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## Hidden Hunger

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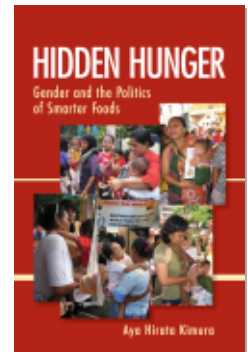
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## UNCOVERING HIDDEN HUNGER

**Obviously, what hungry people need first and foremost is more food. But they also need *better* food.**

—*Economist*, July 31, 2004

**One of the great Western misconceptions is that severe malnutrition is simply about not getting enough to eat. Often it's about not getting the right micronutrients—iron, zinc, vitamin A, iodine—and one of the most cost-effective ways outsiders can combat poverty is to fight this “hidden hunger.”**

—Nicholas Kristof, *New York Times*, May 24, 2009

Shiny red and blue packages of cookies and instant noodles replete with appetizing photos and fancy logos arrived at a cluster of small shacks that constitute a tiny portion of the vast Jakarta slums. Mothers took the noodles for themselves and the cookies for their children. Although they resemble common junk food, these products are actually healthy foods according to the UN World Food Programme. They are fortified with iron, zinc, calcium, magnesium, phosphorus, potassium, vitamins A, D, E, K, B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub>, and B<sub>12</sub>, and folic acid. The WFP's enthusiasm for fortified foods is shared by the government of Indonesia, which decided on mandatory wheat flour fortification in 1998 and began distributing fortified baby food to low-income families in 2001. The baby food was fortified with iron, zinc, calcium, magnesium, potassium, vitamins A, D, K, B<sub>1</sub>, B<sub>2</sub>, and B<sub>12</sub>, and folic acid.

In the 1990s, the lack of proper micronutrients—or “micronutrient deficiency”—became a hot topic in the international food policy community to describe the “food problem” in the developing world. A previously hidden, yet deadly, aspect of the condition of Third World people, micronutrient deficiency, or “hidden hunger,” became the focus of many development projects. The term “micronutrients” refers to vitamins and minerals that are vital for the proper functioning of the body; examples of micronutrient deficiencies include vitamin A deficiency, iron deficiency anemia, and iodine deficiency disorder. These disorders are often not apparent to the people with a deficiency, hence it is called hidden hunger. In the 1990s, many international conferences, from the

World Summit for Children to the World Food Summit, urged governments to recognize the importance of micronutrient deficiencies, and many international and philanthropic donors started to commit resources to combating hidden hunger. The degree to which concern with micronutrient deficiencies became established within the development discourse could be seen, for instance, in the 2008 Copenhagen Consensus conference of leading international economists and specialists, who chose micronutrient remediation as one of the most cost-effective development interventions. In another example from around the same time, a well-known pioneer in microfinance, the Grameen Bank, formed a joint venture with the French multinational corporation Danone/Dannon to produce fortified yogurt in Bangladesh in 2006.<sup>1</sup>

There are various policies to address hidden hunger, but fortification and biofortification, not supplements or nutrition education, became the most celebrated instruments for addressing it in the final decade of the twentieth century. “Fortification” refers to the process of adding micronutrients to food products during the manufacturing process, as when vitamins are added to baby food, wheat flour, sugar, cooking oil, or butter. Indonesian fortified cookies and instant noodles are examples. “Biofortification” alters crops biologically so that the plants themselves contain more micronutrients; the prime example of this is genetically engineered Golden Rice, which has enhanced beta-carotene, a vitamin A precursor. Both fortification and biofortification are responses to concerns about the micronutrient intake of the poor.

In this book I explore the politics of the recent turn to micronutrients by examining international projects and agreements on hidden hunger as well as by using case studies from Indonesia. The Indonesian cases illustrate how micronutrient deficiencies gained prominence in expert discourse in the 1990s and interest in fortification and biofortification increased, despite hunger and limited access to sufficient quantity of food still being rampant in some communities. I will show, for instance, how mandatory fortification was started with wheat flour, and how Golden Rice was promoted by biofortification proponents to Indonesia’s policymakers in the 1990s. It is tempting to portray this interest in “quality” and hidden hunger as driven solely by the latest advances in nutritional science. The increased attention to hidden hunger might be viewed as the result of scientific progress uncovering previously hidden human needs, now revealed as micronutrient deficiencies. This might be seen as the logical extension of how the hunger problem is viewed since the impressive increase in global food production through the application of modern technologies.

This view creates several puzzles, however. First, why was it that the 1990s saw the micronutrient turn, even though scientists had known about micronutrients and their health implications for over half a century? Since the early twentieth

century, the functions of micronutrients have been recognized, and fortification has been implemented in developed countries.<sup>2</sup> Furthermore, the preferred solution to the problem—fortification and biofortification—substantially diverges from what many activists and scholars have advocated as the best way to achieve a sustainable, secure, and stable food system. Biofortification uses controversial genetically engineered crops. Fortification, by its very nature, depends on processed foods, which some have criticized for distorting traditional dietary patterns and increasing the potential for chronic diseases. The emphasis on fortification also leads to a lucrative business opportunity for multinational companies. In this book I explore how and why fortification and biofortification became the preferred “solutions” to the Third World food problem. Tracing trends in the international development discourse and through detailed cases of three categories of standard micronutrient-oriented programs (mandatory fortification, voluntary fortification, and biofortification), I show how activities related to fortification and biofortification of micronutrients increased. I believe that this micronutrient turn was driven by “nutritionism” and that it ought to be understood as a manifestation of a scientized view of food insecurity in developing countries.

## Nutritionism

While attention to the nutritional quality of food might be considered a welcome change from an earlier focus on food quantity, I suggest that when it is driven by “nutritionism,” it has serious political and gendered implications. Nutritionism refers to an increasingly prevalent view that food is primarily a vehicle for delivering nutrients. Gyorgy Scrinis (2008, 39) defines it as “nutritionally reductive approach to food” that “has come to dominate, to undermine, and to replace other ways of engaging with food and of contextualizing the relationship between food and the body.” The goodness of food depends on the type and amount of nutrients. Health improvement becomes the foremost purpose of food and of the act of eating.<sup>3</sup>

Nutritionism is so pervasive that it is often hard to notice how peculiar it is. But it is highly reductionist. Food and eating have layered meanings and values that go well beyond nutritional properties and contributions to physical well-being.<sup>4</sup> A list of nutrients, however comprehensive, cannot capture the richness of the cultural, social, and historical meanings of food that are intimately tied to family, community, and ethnicity and, as well, to social status and power. Additionally, pleasure, not only wellness, can be the objective of eating. People eat for various reasons, and the discourse of health and nutrition captures only one dimension of the act of eating.

Nutritionism is often understood as a kind of marketing gimmick in the sophisticated consumer market of the global North. Michael Pollan, who has written several popular books on US food politics, has explained how the concept of nutritionism enabled food companies to market processed foods as “healthy” food, resulting in an increase in obesity in the United States (2008). With so many “functional foods” and “nutraceuticals” flooding the supermarket shelves, it is not difficult to see why nutritionism’s theorization has so far been focused on industrial nations. But nutritionism has become influential globally. “Smart foods,” or food fortified with added vitamins and minerals for enhancing functional benefits, are no longer the monopoly of health-conscious shoppers in developed countries. They are now a part of antihunger and antimalnutrition strategies in developing countries.

Furthermore—and here I follow anthropologists of international development who locate projects to improve the welfare of people in the global South in the field of governmentality—I situate nutritionism as a technique of power.<sup>5</sup> There is no doubt that nutritionism creates profitable marketing opportunities for food companies. But nutritionism is also tied to new modes of governance and consciousness and subjectivity of individuals that are particularly compatible with the neoliberal age. Placing nutritionism within the complex relations of power-knowledge (Foucault 1980), I argue that nutritionism is part and parcel of the long history of problematizing people’s food and bodies in the developing world, particularly through the deployment of modern scientific and technical expertise. In her analysis of projects driven by the “will to improve” in Indonesia, Tania Li (2007) discusses how such projects require “the practice of ‘rendering technical’” that makes contentious issues a delimited technical matter. The result is depoliticization as well as a boundary between those “with the capacity to diagnose deficiencies in others and those who are subject to expert direction” (7–21). Nutritionism follows this long-standing practice of improvement schemes by “benevolent and stubborn trustees” who “claim to know how others should live, to know what is best for them, to know what they need” (4).

I chart four important dimensions of nutritionism in the context of Third World food politics. First is the rise of what I term *charismatic nutrient* and corresponding *nutritional fixes*, technical attempts to solve the Third World food problem that target only its nutritional aspect.<sup>6</sup> Because nutritionism marks the problem of Third World food as chemical and individual, it follows that the Third World food problem is essentially the problem of “inferior” food. The poorness of particular diets is calculated based on the discrepancy between an individual’s intake of nutrients and scientifically set standards. The way to correct a bad diet is to provide the essential missing nutrients in the most efficient form for delivery, be it a pill, fortified cookies, or a biofortified crop. As we will

see, different charismatic nutrients have been celebrated as the key to combating the Third World food problem at different historical periods, and various “solutions”—nutritional fixes in a different guise—have been proposed based on this reductionist understanding of the food problem.

A second dimension of nutritionism is that it effectively depoliticizes the food problem by recasting it as a technical matter. Nutritionism tends to individualize the Third World food problem by adopting chemically analyzable nutrient makeup and biochemical parameters as standards for measuring the health of food and bodies. By creating a discursive field of identifiable missing nutrients, nutritionism refashions the food problem. Food problems become a matter of individual self-discipline, of “awareness” and “behavior,” with corresponding market-based solutions. One critical consequence of such framing is that it fits the food problem inside increasingly precise nutritional parameters, removing other ways of discussing it. Nutritional composition of food and bad eating habits of individuals come to be considered the problem, rather than living conditions, low wages, lack of land and other productive resources, or rising food prices. By profoundly limiting the frame of analysis and the usable vocabulary, nutritionism critically shapes the construction of the food problem and limits the range of possible conversations.

Third, nutritionism in food security policies is shaped by larger development discourses, and the micronutrient turn in the 1990s was inseparable from overall neoliberalization. Unlike other mechanisms to address micronutrient deficiencies, such as nutrition education and supplement distribution, typically done by governments and/or international organizations, fortification and biofortification are more market driven and efficient alternatives. Although governmental agencies could implement programs, often the expertise necessary (such as intellectual property rights, manufacturing and marketing know-how, and so on) is held by private industry, and vitamins are added to existing food products made by private companies, so that fortification and biofortification are celebrated as instances of public-private partnership.<sup>7</sup> On another level, the interest in micronutrients coincided with a decrease in public funding for international agricultural research. In the 1980s, the productivist paradigm that had dominated international development started to fall out of favor. Green Revolution programs were funded and supported by governments and dependent on subsidized seeds, fertilizer, water, and other agricultural infrastructure.<sup>8</sup> But after the 1980s, governments increasingly disengaged from international agricultural projects, and international agricultural research centers also suffered from major funding cuts. The proportion of agricultural research done by the private sector increased, with an emphasis on inventions that were amenable to patent protection (Alston, Dehmer, and Pardey 2006). In this way, the micronutrient turn of the 1990s was profoundly shaped by

neoliberalization, which, on the one hand, propelled the retreat of government from agricultural policy and, on the other, saw fortification and biofortification as market-based programs.<sup>9</sup>

Fourth, nutritionism critically shifts who can speak authoritatively about the food problem and who is listened to. In emphasizing the technical nature of the problem and solution, nutritionism privileges experts over lay people. This is particularly evident with “hidden hunger,” where “patients” may not be aware that they have a problem. By legitimizing the domination of experts, nutritionism circumvents democratic processes in contemporary food politics. Nutritionism closes rather than expands avenues for citizen dialogue and participation in the making of better food systems. In the world of nutritionism, people credentialed as experts—not the poor women who are mainly responsible for feeding families and who also suffer from micronutrient deficiencies—are the ones who “know” the problem and hence can prescribe solutions for the malnourished. Conversations about food and food security in the Third World are filled with the claims and counterclaims of experts, but the silence of women who make food every day is a serious issue. It is precisely the voices of these women, who can describe the lived realities of malnutrition and hunger, that we need to make audible if we are to understand food’s political and social, not simply its nutritional and medical, meanings.

Nutritionism systematically organizes knowledge about food and bodies, privileging an expert view while silencing other views. Nutritional science not only provides new knowledge and insight into the relationships between health and nutrients, it also fashions vocabularies for talking about food. By privileging academic credentials and public health contributions, nutritionism sets the parameters of acceptable debate. As we will see in Indonesia, nutritionism profoundly shapes how experts actually act on food and bodies in the Third World.

## **Feminist Food Studies**

If the study of food has only recently begun to earn academic legitimacy, feminist food studies are of even more recent origin. As Avakian and Haber (2005) note, despite the long historical and cultural associations between women and food, only recently has a feminist perspective been brought to the study of food. That it is mostly women who produce and prepare food and feed people has been ignored or taken for granted.<sup>10</sup> Food is profoundly gendered. Throughout the world, women are primarily responsible for the purchasing and cooking of food, and they have a central role in the allocation of food that impacts the nutritional status of family members. Women play an important role in food production,<sup>11</sup>

and an increasing number of women are employed globally to produce food.<sup>12</sup> Transnational corporations profit by paying women in developing countries lower wages, which is justified by the idea of women's "natural" skill in handling fragile food products (Collins 1995; Raynolds 1998), and made possible in part by "family obligations" that force them to accept temporary and seasonal work (Raynolds 1998). With the push for export-driven agriculture, contract labor has expanded in developing countries, also taking advantage of the flexible skilled labor of family members, especially women.<sup>13</sup>

Employment in the global agrofood economy is an important part of the relationship between women and food, but it is not the whole story. As food is an important component of any vision of a nation's development, people's well-being, and the stability of international and national order, food and agriculture have been on the agenda of many governments and international organizations. Policy interventions into food and nutrition are prevalent and often provoke much political ardor; their impacts on culture, economy, and the lives of women in developing countries are undertheorized. Of course, we have a lot of writing about how food policies ought to be reformed and improved. We have good accounts of failed state food policies and resulting famines, humanitarian crises, and hunger.<sup>14</sup> But the intersection of gender and food policy still produces many unanswered questions. To what extent do women have power to shape food and nutrition policies? How does gender ideology intersect with the state's aspiration to control food and bodies?

These questions are critical, for food policies often have contradictory implications for women. Historians have noted that efforts to improve food situations have tended to attract many women as active players, giving them social recognition and opportunities to enter a previously closed public domain.<sup>15</sup> On the other hand, food policies often have interacted powerfully with conservative social ideologies. "Unattractive" and "ill-cooked" meals made by women have been criticized as the source of social ills ranging from labor upheavals (Levenstein 1993) to alcoholism (Shapiro 2009).<sup>16</sup> Hence *commendation* of women's role in improving food has often been coupled with *condemnation* of women for not fulfilling their familial, nationalistic, and humanistic duties.

Contemporary food policies also bring a peculiar visibility to women. In many writings on the Third World food problem, women surface as a solution that celebrates their role in food reform. But often women are considered the solution because their inadequacy is the problem to be rectified. From governments' and experts' perspectives, women's food knowledge, cooking ability, feeding practices, and breast-feeding patterns are the means to solve the food problem, precisely because they are the origin of that problem. In this sense, women's visibility is rooted in committing a sin and providing a solution to rectify it.



One of the key arguments of this book is how discourses of the Third World food problem identify women, particularly mothers, as the key site of state policing and surveillance. It is worth pondering the parallel between the population issue and food. Feminist scholars have pointed to intense state interest in demographic changes, population control, and reproductive issues and how these interests have brought women's bodies increasingly under surveillance and control by governments and experts.<sup>17</sup> Through a demographic lens, women's bodies are linked with national and global futures (Gupta 2001; Unnithan-Kumar 2004). Food is much like population in being invested in modernity and national development and also with transnational anxiety over geopolitical stability. States and international development organizations assert that food—like people—is an important ingredient in “modernizing” and “developing” the Third World.<sup>18</sup> With their longstanding association with food, cooking, and feeding, women are implicitly and explicitly targeted by the state and development organizations and scientific experts.

Simultaneously, women's peculiar visibility in food reform is situated in a capitalist food system. Posing as a partner in food reform, the food industry is rarely an outside observer of movements to improve food. Capitalizing on the anxieties of women has been a mainstay of its marketing strategies. Fears about alienated husbands, disappointed children, and embarrassed guests often figure prominently in advertisements that also offer commoditized solutions (Parkin 2006). Mothers are a supreme target of commercial advertisements for products from educational materials to baby food, transforming child rearing into what scholars have called “consuming motherhood” (Taylor, Layne, and Wozniak 2004). In short, both scientization and commodification shape contemporary food policies, staging women as both the solution and the culprit.

Furthermore, nutritionism accords women a visibility in another limited framework, that of *biological victimhood*. While broad discussion about women's nutritional status is a staple of contemporary food and nutrition policies, such talk brings women onto the horizon of policy debates primarily as abstract members of a biologically determined group. Rooted in mainstream nutritional science's embrace of quantifiable biological indicators of human nutritional status, nutritionism takes women as a homogeneous group with a shared biological identity and codes them with a biological propensity to nutritional diseases.

The chapters to follow provide empirical evidence for the gendered nature of food policies in developing countries. We will see how nutritionism creates a particular visibility for women—but not necessarily in a way that reduces their oppression and marginality. Discourses of nutritionism may highlight women's plight as the victims of micronutrient deficiencies, but only as biologically programmed ones. Women's food may be recognized as an important factor in shaping the nutritional status of the population, and experts and companies

may celebrate women's role in providing optimum nutrition. Yet despite this celebration of women's role, optimum nutrients and profits, not the optimum situation for individual women, are the core concerns for experts and companies. Women are simultaneously victim, savior, and culprit. Such gendered liabilities are critical in constituting the contemporary relationship between food and women in developing countries.

## Theoretical Contexts

In addition to feminist studies, this book is in conversation with what is often called agrofood studies and science and technology studies. Over the past several decades, agrofood studies have made significant efforts to understand the politics of food and agriculture around the world. Agrofood scholars have examined the political economy of food; the history of the industrialization of agriculture and its geopolitical structure; and the ecological, social, and cultural consequences of a changing agrofood system.<sup>19</sup> I share the concerns of many in the field for sustainable and socially just food systems.

One of the key contributions of agrofood studies has been to politicize the understanding of antihunger, antimalnutrition programs and to explore the political and social structuring of interventions into food systems in the developing world; these interventions are often concealed by humanitarian framing. In her brilliant analysis of historical shifts in the global food system, Harriet Friedmann analyzed food aid to the developing countries as a critical component of what she and Phil McMichael call "the second food regime" (Friedmann and McMichael 1989), which enabled the United States to dispose of surplus grains.<sup>20</sup> Pressed to deal with agricultural surpluses accumulated through government purchases that aimed to raise agricultural prices, the US government created Public Law 480 (the Food for Peace program) in 1954 and started dispensing surplus wheat to developing countries.<sup>21</sup> Food aid came to constitute a substantial portion of the total world trade in wheat by the 1960s.<sup>22</sup> Many developing countries became dependent on it, and people's dietary patterns also changed to favor wheat products (Friedmann 1982).<sup>23</sup>

Another key pillar in food security measures in the post–World War II era was the Green Revolution. Mainstream development communities may proclaim it as a triumph of modern science that doubled food supplies in twenty-five years (see, e.g., Rosegrant and Hazell 1999), but critics have pointed out negative ecological impacts from the intense use of agrochemicals as well as the widening of social inequality as the input-intensive Green Revolution tended to add debt for farmers (Shiva 1991). Displaced peasants constituted a labor reserve for industrial sectors that were privileged over agriculture (McMichael 2005). While the Green

Revolution decreased dependence on US wheat, it increased dependence on industrial inputs such as chemical fertilizers (Friedmann 2005, 243).<sup>24</sup> The Green Revolution has also been interpreted as an American Cold War strategy to contain Communism by increasing food production (Perkins 1997) while simultaneously promoting trade and investment for the Western private sector (Brooks 2010; Cullather 2004; Kloppenburg 2004).<sup>25</sup>

In this book I draw on studies that have critically analyzed interventions to combat food insecurity in developing countries, and I situate the micronutrient turn in the contested narratives of antihunger, antimalnutrition projects that often resulted in utopian technical fixes (Belasco 2006). In particular, agrofood studies' sensitivity to historical and geopolitical contexts is helpful in understanding interventions into Third World food problems. For instance, food regime theorists have created a thoughtful framework for understanding how postwar food aid acted as a stabilizer for the US agricultural sector by providing an outlet for surplus wheat. The micronutrient turn ought to be analyzed against the backdrop of neoliberalization, legitimated through WTO rules and related free trade agreements. McMichael (2005) identifies this as the "corporate food regime," whose critical component is the privileging of corporate power over the state. It is against a background of such historicized and political understandings of discourses on food insecurity that I analyze the rise of hidden hunger, fortification, and biofortification.

Fortification and biofortification have been analyzed in agrofood studies, but often separately as part of a social and cultural fascination with vitamins, on the one hand, and with agricultural biotechnology, on the other (see, e.g., Levenstein 1993 and Brooks 2005). I believe that their importance in the developing world cannot be understood adequately except as a part of the hidden hunger discourse that became prominent under neoliberalism, which "privatized" food security (McMichael 2005, 279).<sup>26</sup> McMichael observes that global trade liberalization and broad neoliberalization reframed the issue of food security as a matter of market relations. The WTO's Agreement on Agriculture in 1995 epitomized the new belief that hunger should be addressed not by national self-sufficiency but by well-functioning global trade.<sup>27</sup> The agreement formally rejected the right to national self-sufficiency by imposing minimum import rules and institutionalized the belief in trade as the best mechanism to provide cheap food.<sup>28</sup> Developing countries are to concentrate on exporting commodities where they have a "comparative advantage" and importing "cheap" commodities for their own consumption.<sup>29</sup> McMichael concludes that "consistent with the neo-classical agenda, 'food security' came to be redefined, and institutionalized, in the WTO as an inter-national market-relation" (276).<sup>30</sup>

This paradigmatic shift in the concept of food security has also manifested itself in nutritional terms. The micronutrient turn in the 1990s was propelled by, and

simultaneously further justified, the thought that the market (and trade) underpins food security. Rather than question why the poor in developing countries could not produce and eat nutritious food, solutions to hidden hunger, or micronutrient deficiencies, became synonymous with the consumption of nutrient-enriched products offered by the market. This involves a process of abstraction similar to the one that McMichael identifies with the making of “world agriculture” (270). Echoing the abstraction of agriculture from its social and ecological contexts, food was reduced to being a vehicle for nutrients. This is where nutritionism exerts a powerful yet understudied role in food insecurity discourses. Nutritionism naturalizes the logic that the solution to malnutrition is to add nutrients via fortification and biofortification, a supposedly cost-effective and non-market distorting solution that capitalizes on the know-how of agrofood businesses. I analyze this facet of privatized food security, not as a simple manipulation by powerful corporations, but as interlinked relationships among neoliberalization, scientization, and gendered understandings of body and food in the global South.

This book is also informed by science and technology studies, locating nutritionism as an instance of what Foucault called “biopower.”<sup>31</sup> Foucault observed a critical shift from sovereign power over life and death to biopower over the welfare of the population. This biopower promotes “the management of life in the name of the well-being of the population as a vital order and of each of its living subjects” (Rose 2007, 52) and is intimately bound up with the rise of modern sciences. The Third World’s food insecurity exemplifies the need for the “management of life,” and Foucault’s work is useful in analyzing the processes involved in governing the Third World through food insecurity. Hence I focus on the role of scientific and technical expertise. Drawing on Foucault’s concept of problematization, I analyze how the power of science, at the very basic level, socially and culturally creates the Third World food problem.

Contrary to conventional understandings, science’s role is not only to provide tools to diagnose and rectify problems. In a profound way, science, in a complex relationship with other institutions, often creates the problem itself. This is what Foucault called “problematization,” a situation in which there is a “development of a given into a question” and the “transformation of a group of obstacles and difficulties into problems to which the diverse solutions will attempt to produce a response” (Foucault and Rabinow 1984, 388). With this concept, Foucault made explicit science’s power in achieving “a modal change from seeing a situation not only as ‘a given’ but as ‘a question’” (Rabinow 2003, 131) and in making “something into an object of knowledge” (Deacon 2000). Problematization keys our attention to the dynamic relationship between reality and scientific knowledge. Food problems do not arise automatically from “reality.” Although there is a material reality that is undeniable, there are many ways to slice reality.

The emergence of the varying definitions of the “food problem” in the past several decades attests to such representational politics. The naming of the problem is significant because it creates a space for intervention. To use Foucault’s terms, what is to be known (“effects of verdiction”) is intimately tied to what is to be done (“effects of jurisdiction”) (1991, 75). Once something is couched as a problem, interventions seem natural and expected, causing less opposition and resistance. “Problems” even invoke ethical obligations for intervention in the name of a specified target population.<sup>32</sup> Hence, to think about the concept of problematization is not to dwell on semantics but to consider the openings it enables for interventions with real material consequences.

This analytic move invites an exploration of the apparatus of problematization. The apparatus describes the historical processes of creating an object for knowledge; such processes include discourses, institutions, regulations, policies, and scientific writings, among others. What kind of apparatus enabled a particular representation of the food problem at a particular historical juncture? This book’s narratives unpack the apparatus of food insecurity policies—the social, economic, and scientific institutions that control and manage the representation of food insecurity at a given time.

The concept of problematization will seem excessively abstract, if you think that we know exactly what the problems of the Third World poor are. Do they have enough food? Are people malnourished? What do the hungry in developing countries need? Indeed, for something like nutrition, it may seem that we should know exactly what the problem is. If nutritional problems are seen as located in the realm of hard science, and not as a social problem, then nutritional science should provide definitions unproblematically. Even social scientists who point out multiple layers of human “needs” and culturally constructed understandings of social problems (e.g., Maslow 1943) tend to exempt nutritional issues from such social understandings, and are willing to delegate authority on the subject to nutritional scientists (Douglas et al. 1998).<sup>33</sup> Yet contrary to the public face of nutritional science, even nutritional scientists do not have absolute certainty about “what to eat,” to borrow the title of a popular book by Marion Nestle, in which she confesses that “like any kind of science, nutritional science is more a matter of probabilities than of absolutes and is, therefore, subject to interpretation. Interpretation, in turn, depends on point of view” (2002, 28).

Such candid remarks by nutritional experts are rare. Instead, scientists and experts are often in a privileged position to define the problem. Conventional demarcations between science and nonscience are a powerful obstacle to non-experts challenging diagnoses by experts (Fraser 1989; Haney 2002).<sup>34</sup> It is even more difficult when the problem is said to be beyond the direct perception and recognition of lay people. As the common nickname for micronutrient

deficiency, *hidden hunger*, suggests, it purports to be invisible to the lay person's eye or even to hungry people themselves. If the deleterious effects of hunger are invisible and knowable only by experts, by way of scientific measurement, people lose the foundation on which to ground their experience and the possibility of critiquing official interventions. When problems are supposedly unrecognizable without scientific expertise, the contestation between expertise and experience is even more asymmetrical. There is an urgent need to scrutinize what kinds of problems are constructed and promulgated by experts.

Criticism of the scientization of food insecurity is not to deny various contributions of science. Instead, my point—and this is informed by the growing literature on the relationship between science and democracy—is the need to explore the tension between democracy and scientific expertise (Callon, Lascoumes, and Barthe 2009).<sup>35</sup> Some might argue that science is inherently undemocratic (Brooks and Johnson 1991; Perhac 1996). But for issues like hunger and malnutrition that are complex—historically rooted and locally specific while simultaneously involving global factors, and encompassing social, natural, and human sciences—the need for democratic discussion is compelling. Food regime theorists have pointed out that we need to be aware of the historic specificity of our time. They have noted that the current food regime is increasingly controlled by the private sector, unlike the nation-state-based regime of the 1940s through 1970s. The growing power of the private sector is also reflected in technical and scientific fields. The private sector is now a major source of financial resources and intellectual property in scientific research, and even research by public research institutions is often done in “partnership” with corporations and/or dependent on information and materials that are the property of the private sector (Brooks 2005).<sup>36</sup> How could private corporations have come to dominate the research agenda and the way the results are disseminated and used? Private firms are not accountable to citizens in the same way that public institutions are. The scientization of food insecurity, particularly in the context of growing corporate power in science and technology, demands that we question its implications for democracy and governance.<sup>37</sup>

## Quantity vs. Quality

The micronutrient turn in food policy was often portrayed as a welcome change of attention to quality in contrast to the previous emphasis on quantity of food. From hunger to hidden hunger, from quantity to quality, the micronutrient turn in international policy has been portrayed as a radical departure from the earlier focus on caloric intake, famine, and agricultural modernization. Indeed, the productivist paradigm best exemplified by the Green Revolution has been heavily

criticized for its social, ecological, and nutritional consequences (see, e.g., Shiva 1991). My criticism of the nutritionism that shaped the micronutrient turn in food policies could easily be interpreted as support for the productivist approach or a blanket rejection of attention to “quality.” However, I argue that productivism and quality-based approaches are two manifestations of scientized views of food insecurity that surfaced at different historic moments.<sup>38</sup>

Despite the rise in interest in micronutrients and the rhetoric of quality, the productivist approach is far from extinct. Since the mid-2000s, and particularly after the food crisis of 2007–8 when food prices soared and food riots erupted in many countries, there has been a renewed emphasis on the productivist approach. For instance, the World Bank’s *World Development Report 2008* focused on agriculture for the first time in twenty years and pledged to increase funding for agriculture (World Bank 2007). The Bill and Melinda Gates Foundation, which has become a major player in the area of global health, similarly started to channel substantial resources to agriculture in the mid-2000s (Bill and Melinda Gates Foundation 2011).<sup>39</sup> In addition, in the midst of the food crisis, micronutrients seemed to take a backseat. In Indonesia, mandatory fortification of wheat flour was stopped due to industry lobbying over the skyrocketing price of wheat flour. Yet biofortification and fortification today remain on the agenda of organizations such as the World Food Programme and the Consultative Group on International Agricultural Research (CGIAR).<sup>40</sup> Hence, the notion of a paradigm shift from the productivist to the nutritionist is insufficient: they coexist.

Even though productivist and “quality”-oriented projects might look mutually exclusive, the criticisms of nutritionism that I summarized earlier actually capture many of the troublesome aspects of current productivist policies as well. It is instructive to examine food policy discourse after the 2007–8 food crisis. Even with a renewed emphasis on productivist agricultural programs, the discourse shares some of the key aspects of nutritionism. First, just as nutritional fixes have emphasized technical interventions over social and political ones, so many of the current productivist proposals focus on the intensification of agriculture through technological packages of high-yielding varieties, fertilizer, irrigation, and biotechnology. This trend is epitomized in calls for a second Green Revolution and a so-called gene revolution that portray the future of agriculture in the global South as lying in modernizing technologies. One such example is the Rockefeller/Gates Alliance for a Green Revolution in Africa that recently started with more than \$150 million in funding (McMichael 2009).

Second, the food crisis was accompanied by much discussion about causes. But the debate was primarily technical in nature, with little attention to broader structural issues in food systems. For instance, policymakers fiercely debated the degree to which various factors contributed to the calamity, whether biofuel

production, export restrictions, productivity slowdown, rising oil prices that affected prices of agricultural inputs, declines in grain stocks, or the increasing demand for grains from developing countries was the culprit (see, e.g., Headey and Fan 2008).<sup>41</sup> These are doubtless important factors, but what this discussion omits are larger problems beyond the immediate supply, demand, and trade of food—such as the coupling of global financial markets and food markets, the decline of smallholder agriculture in developing countries through neoliberal policies, the “corporate food regime” that concentrates and centralizes the power of agribusiness through government policies, and “food empires” that have increased the overall vulnerability of the food market to external shocks (Ghosh 2010; Lang 2010; McMichael 2009; van der Ploeg 2010).

The micronutrient turn in the 1990s cannot be understood without acknowledging the impact of neoliberalism, and neoliberalism profoundly shapes the current productivist approach as well. While Green Revolution programs increasingly at first fell out of favor due to neoliberalism, agricultural projects are now urged to seek the power of the market and to tap private sector resources. For instance, the *World Development Report 2008* urges that agricultural development be led by “private entrepreneurs in extensive value chains linking producers to consumers and including many entrepreneurial small holders supported by their organizations” (World Bank 2008, quoted in McMichael 2009, 236). The Consultative Group on International Agricultural Research has adopted new organizational mechanisms in order to serve as the “broker” for private and public research institutions and to increase public-private partnerships (IFPRI 2005, cited in Brooks 2010).<sup>42</sup>

Finally, the marginalization of the poor and undemocratic food policies are not addressed in the current productivist approach. In analyzing the World Bank’s espousal of “New Agriculture,” Philip McMichael is critical of the way it still considers small farms in Third World countries as inefficient and in need of “development” and modernization. How women farmers in the developing world, who tend to be subsistence farmers, might be affected by New Agriculture is not analyzed in the World Bank’s approach. Similarly, in their critique of the Alliance for a Green Revolution in Africa, Holt-Gimenez, Altieri, and Rosset (2006) point out that AGRA’s advocates have only “consulted with the world’s largest seed and fertilizer companies, with big philanthropy, and with multilateral development agencies, but have yet to let peasant farmer organizations give their views on the kind of agricultural development they believe will most benefit them” (8). Reporting from Rwanda, which has collaborated with AGRA to increase agricultural yields, Miltz (2011) writes that the program frequently coerces peasants to conform and that it “is not a consensus-driven process; there is no attempt to consider the needs and opinions of the main



people affected.... [The] Rwandan government, led by its charismatic president Paul Kagame, opted to rule the ag sector with a heavy hand. Put bluntly, it is frog-marching the country down a particular rural development road, with little allowance for debate or criticism.”<sup>43</sup>

Rather than quantity and quality in food policies being diametrically opposed issues, I believe that the policy discourse changes its emphasis depending on various social, political, economic, cultural, and scientific factors. My emphasis on nutritionism as the driving force behind the micronutrient turn helps us to look beyond superficial differences and understand deeper problems. Both quantity- and quality-based approaches are scientized and undemocratic, privileging a select group of experts over the poor and the hungry.<sup>44</sup>

Friedmann (2005) observes that when the food crisis of 1974 took place, redistribution to address growing inequality between the rich and the poor (domestically and globally) could have been a response. Instead, the 1980s and 1990s saw the “triumph of neoliberal policies centered on trade and finance,” and “advocates of free trade pinned hopes on technological change, now including genetic technologies” (248). The trajectory of the 2007–8 food crisis echoes this historical pattern of depoliticization, recasting a political problem of food insecurity as a technical problem. Social movements had been mobilizing alternative ways of addressing food insecurity, notably that of food sovereignty as proposed by the global peasant movement *Via Campesina*. Mainstream policies responded to the food crisis with little engagement with these movements, refusing to address global inequality, de-peasantization, the dismantling of social protections, export-oriented agriculture displacing subsistence farming, or environmental degradation. Rather, they opted again to emphasize technical, market-based solutions.

Attention to “quality” of diet could have presented a profound criticism of the dominant policies that promoted “modern” agriculture with high dependence on agrochemicals, reduced the diversity of crops planted by farming communities, and increased dependence on processed and imported food products in the global South. Instead, the quality discourse was watered down to technical matters, providing further opportunities to avoid structural issues.<sup>45</sup> Both the mainstream “quality” and productivist approaches end up reducing food insecurity to the need for technical-scientific interventions, offering scientized descriptions (definitions) and prescriptions (solutions). In this sense, the quality-oriented policies of the 1990s did not open a radical new frontier in international development. Defined and acted on exclusively by experts, Third World food insecurity was still problematized in a microscopic, reductionist manner that did not challenge existing power.

## The Plan of the Book

I begin this book by examining the rise of micronutrients and fortification and biofortification in the 1990s on an international level, as it appeared within the community of experts in the business assisting developing countries. In chapter 2, I situate the micronutrient turn in a longer history of changing discourses of malnutrition and the “food problem.” I trace multiple representations of Third World food issues with the concept of “charismatic nutrients.” I also examine a series of nutritional fixes, from high-protein cookies in the 1960s and vitamin A capsules in the 1980s to fortified and biofortified food products in the 1990s. The description of the food problem, presented as a straightforward product of science and technical calculations, is actually historically contingent.

In chapter 3, I provide more details about the micronutrient turn by investigating international commitments and agreements regarding the eradication of micronutrient deficiencies in the 1990s. Untangling the micronutrient network that has evolved shows several important factors that have led to a particular shaping of the “problem” and the “solution.” I highlight the critical role played by the World Bank and other multilateral lending organizations. Fortification in particular received much advocacy from these organizations, and I suggest that its high resonance with the neoliberal ideology is an important factor.

Discursive analysis is often criticized for being abstract and universalistic. While the micronutrient turn was a global discursive change, its impacts were locally varied and discontinuous. In chapter 4, I analyze historical changes in food and nutrition policy in Indonesia. Has Indonesia seen a micronutrient turn? If so, should we see merely the diffusion of an international norm, or can we find specific reasons behind it? I answer these questions by examining the dynamic relationship between international and local actors.

Chapters 5, 6, and 7 are devoted to individual commodity studies in Indonesia. Each commodity exemplifies and manifests the concrete operation of one of three principal micronutrient strategies: (1) mandatory fortification, (2) voluntary fortification, and (3) biofortification. Chapter 5 looks at wheat flour fortification, which became mandatory in Indonesia in the late 1990s. Chapter 6 examines baby food as a case of voluntary fortification. Chapter 7 examines Golden Rice, the most famous biofortified crop. All three commodities—wheat flour, baby food, and biofortified rice—were meant to solve the food problem for Indonesians. How did they end up being accepted as solutions? What unites these commodity analyses is the construction of the food problem under nutritionism.

Having achieved strong economic growth in the post–World War II era, Indonesia might easily be taken as best evidence of the naturalized understanding

of the micronutrient turn: that the interest in micronutrients increased because the country had solved the traditional quantity problem and now was taking on micronutrient deficiencies with the aid of more advanced science. Such an apolitical understanding of the micronutrient turn fails to account for its complex configuration of science, policy, and markets.

I do not claim that the Indonesian case is generalizable to all other so-called developing countries. The dynamics in Indonesia differ from those in countries that are struck by famine. The specificities of food industry; government; nutritional, health, and agricultural research institutions; and people's dietary patterns also influence the rise and fall of interest in charismatic nutrients and nutritional fixes in different countries. Nonetheless, the rise of "smart food" in Indonesia has many parallels in other parts of the world—for example, fortified yogurt advanced by Danone and the Grameen Bank, Plumpy'nut that was at first used for emergency intervention in Africa but now marketed as "malnutrition prevention," and Horlicks drinks and instant noodles ("taller, stronger, sharper") sold by Glaxo Smith Kline in South Asia.<sup>46</sup> These cases suggest that Indonesia is not alone in witnessing the growing influence of nutritionism and the concomitant rise of smart food. The Indonesian cases help us identify important variables and concepts that can be of use in analyses in other countries.

In sum, the book unpacks the rise of smart food as an antimalnutrition, antihunger strategy in the Third World. The strategy entails a growing scientific gaze on food insecurity, extended and reconstituted through the network of global capital, international development programs, national governments, and scientific experts. At the core is the power of knowledge to create a certain lens through which we see food, the body, and health. The growing influence of nutritionism means that quality is translated into a narrower set of nutritional parameters, food insecurity into a problem of deficiency of some nutrients. The solution is conceived as filling the nutrient gap by channeling more nutrients into bodies by means of biofortified crops and fortified food products. In this way, nutritionism constricts the boundaries by describing a reality in which only certain kinds of responses become imaginable. These smart foods appeared as a radical new way to replace the productivist program that championed "technological packages" for modernizing agriculture. However, they actually preserve the tenets, keeping the existing power structure of international development and global capital intact. When hunger is conceived as a technical problem to be solved by experts, the poor—particularly impoverished women—are still marginalized. Nutritional interventions are made in the name of the well-being of these women and their children, but poor women are not seen as active agents who define and address their own food insecurity. Instead, it is the experts—from the scientific community and increasingly from the private sector—who are seen as the benevolent "doers" who fight global hunger and malnutrition.