

THE WHEEL OF LIFE

FOOD, CLIMATE, HUMAN RIGHTS,
AND THE ECONOMY



CENTER FOR
FOOD SAFETY

EXECUTIVE SUMMARY

NOVEMBER 2015

ABOUT CENTER FOR FOOD SAFETY

CENTER FOR FOOD SAFETY (CFS) is a legal and public policy non-governmental organization (NGO) based in Washington, D.C. working with national and international institutions and at the grassroots level to advocate for safe, regenerative food and farm systems. CFS works on a wide range of issues including U.S. Congressional agricultural policy in both the U.S. and abroad; national and state-based food labeling initiatives; U.S. organic standards; international trade agreements; and more. CFS' successful legal cases collectively represent a landmark body of case law on food and agricultural issues.

Nearly two decades ago, CFS was one of the first NGOs in the U.S. to highlight critical links between agriculture systems and climate change. CFS initiated key legal challenges including the historic *Mass v. EPA* (Massachusetts v. Environmental Protection Agency) in the U.S. Supreme Court in which Justices ruled that the EPA must regulate GHGs. CFS staff also contributed to the UN and World Bank Report: *International Assessment of Agricultural Knowledge, Science and Technology for Development* (IAASTD). We also have generated numerous reports and articles on climate change and agriculture, including *Food and Climate: Connecting the Dots, Choosing the Way Forward*; *The Wheel of Life: Food, Climate, Human Rights and the Economy*; and others.

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EXECUTIVE SUMMARY



THE LINKS BETWEEN CLIMATE CHANGE and industrial agriculture create a nexus of crises— food insecurity, natural resource depletion and degradation, as well as human rights violations and inequities.

While it is widely recognized that greenhouse gas (GHG) emissions due to human activity are detrimental to the natural environment, it can be difficult to untangle the cascading effects on other sectors. To unravel some of the effects, this paper focuses on three inter-related issues:

- 1) What are the critical links between climate change and agriculture?
- 2) How is the nexus of agriculture and climate change affecting human societies particularly regarding food and water, livelihoods, migration, gender equality, and other basic survival and human rights?
- 3) What is the interplay between systems, on the one hand, and food security, climate change, and fundamental human rights, on the other?

In the process of drawing connections among these issues, the report will identify the commonality of drivers, or “push” factors, that lead to adverse impacts.

How urgently and effectively we mobilize and respond to global warming and its associated impacts will be a test of our collective humanity.

A central theme throughout this report is that policies and practices must begin with the ecological imperative in order to ensure authentic security and stability on all fronts including food, water, livelihoods and jobs, climate, energy, and economic. In turn this engenders equity, social justice, and diverse cultures. This imperative, or ethos of nature, is a foundation that serves as a steady guide when reviewing mitigation and adaptation solutions to climate change.

Infused within this theme is the sobering recognition that current consumption and production patterns are at odds with the goals of reducing GHGs and attaining global food security. For instance, consumption and production levels, based on the global average, are 25 percent higher than the earth’s ecological capacity.¹ As societies address the myriad ecological and social issues at the axis of global warming, a central task will be to re-align consumption and production trends in a manner that can fulfill economic and development requirements. This will require a major shift away from present economic growth paradigms based on massive resource extraction and toward creating prosperous and vital societies and economies that preserve the planet’s environmental capacity.

How urgently and effectively we mobilize and respond to global warming and its associated impacts will be a test of our collective humanity. The challenge requires that a broad, diverse coalition of civil society movements unite to ensure that proposed solutions maintain ecological integrity, which in turn help to secure human rights. To facilitate alliance building, the paper provides a compendium of organizations engaged in and writing on these issues.

PART I: CLIMATE CHANGE & FOOD SECURITY LINKS



Impacts on Food Security and Rural Livelihoods

REPORTS BY THE Intergovernmental Panel on Climate Change (IPCC) show that current agricultural practices account for more than 30 percent of global GHG emissions.² Concurrently, global warming negatively affects food production.

With a probable temperature rise of 1.8 to 4 degrees Celsius (C), and a possible rise of up to 6.4 degrees C, the impact of global warming on agriculture will be devastating.³ According to the IPCC, crop productivity will markedly decline in Central America, South and Southeast Asia and sub-Saharan Africa. It is particularly troubling that yield declines of 20 to 40 percent are anticipated for major food crops in Africa well before 2050.

The World Bank frames the stark situation: Almost 80 percent of global warming effects will be suffered by developing countries, even though they contribute only about 30 percent of global GHG emissions.⁴ (This includes historical and cumulative emissions of China and India since 1850.⁵) Given that agriculture provides livelihoods for 40 percent of the global population, with 70 percent of the poor in developing countries depending on agriculture for their subsistence, there is an urgent need for concerted adaptation strategies and actions.⁶

Adding to the aforementioned figures and projections is the tragic reality that already more than 1 billion people go hungry every day.⁷ This further emphasizes

that mitigation and adaptation solutions in agriculture need to simultaneously address hunger, livelihoods, social inequities, and environmental sustainability.

A 2009 joint assessment report of the World Bank and the United Nations (UN) by over 400 researchers and scientists concludes that “business as usual” policies and actions need to shift away from industrial food systems to more sustainable agricultural practices. Other reports concur, and specifically address agriculture within the context of climate change. A report presented to the UN Human Rights Council by then Special Rapporteur on the Right to Food, Olivier De Schutter, expresses a clear view: “Conventional farming relies on expensive inputs, fuels climate change, and is not resilient to climatic shocks. It simply is not the best choice anymore today.”⁸

An FAO report states: “Extreme weather fluctuations present a growing threat to agriculture. Organic systems appear to be more stable and resilient in response to climate disruption based on comparisons with their conventional counterparts under stress conditions such as severe drought and flooding.”⁹

Agroecological, Organic Food Models: Keys to Resolving Myriad Crises

Currently, climate change and food security dialogues in international and domestic fora assume that expensive agricultural inputs and technologies are the primary way to address hunger, environmental, and social harms. However, there is another way forward—societies can provide tools and incentives that encourage and enhance a transition away from industrial agriculture toward low-cost, viable agroecological, organic farming methods.

This report provides a plethora of robust research demonstrating that agroecological agriculture offers hope for resolving several crises simultaneously. As these studies demonstrate, organic food systems are the path toward ensuring food security and addressing

major health, environmental, economic, and social challenges facing the world today.

In this report, the terms “ecological,” “organic,” “traditional,” and “agro-ecological” denote farming practices that: a) do not use synthetic chemicals and pesticides; b) regenerate soil quality through the use of manures, compost, cover crops, crop rotations; c) utilize integrated pest, or biological, management systems; d) incorporate water conservation practices; and e) cultivate diverse crops to maintain biodiversity. Biodynamic and permaculture systems are also encompassed within these criteria. The use of “organic” does not refer to any certification criteria. Within these practices, a high value is placed on farmer innovation, knowledge, and skill; dignified livelihoods and vital community-based economies; and cultural and social diversity.

Studies also show that organic systems have exciting potential to mitigate global warming. A thirty-year study by the Rodale Institute demonstrates that organic regenerative agriculture practices could sequester nearly 40 percent of current carbon dioxide (CO₂) emissions (based on the planet’s 3.5 billion tillable acres).¹⁰

This section also addresses the perpetual question—Can organic farming feed the world? *Vigorous research demonstrates that organic methods can produce yields equal to or higher than industrial agriculture yields.* “Model estimates indicate that organic methods could produce enough food on a global per capita basis to sustain the current human population, and potentially an even larger population without increasing the agricultural land base,” states a report based on a long-term, comprehensive global research project.¹¹ Based on 293 test cases, the research found that, in developing countries, organic methods produced 80 percent higher yields than industrial farms.¹² A review of 40 projects in 20 African countries is particularly relevant to anticipated impacts of climate change in Africa. Farms using ecological farming methods such as plant breeding, integrated pest management, soil and water conservation, and agro-forestry more than doubled crop yields over a period of 3-10 years.¹³

Finance, economic and trade policies, climate change, and food security are integrally connected, yet these issues are too often segmented into separate governmental and policy arenas.

Despite numerous studies demonstrating the multiple benefits of agroecological farming, many governments and institutions still advocate the industrial agriculture paradigm as a prime way to reduce GHGs and provide food security. In part this is due to the influence of multinational corporate agribusiness. The concentration of corporate power amplifies the influence they have in shaping climate policies as well as trade and financial agreements, and financial rules. For example, on the agriculture front—as of 2005, the top 10 commercial seed companies controlled more than 67 percent of the world’s commercial seed sales. Five grain trading companies control 75 percent of the world’s cereal commodity market and its prices. The top 10 agrochemical companies control 80 percent of global sales.¹⁴

Another influencing factor that could explain why most business interests are biased toward industrial agriculture technologies is because multi-functional, ecological food systems with low external inputs do not provide the same level of returns on investment for business and financial institutions as do current industrial systems.

Environmental Legacy

Contrasting environmental and social legacies of industrial practices to organic methods can help to clarify valid mitigation and adaptation proposals. For example, the nearly 1 billion pounds of pesticides used annually in the United States over the last several decades have polluted the air, waterways, soils, created “dead zones” in oceans, negatively impacted wild life, and more. These environmental stresses were created independent of climate change and therefore, it is necessary to recognize these negative historical precedents so they can be avoided in proposed strategies for addressing global warming.

Green Revolutions

Many governments and institutions are calling for a “second Green Revolution” to address agricultural policy within the United Nations Framework Convention on Climate Change (UNFCCC) and other international fora; therefore, a brief review of Green Revolution practices is also included.

The Green Revolution, an extension of industrial agricultural practices into developing countries, began primarily in India in the late ‘60s but the model has been replicated throughout many regions during the last few decades. In sum, the model requires farmers to purchase commercial seeds, known as high-yielding varieties (HYV), and requisite inputs such as pesticides and synthetic nitrogen fertilizer. The seeds also require high amounts of water for optimum performance. While these methods can increase yields in the short term, intensive chemical usage has compromised the health of soils, waterways, biodiversity, and other natural resources essential for ensuring long-term food security.

African countries are a central focus of the second Green Revolution. However, as Gathuru Mburu, coordinator of the African Biodiversity Network explains, “The Green Revolution is not new to Africa. Countries in Africa have had a green revolution in their own way because we have been using fertilizers, we have been using herbicides and fungicides.” She concludes, “For small-scale farmers, the backbone of food security in Africa, this system has failed.”¹⁵ Contrasting Green Revolution industrial approaches with ecological models can provide guidance for how to go forward in times of climate chaos and food insecurity.

The Role of Genetically Engineered (GE) Seeds and Crops

Genetically engineered (GE) seeds and crops are strongly promoted within the second Green Revolution construct. GE proponents advocate that this technology has the capacity to mitigate GHG emissions and provide food security, yet this report demonstrates that

such claims are simply not credible given the performance and scientific record to date. For example, counter to industry claims that GE crops reduce pesticide usage, the U.S. Department of Agriculture (USDA) recently released data finding that GE crop acres in the United States used over 26 percent more pesticides per acre than non-GE, conventional crops.¹⁶

In part, GE crop’s high chemical usage is due to the fact that weeds are developing resistance to the toxic herbicide, glyphosate, currently being used. In response, the industry is moving on to stronger chemicals. Dow AgroScience is beginning a rollout of GE crops that are resistant to 2, 4-D, an ingredient of Agent Orange, the deadly defoliant sprayed during the war in Vietnam during the 1960s and 1970s.

International institutions and governments are exploring funding mechanisms that may help advance GE technologies. The biotechnology industry is strongly positioning itself. Approximately 1,663 patent applications for “climate-ready” crops have been submitted for approval since June 2008 to June 2010. Three companies—DuPont, Monsanto, and BASF—comprise 66 percent of the patents.¹⁷ Such proprietary dominance has significant societal and economic implications and should stimulate robust discussion about the control of seeds and, ultimately of the food supply.

Climate Change Discussions and the Role of Civil Society

Finally, we turn to crucial issues raised within the UNFCCC, including agricultural mitigation and adaptation measures. Many proposed solutions are based on the very industrial agriculture paradigm that has contributed to global warming and has also failed to feed the world. With agricultural issues emerging at the UNFCCC negotiations, there is a need for heightened civil society engagement.

Most governments, multinational agribusinesses, and financial institutions assume that industrial technologies in agriculture are the primary way to feed a hungry world and curb global warming. Civil society can shift

discussions away from this paradigm and steer actions toward regenerative food systems that address environmental and social challenges in a more comprehensive, systemic manner. Civil society can also play an important role in persuading the donor and business communities to reassess potential biases toward industrial agriculture and re-direct funds toward agroecological models.

A New Way Forward

The section ends with a summary of policies and actions that governments/nation-states, donors, and

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international institutions can implement. The recommendations emphasize building on-farm capacity as a better way of ensuring food security and sustaining natural resources as well as fostering self-reliant, vigorous rural economies, especially in vulnerable communities.

PART II: LINKS BETWEEN CLIMATE CHAOS, FOOD SECURITY, MIGRATION, & GENDER ISSUES



THE TRAJECTORY of climate change demonstrates how ecological destruction affects not only survival rights but also human rights, including those of migrants and women. Just as the ethos of nature serves as a beacon of reason when devising food security strategies, maintaining ecological integrity is equally critical when establishing genuine security and rights on all fronts.

Migration

Environmental shocks and stresses, especially those related to climate change, are pushing millions of people to leave their homes and land. As impacts of climate change worsen, migration density and patterns will escalate. A recent 2010 report by the International Organization

for Migration predicts an explosion in global migrant populations that could reach 406 million by 2050.¹⁸

Human rights issues are fundamentally linked to nature and access to natural resources, yet often proposed mitigation and adaptation solutions are framed within an industrial paradigm and thus, de-linked from nature. For instance, under the banner of alleviating global warming and/or enhancing food security, large tracts of land within some of the poorest countries are being purchased by rich countries largely to provide food and fuel for their domestic populations. These foreign land acquisitions (FLAs), dubbed as “land grabs” by civil society, result in mass displacement of people from their homes and lands, which constrains access and availability to natural resources. Alongside social, political, and economic factors, natural resource and environmental conflicts exacerbate unstable situations and escalate conflicts. There are three categories of human migration and displacement reviewed in this report:

- 1) *Chronic, Slow Onset Natural Resource Degradation:* This is brought on by shortages of water, food, land, and damage and depletion of natural resources.
- 2) *Sudden, Catastrophic Natural Disasters:* The 2010 flooding in Pakistan is an example of this category. The United Nations tells us that these sudden disasters impact the largest numbers of displaced persons.

Rural women are the backbone of agriculture throughout much of the developing world.

3) *Mitigation Projects/Land Use Changes*: Many mitigation and adaptation schemes fall under this category. The report focuses especially on this category.

Foreign Land Acquisitions, Or Land Grabs

Foreign Land Acquisitions (FLAs) are fast becoming a dominant contributor to massive migrations. As already noted, land grabs primarily impact the poorest and most vulnerable communities and can lead to tragic consequences. For example, of the 405 FLAs reviewed by the World Bank (Foreign Investment Review Board Annual Report 2006–7, 2008), the majority of the projects were primarily devoted to biofuel crops and cash crops for export. This leaves local populations landless and hungry. Such schemes should be fully examined to ensure that vulnerable populations are not displaced and denied. Reviewing the actors and push factors driving this rapidly growing phenomenon suggests responses that can stop the displacement of millions of people.

Impacts on Gender

As Jacques Diouf, former director-general of the Food and Agriculture Organization (FAO) proclaimed: “Gender equality is not just a lofty ideal, it is also crucial for agricultural development and food security.”¹⁹ Rural women are the backbone of agriculture throughout much of the developing world. They produce half of the world’s food; in some developing countries women produce as much as 80 percent of the food.²⁰ It is estimated that women’s agricultural work produces 35–45 percent of gross domestic product (GDP) in developing countries.²¹

Comprehensive analyses on gender equality issues are essential when addressing climate change and food security initiatives. Yet, remarkably, gender impacts of

policies and programs are still frequently ignored. For example, the Committee on World Food Security acknowledged that women farmers receive only 5 percent of agricultural extension services worldwide.²²

As industrial agriculture and globalization expands, women are increasingly joining the ranks of migrant laborers. Often women are subject to low levels of protection in terms of wage levels, employment security, health and safety, and environmental standards and social security. Women typically earn less than men for the same agricultural work. For example, in Bangladesh, female fry catchers and sorters earn about 64 percent of what male fry catchers and sorters earn.²³ Additionally, representation of women in traditional labor institutions is weak.

While economic indicators are often looked to as a guide for measuring progress for women, the majority of women in the world remain in unpaid, informal economic sectors that are closely linked to the state of natural resources and the environment. Thus, for most women environmental factors are the indicators of their quality of life.

Climate change and environmental degradation impact women more immediately and keenly in their everyday lives. Such unpaid work in the informal sector is frequently unrecognized within international policies and agencies and therefore the value of this “care economy” is not considered when undertaking climate change mitigation and adaptation measures. Women play a central role in agriculture and are on the “front lines” experiencing climate change-related impacts on natural resources. Civil society can fulfill a pressing need to comprehensively incorporate gender issues into climate and agriculture arenas. Particularly relevant to linking climate change and gender policies is to ensure that women’s traditional care and unpaid contributions are not externalized, but instead are fully recognized in economic, social, and development constructs.²⁴

PART III: ECONOMIC AND FINANCE SYSTEMS



FINANCE, ECONOMIC and trade policies, climate change, and food security are integrally connected, yet these issues are too often segmented into separate governmental and policy arenas. As a result, policies and proposals frequently fail to encompass a broad systemic analysis. At times, actions in one arena can thwart or contradict actions within other policy fora.

For example, the *raison d'être* of international economic and trade entities such as the World Trade Organization (WTO) is to stimulate and increase economic activity. This goal is fundamentally at odds with the UNFCCC goal of reducing actions that lead to global warming. Currently, these two goals are on a serious collision course. Within this context, two aspects of the tension between paradigms are discussed: The role of trade and economic institutions, and the role of the “casino economy.”

The Role of Economic Growth

Growth is touted as the universal economic cure-all, yet there is a fundamental tension between promoting economic growth and the need to reduce GHG emissions as well as maintain ecological harmony.

As author and environmental advocate Jerry Mander wrote: “Whether it’s the political left or right, Obama, or Cameron, . . . or any political candidate for any office, they’re all talking about the necessity to stimulate

Growth is touted as the universal economic cure-all, yet there is a fundamental tension between promoting economic growth and the need to reduce GHG emissions as well as maintain ecological harmony.

growth. . . . But there’s a missing link in the discussion, ignored by nearly everyone in the mainstream debate: nature.”²⁵

Economies are linked to a fixed amount of natural resources, yet most political leaders and societies carry on as though economic activity is not connected to the reality that we live on a planet of finite resources. While increasing populations certainly add to planetary stresses, the relentless consumerism of industrialized countries continues to be a prime culprit of natural resource depletion. For instance, the richest fifth of the world’s people consumes 86 percent of all goods and services, while the poorest fifth consumes just over 1 percent.²⁶

But what about notions of sustainable growth? According to economist Herman Daly, “To delude ourselves into believing that growth is still possible and desirable if only we label it ‘sustainable’ or color it ‘green’ will just delay the inevitable transition and make it more painful.”

This has implications for the kinds of policies pursued in venues such as the UNFCCC where a central challenge is how to provide development space for poorer countries while also reducing hyper-consumption in the North. To meet this enormous challenge, societies need “a radical paradigm shift in production systems, in economic and business models...” says Martin Khor, director of the South Centre.

Economy: Speculating on Food Security

The policies and speculative activities of financial markets have a dramatic influence on food security and poverty. Gambling on food commodities was a major factor leading to the 2007–2008 food crisis that

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resulted in the rise of extreme poverty levels by 130 to 150 million people. A report by the former UN Special Rapporteur on the Right to Food concludes: “A significant portion of the increases in price and volatility of essential food commodities can only be explained by the emergence of a speculative bubble.”²⁷ For instance, the price of rice rose by 165 percent between April 2007 and April 2008, a magnitude difficult to explain by supply and demand market fundamentals alone, especially given that rice supplies were not unusually low during this period.²⁸

Most experts agree that unless market and financial reforms are made, the cycle will repeat itself. This report reviews the complex world of futures markets, speculation, and other high finance to demonstrate how these mechanisms impact issues such as food security.

Economic Trade Institutions— Effects on Climate Change, Food Security, and Financial Reforms

As already noted, the WTO and other trade agreements intensify economic activity that is at odds with the goal of addressing global warming. Unlike the UNFCCC, the rules of the WTO are binding and have enforcement capacity. To illustrate: The WTO has stated that member nations can challenge measures to reduce GHG emissions.²⁹ Such global trade rules and policies that constrain the ability of nations to enact measures that reduce GHG emissions need to be reviewed and amended.

As a result of lifting “trade barriers,” via the WTO and other trade agreements, developing countries have been increasingly forced to give up appropriate national farm and food policies that protect their own farmers and domestic food security. For instance, prior

to the WTO, many developing countries grew 90 percent of the food they consumed domestically.³⁰ Today, 55 percent of developing countries are net food importers.³¹ (See *Developing Country Indicators* for more data.) This report also discusses how global trade rules restrict the ability of domestic governments to appropriately regulate their own financial sectors.

Opportunities for Civil Society

The connections between cross-sectoral issues discussed in this report provide unique opportunities for civil society to build a diverse movement to work toward common solutions on issues that seem disconnected from one another. For example, NGOs working on climate change fronts may benefit from more closely aligning with trade groups. Food and farm NGOs can greatly advance efforts toward reducing hunger and poverty by coordinating with groups working on domestic and international finance reform. Citizens must ensure that the rights of investors are not being secured at the expense of human rights, food sovereignty, and common good of societies.

Sharing information and strategies on a cross-sectoral basis will help stimulate movements toward common goals. Stemming from diverse civil society perspectives and approaches, a central goal of this report is to facilitate rigorous and more unified analyses and actions that lead to profound and rapid change.

Conclusion

Addressing the challenging issues of climate change, food security, and human rights requires bold, new thinking and strategies. Most of all it will require that governments, opinion leaders, and civil society highlight the central role of food systems and promote new visions and solutions grounded in ecological and social justice principles that relate to people’s everyday realities. Civil society can galvanize and encourage ambitious public policies that realize goals of building climate and food security and safeguarding human rights.

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