reserves, China has enough money to invest in its own food security overseas. As numerous Southeast Asian peasant leaders and activists are well aware, Beijing has been gradually offshoring its food production since before the eruption of the world food crisis in 2007. China's new geopolitical diplomacy and its aggressive foreign investment strategy have led, in recent years, to some thirty agricultural cooperation treaties giving Chinese companies access to farmland in "friendly countries" in exchange for technology, training, and infrastructure funding. This is happening not only in Asia but all over Africa, with a number of highly diverse and complex projects. From Kazakhstan to Queensland and from Mozambique to the Philippines, a systematic and well-described process is taking place whereby Chinese companies lease or purchase land, set up large agricultural establishments, and send their farmers, scientists, and extension workers there to produce crops. The largest part of Chinese offshore agriculture is dedicated to producing rice, soybeans, and corn along with agrofuel crops such as sugarcane, manioc (cassava), and sorghum.

In essence, the Chinese land grab strategy is conservative: the government is using financial mechanisms to protect its investments and maximise its domestic food supply options in the long term. The pressures caused by the loss of farmland and fresh water supplies in China are so great that "China has no option but to go abroad", says one member of the Chinese Academy of Agricultural Sciences. Food, side by side with energy and minerals, is occupying an increasingly prominent place in China's overall foreign investment strategy.[1]

1. Seized: The 2008 Landgrab for Food and Financial Security. GRAIN, October 2008, http://www.grain.org/e/93

agricultural policy and proposes alternatives, also denounced the agreement, stating that "unconditional set-asides of land for China to produce Roundup Ready soy represent an immeasurably greater risk than the impacts of large-scale chemical agriculture itself. If this project goes ahead, an enclave would be formed in Patagonia on a scale similar to what China and several European countries are doing in Africa; namely, they are buying up and taking vast areas of land out of circulation to meet their own food and forage production demands".[5]

Students have reacted with equal vehemence. Asociación Biológica del Comahue, a member group of the Argentine Federation of Biology Students, along with more than 450 students from the 12 provinces in attendance at the *Ninth National Biology and Environmental Science Students Fair* in the city of Bariloche (8–12 October 2010), unconditionally rejected the agreement on the grounds that it furthers the invasion of Argentina by transgenic soybeans, as well as causing grave environmental and health impacts for the local communities as a result of massive glyphosate spraying.[6] Likewise, high school students in the cities of Viedma and Patagones stated, "The high school students of our cities oppose the 'soy megaproject' slated to be carried out in the middle and lower Río Negro valleys. This project unscrupulously hands over 320,000 ha of our provincial and national heritage to foreign invaders, threatening to destroy its productive value".[7]

A group of residents consisting of members of community organisations, teachers, students and ex-students of Escuela Secundaria de Formación Agraria, an agricultural high school, along with members of the Foro Permanente por una Vida Digna, the Consejo Asesor Indígena (CAI) Viedma, the Centro Universitario Regional Zona Atlántica (CURZA), and various political parties met in the month of December 2010 and issued the following statement:[8]

"We firmly reject the 'Framework Agreement' recently signed by the current executive of the province of Río Negro with Chinese companies and/or the Chinese government, which allows for the use of vast areas of the lower and middle Río Negro valley by Chinese companies to grow transgenic soybeans. The agreement was not even made public in Spanish."

The Mapuche people, too, publicly rejected the agreement and are contemplating legal action: "The idea is to start by filing an amparo [constitutional relief] action in court to try to stop this, since in none of these cases were any of the rights of the original peoples taken into account, much less the right to free prior informed consent. This right is enshrined in ILO Convention 169, which Argentina has ratified (Law 24.071). So the idea is to begin by asserting this

5. ¡Se Colonias del Siglo XXI: alimentos, especulación y arrebato territorial (http://www.grr.org.ar/documentos/coloniasxxi.htm).

6. Río Negro: profesionales y estudiantes de Biología rechazan la producción de soja en la provincia (http://puertae.blogspot.com/2010/10/rio-negro-profesionales-y-estudiantes.html).

7. Manifiesto de estudiantes secundarios del Viedma y Patagones, 20-11-2010, (http://rionegrocontaminada.blogspot.com/2010/11/ni-soja-ni-china-soberania-territorial.html).

8. Argentina: declaración en contra del cultivo de soja transgénica y del modelo herbicida de glifosato, diciembre 2010, (http://www.biodiversidadla.org/Principal/ Contenido/Documentos/Argentina_declaracion_en_contra_del_cultivo_de_soja_ transgenica_y_del_modelo_herbicida_de_glifosato).

right since, though it has not yet been given full legal protection, we think that it's already possible to start filing amparos."[9]

Another voice speaking up is that of the provincial Pastoral Care Ministry of the Catholic Church, which expressed disapproval of the "leasing of public or private lands, whether to large organisers of contract agriculture (pools de siembra), be they Argentine or foreign, or to provinces of a country like China". The Ministry added that "soy and other industrial crops will not be welcomed under the conditions created by this agreement, which clearly jeopardises the future of Río Negro residents".[10]

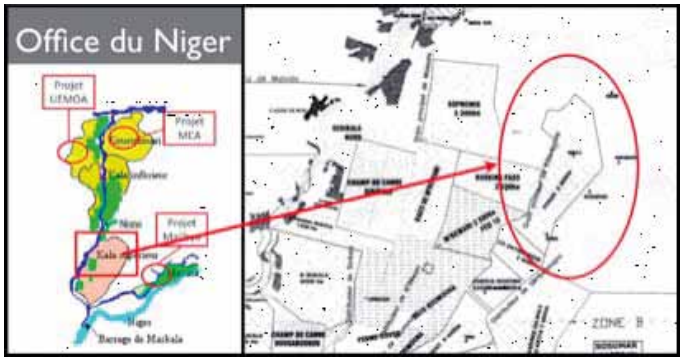
Foro Permanente por una Vida Digna has launched a campaign under the banner "NO SOYA, NO CHINA: land and food sovereignty for Argentina". The organisation states, "We oppose the agricultural export megaproject being carried out by the national and provincial governments, which jeopardises 320,000 ha of land and nature in our province by handing it over to the Republic of China to do with it as it sees fit. This violates our sovereign laws, posits a future of farming without farmers, and contaminates us with pesticides. It is a project that does great harm to this generation and the ones to come". (To join this campaign, write to Foro Permanente por una Vida Digna at nisojanichina@gmail.com).

Governor Saiz has turned a deaf ear to all these objections: he signed the agreement and is proceeding to put it into action. But organised opponents of the agreement are saying clearly and publicly that the last word has yet to be spoken.

9. http://www.originarios.org.ar/index.php?pageid=13&noticiaid=6782
10. Argentina: La iglesia rionegrina planteó sus críticas al proyecto de sojización con China, 25-12-.2010,(http://farmlandgrab.org/post/view/17922).

Saudi investors poised to take control of rice production in Senegal and Mali?

Saudi Arabia's strategy to outsource food production will be at the top of the agenda when several heads of state and high-level delegations from African countries arrive in Riyadh for an investor conference on December 4, 2010. In some of these countries, Saudi investors are already acquiring farmland and starting to put the Kingdom's policies into operation. One of their main targets is West Africa's rice lands. New information obtained by GRAIN shows that the Kingdom's most powerful businessmen are pursuing deals in Senegal, Mali and other countries that would give them control over several hundred thousand hectares of the region's most productive farmlands to produce rice for export to Saudi Arabia. The deals will severely undermine national food security and destroy the livelihoods of millions of farmers and pastoralists. All of this is transpiring behind closed doors with African governments and without the knowledge of the affected people or the general public.



Map 1. Document (right) obtained from Mali's Office du Niger Authority, indicating the location and size of Foras's initial lease of 5,000 ha. Foras says it has already completed preliminary tests on this site and now intends to pursue its plans to expand production, first on 50,000 ha and eventually on 100,000 ha.

In August 2009, news broke about a massive Saudi project aiming to acquire farmland for rice production in Africa. The project, led by the Foras International Investment Company, boasted that within 7 years it would produce 7 million tonnes of rice on 700,000 hectares of irrigated lands, mainly in Senegal and Mali, with Mauritania, Uganda, Sudan and Niger also being considered. Hence the name of the project: 7×7.

Talk of the project tapered off after that, leaving the impression that the promoters were not really that serious. Farmers in Senegal thought it surely must be a bluff, since they themselves are struggling to get access to enough lands for food production. But new information confirms that the project is indeed advancing, now under the name AgroGlobe, and that Foras and its financial backers remain committed to taking over large swaths of the most important rice producing areas of Senegal and Mali, with projects also moving forward in Sudan and Nigeria. Meanwhile, other investors from Saudi Arabia have been conspiring with local businessmen to develop equally ambitious land grabs for rice in West Africa.

These projects illustrate how governments in Africa are conspiring in secret with powerful foreign investors to displace farmers and pastoralists and sell off huge amounts of much needed farmland.

Foras awaits the green light...

Foras'ss AgroGlobe project began in 2008 with a 2,000 ha pilot rice farm in Mauritania overseen by a team of consultants from Kasetsart University in Thailand.[1] The following year, Foras signed a lease for 5,000 ha in Mali and an interim agreement for 5,000 ha in Senegal. Its aim was to conduct preliminary studies on both of these land areas with a view to expanding rice production to 100,000 ha in each country. A memorandum of understanding was also signed with the International Rice Research Institute on research collaboration.[2]

An official map of land leases in the Office du Niger region of Mali from April 2009 shows exactly where Foras's 5,000 ha concession is located. Foras says this land is for the "pre-implementation stage of the application of agricultural techniques" developed at its pilot farm in Mauritania (See Map 1). In a letter sent to GRAIN in 2009, the company said that its intention was to progressively increase the size of its operation to somewhere between 50,000 and 100,000 ha. According to Foras's Chief Investment Officer, Saad Bin Ahmed, the preliminary studies have now been completed by Foras's team of Thai experts and the company is now ready to proceed to the next phase of production on an expanded area.

The plans for Senegal are moving more slowly. Bin Ahmed says Foras has an interim agreement with the government of Senegal on the project. But the firm is still waiting for the government to finalise its allocation of the 5,000 ha in the Senegal River Valley, near Podor, so that Foras can proceed with its preliminary studies.

While Foras waits for the green light from Dakar, the government of Senegal has in the meantime been negotiating yet another massive rice project with Saudi investors that involves the same lands in the Senegal River Valley. According

1. See the video at http://farmlandgrab.org/6749
2. GRAIN, "CGIAR joins global farmland grab," September 2009: http://www.grain.org/articles/?id=52

to a May 2009 project proposal that GRAIN has obtained, this project would hand over most of Senegal's rice lands to an unnamed group of Saudi investors to produce rice for Saudi Arabia.[3] Bin Ahmed maintains that Foras has nothing to do with this other project, but the proposal, one of the few of its kind to fall into public hands, does shine a light on the type of deals that Saudi investors are after and what the target governments are prepared to offer.

...while other investors want to come in.

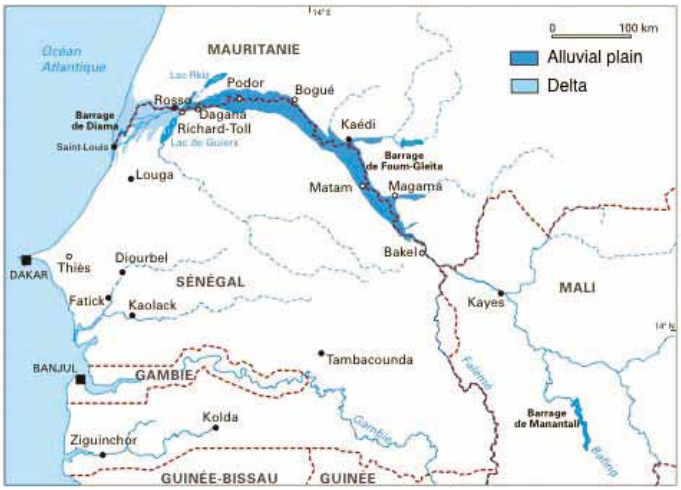
This other project proposal, entitled "Project for the industrial production of one million tonnes of paddy rice in the Senegal River Valley", spells out how a group of unidentified Saudi investors would register a company in Senegal to grow rice on 120,000 ha of irrigated lands in the Senegal River Valley, through an investment of slightly more than US$100 million over five years.

The Senegal River Valley is the main irrigated rice producing area of Senegal. Around 120,000 ha in the area are suitable for irrigated rice production and about half of these are currently being farmed under irrigation. These lands, most of which are farmed by families with access to less than a hectare, produce 70% of the national rice harvest and provide livelihoods for an estimated 600,000 people. But the area is also of vital importance for pastoralists and the production of other grains, such as sorghum, both of which tend to compete directly with the expansion of irrigation.

Under the project, the Saudi investors would essentially take control of all the rice production in the Senegal River Valley, for they would get the 50,000 or so ha of irrigated lands that are presently in production and another 14,207 ha of irrigated lands that require rehabilitation. They would also acquire a further 52,228 ha in the districts of Dagana, Podor, Matam and Bakel for the extension of irrigation. All of these lands will be regrouped into big lots of a "minimum" of 500-2,000 ha ("to allow for economies of scale", the proposal says). And they will not be sown to African rice, the proposal specifies, but new Asian varieties, especially hybrids.

While the investors want to acquire these lands outright, the proposal says they are prepared to consider contract production "if necessary on those lands where farmers are already producing rice". But, the document goes on, the economic and financial success of the project can only be achieved if the lands required for production are made available and placed under the control of (*mise à la disposition de*) the investors.

How much will the lands cost? The proposal does not say. It does say, however, that a joint venture company, called



Map 2. Senegal River Valley

Société Agro-Industrielle du Sénégal, will be established to carry out the project. Saudi investors will control 90% of that company, and Senegalese investors will control the remaining 10% through their contribution of lands to the project. A whopping 70% of the rice will be exported to Saudi Arabia, where the company has a "guaranteed" market. Trucks will transport the rice to the port of Dakar, from where it will be shipped to the Kingdom. The other 30% will be sold to local, urban markets.

These investors are not only interested in assuring a rice supply for Saudi Arabia. They want to make money, lots of it. The project proposal claims that they will be able to pay off their investment within five years, stipulating that they expect an annual rate of return of 36.7%. They also expect the government of Senegal to provide a range of subsidies through President Wade's GOANA programme.[4] According to the project proposal, the company qualifies for around US$10 million in subsidies over its first five years of operation.

> THE PLANS FOR SENEGAL ARE MOVING MORE SLOWLY. BIN AHMED SAYS FORAS HAS AN INTERIM AGREEMENT WITH THE GOVERNMENT OF SENEGAL ON THE PROJECT.

The "win-win" case for this project is hard to make, but the proposal tries to do so. It claims that the project will somehow contribute to Senegal's rice self-sufficiency and provide jobs for the peasants who will no longer be able to farm the lands. "The productive work force will be exclusively local in order to improve living conditions and provide, therefore, economic and social development options", says the proposal. As for the numerous pastoralists in the area who will lose access to both land and water for their herds, the company says that they will

3. GRAIN obtained a leaked copy of the document, dated May 2009 and entitled, "Projet de production industrielle d'un million de tonnes de riz paddy dans la Vallée du Fleuve Sénégal". The title page indicates that the project was prepared by Africa Life Science Consulting, under the coordination of Amadou Kiffa Gueye, special advisor to Abdoulaye Balde, Sénégal's Minister of Mines, Industry, Agro-industry and SMEs and Executive Director of the National Association of the Organization of the Islamic Conference.

4. GOANA stands for "Grande Offensive Agricole pour la Nourriture et l'Abondance" or Great Farm Initiative for Food and Abundance. It was launched in 2008 in response to the food crisis.

What is Foras?

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The Foras International Investment Company is the investment arm of the Organization of the Islamic Conference (OIC), an intergovernmental organisation with 57 member states that calls itself "the collective voice of the Muslim world". Foras was established through an initiative of the Islamic Chamber of Commerce and Industry in 2008 as a closed joint stock company headquartered in Jeddah, Saudi Arabia, with an initial capital of US$120 million. Its main shareholders are the Islamic Development Bank and several private investors from Saudi Arabia and other Gulf countries.

فرص للاستثمار
Foras Investment

Two of Foras's most important "high net worth investors": Nasser Kharafi (left) of Kuwait, the world owner of the Americana Group and 48th largest fortune in the world and Sheik Saleh Kamel, founder of the Dalla Al Barakah Group and Chairman of the Islamic Chamber of Commerce and Industry.

Two of the largest shareholders in Foras are the Dallah Al Barakah Group and the Saudi Bin Laden Group. These Saudi conglomerates have recently been pursuing overseas farmland investment projects, with Al Barakah reported to be negotiating for lands in Bulgaria and the Bin Laden Group trying to pursue a massive 500,000 ha rice project in Indonesia. The National Investment Company of Kuwait is also a major shareholder, as are a few super-rich individuals, such as Nasser Kharafi of Kuwait, the world's 48th richest person and owner of the Americana Group, and Sheikh Saleh Kamel, the founder of the Dallah Al Barakah Group and Chairman of the Islamic Chamber of Commerce and Industry.

Foras develops investment projects in OIC member countries, ranging from banking and housing to infrastructure and agriculture. By far its largest agriculture project is the 7×7 rice project, which it now calls AgroGlobe. Its close affiliation with the OIC and the Islamic Development Bank helps it to open doors for its investment projects, as do its various "social" investments. In both Mali and Senegal, for instance, it recently committed millions of dollars towards the construction of housing projects for the poor. In the case of Senegal, the project is being handled by no less than President Abdoulaye Wade's son Karim Wade, who many see as poised to take over the presidency after his father.

Farmers in Senegal thought it surely must be a bluff, since they themselves are struggling to get access to enough lands for food production.

Tiedo Kane, member of the farmers' organisation SEXAGON, looks out at fields of millet planted by local farmers in the Office du Niger, Mali, that the government has now handed over to foreign investors (Photo: GRAIN, October 2010)

Farmers and pastoralists at the Kolongo Forum in Mali's Office du Niger call for all land deals with foreign investors to be suspended (Photo: CNOP)

be able to buy feed from the feed mills that the project intends to build in the area. In this way, the company boasts, the animals will be fed "more easily and at a lower cost".

The proposal does not say who the Saudi or Senegalese investors are. On probing from GRAIN, the person coordinating the project, Amadou Kiffa Guèye, special advisor to the Minister of Mines and Agro-industry, would only say that the Saudi Royal Family was involved as were some wealthy Senegalese businessmen. He also said that it was the government of Senegal that tasked him to develop the project proposal, but at the request of the Saudi investors.

Guèye further explained, however, that the Saudi investors have since pulled out of the project, citing financing problems, and that the government of Senegal is now looking for other investors to carry the project forward.

What are we to make of this? One group of Saudi investors withdraws, while another pushes ahead, for the same objectives and under the same national plan of the Saudi Kingdom to outsource food production. The government of Senegal signs an agreement for a project in the Senegal River Valley with Foras while constructing another with a different group of Saudi investors on the same lands. And now the government, never having breathed a word of this to the public, much less to the farmers and pastoralists of the Senegal River Valley, is looking for other investors to come into the project, while Foras waits for its go-ahead. One thing is clear however: Senegal's food security and the livelihoods of hundreds of thousands of people are being negotiated behind closed doors, for cash.

Putting the brakes on Foras and the rest.

Over in Mali, people have also been kept in the dark about what their government has been negotiating with Saudi investors. The same goes for Sudan and Nigeria, where Foras has taken over lands as well. In January 2010, the firm announced an investment of US$200 million in a 126,000 ha farming project in Sudan's Sennar State, along the Blue Nile. In June 2010, Foras signed a memorandum of understanding with the government of Katsina State, Nigeria, for a US$100 million agricultural project that will begin with a pilot farm on 1,000 ha allocated by the state government to the firm.

Foras's AgroGlobe project is outrageous in its ambitions and assumptions alone, targeting as it does the very heartlands of rice production in West Africa. But it must be taken seriously. It has the backing of some of the wealthiest people in the world and the highest levels of government, both on the side of the investors and in the host countries. If it goes forward, hundreds of thousands of farmers and pastoralists in Mali, Mauritania, Senegal, Nigeria, Sudan and potentially other countries where the project expands will lose access to land and water, while national food security will be put in jeopardy.

Complete information about the status of Foras's AgroGlobe projects must be made publicly available. The same holds for the parallel rice project that unnamed Saudi and Senegalese investors have mysteriously drawn up with the government in Dakar, and the numerous other farmland deals that have been or are being signed with foreign investors.[5] People in the affected countries need to know exactly what their governments are negotiating "on their behalf".

Indeed, the secrecy surrounding these deals suggests that the governments and investors know full well that their projects will be fiercely resisted by the public. Earlier this month, for instance, at a public forum in Kolongotomo, Mali, not far from the Foras's project, local and national farmers and civil society organisations came together to discuss the land grabs happening in the Office du Niger and other parts of the country. Their conclusion was clear: all foreign investment projects in the Office du Niger must be suspended. Governments should take note: the backlash against land grabbing is swinging into action, and it will only get stronger if there is no change of course.

5. See for example reports on an investment by Saudi Arabia's Al-Rajhi Group in farmland in Mauritania: http://farmlandgrab.org/14751. Local communities affected by the project issued a declaration against it in July 2010 : http://farmlandgrab.org/17418

It's time to outlaw land grabbing,

not to make it 'responsible'!

On 18-20 April 2011, a gathering of some 200 farmland investors, government officials and international civil servants will meet at the World Bank headquarters in Washington DC to discuss how to operationalise "responsible" large-scale land acquisitions. Over in Rome, the Committee on World Food Security, housed at the United Nations Food and Agriculture Organization, is about to start a process of consultation on principles to regulate such deals. Social movements and civil society organisations (CSOs), on the other hand, are mobilising to stop land grabs, and undo the ones already coming into play, as a matter of utmost urgency.Why do the World Bank, UN agencies and a number of highly concerned governments insist on trying to promote these land grab deals as "responsible agricultural investments"?

NERVOUS ABOUT THE POTENTIAL POLITICAL BACKLASH FROM THE CURRENT PHASE OF LAND GRABBING, A NUMBER OF CONCERNED GOVERNMENTS AND AGENCIES, FROM JAPAN TO THE G-8, HAVE STEPPED FORWARD TO SUGGEST CRITERIA THAT COULD MAKE THESE DEALS ACCEPTABLE.

Today's farmland grabs are moving fast. Contracts are getting signed, bulldozers are hitting the ground, land is being aggressively fenced off and local people are getting kicked off their territories with devastating consequences. While precise details are hard to come by, it is clear that at least 50 million hectares of good agricultural land – enough to feed 50 million families in India – have been transferred from farmers to corporations in the last few years alone, and each day more investors join the rush.[1] Some of these deals are presented as a novel way to meet food security needs of countries dependent on external markets to feed themselves, such as Qatar, Saudi Arabia, South Korea or China. Others are bluntly exposed for what they really are: business deals and hot new profit opportunities. Despite the involvement of states, most of these transactions are between host governments and private corporations. Firms involved estimate that US$25 billion has already been committed globally, and boast that this figure will triple in a very near future.[2]

What is RAI?

Nervous about the potential political backlash from the current phase of land grabbing, a number of concerned governments and agencies, from Japan to the G-8, have stepped forward to suggest criteria that could make these deals acceptable. The most prominent among these is the World Bank-led *Principles for Responsible Agricultural Investment that Respect Rights, Livelihoods and Resources* (RAI). The RAI were jointly formulated by the World Bank, the International Fund for Agricultural Development (IFAD), the UN Conference on Trade and Development (UNCTAD) and the UN Food and Agriculture Organization (FAO).[3] They consist of seven principles that investors may wish to voluntarily subscribe to when conducting large-scale farmland acquisitions (*see* box). It is noteworthy that the RAI principles were never submitted for approval to the governing bodies of these four institutions.

In April 2010, some 130 organisations and networks from across the world, including some of the most representative alliances of farmers, pastoralists and fisherfolk, denounced the RAI initiative. Their statement debunked RAI as a move to try to legitimise land grabbing and asserted that facilitating the long-term corporate (foreign and domestic) takeover of rural people's farmlands is completely unacceptable no matter which

1. In 2010, the World Bank reported that 47 million hectares were leased or sold off worldwide in 2009 alone, while the Global Land Project calculated that 63 million hectares changed hands in just 27 countries of Africa. See "New World Bank report sees growing global demand for farmland", World Bank, Washington DC, 7 September 2010, http://farmlandgrab.org/post/view/15309, and Cecilie Friis & Anette Reenberg, "Land grab in Africa: Emerging land system drivers in a teleconnected world", LP Report No. 1, The Global Land Project, Denmark, August 2010, http://farmlandgrab.org/post/view/14816, respectively.

2. See High Quest Partners, "Private financial sector investment in farmland and agricultural infrastructure", OECD, Paris, August 2010, http://farmlandgrab.org/post/view/16060.

3. The four agencies have also created an internet-based knowledge platform to exchange information about RAI. See http://www.responsibleagroinvestment.org/

RAI (or seven principles for "win-win" land grabbing):

1

1. Land and resource rights: Existing rights to land and natural resources are recognised and respected.
2. Food security: Investments do not jeopardise food security, but rather strengthen it.
3. Transparency, good governance and enabling environment: Processes for accessing land and making associated investments are transparent, monitored, and ensure accountability.
4. Consultation and participation: Those materially affected are consulted and agreements from consultations are recorded and enforced.
5. Economic viability and responsible agro-enterprise investing: Projects are viable in every sense, respect the rule of law, reflect industry best practice, and result in durable shared value.
6. Social sustainability: Investments generate desirable social and distributional impacts and do not increase vulnerability.
7. Environmental sustainability: Environmental impacts are quantified and measures taken to encourage sustainable resource use, while minimising and mitigating the negative impact.

The main RAI pushers (since 2009):
EU, FAO, G8, G20, IFAD Japan, Switzerland, UNCTAD, US, World Bank

guidelines are followed.[4]

This statement was endorsed by many more groups and social movements from around the world following its release. Shortly after, the UN's Special Rapporteur on the Right to Food publicly criticised RAI for being "woefully inadequate" and said, "It is regrettable that, instead of rising to the challenge of developing agriculture in a way that is more socially and environmentally sustainable, we act as if accelerating the destruction of the global peasantry could be accomplished responsibly".[5]

In September 2010, the World Bank released its much anticipated report about large-scale land acquisitions. After two years of research, the Bank could not find any convincing examples of "wins" for poor communities or countries, only a long list of losses. In fact, companies and governments involved in the land deals refused to share information about their transactions with the Bank, so it relied instead on a website (farmlandgrab.org) managed by the CSO GRAIN for its data. Even though the report noted the lack of consultation behind the RAI initiative, the Bank still advocated RAI as the solution.

The IPC further recommended that the CFS stop using the term RAI because it is heavily associated with land grabbing, not investment. But the four agencies behind RAI seem keen to push on.

Despite the RAI framework's serious credibility problem, the CFS debated a motion on whether or not to endorse it in October 2010. Some governments, such as the US and Japan, were in favour. Others, including South Africa, Egypt on behalf of the Near East group and China, expressed strong opposition due to lack of an appropriate consultative process. A coalition of movements and organisations released a detailed critique of the RAI framework and principles prior to the CFS meeting.[6] This catalysed rural social movements, particularly those affiliated with the International Planning Committee for Food Sovereignty (IPC), and other civil society groups to call on the CFS to reject RAI. In the end, the CFS did not endorse RAI, agreeing only to pursue an inclusive process to consider it.

By the end of 2010, it looked as though the high-level push for socially acceptable or "win-win" land grabbing was floundering. Social movements and other CSOs, meanwhile, continued to build popular opposition to RAI. At the World Social Forum in Dakar in February 2011, farmers' movements, and human rights, social justice and environmental organisations gathered to share experiences and consolidate their struggles against land grabbing without the distraction of this code of conduct nonsense, and launched a public appeal to reject RAI and resist land grabbing that continues to gather support.[7]

4. "Stop land grabbing now! Say NO to the principles on responsible agro-enterprise investment promoted by the World Bank", available online at http://www.landaction.org/spip/spip.php?article553
5. "Responsibly destroying the world's peasantry" by Olivier de Schutter, Brussels, 4 June 2010, http://www.project-syndicate.org/commentary/deschutter11/English
6. "Why we oppose the principles for responsible agricultural investment", available at http://www.landaction.org/spip/spip.php?article570
7. See "Dakar appeal against the land grab", which is open for endorsement by organisations until 1 June 2011: http://www.petitiononline.com/dakar/petition.html.

The RAI proponents, however, refuse to give up.

The CFS Bureau is currently discussing a proposal for a process of consultation on RAI.[8] An initial draft circulated for comment drew sharp criticism from social movements and CSOs. The IPC stated that it will oppose a process whose main focus is to try to alleviate the negative impacts of large-scale land acquisitions and endorse RAI. Instead, it argued, the CFS should first determine if RAI is the adequate response to the problems on the ground and re-focus the discussion on the question of what kind of agricultural investment is needed to overcome hunger and support small-scale farmers, particularly women. The IPC further recommended that the CFS stop using the term RAI because it is heavily associated with land grabbing, not investment. But the four agencies behind RAI seem keen to push on.

The World Bank has just released the programme for this year's annual conference on land and poverty at its Washington DC headquarters.[9] RAI is at the very heart of the discussions. The Bank's main goal now is to start "operationalising" RAI by building on experiences of other "corporate social responsibility" (CSR) schemes such as the Roundtables on Responsible Soy, Sustainable Palm Oil and Sustainable Biofuels, as well as the Extractive Industry Transparency Initiative.[10]

In the meantime, countries are scrambling to contain growing opposition to the global land rush. With all the talk of "win-win" outcomes ringing hollow against the reality of impacts of these deals on local communities, smallholder agricultural producers and workers, some countries, such as Argentina, Brazil and New Zealand, are responding with promises of legislation to cap or discipline foreigners' abilities to acquire domestic farmland. Others, such as Cambodia, Ethiopia and Ghana, are using legal and brute force to suppress local contestation. In the run-up to the 2012 elections in Mali, the opposition Party for National Renewal has challenged President Touré to disclose all details of land leases amounting to several hundred thousands of irrigated hectares granted in the Office du Niger. In Sudan, the most "land grabbed" country in Africa, villagers are now rising up against the government in Khartoum for having seized their lands.

What is wrong with RAI?

The push for RAI is not about facilitating investment in agriculture. It is about creating an illusion that by following a set of standards, large-scale land acquisitions can proceed without disastrous consequences to peoples, communities, ecosystems and the climate. This is false and misleading. RAI is an attempt to cover up power imbalances so that the land grabbers and state authorities who make the deals can get what they want. Farmers, pastoralists and fisherfolk, after all, are not asking for their lands to be sold off or leased away!

Land grabbing forecloses vast stretches of lands and ecosystems for current and future use by peasants, indigenous peoples, fisherfolk and nomads, thus seriously jeopardising their rights to food and livelihood security. It captures whatever water resources exist on, below and around these lands, resulting in the de facto privatisation of water. The violation of international human rights law is an intrinsic part of land grabbing through forced evictions, the silencing (and worse) of critics, the introduction of non-sustainable models of land use and agriculture that destroy natural environments and deplete natural resources, the blatant denial of information, and the prevention of meaningful local participation in political decisions that affect people's lives. No set of voluntary principles will remedy these facts and realities. Nor can they be misconstrued and presented as public policy or state regulation.

Land grabs, which target 20% profit rates for investors, are all about financial speculation. This is why land grabbing is completely incompatible with ensuring food security: food production can only bring profits of 3-5%. Land

In April 2010, some 130 organisations and networks from across the world, including some of the most representative alliances of farmers, pastoralists and fisherfolk, denounced the RAI initiative.

In the meantime, countries are scrambling to contain growing opposition to the global land rush.

8. See http://cs04cfs.files.wordpress.com/2010/11/proposal-for-consultation-process-on-rai-principles.pdf
9. See http://go.worldbank.org/YJM5ENXKI0
10. For background see John Lamb, "Sustainable Commercial Agriculture, Land and Environmental (SCALE) management initiative: Achieving a global consensus on good policy and practices", World Bank, July 2009, http://farmlandgrab.org/post/view/7649

grabbing simply enhances the commodification of agriculture, the sole purpose of which is the over-remuneration of speculative capital.

There are some who believe that promoting transparency in land acquisition deals can somehow lead to "win-win" outcomes. However, even if done "transparently", the transfer of large tracts of land, forests, coastal areas and water sources to investors is still going to deprive smallholder farmers, pastoralists, fisherfolk and other local communities from crucial, life sustaining resources for generations to come. In many countries, there is an urgent need to strengthen systems that protect land tenure of peasants and small-scale food producers, and many social movements have been fighting for recognition of their rights to land for many years. The RAI principles will make any progress on agrarian reform or land rights meaningless.

As for the big private players themselves, RAI can only amount to another feather in their "CSR" cap, a public relations act that they can point to when convenient. In the real world, they will continue to rely on bilateral trade and investment agreements, legal loopholes, compliant states, political risk insurance schemes and support from international institutions that promote RAI, to protect their interests and save them from any financial pain or responsibility.

The problem is obvious. These agribusiness projects – from the 100,000 hectare Malibya deal in the Office du Niger, Mali, to the 320,000 hectare Beidahuang Group deal in Rio Negro, Argentina – do great harm and are profoundly illegitimate. Trying to compensate for this absence of legitimacy by getting investors to adhere to a few principles is deceitful.

Invest in food sovereignty!

RAI is out of step with the times. The whole approach to the so-called agricultural development that it embodies – a greenhouse gas pumping, fossil fuel guzzling, biodiversity depleting, water privatising, soil eroding, community impoverishing, genetically modified seed dependent production system – belongs in the 20th century rubbish heap of destructive, unsustainable development. Just as our Arab sisters and brothers have been breaking the shackles of old regimes to recover their dignity and space for self-determination, we need to break the shackles of the corporate agriculture and food system.

Rather than be codified and sanctioned, land grabbing must be immediately stopped and banned. This means that parliaments and national governments should urgently suspend all large-scale land transactions,[11] rescind the deals already signed, return the misappropriated lands to communities and outlaw land grabbing. Governments must also stop oppressing and criminalising peoples for defending their lands and release detained activists.

We reiterate the demands made repeatedly by social movements, CSOs and numerous academics to urgently implement actions agreed at the 2006 International Conference on Agrarian Reform and Rural Development – the most authoritative and consensual multilateral framework for land and natural resources – as well as the conclusions of the 2008 International Assessment of Agricultural Knowledge, Science and Technology for Development. We equally call on the CFS to adopt the FAO Guidelines on the Governance of Land and Natural Resources, which are strongly rooted in human rights law, so that they can be effectively used to protect and fulfill the rights to land and natural resources of all rural and urban constituencies at national and international levels.

> Land grabs, which target 20% profit rates for investors, are all about financial speculation.

It is obvious to us that a broad consensus has grown over the past several years around the real solutions to hunger, the food crisis and climate chaos, namely that:

- peasant agriculture, family farming, artisanal fishing and indigenous food procurement systems that are based on ecological methods and short marketing circuits are the ways toward sustainable, healthy and livelihood-enhancing food systems;
- production, distribution and consumption systems must radically change to fit the carrying capacity of the earth;
- new agricultural policies that respond to the needs, proposals and direct control of small-scale food producers have to replace the current top-down, corporate-led, neoliberal regimes; and
- genuine agrarian and aquatic reform programmes have to be carried through to return land and ecosystems to local communities.[12]

This is the path to food sovereignty and justice, quite the opposite of "responsible" land grabbing. And we will continue to push and fight for it with many allies the world over.

11. By this we mean possessing or controlling a land area for commercial or industrial agriculture that is significantly larger than the average land holding in the region.

12. This consensus is reflected in the work of the UN Special Rapporteur on the Right to Food, Olivier de Schutter. His March 2011 report on agroecology and the right to food captures a large body of today's public opinion on how to move forward. See http://www.srfood.org/index.php/en/component/content/article/1-latestnews/1174-report-agroecology-and-the-right-to-food

GRAIN is a small international non-profit organisation that works to support small farmers and social movements in their struggles for community-controlled and biodiversity-based food systems. Our support takes the form of independent research and analysis, constant networking at local, regional and international levels, and active cooperation and alliance-building.

We believe that the current industrial food system, dominated by corporate interests, is leading us further down the path of more hunger, environmental destruction, climate change and eviction of rural and indigenous communities. The alternative exists and is being fought for. Food sovereignty implies a fundamental overhaul of the global food system, putting peasant farming, ecological agriculture and local markets centre stage.

"The great food robbery" is a collection of materials produced by GRAIN during the past few years. It zooms in on how agribusiness is driving today's global food crisis, how the industrial food system is largely responsible for the climate crisis, and how a whole new phenomenon of landgrabbing is being fuelled by a financial industry wanting to make money off the backs of the poor. It also explains how the struggle for food sovereignty is challenging these trends and actors.

Front and back cover. An image of corporate farming: a huge lonely Brazil nut tree standing in an immense soybean field while a tractor sprays poison. Photo taken in Brazil, January 2006 and reproduced with kind permission from Greenpeace Brazil.