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Women and the Gendered Politics of Food

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ABSTRACT

From seed to table, the food chain is gendered.

When seeds and food are in women's hands, seeds reproduce and multiply freely, food is shared freely and respected. However, women's seed and food economy has been discounted as "productive work." Women's seed and food knowledge has been discounted as knowledge.

Globalization has led to the transfer of seed and food from women's hands to corporate hands. Seed is now patented and genetically engineered. It is treated as the creation and "property" of corporations like Monsanto. Renewable seed becomes nonrenewable. Sharing and saving seed becomes a crime. Diversity, nourished by centuries of women's breeding, disappears, and with it the culture and natural evolution that is embodied in the diversity is lost forever.

Food, too, is transformed in corporate hands. It is no longer our nourishment; it becomes a commodity. And as a commodity it can be manipulated and monopolized. If food grain makes more money as cattle feed than it does as food for human consumption, it becomes cattle feed. If food grain converted to biofuel to run automobiles is more profitable, it becomes ethanol and biodiesel.

I. INTRODUCTION

The politics of food is gendered at multiple levels.

Firstly, food production, processing, and provisioning have been women's domain in the social division of labor (women grew food, cooked food, processed food, served food). Women-centered food systems are based on sharing and caring, on conservation and well-being.

Secondly, corporate globalization driven by capitalist patriarchy has transformed food, food production, and food distribution. The control over the entire food chain, from seed to table, is shifting from women's hands to global corporations who are today's "global patriarchs." In the process, seed is turning to nonseed. Seed multiplies and reproduces. GMO and hybrid seeds are nonrenewable. Food becomes nonfood. Food is nourishment. As one of the ancient Indian text says, "everything is food, everything is something else's food."[1] Corporate-controlled food is no longer food, it becomes a commodity—totally interchangeable between biofuel for driving a car or feed for factory farms or food for the hungry. Not only is food displaced, women's knowledge and work, skills, productivity, and creativity related to food are destroyed.

Five Gene Giants and five Food Giants are replacing billions of women producers and processors. The Gene Giants who control the seed are Monsanto, Dupond/Pioneer, Sungenta, Bayer, BASF.[2] This has led to the marginalization of women. It has also created new risks of food security and food safety. In 2008, food riots took place in more than forty countries as prices skyrocketed. The Food Giants control food. They include Cargill, Conagra, ADM, Louis Dreyfus, and Binge.[3] More than 1 billion are denied access to food, and another 2 billion are cursed with obesity and related diseases due to industrial/junk foods. Among those who suffer the two kinds of malnutrition, women and girls are the worst sufferers.

Thirdly, a new food revolution is underway, building on women's food and agriculture heritage to create just, sustainable, and healthy food systems that secure safe and healthy food for all.

II. MOST FARMERS OF THE WORLD ARE WOMEN: FARMING IS A FEMINIST ISSUE

Agriculture, the growing of food, is both the most important source of livelihood for the majority of the world people, especially women, as well as the sector related to the most fundamental economic right, the right to food and nutrition.

Women were the world's original food producers, and they continue to be central to food production system in the Third-World countries in terms of the work they do in the food chain. The worldwide destruction of the feminine knowledge of agriculture evolved over four to five thousand years, but a handful of white male scientists in less than two decades have not merely violated women as experts; but since their expertise in agriculture has been related to modeling agriculture on

nature's methods of renewablility, its destruction has also gone hand in hand with the ecological destruction of nature's processes and the economic destruction of the poorer people in rural areas.

Agriculture has been evolved by women. Most farmers of the world are women, and most girls are future farmers. Girls learn the skills and knowledge of farming in the fields and farms. What is grown on farms determines whose livelihoods are secured, what is eaten, how much is eaten, and by whom it is eaten.

Women make the most significant contribution to food security. They produce more than half the world's food. They provide more than 80 percent of the food needs of food-insecure household and regions.

Food security is therefore directly linked to women's food-producing capacity. Constraints on women's capacity leads to erosion of food security, especially for poor households in poor regions.

From field to kitchen, from seed to food, women's strength is diversity. Women's capacities are eroded when this diversity is eroded.

Diversity is the pattern of women's work, the pattern of women's planting and sowing of food crops and the pattern of women's food processing.

The dominant systems of economics, science, and technology have conspired against women and girls by conspiring against diversity.

Economics has rendered women's work as food providers invisible because women provide for the household and perform multiple tasks involving diverse skills.

Women have remained invisible as farmers in spite of their contribution to farming. People fail to see the work that women do in agriculture. Their production tends not to be recorded by economists as "work." And agriculture as a future vocation for girls is thus closed.

These problems of data collection on agricultural work arise not because too few women work but too many women do too much work.

There is a conceptual inability of statisticians and researchers to define women's work inside the house and outside the house (and farming is usually part of both). This recognition of what is and is not labor is exacerbated both by the great volume of work that women do and the fact that they do many chores at the same time. It is also related to the fact that although women work to sustain their families and communities, most of their work is not measured in wages.

Science and technology have rendered women's knowledge and productivity invisible by ignoring the dimension of diversity in agricultural production. As the Food and Agriculture Organisation (FAO) report on Women Feed the World mentions, women use more plant diversity, both cultivated and uncultivated, than agricultural scientists know about. In Nigerian home gardens, women plant 18–57 plant species. In Sub-Saharan Africa women cultivate as many as 120 different plants in the species left alongside the cash crops managed by man. In Guatemala, home gardens of less than 0.1 half acre have more than ten tree and crop species.[4]

In a single African home garden more than 60 species of food-producing trees were counted. In Thailand, researchers found 230 plant species in home gardens. In Indian agriculture women use 150 different species of plants for vegetables,

fodder, and health care. In West Bengal 124 "weed" species collected from rice fields have economic importance for farmers. In the Expana region of Veracruz, Mexico, peasants utilize about 435 wild plant and animal species of which 229 are eaten. Women are the biodiversity experts of the world. Unfortunately, girls are being denied their potential as food producers and biodiversity experts under the dual pressure of invisibility and domination of industrial agriculture.[5]

While women manage and produce diversity, the dominant paradigm of agriculture promotes monoculture on the false assumption that monocultures produce more.

Monocultures do not produce more, they control more. As mentioned in FAO's World Food Day report, a study in eastern Nigeria found that home gardens occupying only 2 percent of a household farmland accounted for half of the farm's total output. Navdanya's studies on biodiversity-based ecological agriculture show that women-run farms produce more food and nutrition than industrial, chemical farms.[6]

Quite clearly, if women's knowledge was not being rendered invisible, the use of the 2 percent land under polyculture systems should be the path followed for providing food security. Instead, these highly productive systems are being destroyed in the name of producing more food.

Just as women's ways of growing food produce more while conserving more resources, women's ways of food processing conserve more nutrition. Hand pounding of rice or milling rice with a foot-operated mortar and pestle preserves more protein, fat, fiber, and minerals in rice. Thus when mechanical hullers replace hand pounding by women as in the case of Bangladesh where 700 new mills supplanted the paid work of 100,000 to 140,000 women in one year by reducing the labor input from 270 hours per ton to 5. They not only rob women of work and livelihoods, they also rob girls of essential nutrients. Yet this process of food value destruction is called "value addition" in patriarchal economics.

Feeding the world requires producing more food and nutrition with fewer resources—i.e., producing more with less. In this, women are experts and their expertise needs to filter into our institutions of agricultural research and development.

However, instead of building on women's expertise in feeding the world through diversity, the dominant system is rushing headlong into destroying diversity and women's food-producing capacities, the pirating the results of centuries of innovating and breeding through patenting.

Lack of women's property rights are a major constraint on women's capacity to feed the world. These property rights include rights to land, and common property rights to common resources like water and biodiversity. Women have been the custodians of biodiversity. New intellectual property rights are alienating women's rights to biodiversity and erasing their innovation embodied in agricultural biodiversity.

If the erosion of women's capacity for feeding the world has to be prevented, IPR regimes need to evolve sui generis systems that recognize and protect women's collective and informal innovation.

While women are being denied their rights to resources and we are seeing the feminization of subsistence agriculture, the dominant agriculture is showing increasing signs of masculinization as it appropriates resources and rights from women in subsistence agriculture and presents itself as the only alternative for feeding the world.

III. FIRST THE SEED: GLOBALIZATION AND THE GENDERED POLITICS OF SEED

Seed is the first link in the food chain. For five thousand years, peasants have produced their own seeds, selecting, storing, and replanting and letting nature take its course in the food chain. The feminine principle has been conserved through the conservation of seeds by women in their work in food and grain storage. With the preservation of genetic diversity and the self-renewability of food crops has been associated the control by women and Third-World peasants on germ plasm, the source of all plant wealth. All this changed "with the green revolution."

At its heart lie new varieties of miracle seeds, which have totally transformed the nature of food production and control over food systems. The "miracle" seeds for which Borlaug got a Nobel Prize and which rapidly spread across the Third World, also sowed the seeds of a new commercialization of agriculture. Borlaug ushered in an era of corporate control on food production by creating a technology by which multinationals acquired control over seeds and hence over the entire food system. The green revolution commercialized and privatized seeds, removing control of plant genetic resources from Third World peasant women and giving it over to Western male technocrats in CIMMYT, IRRI, and multinational seed corporations.

Women have acted as custodians of the common genetic heritage through the shortage and preservation of grain. In a study of rural women of Nepal, it was found that seed selection is primarily a female responsibility. In 60.4 percent of the cases, women alone decided what type of seed to use, while men decided in only 20.7 percent. As to who actually performs the task of seed selection in cases where the family decides to use their own seeds, this work is done by women alone in 81.2 percent of the households, by both sexes in 8 percent and by men alone in only 10.8 percent of the households.

Throughout India, even in years of scarcity, grain for seed was conserved in every household, so that the cycle of food production was not interrupted by loss of seed. The peasant women of India have carefully maintained the genetic base of food production over thousands of years. This common wealth, which had evolved over millennia, was defined as "primitive cultivars" by the masculinist view of seeds, which saw its own new products as "advanced" varieties.

The green revolution was a strategy of breeding out the feminine principle by the destruction of the self-reproducing character and genetic diversity of seeds.

The death of the feminine principle in plant breeding was the beginning of seeds becoming a source of profits and control. The hybrid "miracle" seeds are a commercial miracle, because farmers have to buy new supplies of them every year. They do not reproduce themselves. Grains from hybrids do not produce seeds that duplicate the same result because hybrids do not pass on their vigor to the next generation. With hybridization, seeds could no more be viewed as a source of plant life, producing sustenance through food and nutrition; they were now a source of private profit only.

Green revolution varieties of seeds were clearly not the best alternative for increasing food production from the point of view of nature, women, and poor peasants. They were useful for corporations that wanted to find new avenues in seeds and fertilizer sales, by displacing women peasants as custodians of seeds and builders of soil fertility, and 'they were useful for rich farmers wanting to make profits. The international agencies which financed research on the new seeds also provided the money for their distribution. The impossible task of selling a new variety to millions of small peasants who could not afford to buy the seeds was solved by the World Bank, the UNDP, the FAO, and a host of bilateral aid programs that began to accord high priority to the distribution of HYV seed in their aid programs.

Over the past decade through new property rights and new technologies, corporations have hijacked the diversity of life on earth—and people's indigenous innovation. Intellectual Property Rights (IPR) regimes globalized through the TRIPS agreement of WTO and have been expanded to cover life forms thus creating monopoly control over biodiversity.

Patents on life are a hijack of biodiversity and indigenous knowledge; they are instruments of monopoly control over life itself. Patents on living resources and indigenous knowledge are an enclosure of the biological and intellectual commons.

The sharing and exchange of biological resources and knowledge of its properties and use has been the norm in all indigenous societies, and it continues to be the norm in most communities, including the modern community. But sharing and exchange get converted to "piracy" when individuals, organizations, or corporations freely receive biodiversity and knowledge from indigenous communities and then convert this gift into private property through IPR claims.

Seed, the common gift shared and saved by women, now becomes the "property" of Monsanto for which royalties must be paid. Seed pirated from communities is now treated as pirated if it is saved or shared. The highest human values are converted into a crime. The lowest human traits are elevated to "intellectual property rights."

When combined with the opening of the seed industry and the entry of global corporations in the seed sector, the Trade Related Intellectual Property Rights Agreement (TRIPS) of WTO is the aspect of globalization, which can be the biggest threat to people's food security. The section of TRIPS that most directly affects farmer's rights and agriculture biodiversity is Article 27.5.3(b), which states—

> Parties may exclude from patentability plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and micro-biological processes. However, parties shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. This provision shall be reviewed four years after the entry into force of the Agreement establishing the WTO.[7]

The article thus allows two forms of IPRs in plants: patents and a sui generis system. The Patent Act and the National Plant Variety legislation drafts are becoming a major concern of contest between the public interest and corporate interest.

The TRIPS agreement militates against people's human right to food and health by conferring unrestricted monopoly rights to corporations in the vital sectors of health and agriculture. It also threatens the livelihoods of farmers.

In Navdanya, we conserve 2,000 rice varieties in our community seed banks. One of the rice varieties we conserve and grow is basmati, the aromatic rice for which my home Dehradun is famous. The basmati is just one among 100,000 varieties of rice evolved by Indian farmers. Diversity and perenniality is our culture of the seed. In Central India, which is the Vavilov center of rice diversity, at the beginning of the agricultural season, farmers gather at the village deity, offer their rice varieties and then share the seeds. This annual festival of "Akti" rejuvenates the duty of saving and sharing seed among farming communities. It establishes partnership among farmers and with the earth.

The basmati rice which farmers in my valley have been growing for centuries is today being claimed as "an instant invention of a novel rice line" by a U.S. corporation called RiceTec (patent no. 5,663,454). The "neem" which our mothers and grandmothers have used for centuries as a pesticide and fungicide has been patented for these uses by W. R. Grace, another U.S. corporation. We have challenged Grace's patent with the Greens in European Parliament in the European Patent Office and after ten years of a legal struggle three women—Magda Avoet, president of the Greens; Linda Bullard, president of the International Federation of Organic Agriculture Movements (IFOAM); and myself—defeated the U.S. Government and W. R. Grace.[8]

A common myth used by global corporation and the biotechnology industry is that without genetic engineering, the world cannot be fed. However, while biotechnology is projected as increasing food production four times, small ecological farms have productivity hundreds of times higher than large industrial farms based on conventional farms.

Women farmers in the Third World are predominantly small farmers. They provide the basis of food security, and they provide food security in partnership with other species. The partnership between women and biodiversity has kept the world fed through history, at present, and will feed the world in the future. It is this partnership that needs to be preserved and promoted to ensure food security.

Agriculture based on diversity, decentralization, and improving small farm

productivity through ecological methods is a women-centered, nature-friendly agriculture. In this women-centered agriculture, knowledge is shared, other species and plants are kin, not "property," and sustainability is based on renewal of the earth's fertility and renewal and regeneration of biodiversity and species richness on farms to provide internal inputs. In our paradigms, there is no place for monocultures of genetically engineered crops and IPR monopolies on seeds.

Monocultures and monopolies symbolize a masculinization of agriculture. The war mentality underlying military-industrial agriculture is evident from the names given to herbicides that destroy the economic basis of the survival of the poorest women in the rural areas of the Third World. Monsanto's herbicides are called "Round Up," "Machete," and "lasso." American Home Products, which has merged with Monsanto, calls its herbicides "Pentagon," "Prowl," "Scepter," "Squadron," "Cadre," "Lightning," "Assert," and "Avenge." This is the language of war, not sustainability. Sustainability is based on peace with the earth.

The most widespread application of genetic engineering in agriculture is herbicide resistance; i.e., the breeding of crops to be resistant to herbicides. Monsanto's Round Up Ready Soya and Cotton are examples of this application. When introduced to Third World farming systems, this led to increased use of agri-chemicals, thus increasing environmental problems. It also destroyed the biodiversity that is the sustenance and livelihood base of rural women. What are weeds for Monsanto are food, fodder, and medicine for Third World women.

While women have maintained the continuity of seed over millennia in spite of wars, floods, and famines, the masculinization of biodiversity has led to violent technologies that ensure that seed does not germinate on harvest. This has been described as the Terminator Technology. Termination of germination is a means for capacity accumulation as a means for capital accumulation and market expansion. However, abundance in nature and for farmers shrinks as markets grow for Monsanto. When we sow seed, we pray, "May this seed be exhaustless." Monsanto and the U.S. Department of Agriculture (USDA), on the contrary, are stating, "Let this seed be terminated so that our profits and monopoly are exhaustless."[9]

The violence intrinsic to methods and metaphors used by the global agribusiness and biotechnology corporations is violence against nature's biodiversity and women's expertise and productivity. The violence intrinsic to destruction of diversity through monocultures and the destruction of the freedom to save and exchange seeds through IPR monopolies is inconsistent with women's diverse nonviolent ways of knowing nature and providing food security. This diversity of knowledge systems and production systems is the way forward for ensuring that Third World women continue to play a central role as knowers, producers, and providers of food.

Genetic engineering and IPRs will rob Third World women of their creativity, innovation, and decision-making power in agriculture. In place of women deciding what is grown in fields and served in kitchens, agriculture based on globaliza-

tion, genetic engineering, and corporate monopolies on seeds will establish a food system and world view in which men controlling global corporations control what is grown in our fields and what we eat. Corporate men investing financial capital in theft and biopiracy will present themselves as creators and owners of life.

Agriculture systems shaped by women have a number of key features. Farming is done on a small scale. Natural resources—soil, water, biodiversity—are conserved and renewed. There is little or no dependence on fossil fuels and chemicals. This becomes vital in a period of climate change and peak oil consumption.

Inputs needed for production such as fertilizers are produced on the farm from compost, green manures, or nitrogen-fixing crops. Diversity and integration are key features. And nutrition is a key consideration. Women-run small farms maximize nutrition per acre while they conserve resources.

With food grown for eating, most food is consumed at the household or local level, some is marketed locally, some goes to distant places. Women-centered agriculture is the basis of food security for rural communities. When the household community is food secure, the girl child is food secure. When the household and community is food insecure, it is the girl child who pays the highest price in terms of malnutrition because of gender discrimination. When access to food goes down, the girl child's share is last and least.

IV. HUNGER, MALNUTRITION, AND THE POLITICS OF FOOD

Food riots do bring the politics of hunger to the front page of the media. But there is a hidden hunger that denies nearly a billion people of their right to food. And there is a problem of malnutrition related to obesity and other food-related diseases. Hunger and obesity (or the fears of it) are feminist issues both because their worst victims are women and girls, and also because they are result of a food system shaped and controlled by capitalist patriarchy.

Malnutrition is both a result of denial of access of food as well as disappearance of nutrition from our farms and processing systems.

Disappearance of biodiversity on farms is linked to disappearance of women from farms. This is food insecurity for the girl child. Malnutrition in childhood leads to malnutrition in adulthood. Anemia is the most significant deficiency women suffer from. Anemia is also the most significant reason for maternal mortality. When underfed girls become mothers, they give birth to low-birth-weight babies, vulnerable to disease and deprived of their right to full, healthy, wholesome personhood.

Usually these issues of health are not connected to growing of food and farming. But nutrition begins on the farm, and malnutrition begins on the farm.

> We are what we eat.
> But what are we eating?

What are we growing on our farms? How are we growing it?
What impact does it have on our health and on the planet?

Food safety, food security, and agriculture are intimately interrelated. How we grow our food and what we grow determines what we eat and who eats. It determines the quality and safety of our food. Yet food safety, food security, and agriculture have been separated from one another. Food is being produced in ways that is robbing the majority of people of food, and those who are eating are eating bad food.

Third-World countries are carrying a double burden of food-related disease, hunger, and obesity. The WHO/FAO have predicted that by the year 2020 it is projected that 70 percent of ischaemic heart disease deaths, 75 percent of stroke deaths, and 70 percent of diabetes deaths will occur in developing countries. These diseases, called noncommunicable diseases, are directly linked to diet.

The world is producing enough food for all. However, billions are being denied their right to food. The globalized industrialized food system is creating hunger in many ways.

Firstly, industrialized agriculture is based on destruction of small farmers. Uprooted and dispossessed peasants join the ranks of the hungry.

Secondly, industrialized agriculture is capital intensive. It is based on costly external inputs such as purchased and nonrenewable seeds, synthetic fertilizers, pesticides, herbicides. Peasants get into debt to buy these inputs. To pay back debt they must sell all they grow, thus depriving themselves of food. If they cannot pay their debts they loose their land. And they are increasingly loosing their lives. More than 150,000 farmers in India have committed suicide as costs of inputs have increased, and the price of their produce has fallen, thus trapping them into debt.

Malnutrition and hunger is also growing because farmers are being pushed into growing cash crops for exports.

The nature of agriculture and the nature of food is being transformed. Agriculture, the care of the land, the culture of growing good food is being transformed into corporate, industrial activity. Food is being transformed from being a source of nutrition and sustenance into being a commodity. And as a commodity, it will first flow to factory farms and now cars. The poor will get the leftover.

Factory farms are a negative food system. They consume more food than they produce. Industrial beef requires 10 kg of feed to produce 1 kg of food. Industrial pork requires 4.0–5.5 kg of feed to produce 1 kg of food. Factory-farmed chicken requires 2.0–3.0 times more feed than it produces as food.[10]

Industrial biofuels are putting a new pressure on food. Food prices in Mexico have doubled since corn, the staple for Mexican tortillas, is being increasingly used to make ethanol for fuel. Corn, soya, and canola are all being diverted to feed cars while people starve.

IV. GLOBALIZATION AND INDUSTRIALIZATION OF AGRICULTURE AND FOOD SYSTEMS

Across the world, a food tsunami is occurring, transforming small farms run largely by women peasants into "factories" producing "commodities." Globalization has led to the industrialization of agriculture, and industrial agriculture displaces women from productive work on the land.

Globalization of agriculture has been driven by agribusiness corporations, which are seeking global markets for their nonrenewable inputs—seeds, fertilizers, and pesticides—as well as markets for their food commodities. The Agriculture Agreement of WTO and the Structural Adjustment programs of the World Bank have been the most important instruments for the globalization of agriculture. Globalization involves multiple shifts. It shifts control over food production from local and national levels to the global level. It also shifts control over food production from women farmers to global corporations, whether it be in the area of seed or systems of maintaining and renewing soil fertility. The local, the renewable is replaced by the global and the nonrenewable. Women's knowledge, expertise, and creative and productive activities are replaced by science and technology driven by corporate profits.

The industrialization of agriculture is a shift from internal inputs to purchased external inputs. It is a shift from ecological to chemical. It is a shift from biodiversity to monocultures. And it is a shift from women as the primary source of knowledge and skills about farming—from seed saving to composting, to cultivating poly cultures in the right balance, to harvesting, storage, processing—to an agriculture without women.

Humanity has eaten more than 80,000 edible plants through its evolution. More than 3,000 have been used consistently. However, we now rely on just 8 crops to provide 75 percent of the world's food. And with genetic engineering, production has narrowed down to 3 crops—corn, soya, canola. And now these too are being diverted to biofuel.

Monocultures are destroying biodiversity, our health, and the quality and diversity of food.

Monocultures have been promoted as an essential component of industrialization and globalization of agriculture. They are assumed to produce more food. However, all they produce is more control and profits—for Monsanto, Cargill, and ADM. They create pseudo surpluses and real scarcity by destroying biodiversity, local food systems, and food cultures.

Corporations are forcing us to eat untested food such as GMO's. Even soya, which is now in 60 percent of all processed food, was not eaten by any culture fifty years ago. It has high levels of Isoflavones and phyto-estrogens, which produce hormone imbalances in humans. Traditional fermentation as in the food cultures of China and Japan reduce the levels of isoflavones.[11] The promotion of soya in food

is a huge experiment promoted with $13 billion subsidies from the U.S. Government between 1998 and 2004, and $80 million a year from the American Soya Industry. Nature, culture, and people's health are all being destroyed. Local food cultures have rich and diverse alternatives to soya. For protein we have thousands of varieties of beans and grain legumes—the pigeon pea, the chick pea, moong bean, urud bean, rice bean, azuli bean, moth bean, cow pea, peas, lentils, horse gram, faba bean, winged bean. For edible oils we have sesame, mustard, linseed, niger soffola, sunflower, groundnut.

In depending on monocultures, the food system is being made increasingly dependent on fossil fuels—for the synthetic fertilizers, for running the giant machinery, for the long-distance transport, which adds "food miles." With the spread of monocultures and the destruction of local farms, we are increasingly eating oil, not food, and threatening the planet and our health.

Moving beyond monocultures of the mind has become an imperative for repairing the food system. Biodiverse small farms have higher productivity and they generate higher incomes for farmers. And biodiverse diets provide more nutrition and better taste.

Bringing back biodiversity to our farms goes hand in hand with bringing back small farmers, especially women, to the land. Corporate control thrives on monocultures. The food freedom of all people depends on biodiversity. Human freedom and the freedom of other species are mutually reinforcing, not mutually exclusive.

The change in production is intimately connected to changes in distribution. Industrial agriculture produces commodities. Small-scale ecological farming produces food. Commodities are distributed by global corporations on the logic of profit maximization. If there are higher profits from cattle feed, food grain goes to factory farms rather than hungry families. If there are higher profits in industrial biofuels, corn goes to produce ethanol and soy goes to produce biodiesel. Commodities grow, so does hunger. And again it is the poor and the vulnerable who pay the highest price in terms of starvation—commodities are substitutable—they can be food for people or fuel for cars.

Biofuels, fuels from biomass, continue to be the most important energy source for the poor in the world. The ecological biodiverse farm is not just a source of food; it is a source of energy. Energy for cooking the food comes from the inedible biomass like cow dung cakes, stalks of millets and pulses, agro-forestry species on village wood lots. Managed sustainably, village commons have been a source of decentralized energy for centuries.

Industrial biofuels are not the fuels of the poor; they are the foods of the poor, transformed into heat, electricity, and transport. Liquid biofuels, in particular ethanol and biodiesel, are one of the fastest-growing sectors of production, driven by the search of alternatives to fossil fuels both to avoid the catastrophe of peak oil consumption and to reduce carbon dioxide emissions. President Bush tried to pass legislation to require the use of 35 billion gallons of biofuels by 2017.

Global production of biofuels alone has doubled in the last five years and will likely double again in the next four. Among countries that have enacted a new pro-

biofuel policy in recent years are Argentina, Australia, Canada, China, Columbia, Ecuador, India, Indonesia, Malawi, Malaysia, Mexico, Mozambique, the Philippines, Senegal, South Africa, Thailand, and Zambia.

There are two types of industrial biofuels—ethanol and biodiesel. Ethanol can be produced from products rich in saccharose such as sugarcane and molasses, and substances rich in starch such as maize, barley, and wheat. Ethanol is blended with petrol. Biodiesel is produced from vegetable oils such as palm oil, soya oil, and rapeseed oil. Biodiesel is blended with diesel.

Representatives of organizations and social movements from Brazil, Bolivia, Costa Rica, Columbia, Guatemala, and the Dominican Republic, in a declaration titled "Full Tanks at the Cost of Empty Stomachs," wrote, "The current model of production of bio-energy is sustained by the same elements that have always caused the oppression of our people's appropriation of territory, of natural resources, and the labor force."

And Fidel Castro, in an article titled "Food Stuff as Imperial Weapon: Biofuels and Global Hunger," has said:

> More than three billion people are being condemned to a premature death from hunger and thirst.

The biofuel sector worldwide has grown rapidly. The United States and Brazil have established ethanol industries and the European Union is also fast catching up to explore the potential market. Governments all over the world are encouraging biofuel production with favorable policies. The United States is pushing the Third-World nations to go in for biofuel production so that their energy needs get met at the expense of plundering others' resources.

Inevitably this massive increase in the demand for grains is going to come at the expense of the satisfaction of human needs, with poor people priced out of the food market. On February 28, the Brazilian Landless Workers Movement released a statement noting that "the expansion of the production of biofuels aggravates hunger in the world. We cannot maintain our tanks full while stomachs go empty."

The diversion of food for fuel has already increased the price of corn and soya. There have been riots in Mexico because of the price rise of tortillas. And this is just the beginning. Imagine the land needed for providing 25 percent of the oil from food.

One ton of corn produces 413 liters of ethanol; 35 million gallons of ethanol requires 320 million tons of corn. The United States produced 280.2 million tons of corn in 2005. As a result of NAFTA, the United States made Mexico dependent on U.S. corn and destroyed the small farms of Mexico. This was in fact the basis of the Zopatista uprising. As a result of corn being diverted to biofuels, prices of corn have increased in Mexico.

Industrial biofuels are being promoted as a source of renewable energy and as a means to reduce greenhouse gas emissions. However, there are two ecological reasons why converting crops like soya, corn, and palm oil into liquid fuels can actually aggravate climate chaos and the CO_2 burden.

Firstly, deforestation caused by expanding soya plantations and palm oil plantations is leading to increased CO_2 emissions. The United Nations Food and Agriculture Organization estimates that 1.6 billion tons or 25 to 30 percent of the greenhouse gases released into the atmosphere each year comes from deforestation. By 2022, biofuel plantations could destroy 98 percent of Indonesia's rainforests.

According to Wetlands International, destruction of South East Asia pert lands for palm oil plantations is contributing to 8 percent of the global CO_2 emissions. According to Delft Hydraulics, every ton of palm oil results in thirty tons of carbon dioxide emissions or ten times as much as petroleum producers. However, this additional burden on the atmosphere is treated as a clean development mechanism in the Kyoto Protocol for reducing emissions. Biofuels are thus contributing to the same global warming that they are supposed to reduce.[12]

Further, the conversion of biomass to liquid fuel uses more fossil fuels than it substitutes.

One gallon of ethanol production requires 28,000 kcal. This provides 19,400 kcal of energy. Thus the energy efficiency is minus 43 percent.

The United States will use 20 percent of its corn to produce 5 billion gallons of ethanol, which will substitute 1 percent of oil use. If 100 percent of corn was used, only 7 percent of the total oil would be substituted. This is clearly not a solution either to peak oil or climate chaos.[13]

And it is a source of other crises: 1,700 gallons of water are used to produce a gallon of ethanol, and corn uses more nitrogen fertilizer, more insecticides, more herbicides than any other crop.

Food has literally become a life-and-death issue for women, whether it is through hunger and starvation, or self-starvation in the form of anorexia nervosa, or obesity, or female feticide.

The future of food needs to be reclaimed by women, shaped by women, democratically controlled by women. Only when food is in women's hands will food and women be secure.

In 1996, Maria Mies and I initiated the Leipzig Appeal for Food Security in Women's hands. For thousands of years women have produced their own food and guaranteed food security for their children and communities. Even today, 80 percent of the work in local food production in Africa is done by women, in Asia 50 to 60 percent, and in Latin America 30 to 40 percent. And everywhere in the world, women are responsible for food security at the household level. In the patriarchal society, however, this work has been devalued.

All societies have survived historically because they provide food security to their people. This policy, however, has been subverted by the globalization, trade liberalization, industrialization, and commercialization of all agricultural products under the auspices of the World Trade Organisation and the World Bank/IMF.

Worldwide, women are resisting the policies that destroy the basis of their livelihood and food sovereignty. They are also creating alternatives to guarantee food security for their communities based on different principles and methods from those governing the dominant, profit-oriented global economy. They are

- Localization and regionalization instead of globalization
- Nonviolence instead of aggressive domination
- Equity and reciprocity instead of competition
- Respect for the integrity of nature and its species
- Understanding humans as part of nature instead of as masters over nature
- Protection of biodiversity in production and consumption

Food security for all is not possible within a global market system based on the dogma of free trade, permanent growth, comparative advantage, competition, and profit maximization. However, food security can be achieved if people within their local and regional economies feel responsible, both as producers and as consumers for the ecological conditions of food production, distribution, and consumption, and for the preservation of cultural and biological diversity where self-sufficiency is the main goal.

Our food security is too vital an issue to be left in the hands of a few transnational corporations with their profit motives or to be left up to national governments that increasingly lose control over food security decisions, or to a few, mostly male national delegates at UN conferences, who make decisions affecting all our lives.

Food security must remain in women's hands everywhere! And men must share the necessary work, be it paid or unpaid. We have a right to know what we eat! No to Novel Food and No to Patents on Life. We will resist those who force us to produce and consume in ways that destroy nature and ourselves.

Women's World of Food	The Food World of Capitalist Patriarchy
Seed	**Seed**
In the commons diversity knowledge based on co-creation with nature	Monocultures and uniformity displace diversity
Saving and Sharing of Seeds	Intellectual Property Rights enclose the biological and intellectual commons
	Corporations as "creators," displacing nature's evolution and women's breeding
	Sharing and saving defined as "intellectual property crimes"
Production of Food	**Production of Food**
Based on objectives of maximizing, nutrition, health, livelihoods, women's knowledge	Based on maximization of profits
Conservation of soil, water, biodiversity	Food reduced to a commodity
Biodiversity based ecological systems create abundance	Destruction of health, the environment, small farmers, and women's knowledge
Distribution of food based on decentralization	Monocultures create scarcity
	Distribution of food based on global chains, speculation, and greed

Women's World of Food	The Food World of Capitalist Patriarchy
Subjects of the Food Systems	**Subjects of the Food Systems**
300 million species	5 gene giants who control seed
6 billion humans	5 food giants who control processing and trade of food
2 billion women producers	
3 billion small farmers	
Values Grudging Women-Run Food Systems	**Values Driving Corporate-Run Food Systems**
Care	Greed
Basic needs and sustenance	Commodity
Abundance	Scarcity
Sharing	Appropriation
Co-operation	Competition
Co-creation	Corporation as Creator
Co-production	Corporation as Producer

NOTES

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