



Malthusianism, Capitalist Agriculture, and the Fate of Peasants in the Making of the Modern World Food System

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Abstract

This article describes the role of Malthusian thinking as a rationale for the commercial development of global agriculture at the expense of peasant-livelihood security. Focusing on the impact of the cold war, in an era of peasant insurgency, it explores how the Green Revolution reflected and reinforced the West's conviction that technological innovation, rather than more equitable systems of production, should resolve the problem of world food security said to be due to "overpopulation."

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I. Introduction

Since the publication of Thomas Malthus's *Essay on the Principle of Population* in 1798, the dominant Malthusian discourse has argued that poverty, underdevelopment, and associated patterns of mortality and environmental degradation can all be regarded chiefly as products of human population pressure on the means of subsistence. This reflects the central argument of Malthus's work, which sought to explain the nature and origin of poverty in a way that exonerated capitalist economy by suggesting that it was the reproductive and productive behaviors of the poor themselves that caused their material suffering. Equally appealing to the ruling class of his own time, and in the years to come, was the fact that Malthusian thinking stood firmly against the radical belief in human progress that was associated, first, with the French and, later, with the Russian revolution, by insisting that any efforts to ameliorate the living conditions of the poor would tend to only make matters

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worse by encouraging them to have more children.¹ As such, the ideas of Malthus and his adherents quickly became established as an essential ideological weapon against popular reform, let alone radical change, by dismissing any alternative to capitalist relations of production as hopelessly utopian (cf. Ross 1998b). Not surprisingly, they have never lost their appeal for the propertied classes and have tended to flourish in times when capitalism has been most severely challenged.

Despite this, comparatively little critical attention has been paid to how Malthusian thinking served to rationalize U.S. development policies over the past half century, during a period when simultaneously the cold war and national liberation struggles threatened the interests of global capitalism. More specifically, virtually nothing has been written about the pivotal role of Malthusianism in rationalizing the commercialization of world agriculture (Ross 1998b; cf. Stone 2001), what is commonly known as the Green Revolution, which, while it was (and remains) a central feature of capitalist development (Cleaver 1972), has largely been promoted as a necessary and benign response to presumed population pressures in the Third World.

This predominant view was underscored by the award of the Nobel Peace Prize in 1970 to Rockefeller Foundation geneticist Norman Borlaug for his role in developing hybrid wheat in Mexico. A quarter century later, despite growing attention to the adverse consequences of the Green Revolution (Glaeser 1987; Frankel 1971; Pearse 1980; Bayliss-Smith and Wanmali 1984; Feder 1981, 1983), so little has been done to question the conventional explanation of its origins and aims that a prominent neo-Malthusian such as Paul Ehrlich could still describe Borlaug as “a founder of the green revolution” (Ehrlich, Ehrlich, and Daily 1993: 3), as if the latter had never been more than a package of technological innovations, attributable to a handful of scientists and unrelated to any geopolitical agenda. It is in such neutral technical terms that the Green Revolution has been persistently represented as the major factor that prevented the famines regularly predicted for the Third World since the 1960s (cf. Paddock and Paddock 1967; PROFMEX 1999).

In the absence of any sustained criticism of the general Malthusian framework that has sustained this view, it not only continues to prevail today but also underlies calls for a renewal of the Green Revolution, now in the form of increased investment in agrobiotechnology, by organizations such as the World Bank; the International Food Policy Research Institute (IFPRI), the think tank of the Consultative Group on International Agricultural Research in Washington (CGIAR),² which has effectively coordinated the course of global agricultural development since the early 1970s; the Council on Foreign Relations (CFR), which reflects the views of the U.S. policy-making establishment (Domhoff 1970: 112–23; Schulzinger 1984); and multinational agro-businesses such as Monsanto,

1. Thus, Malthus and his friend David Ricardo had argued for the abolition of the poor laws on the grounds that they “rendered restraint superfluous, and have invited imprudence, by offering it a portion of the wages of prudence and industry,” that is, by taxing the privileged (Ricardo 1988: 345).

2. The Consultative Group on International Agricultural Research in Washington (CGIAR) emerged in the early 1970s, to rationalize and coordinate a growing number of international agricultural research centers, including the International Maize and Wheat Improvement Center in Mexico and the International Rice Research Institute in the Philippines. The impetus for its creation came principally from the Rockefeller and Ford Foundations and the World Bank, which has continuously housed the CGIAR Secretariat and provided its chair from among its senior officers (Clausen 1986: vi; Ross 1998b: 194–96).

Novartis, and Pioneer Hi-Bred.³ All currently suggest that the benefits of the Green Revolution were squandered because developing countries failed to curb their fertility, so that Malthusian catastrophe may still lie on the horizon (cf. Mathews 1994).⁴ Such reasoning sustains an unrelenting commitment to the same view expressed a quarter of a century ago by World Watch president Lester Brown (1977), when he was a senior fellow with the Overseas Development Council in Washington, that “ultimately the only solution to the food problem will be the curbing of world population growth” (35), but that the only proximate solution is a technical one.

This was certainly the thrust of U.S. Secretary of Agriculture Orville Freeman’s remarks when he enumerated the requirements of increased Third World food production in *Foreign Affairs* (the journal of the CFR) in 1967:

We have a pretty good idea of what is needed. In varying proportion according to particular situations, the hungry countries need: increased quantities of fertilizer and other farm chemicals, improved varieties of seeds, increased availability of water, added credit, productive price policies, improved marketing facilities and expanded research and education. (592)

There was no mention of access to land. And, twenty years later, the same solution, with the same disregard for the issue of land, was even more succinctly proposed by John Mellor, a Cornell agricultural economist, who had worked at the United States Agency for International Development (USAID) and was then located at IFPRI. He advised that “a strategy of development stressing technological change in agriculture represents the most practical means for meeting the ever-increasing food needs of the Third World” (Mellor and Adams 1986: 297). By then, the prospects for land reform had been largely marginalized by the geopolitics of the cold war (Ross 1998b: 105–36), and the argument that there was no more land to cultivate and that technological change was the best way to increase output had proven to be an effective way to obscure the fact that large landowners typically tended to underutilize land that peasants could have brought into food production (cf. United Nations Economic Commission for Latin America [UNECLA] 1968: 335–36, 347–48). The Green Revolution, as we shall see, was predicated on views that denied the yield-raising potential of land redistribution and of indigenous innovation and that substituted for both the commitment to a more entrepreneurial mode of production, oriented to the world market rather than to local subsistence needs.⁵

3. Since the first draft of this article, Pioneer has merged with DuPont. Monsanto became a subsidiary of the U.S.–Swiss giant, Pharmacia, and then was spun-off as Pharmacia was being acquired by Pfizer Inc. (Pfizer 2002). Novartis was formed out of a merger of the Swiss corporations Sandoz and Ciba-Geigy. In 2000, Zeneca Agrochemicals and Novartis Agribusiness divisions formed Syngenta (Syngenta 2001). Based on sales in that year, Syngenta was the world’s leading agrichemical company, the third largest seed company, and one of the ten top pharmaceutical businesses; Pharmacia was then the second-ranked agrichemical and seed firm and eighth biggest in pharmaceuticals; while DuPont/Pioneer was the fifth-ranked agrichemical company and the leading seed company (ETC Group 2001:8).

4. Heinz Imhof (2000), deputy head of Novartis Agribusiness, has proclaimed that it is precisely because “today’s world population of 5.7 billion people is expected to rise to between 9 billion and 11 billion by the year 2050,” while crop area is diminishing, that increased productivity depends on the “know-how and intelligence” of the agro-business industry. Much the same argument is made by Monsanto (2002).

5. Among the various expressions of this goal was that of Adolph Berle, a noted champion of the liberal corporate model, who wrote, “The ideal of every sincere agrarian reformer is to produce a situation something like

This was made clear three decades after the Rockefeller Foundation first established its groundbreaking wheat research center in Mexico, when J. George Harrar, the plant pathologist from the University of Washington who was the first director of the Mexico project (Fitzgerald 1986: 463) and who became president of the foundation in 1961, openly declared to the Agribusiness Council that “agriculture is a business and, to be successful, must be managed in a businesslike fashion” (Harrar 1975: xi). Whatever the public discourse, behind the scenes the Green Revolution had never been regarded by those who managed it as primarily about helping peasants to produce more food but rather about creating a global food system in which peasant agriculture, widely regarded as backward and unproductive in the context of a modern market economy, was subordinated to a more commercial and capital-intensive mode of production.

Such development has adversely affected peasant communities throughout the world over the past half century. But as we see in this article as it explores the gap between the ideology and the reality of this view of agrarian change, the question of how much it was meant to advance the interests of the rural poor was always highly problematical. Indeed, one might go further and suggest that one of the ultimate aims of creating such an agricultural regime in developing countries was to minimize the role of peasants (Feder 1981; Cleaver 1982), for reasons that were essentially political, and, in the process, for local food production in developing countries actually to be reduced, for Third World agriculture to be developed as an export-producing sector, while the United States profited as a supplier of agricultural inputs⁶ and as the principal source of food grains for the Third World (cf. Bell 1997).

2. The Rockefeller Foundation and Agricultural Missionaries in China

From the onset, the Green Revolution represented an implicit commitment to capitalist relations of production that in turn reflected the fact that the Ford and Rockefeller (and to a lesser degree the Kellogg) foundations, which played a leading role in its emergence and expansion, were an intimate and influential part of the U.S. capitalist economy. Despite their carefully crafted philanthropic image, they were profoundly influential in the design and implementation of U.S. development policy from the end of the Second World War. Not unexpectedly, therefore, the global agricultural transformation that they promoted became a part of that policy. In that role, it was less about enhancing the food security of the poor in developing countries than about securing the economic prosperity of the U.S. power elite with which they were so closely associated.

By the time that the Rockefeller Foundation began agricultural research in Mexico in the 1940s, it already had a long history of involvement in agricultural development initiatives at home and abroad. It had been engaged in the development of hybrid grains in the

that in the United States, where on a relatively small farm a family cannot only live but live in comfort” (Berle 1962: 55). In fact, since the end of the Second World War, U.S. agriculture had been characterized by the advance of corporate farming and the steady disappearance of small farms (Ross 1980: 212; Michie 1982).

6. From its inception, this was one of the main consequences of the Green Revolution. The sale of fertilizers to developing countries became an important part of the solution to the U.S. nonagricultural trade deficit (Doyle 1987: 317; Ross 1998b: 192–93). One of the most important inputs for Green Revolution crops, water, is currently the great frontier for Western capital investment, dominated by such multinationals as Vivendi Universal, Suez Lyonnaise, and, until recently, Enron (Grusky 2001; Yaron 2000).

United States and had close associations with the U.S. Department of Agriculture (USDA). But many of its ideas about the nature and role of Third World development originated in the foundation's agricultural and health programs in China during the interwar years when it was closely associated with American missionary activities in a country that represented, as U.S. senator Albert Beveridge had observed in 1900, "illimitable markets" (quoted in Zinn 1980: 306). Specifically, China was an important potential market for the source of the foundation's wealth, Standard Oil, which, eager to sell its kerosene to light the oil-burning lamps of China, supported the U.S. foreign policy toward China commonly known as the "Open Door" (Kennan 1951: 23–37). One of the ways to keep that door open was through the missionary work⁷ with which the foundation was associated and that conveniently reflected the Baptist upbringing of the elder John D. Rockefeller (Bullock 1980: 31). From the beginning, the varied sides of Rockefeller enterprise, the overtly commercial and the philanthropic, nicely embodied Tuchman's (1971) observation that "American infiltration of China . . . was a two-pronged affair of business and gospel" (38).

Rockefeller support of missionary efforts in China was closely associated with the Agricultural College at Cornell University, which had established important connections with Protestant mission activities in the early twentieth century. Despite "a great outpouring of missionaries" to China (Bullock 1980: 31), the mission societies had begun to acknowledge what little impact they were having on China after almost a century of efforts and began to adopt a more practical approach that embraced agricultural development as a vehicle for missionary aims. Cornell played a major role in this regard and continued, in the same spirit, to have a close relationship with the Rockefeller Foundation (particularly with regard to Green Revolution initiatives in the Philippines) (Ross 1998b: 117–18) in the decades after World War II.

It is important not to underestimate the importance for the later work of the Rockefeller Foundation of these formative years when its interest in developing countries and its general view of the role of agriculture in development was conditioned by its missionary associations in China. In the early 1930s, it evolved a strategy that regarded rural development as a fundamental factor in the creation of economic and social stability. It "eschewed social revolution—and most notably was silent on the issue of land reform. But it provided unique support for those who sought to change the conditions of life in village China" (Thomson 1969: 150), as long as they were not communists and were willing to work for the kind of change that advanced the interests of the West.

3. The Rockefeller Foundation Goes to Mexico

It was in Mexico in the 1940s, however, in the era of one of the great experiments in radical land reform, that these ideas began to be put into practical effect. The location was predictable. In the first decade of the twentieth century, under the dictatorship of Porfirio Diaz, the Mexican economy had been closely linked to foreign and especially North American capital (Platt 1972: 298–30; Cline 1963: 22; Davids 1976). A mere eight hundred haci-

7. According to Borg (1947), "Between four and five thousand American Protestant missionaries were living in China in 1925, out of a total American Community of approximately 9,800" (68).

endas owned about 90 percent of the land,⁸ while 97 percent of rural families were landless (DeWalt and Barkin 1991: 13; Massey et al. 1987: 39). By 1910, such conditions had given rise to a wide-ranging opposition movement that became the Mexican Revolution. As an unstable mixture of diverse class interests, its most progressive impulses, embodied in the land reform program of Emiliano Zapata (Womack 1968), were curbed by the generals and politicians who eventually established themselves in power.

It was the global depression of the 1930s that created conditions that enabled one of those generals, Lázaro Cardenas, who became president in 1934, to use the formidable power of the federal state to effect a progressive transformation of the social and economic landscape of rural Mexico.⁹ The central feature of the Cardenas land reform, which has been described as “the most far reaching in Latin America before Cuba’s and one which really did incorporate the peasants into national life” (Frank 1969: 272), was the breaking up of estate lands into communal units called *ejidos*¹⁰ (Perelman 1977: 144), which, by 1940, had received just under half of all cultivable land in Mexico.

Moreover, state support for traditional agriculture was such that productivity on *ejido* holdings improved enough to surpass that of private holdings, to the extent that the former produced just more than half the value of all Mexican farm output (Hewitt de Alcantara 1976: 6; DeWalt and Barkin 1991: 14). The positive effect on rural conditions generally was so dramatic that between 1930 and 1940, the number of landless laborers fell from 68 to 36 percent of the rural workforce (Hewitt de Alcantara 1976: 4) and migration out of the countryside “registered its lowest rate in the last 50 years” (Unikel 1975: 534).

The commitments of the Cardenas years were short-lived, however. Infrastructural support for *ejido* agriculture, including a new National *Ejido* Credit Bank, was only beginning in 1940 when Cardenas was succeeded as president by the conservative Avila Camacho, whose ascendancy was undoubtedly the result of increasing pressure from the United States. One of the main sources of U.S. animosity toward Cardenas was not just his policy of agrarian reform but the nationalization of foreign oil interests. As a result, as Markiewicz (1993) has noted,

In 1938 the oil companies withdrew large sums of money from Mexico; the U.S. government refused to extend its 1933 agreement on silver purchases, and the United States and Britain boycotted Mexican oil, forcing Mexico to work out barter agreements with Germany and Italy that were never fully complied with owing to the start of World War II. As the events in Europe unfolded, Mexico lost important European export markets and its dependence on higher-priced imports from the United States increased; a shortage of foreign exchange forced import limitations, fueling the displeasure of the local and petty bourgeoisie, who demanded an end to Cardenismo. (107)

8. A tremendous proportion of Mexican land was in the hands of U.S. citizens and companies. The T.O. Ranch alone covered more than 1 million acres in Chihuahua (Davids 1976: 189).

9. Whether this represented a kind of agrarian socialism (DeWalt and Barkin 1991: 13) or what Thiesenhusen (1995) called “capitalist reformism” (36), it was impelled by pressures rising up from the campesinos themselves.

10. *Ejidos* have been defined as “government-sponsored cooperatives whose members enjoy usufruct” (Unikel 1975: 533).

Since Standard Oil played a dominant role in Mexico's crude oil production (Davids 1976: 198), Rockefeller family interests had been especially affected by the Cardenas reforms. Thus, even before he became Roosevelt's war-time coordinator of inter-American affairs, Nelson Rockefeller had paid a private visit to Cardenas in early 1940 to try, unsuccessfully, to reestablish the position of Standard and the other oil companies (Colby and Dennett 1995: 94).

In the end, Cardenas himself began to step back from the central government's commitment to the peasantry and to make concessions to U.S. demands (Markiewicz 1993: 107–9). But, under his successors, leftists were purged from the cabinet and the Mexican government promised to pay the United States 49 million dollars for property expropriated from U.S. citizens and 24 million to settle the oil issue (Markiewicz 1993: 128). And, most important, there was a reversal of the Cardenas program of land redistribution (Thiesenhusen 1995: 37):

Avila Camacho and [his successor] Aleman tried to dismantle the peasant-based agrarian structure created by Cardenas. Collective *ejidos* were broken up and land divided into individual plots. Peasant cooperatives were forced to disband and their financial support was withdrawn. Agricultural investment was concentrated in the construction of roads and massive irrigation works located principally in the North and Northwest. Although restricted by law, newly irrigated land was sold to private farmers with no apparent regard for legal amenities. Land distribution came to a virtual halt all over the country. (Sanderson 1984: 138)

The effectiveness of this shift owed much to the way that Mexican agriculture was transformed by what would be called the Green Revolution and to its repertoire of capital-intensive technological innovations, of which the central feature was hybrid seeds.

A major figure in the development of such seeds was Henry A. Wallace, whose own business, Pioneer Hi-Bred, which he created in 1926 (Berlan and Lewontin 1986: 44–45; Schapsmeier and Schapsmeier 1968: 27–28), is now a leading agro-biotechnology company (Hobbelink 1991: 123). By 1932, Wallace had become Franklin Roosevelt's secretary of agriculture (and then vice president, from 1940 to 1944). While he had considerable sympathy with the plight of the poor, it was often combined with an innocent faith in the positive benefits of what he called "the modern scheme of things" (Wallace 1964: 41). As a liberal advocate of a modern style of agricultural management, he was also a close associate and friend of Nelson Rockefeller. Both regarded the Rockefeller Foundation as the proper vehicle for transferring an American style of agriculture to Mexico.

Mexican researchers had already been working on the problem of increasing production, particularly of the staple maize and principally through the development of better *criollo* seeds, that is, indigenous varieties that had evolved in specific localities through open pollination (Barkin 1987: 112). Moreover, because of their concern for the social consequences of introducing improved seeds, they had

rejected the route of developing hybrid seeds, contending that they were inappropriate for a country like Mexico, which was not prepared to reproduce and distribute seeds year after year in a quantity commensurate with national needs. . . . They channeled their energy and resources into improving the system of cultivation, based on better techniques with the use of *criollo* seeds. (Barkin 1987: 112)

Most of this work was marginalized just a decade later as a result of an agreement between Mexico and the Rockefeller Foundation that established the Office of Special Studies to preside over research on U.S.-style hybrids (Barkin 1987: 112). All the members of the foundation's mission to Mexico, which was led by J. George Harrar, happened to hold positions in the U.S. Department of Agriculture (Fitzgerald 1986: 462–63). And their main interest was not in maize, but wheat, which was primarily a commercial crop.

Thus, the Rockefeller research program, in the name of increasing food production, in fact provided the means to reverse the Cardenas reforms. Rather than giving priority to the issue of subsistence security, it focused on the technical side of agriculture in a way that, “given the reality of the Mexican countryside . . . [could be] profitably utilized only by the best-endowed, and most politically powerful, farming groups in the nation” (Hewitt de Alcantara 1976: 308). It favored the minority of Mexican farmers who were chiefly wheat producers, in contrast to the vast majority of peasants who were subsistence cultivators of maize (Fitzgerald 1986) and who continued to grow it “using rudimentary techniques, few inputs and traditional varieties of seeds” (DeWalt 1988: 347).

Where *ejidos* remained, principally in central Mexico and in the Gulf region, the commitment of state resources after 1940 was relatively meager. Moreover, from the early 1950s, the *Ejido* Bank itself began to encourage new wheat varieties, thereby forcing *ejidatarios* to use costly inputs of fertilizers and insecticides. This imposed terrible debts on the *ejido* sector, which disintegrated under the strain (Stavenhagen 1975: 156).

An additional factor in the rise of commercial cultivation was the decisive role of irrigation, which was also linked to the expansion of the new hybrid seeds. Between 1940 and 1979, while *ejido* agriculture either stagnated or collapsed, “irrigation works, particularly in large districts, accounted for from 70 percent to 99.2 percent of government investment in the agricultural sector” (Barkin 1990: 16). And it was always the larger farms that benefited. While representing only a very small percentage of all agricultural holdings, they came to possess almost 70 percent of all irrigated land, as well as 75 percent of the value of all agricultural machinery (Barkin 1990: 115). Increased mechanization on large farms also meant that there was less need for the labor of the rural poor who increasingly chose to migrate to Mexico City and other regional centers or to emigrate to the United States (Massey 1991: 35; Cohen 1987: 54).

In this way, just a decade after the Cardenas reforms had begun to be reversed, the polarization of the Mexican countryside had already returned to the point that 87 percent of *ejidatarios* lived at near-subsistence level (Perelman 1977: 6), while a mere 3 percent of all farms accounted for 55 percent of all agricultural output and 80 percent of the increase in the value of production during the 1950s (Barkin 1975: 66). It would not be until 1991 that the *ejido* was finally eradicated as a legal entity (DeWalt and Rees 1994: 1–2), but as a model for radical agrarian reform, it had been defeated long before that. In the process, while Mexico's economic problems were increasingly attributed to population pressures (U.N. Department of International Economic and Social Affairs 1989: 11–12), a view that was reflected in the rapid spread of family-planning provision through the country in the 1970s (Brambila 1998: 162), the country was definitively transformed back into a labor reserve for the United States.¹¹

11. Thus, the initiation of the Green Revolution and the reversal of the Cardenas land reforms facilitated the inception of the so-called *bracero* program of legally contracted workers (Burawoy 1976; Cohen 1987), as subsistence cultivators were once more marginalized within the rural Mexican economy (Ross 1998b: 176–77).

4. The Ford Foundation and the Cold War

The communist victory in China in 1949 had a profound effect on the activities of the Rockefeller Foundation under the influence of Nelson's brother John D. Rockefeller III and the foundation's successive leaders John Foster Dulles and Dean Rusk (each of whom also served, in turn, as U.S. secretary of state).¹² But it was the Ford Foundation, established in 1936 with resources that dwarfed those of Rockefeller (Mattelart 1979: 156)¹³ that underwent the most dramatic redefinition of its role and aims during this tumultuous period. Previously rather parochial in its activities, its new agenda was defined by a report by the California lawyer H. Rowan Gaither, who had just helped to organize the RAND Corporation as a nonprofit think tank focusing on issues of "national security" (Snead 1999: 51). Gaither's report set the agenda of the foundation firmly within the framework of the emergent cold war when it noted,

As the tide of communism mounts in Asia and Europe the position of the United States is crucial. We are striving at great cost to strengthen free peoples everywhere. The needs of such peoples, particularly in underdeveloped areas, are vast and seemingly endless, yet their eventual well-being may prove essential to our security. (quoted in Rosen 1985: 4)

Gaither himself became president of the Ford Foundation in 1953 (while he remained chairman of RAND's board of trustees) and, as such, four years later was requested by President Eisenhower's National Security Council to chair a committee to assess U.S. military security needs (Snead 1999: 49–51). All of this was indicative of the Ford Foundation's increasingly influential role in the making of U.S. foreign policy. According to George Rosen (1985), an economist who worked for both the Ford Foundation and RAND,

when the foundation began to consider its larger role, there was certainly an implicit, if not explicit, agreement between the assumptions and broad policy conclusions of the authors of the Gaither report [for Ford] and the assumptions underlying American foreign policy at the time. (7)

To implement its newly defined role, the foundation enlarged its board of trustees in a way that affirmed its increasingly intimate relationship to Washington policy making. One of the new board members, for example, was John J. McCloy (a long-standing partner in the Rockefeller law firm of Milbank, Tweed) (Bird 1992: 273–74), who had just left the presidency of the World Bank. The first director after the reorganization was Paul Hoffman, the former president of the Studebaker Corporation and the recent head of the Marshall Plan

12. It is difficult to separate the activities of the Rockefeller Foundation from the concerns of John D. Rockefeller III, who was the most active in the foundations' affairs of all his siblings. He founded the Japan Society in 1950 (Rockefeller University 2002), the Population Council in 1952 (because he and his associates regarded unwelcome events in Asia as attributable to demographic pressures) (Ross 1998b: 91–93), the Council on Economic and Cultural Affairs (later called the Agricultural Development Council) a year later, and the Asia Society in 1956 (Rockefeller University 2002; Asia Society 2000).

13. In 1951, Ford assets were estimated at "between \$750,000,000 and \$1 billion, depending on appraisal of the value of the Ford stock" (Golden 1951).

(Caldwell and Caldwell 1986: 20–21; Rosen 1985: 7–8). Hoffman later went on to head the U.N. Development Program (Raffer and Singer 1996: 61).

Another notable figure was Joseph Slater, who had served as secretary-general of the Allied High Commission for Germany in the 1940s and had then been the chief economist for the Creole Petroleum Corporation, a subsidiary of Rockefeller's Standard Oil of New Jersey. Before going to Ford, to run its International Affairs Program (Caldwell and Caldwell 1986: 49), he had served as the staff director of the Draper Committee, which Mass has described as "the first official body of the U.S. government to advocate neo-Malthusian policies" (Mass 1976: 41; Piotrow 1973: 36ff; Ross 1998b: 95–100).¹⁴

Not surprisingly, according to Rosen (1985),

The foundation staff . . . soon established a more or less informal network of relationships with officials of various public agencies, American and international, working in the foreign development field, including the State Department, the Point Four organization, the United Nations, and the Food and Agricultural Organization; with the Rockefeller Foundation, another nonprofit private foundation with lengthy experience in Asia and elsewhere. (8)

Hoffman's (1951) writings after he had taken over as head of the foundation make even clearer the extent to which, at the beginning of the 1950s, the thinking of Ford leadership exemplified the cold war rhetoric that prevailed in Washington. Like many of his contemporaries, Hoffman's vision of the world as the Korean War was beginning was uncompromisingly Manichean. As he wrote in his book *Peace Can Be Won*,

the Kremlin is looking with ever more naked avidity upon the oil fields of Iran and Saudi Arabia. In Indonesia, Communist agitation, subversion, propaganda and sabotage are increasing in speed and scope. Like a thunderhead over Western Europe is the menace of a Red Army march to the Atlantic. (14)

The close ideological and operational association between Ford and the U.S. government was consolidated when McCloy became chair of the foundation in 1958. From 1953 onward, he was also the chairman of Rockefeller's Chase Manhattan and of the Council on Foreign Relations. Moreover, all through the 1950s, while he headed the foundation, McCloy served informally as Eisenhower's chief political adviser and did nothing to discourage relations between Ford and the CIA (Bird 1992: 426–29). By the early 1960s, it had become routine for the CIA to channel funds through the Ford (and Rockefeller and Carnegie) Foundation, to give support and respectability to selected international projects, programs, and centers that served its sense of U.S. strategic interests (Church Committee 1976: 182–83; Cumings 1998).

So, in the early 1950s, after the provost of MIT, Julius Stratton, informed his friend Rowan Gaither about plans to establish a new Center for International Studies (CENIS), Ford staff took an early role in the discussions that led to its creation. That the center's "ultimate

14. The Draper Committee was officially the President's Committee to Study the United States Military Assistance Program. It was chaired by William H. Draper, a former investment banker at the firm of Dillon Read, which had figured prominently in financial dealings in Nazi-era Germany (Simpson 1993: 47–49; Kolko and Kolko 1972: 113). Draper went on to play an influential role in the national and international population establishment, eventually becoming the head of the fundraising arm of Planned Parenthood (Chase 1977: 383).

aim . . . [was] the production of an alternative to Marxism” (Rosen 1985: 27–29) was hardly surprising in light of the fact that MIT had well-established associations with the U.S. military and industrial establishment (Snead 1999: 56–57) and that CENIS itself was very much the product not only of Ford but also of the CIA (Horowitz 1969; Cumings 1998: 171–73). Its principal staff included two former students of the economist Richard Bissell (Rosen 1985: 28), who was then at Ford but who chiefly worked for the CIA (cf. Bissell 1996). These were Walt Rostow, who, a decade later, was the hawkish head of Kennedy and Johnson’s Policy Planning Staff at the State Department (Horowitz 1969), and Max F. Millikan, the center’s head, who came in 1952 from his job as director of economic research at the CIA (Rosen 1985: 28).

CENIS became a major source of literature on the psychology of development, through the works of people such as Daniel Lerner, Lucien Pye, and Everett Hagen, whose Weberian conceptualizations of the so-called modernization process emphasized the vital role of groups with “a rationalist and positivist spirit” (Lerner 1958: 45). In this sense, modernization was virtually synonymous with Westernization and defined by participation in the capitalist world market economy. The conflicts and disruption that often accompanied such modernization were, in the view promoted by the CENIS scholars, less the product of the inequalities that the development process either generated or exacerbated than of the way that new ideas clashed with the “stabilizing elements in traditional society” (Millikan and Blackmer 1961: 16).¹⁵

5. The Foundations Turn to India

As Kuomintang forces were being driven from mainland China in 1949, the State Department asked ambassador-at-large Philip Jessup to conduct a review of U.S. Far Eastern policy. “The task,” according to King (1956: 119), “was to seek an understanding of the conditions which led to the impasse in China and to devise ways to prevent these conditions from being repeated in the countries of Southeast Asia.” One of Jessup’s consultants was Raymond Fosdick, former president of the Rockefeller Foundation (King 1956: 119), a choice that reflected the attention that the Ford and Rockefeller foundations were giving to the general region of South Asia, where India seemed to them to be especially vulnerable to communist influence. The Rockefeller Foundation had had a field office in New Delhi since 1935, which, between 1942 and 1946, had temporarily replaced the Shanghai office as the foundation’s headquarters for the Far East; after the defeat of Chiang in 1949, it was permanently located in Bangalore (Rockefeller Foundation 1995). The 1950s also saw the Ford Foundation’s activities in India expand to the point at which they overshadowed all its other programs outside the United States (Caldwell and Caldwell 1986: 4).

The potential significance of India also had been heralded by a visit to China for the Rockefeller Foundation by the prominent U.S. demographer Frank Notestein, to survey

15. Robert McNamara described modernization as “the difficult transition from traditional to modern societies” and worried about how a “sweeping surge of development . . . has turned traditionally listless areas of the world into seething caldrons of change” (quoted in Shafer 1988: 80). For McNamara, modernization was especially insidious precisely because the Soviet Union and China regarded it as “an ideal environment for the growth of Communism” (McNamara 1968: 147).

“public health and demography” in that region, on the eve of Chinese communist victory (Ryder 1984: 13). Notestein’s intellectual roots lay in the Malthusian and eugenic thinking, which had won the hearts of the U.S. elite in the last decades of the nineteenth century (Ross 1998b: 87–90). Patronized by Frederick Osborn, whose family was one of the pillars of the international eugenics movement, and by his wealthy colleagues in the Milbank Fund and Rockefeller Foundation, Notestein played a key role in the emergence of the modern field of demographic policy (Caldwell and Caldwell 1986: 7–10).

On his return, Notestein described population pressure as the ultimate source of rural discontent, a view that dovetailed precisely with the growing view of U.S. policy makers, and the economic interests behind them, that land reform was just the way that communists won peasants to their cause. Notestein saw the political expediency of birth control, just as, for similar reasons, the prominent agricultural economist Wolf Ladejinsky would argue for moderate, controlled land reform “before the peasants take the law into their own hands” (Walinsky 1977: 132; cf. Ross 1998b: 106–12). Both chiefly attributed the misery of the Asian peasant to the Malthusian problem of “too many people, too little land” (Walinsky 1977: 131). Most important, in his report, Notestein concluded that, if one looked around the developing world and considered the impact of population on social and political stability, “the subcontinent of India, precariously divided between Hindu and Muslims, comes most forcibly to mind as the next possible location for a serious outbreak of communism” (quoted in Ryder 1984: 676).

Quite apart from the dubious premises of Notestein’s cold war demographic theory, there was ample reason to expect peasant insurgency in a country where rural conditions were so oppressive. Yet, for more than a century, the famines and land hunger that characterized rural India, and continued to do so well after independence, had been routinely attributed to Malthusian pressures. This was, in part, because Malthus himself had taught for almost thirty years at the East India College, where, as Caldwell and Caldwell (1986) observed, “he and his successors ensured that generations of British officials and scholars in India saw that country’s society in Malthusian terms, as is evidenced by every Indian Census Report until 1951” (4). It was also a view that minimized the impact of English colonial rule, during which, after an initial period of straightforward plunder (Calder 1981: 691ff.), Malthus’s employers had imposed a regime designed to maximize the extraction of revenues. Then, from the end of the eighteenth century onward, as the authority of the company gradually gave way to increasing rule by representatives of the British state, the English created new systems of land ownership to facilitate the payment of rents (Thorner and Thorner 1962: 53–54). To meet new demands by landlords and the State, peasants were impelled to raise the commercial crops that British industries required (Bhatia 1967: 24–34). This process became more intense as the momentum of English industrialization grew, and the frequency and severity of famines, which had occurred under the rule of the East Indian Company, accelerated under the administration of the English Raj, as food crops were displaced by “essential raw materials . . . required for the industrial revolution” (Knowles 1928: 305).

The pressures in the Indian countryside were further exacerbated by the forced decline in the role of local craft production, as India was subjected to a deluge of English textiles, while Indian imports into England were checked by prohibitive duties (Mukerjee 1974: 404). This occurred at a time of increasing capital penetration of the Indian countryside, when rising rents forced many peasants off the land and increased land concentration in the hands of moneylenders and landlords, so that wealth was drained out of rural areas, even as

the agricultural sector was forced to absorb much of the population that had previously earned a living in the craft industries (Dutt 1940: 184–87). All this, as Thorner and Thorner (1962) observed, “added steadily to the great pressure on the land which is one of the chief characteristics of contemporary Indian life” (57).

This situation endured into the early independence era, which actually “witnessed the strengthening of the existing structure of land monopoly and the processes of dispossession and marginalization of the peasantry” (Dewan 1990: 176). The result was a tide of popular resistance (Joshi 1969: 447–48), of which Notestein was clearly aware. From the viewpoint of the United States, in the light of its preoccupations with China, the most disturbing manifestation of rural discontent was undoubtedly the Telangana revolt in former Hyderabad State in South India, which began in 1946 (Banerjee 1984: 17–19; Dhanagare 1991: 154–212). Led chiefly by the Communist Party of India (CPI), it challenged the economic and political structure of what was the largest princely state in preindependence India, whose despotic ruler, the Nizam, was one of the wealthiest men in the world. The revolt, which took place in the Telangana districts where the exploitation of peasants was the most intense in the entire state (Dhanagare 1991: 184–89), represented “an agrarian liberation struggle to get rid of feudal landlordism and the Nizam’s dynastic rule” (Banerjee 1984: 19). During the course of a struggle that continued until 1951, insurgent forces succeeded in distributing some one million acres of land among the peasantry (Banerjee 1984: 19; cf. Dhanagare 1991: 200).

Despite its eventual suppression, the coincidence of the Telangana insurrection with the final victory of the Chinese communists underscored the revolutionary potential of peasant India. And even as open armed rebellion waned, the CPI began to emerge as an important electoral force in many regions of the country, especially as the franchise was broadened after independence (Harrison 1960: 178–245). By 1957, it would form the government in the southwestern state of Kerala (Nossiter 1982). But the fact that electoral success did not exclude the possibility of further uprisings became evident in 1967 with the short-lived communist-led insurgency at Naxalbari in the northern part of West Bengal (Banerjee 1984: i).

It is hardly surprising, therefore, that Paul Hoffman, the new head of the Ford Foundation, wrote to the U.S. ambassador to India Chester Bowles of the need for a rural development program in India like the one that had been undertaken recently in Taiwan. “If in 1945,” he said,

we had embarked on such a program and carried it on at a cost of not over two hundred million dollars a year, the end result would have been a China completely immunized against the appeal of the Communists. India, in my opinion, is today what China was in 1945. (quoted in Rosen 1985: 11)

There was another program that Hoffman drew on as a model: the Marshall Plan. Well aware of the role it had played in suppressing an effective political role for indigenous communist parties in Europe (Pisani 1991), he could write, “We have learned in Europe what to do in Asia” (quoted in Raffer and Singer 1996: 61).

Bowles heartily concurred with Hoffman’s warning. In an article in *Foreign Affairs*, he himself underscored the supreme importance of what would happen now in India. “The success or failure,” he wrote,

of the effort being made in India and other Asian countries to create an alternative to Communism in Asia may mark one of those historic turning points which determine the flow of events for many generations . . . the future of Asia, and eventually the world balance of power, may rest on the competition between democratic India on the one hand and Communist China on the other. If democracy succeeds in India, regardless of what happens in China, millions of Asian doubters will develop new faith in themselves, in their ancient cultures, and in the ideals of the free world. (Bowles 1952: 80)

It was not always clear what those ideals might be. If they did not seem to lead to land reform or to popular government, perhaps one had to consider the words of Henry Wallace, when he had criticized Chiang Kai-Shek, not for his reactionary and repressive rule nor for an “agrarian policy [which] was one of trying to maintain or restore the *status quo*” (Moore 1966: 192, 193–201), but rather for “a backward feudal rule which has kept China’s 400,000,000 from being the good customers they should be” (quoted in Gardner 1969: 134).

While it was ultimately about markets, in a more immediate sense, the Ford Foundation sought to interpret the political fate of India in the same Malthusian terms that were being elaborated by the Office of Population Research (OPR) at Princeton. Thus, it had been Notestein, addressing the Eighth International Conference of Agricultural Economists in 1952, who had said that if population pressure and modernization brought political and economic disorder, increased food production might be one way to ameliorate it, but even then, the agricultural development that brought it about must be moderate. “It seems likely,” he wrote,

that immediate increases in the production of food can best be obtained by steps that involve minimum disturbance of the existing social-economic organization, interference with vested interest. . . . In short, immediate gains in production can probably be maximized by minimizing the changes in the institutional organization of the economy. (Notestein 1953: 26)

That was precisely the logic that governed the Ford and Rockefeller foundations in their advocacy of the Green Revolution.

6. The Ford Foundation and the Malthusian Basis of the Green Revolution in India

Malthusian ideas, as I have noted, had long flourished in India, preparing the ideological ground for some of the first government-sponsored birth control clinics anywhere in the developing world in the years between the two World Wars (Caldwell and Caldwell 1986: 39). The Final Report of the Bengal Famine Inquiry Commission in 1945 used the famine to further advance the cause of birth control (Caldwell and Caldwell 1986: 39); the following year, the Bhore Committee recommended government provision of free contraception, citing the recent work of the demographer Kingsley Davis, in particular his article “Demographic Fact and Policy in India,” in the *Milbank Memorial Fund Quarterly*, two years earlier (Caldwell and Caldwell 1986: 69).

A few years later, Davis's *The Population of India and Pakistan* (1951), financed by Milbank and Rockefeller contributions to the OPR (Davis 1951: vi), would further help to obscure the fundamental role of land-ownership patterns in the problem of Indian agriculture and rural poverty. Davis acknowledged that too little capital was invested in agriculture but attributed this chiefly to the productive and reproductive behavior of the peasants. "The subcontinent," he wrote,

includes great tracts of the richest land in the world. The low productivity is due rather to the way the land is handled—to the low proportion of capital invested in it—and hence is correlated with the farmers' poverty and density on the land. The smallness of the capital investment in farming is shown in numerous ways—in the absence or inadequacy of conservation measures, in the primitive techniques of cultivation, in the non-use of both natural and artificial fertilizers, in the failure to improve the breeds of plants and animals. (Davis 1951: 208)

There was no suggestion of how colonial rule and continuation of the patterns it had established had extracted vital resources from the Indian countryside. On the contrary, the lack of capital investment in agricultural development was almost exclusively ascribed to "population pressure" causing under- and unemployment. Thus, Davis (1951: 211) simply postulated that there was a surplus of 91 million people in the countryside. The implication was that the militant peasants of Hyderabad had been mistaken to blame their situation on the land tenure system. According to Davis, their plots were so small because of their numbers and because they were primarily subsistence-oriented and could not accumulate the capital that was necessary for agricultural development (Davis 1951: 211).

Davis's interpretation was a symptom of the increasing subordination of demographic thinking to the cold war. Within a few more years, he would be sitting on the steering committee of Hugh Moore's World Population Emergency Campaign and writing in the *New York Times Magazine*:

Not only is the glut of people in the poorer areas itself conducive to communism, but in the past communism has made its gains by conquest rather than by population growth. In 1920 it held less than one-tenth of the world's people under its fist: today it holds more than one-third. The lack of unity in the rest of the world against communism suggests that Red expansion may continue. If this happens, and if the conquests are made in the poorer countries, superior population growth will join territorial expansion in increasing communism's share of the world. (Wilmoth and Ball 1992: 647)

Such views clearly lent little support to any argument for land redistribution. On the contrary, they reflected a line of reasoning that would increasingly view the West's continuing hold over countries such as India in terms of the advancement of commercial agriculture.

In the early 1940s, India had created its Grow More Food (GMF) program, which had as one of its principal aims to increase the area planted in food grains. At that time, cultivators were encouraged not only to adopt new seed varieties but also to use green manures and compost (Brown 1971: 3). After independence, however, the staff of the GMF program were merged into a new Community Development Program for which the United States and the Ford Foundation eventually provided more than \$100 million between 1951 and 1961

(Brown 1971: 4). During this period, the thrust of agrarian development changed fundamentally.

By the late 1950s, a general review of what was perceived as persistent underproductivity in Indian agriculture was undertaken. To do this and to plan appropriate action, the government of India, through the Ford Foundation, recruited an Agricultural Production Team from the United States to work with a team of Indian agricultural experts. After about fifty or sixty days of work, this committee made public its *Report on India's Food Crisis and Steps to Meet It* in 1959 (Brown 1971: 8), which became the basis of the new Intensive Agricultural Districts Program. A ten-point pilot program was established as a result of "A Memorandum of Agreement between the Government of India, the Respective States, and the Ford Foundation" (Brown 1971: 13).

It is obvious that in the decades after independence, the Ford Foundation had acquired enormous influence within the Indian government in regard to both agricultural development strategy and more general policies. Chester Bowles, who would later become a trustee of the Rockefeller Foundation (Colby and Dennett 1995: 337), wrote in his memoirs of that period,

Someday someone must give the American people a full report of the work of the Ford Foundation in India. The several million dollars in total Ford expenditures in the country do not tell one-tenth of the story. Under the leadership of Douglas Ensminger, the Ford staff in India became closely associated with the Planning Commission which administers the Five Year Plan. Wherever there was a gap, they filled it, whether it was agricultural, health education or administration. (Bowles 1954: 340)

In describing the role of the Ford Foundation as a nongovernmental effort "in the finest traditions" of the United States (Bowles 1954: 340), Bowles offered no suggestion as to how or why the Ford Foundation had acquired such a role, how closely Ford's initiatives were intertwined with U.S. foreign policy, and, especially, why India was regarded so strategically in the opening decade of the cold war. Yet as Rosen (1985) has written in his account of the role of Western economists in South Asia, Bowles, Millikan, Hoffman, and Ensminger all "had a deep personal belief in the importance of the success of the Indian democratic experiment of development, both as a model for the Third World and as important to American security" (53). The Green Revolution would be one of the ways to secure India within the Western orbit, and as a precondition for its introduction, the Ford analysis of Indian agriculture, as embodied in the 1959 report, had to create a sense of an immediate crisis resulting from Malthusian pressures. By clever statistical manipulation, the Ford team predicted that India would face a grave food crisis by the year 1966 unless food grain production could triple (Thorner and Thorner 1962: 113–14, 116–19). This not only helped to fuel the argument for the intensive modernization of Indian agriculture but also justified a commitment by the Ford Foundation and the Indian government to family planning, an area in which India would become a model for the developing world.

The previous year, the essence of the second Five-Year Plan already had been presented in the India Planning Commission's publication *The New India: Progress through Democracy*, which was the product of a special study group composed of staff from the commission and Douglas Ensminger, who had come to the Ford Foundation from the U.S. Depart-

ment of Agriculture (India Planning Commission 1958: viii). Clearly reflecting Ford views, the authors of *The New India* declared that

one of India's gravest social and economic problems is an oversupply of agricultural laborers, numbering (with their dependents) about 90 millions throughout India. . . . A fourth, or possibly as many as a third, of them are believed surplus to the needs of agriculture. (162)

It soon became commonplace to assert that India would pass its “demographic point of no return” by 1966 (Harrison 1960: 335). In 1967, in their neo-Malthusian work *Famine—1975!*, Paddock and Paddock cited the 1959 Ford report, endorsing its conclusion that “India's primary problem in achieving human welfare, social justice and democracy” was overpopulation. The Indian government already had taken its cue. Ten months after the report, Nehru had convened the Sixth International Conference on Planned Parenthood in Delhi (Caldwell and Caldwell 1986: 43). Then, shortly after Nehru's death in 1964, when Chidambaram Subramaniam, the Minister of Steel and Heavy Industry, became the new Minister of Food and Agriculture (Byres and Crow 1988: 166–67), the imprimatur was put on an agricultural development policy that would reflect the interests of the industrial elite, whose chief concern was the availability of cheap food for their largely urban workforce. With the ascendancy of Subramaniam,

India abandoned institutional change in the form of land reform, extension of cooperatives, and state trading to ensure low prices of food grains in the cities (supplemented by PL480 grain imports to provide stocks of foodstuffs) as the central policy tools to expand output, for new policies based on the new technology. (Rosen 1985: 80)

Or, as Dasgupta (1977) noted, more pointedly,

The new agricultural strategy . . . can be seen as an attempt by the government to solve the food problem of the country without upsetting land relations. It relied heavily on those who had to lose most from a policy of radical land reform. (373)

7. Conclusions: Sustainability and Equity through Systemic Change

In the 1960s, Gunnar Myrdal (1968) had suggested an alternative. If the central problem of Asian agriculture, including India, was the underutilization of rural labor and low productivity, the solution should be to devise the means for agriculture to become more labor intensive, to transform it in a way that would enable it to absorb and sustain a seeming surplus of rural labor. This, in a sense, was precisely what the peasants of Telengana had sought and what their counterparts from Brazil to the Philippines continue to seek. Yet rural livelihoods continue to face an unprecedented escalation in biotechnological innovations that will foreclose such an option, as the fate of world food production is rapidly being dominated by a few giants of multinational agro-industry who have little apparent regard for the viability of peasant livelihoods.

Interestingly, it was from India that the evidence came that effectively demonstrated that a system typically perceived by the West as “traditional” and inefficient was actually

more ecologically sustainable than the industrialized agricultural regime found in the United States (Odend'hal 1972; Harris 1966), although it was the latter that was advanced as a model for development in the Third World (and which Indian modernizers sought to emulate). In India, where cattle were reared on the by-products of crops grown for human use, there was virtually no competition between humans and animals for food or land. Most cattle food (rice straw, rice hulls, and chopped banana tree trunks) were locally produced; cattle converted them into products that humans could use, including calves, work, milk, and dung (for fertilizer and fuel). In contrast, in the United States, where agricultural fertilizer is based on petrochemicals, cattle manure is wasted and ends up, in fact, as a major environmental liability, polluting groundwater and causing the eutrophication of rivers and lakes (Odend'hal 1972: 17–19; Pimental and Pimental 1991: 330–31). Thus, even when it increased output, the Green Revolution also reduced the overall efficiency of food production because of its waste of potential resources while increasing dependence on costly inputs, whose price does not even begin to consider the social, environmental, and health consequences of pesticides and herbicides, without which increased yields of new grain varieties were declared to be impossible.¹⁶

Until comparatively recently, such costs have been overlooked, both to present industrialized agriculture as the key to global dietary sufficiency and to foster a profitable worldwide market for chemical inputs. But quite apart from the central question of whether more people in developing countries are actually getting fed, the growing evidence that such agriculture is far less efficient than pre-Green Revolution systems has led some writers to conclude that high yields alone have been a misconceived measure of success and that an “analysis of energy costs and energy returns shows that a truly appropriate technology for the poorest regions of the tropical world has yet to be revealed” (Bayliss-Smith 1984: 170).

The answer, however, does not lie in technology per se but in achieving the means to release the enormous potential for peasant innovation and productivity that regularly persists despite resource scarcity. As the U.N. Economic Commission on Latin America (1968) long ago pointed out,

the skill with which the small producers work their often inadequate farms is evidence of their ability to use land efficiently, and it can be assumed that, if the difficulties which now curtail activities were removed, their contribution to agricultural output would be even larger. (350–51)

What peasants have typically lacked, above all, is secure access to cultivable land and state commitment to provide the resources and incentives that small-holder production requires. But this is no small thing, of course, since such support typically involves a radical change in basic property relations (Bello and de Guzman 2000).

Given adequate land and sufficient support, peasant agriculture might prove far more sustainable than intensive commercial systems of food production. Almost half a century ago, Yates (1951) noted, “The long-term objectives of agricultural technique . . . should be

16. India is now one of the world's largest users (and manufacturers) of pesticides, many of which are banned or severely restricted in developed countries. Consequently, it “accounts for over one-third of the 500,000 acute pesticide poisonings which the WHO [World Health Organization] estimates occur every year in the developing world” (Viswanathan 1991: 2039; cf. Putzel and Cunningham 1989: 53; Canihuante 1997).

the development of self-contained systems which do not require excessive supplies of scarce raw materials or external sources of power” (72). Because such systems are more dependent on human labor, they not only reduce the demand for synthetic fertilizers and chemicals and the energy resources required to produce them but also subvert the very notion of “overpopulation.”

In the absence of such a fundamental shift in priorities, however, peasants will continue to be transformed into contract farmers and wage laborers in a domestic agricultural sector increasingly dominated by multinationals or to seek a precarious and migrant living as part of an international labor reserve for the developed capitalist countries. And, as ever, Malthusian thinking suggests that there could not be any other realistic scenario. But if the advocates of the capitalist mode of development genuinely believe this, it is less because they envisage no effective alternative to guarantee global food security than because they see no alternative to ensure their own prosperity. Because that prosperity now seems so problematic, the incentive to secure profits from the further industrialization of world agriculture is greater than ever before. Publicly, it is said that pressure on marginal lands in Third World countries can be alleviated only by relying more on food imports from the United States or adopting new technologies that will increase output per unit of land presently in production. But in either case, beyond vague allusions to “poverty alleviation” or food security, there is little or no reference to systematic reform of established patterns of land ownership.

The priority of U.S. policy is, rather, how agro-technological innovation will benefit its own economy (and a small group of interests within that economy, at that). Thus, a report by the Working Group on International Trade and Development of the National Center for Food and Agricultural Policy, financed, among others, by USAID, the USDA, and agribusiness giants such as Cargill and Pioneer Hi-Bred, has observed that

research-induced change in developing countries can help improve United States trade, and agricultural research constitutes an essential investment for the U.S. which can generate considerable benefits and returns. These benefits are evident in terms of increased export of agricultural commodities. In fact, more than 50 percent of all U.S. agricultural exports are purchased by lower income developing countries. As the agriculture of developing countries is improved through research, the U.S. also exports many production items including fertilizers, chemicals, farm machinery, processing equipment, etc. (Working Group on International Agricultural Research 1997)

Evidence also indicates that the increasing role of capital-intensive biotechnology is rapidly concentrating power over global food production in the hands of a relatively small number of transnational corporations (Hobbelink 1991: 40, 44–46; Rural Advancement Foundation International 1998; ETC Group 2001), which universally hail genetic engineering as the solution to a global Malthusian dilemma. These companies are also coming to play a major role in shaping the research agendas of the international agricultural research centers (Grain 1998; International Rice Research Institute 1997) that are part of the CGIAR system.

What is emerging is a world agricultural regime that not only dangerously erodes local biodiversity but that so undermines the sustainability of rural subsistence that it virtually ensures that transnational labor migration remains a dominant feature of livelihood strategies throughout the developing world. Although readily blamed on the uncontrollable fertility of peasant households, such movements are the inexorable consequence of a develop-

ment process that continues to deny rural people secure access to basic productive resources on the lands where they were born. That this has happened at all is a tragedy. That it has occurred in the name of producing more food is a tragic irony.

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