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Chapter 6

Aiming for food and nutrition security in a changed global context: strategy to end hunger

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6.1 THE PROBLEM AND THE GOAL

The most relevant price for the poor is the price of grain—especially wheat, maize, and rice. Maize prices increased by 105 per cent between March 2010 and March 2011 on international markets; wheat by 102 per cent; rice increased less in the 2011 crisis, but more than wheat and maize in 2008. The price increase implies that a kilo of wheat in many developing countries typically costs about \$0.30 instead of \$0.15—a critical difference for a person who lives on \$1 a day, as do more than 1 billion people. This kind of price increase requires poor people to cut back on other food and non-food expenditures to maintain food energy consumption. Consequently, quality of diet and of livelihood suffers.

The absolute number of undernourished people in developing countries decreased from an estimated 980 million in 1990/92 to about 850 million in 2010/12 according to FAO estimates (FAO 2012). This is a decline of the percentage of under-nourished in the developing countries from 23 to 15 percent. If these trends continue, the MDG indicator related to under-nutrition would be just about one percentage point above the target of

cutting the percentage of undernourished in half, i.e. 12.5 percent instead of the target of 11.6 percent (FAO 2012). Most of this noteworthy progress since 1990/92 seems to have been achieved before the setting in of the food crisis of 2008. While there is a risk of declining progress in reducing hunger, which needs to be addressed, ending hunger in the coming decade would be realistic yet ambitious goal.

The food crisis has shed light on the highly deficient data about the scale and change of food and nutrition problems. The numbers about undernourished people are rough estimates at best, and even less well known is the increase in diet deficiency and related long-term—indeed lifelong—health effects that impair physical and mental capacities. The FAO above mentioned estimates do only capture trends and not annual change. They are based on aggregate data, not actual people (household) level food deficiencies. Other relevant indicators of nutrition, such as child underweight and stunting show less progress. It is roughly estimated that 2 billion people suffer from micronutrient deficiencies. Moreover, the prices of non-staple foods, such as vegetables and pulses, have risen even more than grains, further adding to these deficiencies, especially in South Asia. Part of an appropriate response to the global food crisis needs to be an overhaul of the system of monitoring information on food and nutrition.

Food and nutrition security depend upon the availability of food (through production and trade), access to food due to purchasing power, and the utilization of that food by people who transform availability and access into more or less satisfactory nutrition, and on stability of the food system, especially of related markets. These concepts, however, need to be viewed in a dynamic context, where food and nutrition insecurity undermines the resilience of poor people and low-income countries and thus further exacerbates the insecurity, eroding both societal cohesion and the natural resource base of countries. Therefore, food and nutrition security goals need to be addressed with comprehensive strategies, adapted to the regional circumstances.

Strategies for food and nutrition security need to take note of two fundamental changes that re-position food and nutrition in the global and national economies: food and agriculture are now embraced by a larger bioeconomy, and food markets are embraced by financial markets. Each of these interlinkages poses challenges to the aspects of availability, access and utilization of food by the poor and will be discussed in relation to post 2015 MDG implications.

6.2 FOOD AND AGRICULTURE INCREASINGLY EMBEDDED IN THE BIOECONOMY

Producing more food to achieve food security is confronted with new challenges arising from the fact that agriculture and the food economy are part of the larger bioeconomy—the emerging sector that produces, transforms, and uses biomass. Food security partly depends on the availability of food, which is part of biomass production and increasingly determined by new competitive uses of biomass for energy and industrial raw materials. This puts biomass and the bioeconomy at the centre of sustainable economic development and any Green Growth strategy.

The bioeconomy intends to use a bigger part of what we are able to sustainably grow on soils, with seeds, sun and water, and use it a lot more efficiently. It is the aggregate of all industrial and economic sectors and their associated services that produce, process or in other ways use biological resources (plants, animals, micro-organisms). Langeveld and others (2010) define a bio-based economy as the “(...) technological development that leads to a significant replacement of fossil fuels by biomass in the production of pharmaceuticals, chemicals, materials, transportation fuels, electricity and heat. (...)”. Defined as such, the bioeconomy is interconnected with a large cluster of economic sectors in the wider economy; even in some industrial economies it constitutes the largest sector in terms of GDP and employment, while in many low-income economies it tends to be the largest employer. New technology intervenes in all of the above sectors, to different degrees. The largest sector of the bioeconomy, in terms of total output, employment and so on, is typically food and feed production.

Achieving sustainable development will have to rely on alternative sustainable sources of energy and raw materials, mostly away from fossils, and in that context, biomass is likely to play a key role. The key challenge will be to frame this increased reliance on biomass without undermining the long-term productivity of agriculture and other ecosystems. Addressing the challenge will require a systemic approach identifying:

- the consequences of substituting the consumption of finite resources by using biomass and other renewable resources;
- what is needed in order to move towards production systems that rely more on recycling, on more efficient use of limited resources and on an increased employment of renewable resources.

The fast growth in the world ethanol production indicates a bioeconomy in the making. This particular sector, however, has so far not dealt with

its negative externalities, but innovations might change that even in the foreseeable future. In low-income countries, the challenge is different. For instance in Ethiopia, biomass is still by far the dominant energy source, providing about 90 per cent of primary energy. Here the challenge is to make better use of biomass with new technologies, that is to say, a leapfrogging into a knowledge-based bioeconomy can be explored.

World food consumption is demanding more products that are rather biomass intensive, for example, animal products. A comprehensive integration of animal production into efficient value chains is an essential part of the bioeconomy. Climate change provides powerful incentives for investment in the bioeconomy in three ways: first, there is the need to establish a different energy base, including Biomass; second, there exists the threat of declining crop productivity and production risks; and third, the emerging GHG mitigation markets or related taxation policies are increasing the incentives for biomass production (sequestration).

The new value chain system of knowledge-based bioeconomy is much more a system than a chain; actually, it is a set of interlinked chains, i.e. a “value web”. For the bioeconomy to make significant progress there needs to be increased efficiency in the whole value web. Until now the technological options have for the most part been pursued in a traditional manner, and hence in isolation: that is to say, by enhancing outputs per unit of individual inputs in production, say yield per hectare or per animal.

Bioeconomy demands new biomass types, optimized for several applications. Crops must improve to ensure this optimization. Plant breeding is necessary to meet these challenges:

- Biofuels: sugar-ethanol will not be enough to achieve energy/climate goals; dedicated lingo-cellulosic crops to be converted into ethanol, or others, with higher energy input/output ratio, are required. Plant breeding in this context is crucial in terms of lignin content and composition (amount of lignin present in cell walls) and conversion technology with chemical innovations, such as catalytic conversion.
- Fibres: They are especially useful in the textile industry, superior to artificial fibres. Cotton is most common, but there is now a need to spread the value chains covering fibres from flax and hemp. These fibres are also a means to decrease water and fertilizer use (compared to cotton). Breeding targets should aim to improve fibre quality by optimizing cell wall properties in relation to specific applications of fibres users.
- Oil crops: plant breeding to enhance use of vegetable oils in industrial applications, by introducing different fatty acid profiles in plants, in

order to simplify the refining or chemical modification of the oil, or by developing plants with new specialty fatty acids, not normally present in food oil crops. Usually breeding is traditional, but as knowledge grows modern biotechnology is increasingly employed to achieve the following targets: reduce costs through higher seed yield, improve disease resistance and use of by-products, decrease transport costs, ensure better quality of oil and oil content of seeds.

- Challenges to be met in the biorefinery sectors, i.e. the processes of transforming biomass into a wide range of value-added products (chemicals, materials, food and feed) or energy (biofuels, heat or power), which has been much less studied so far than the sector of primary biomass production, will include recycling too. For instance, pre-cycling from microbial fermentation (biofuels).

The amount of land that is presently used for agricultural purposes cannot be substantially increased, as either cultivation makes no economic sense due to low potential yields, or expansion would negatively impact the environment and climate. The preferred way of increasing productivity is, therefore, to intensify farming sustainably on the land that is already used for agriculture. There must also be further advances in crop varieties by breeding techniques. Viewed globally, soil may be one of the most important terrestrial resources for carbon storage. Research should focus on maintaining or improving the quantity and quality of productive soils. To achieve this, new national and international concepts of land use need to be devised and a global initiative for the assessment of costs of inaction on land and soil degradation is called for (Nkonya and others, 2011).

By means of innovative research into locally adapted crop cultivation, alternative farming scenarios must be developed which allow priorities to be set for land use. The rapid expansion of foreign direct investment in land acquisition—to grow food and biofuels abroad to secure domestic supply—reflects the strong demand for biomass that has become an international issue (von Braun and Meinzen-Dick, 2009). The often unregulated land markets in which power rather than efficiency and price rule, the investment ventures need more policy attention to protect rights of poor land users, especially small farmers and pastoralists.

In sum, the emerging bioeconomy is changing the competition for food, land and water. Food security strategies must take a trans-sector perspective, beyond food and agriculture. The governance of the food system needs to pay renewed attention to property rights, especially land, including communal lands. The emerging market for biomass and its

agricultural underpinnings need sound institutional arrangements and codes of conduct beyond voluntary guidelines. A resilient and sustainably growing agricultural production sector remains essential for food security of the poor.

6.3 FOOD MARKETS BECAME PART OF FINANCIAL MARKETS

Food and nutrition insecurity have increased in the context of the interlinked food and economic crises of 2007-2011. The food crisis actually came first while overlapping with the onset of the economic recession, and may actually have had some role in the onset of the latter due to the inflationary forces of food and energy prices to which macro policies reacted. Not only food and energy markets but also food and financial markets have become closely linked and these links pose new and added risks for the poor, increasing their vulnerability. Therefore a renewed attention to food and nutrition security needs a perspective that mirrors the increasingly closer nexus among food, water, energy and financial markets.

The chronic food and nutrition crisis is deepening, as high and volatile food prices and global recession further undermine the food and nutrition security of the poor and threaten their livelihoods. The food price crisis was mainly the consequence of neglected investment in agriculture and infrastructure in developing countries, inappropriate agriculture energy subsidization policies in industrialized countries and then triggered by adverse weather events and exasperated further by inappropriate policies, such as export restrictions, lack of appropriate regulation of commodity trade and speculation (von Braun and Tadesse 2012).

The adverse effects of increasing and volatile food prices are reflected in a number of ways. A comprehensive assessment of food price volatility needs to include attention to four major cost components of volatility, namely, increased hunger and disease, reduction in investment, fiscal and macro-economic effects (government spending, increased inflation), and growing political insecurity. The hunger “costs” of food price volatility is to be seen within the perspective of its relative impact on poor consumers and producers. Rapidly rising food prices hurt poor consumers more than they benefit poor producers.

Estimates suggest that the 2011 food price hike has pushed 68 million people into poverty and pulled 24 million people out of poverty, a net increase of 44 million poor people (Ivanic, Martin and Zaman, 2011). Food prices can result in any of the following outcomes: 1) raised level

of malnutrition, 2) persisting malnutrition at its previous level, 3) and a lower rate of reduction in malnutrition. In order to further investigate the impact of rising food prices on child malnutrition, the average malnutrition percentage for three periods from 1999-2002, 2003-2006 and 2007-2010 were calculated for a sample of developing countries that have related data. Of the 11 countries for which data are available, malnutrition increased or coincided with decrease in the reduction rate of malnutrition in eight countries. Thus, in the majority of countries for which data are available, an adverse trend in child nutrition or a break in the trends toward improvement is observed. Any economic assessment of the costs of volatility that neglects the human capital effects is a flawed assessment. Further analysis is called for to determine the size of these effects and to identify why some countries are affected but others not.

Market fundamentals, that is to say, the usual demand and supply factors, are not adequately explaining the high and volatile food price in 2007-08 and 2011, let alone their extreme spikes. Factors such as exchange rates, general inflation, money supply and real interest rate could explain only a small part of the volatility. Food price volatility (i.e. monthly price changes) since 1970 suggests the following stylized facts:

- Strong correlation among the volatility of different commodities. This may suggest that common factors explain more than factors specific to individual markets.
- For the last 40 years, food price volatility exhibits a non-linear trend. Volatility has been declining since 1970 and remained stable for much of the 1990s. However, it has started to increase since early 2000s resulting in the extreme spikes in 2008 and 2011.
- The 40 years volatility trend shows two major food crises in the 1970s and late 2000s.

Probable sources of such structural change are 1) the variation in grain stocks that change the effect of demand and supply shocks, 2) energy price volatility associated with the demand and supply of biofuels, 3) the speculative behaviour in more de-regulated futures markets, and 4) spillover effects to the food markets from financial crisis.

The world has become “small” as shocks can easily be transmitted around the globe. Such transmission not only affects the performance of macroeconomies, but also the global food economy. Reinhart and Rogoff (2009) studied bank, currency, default and inflationary crises that happened worldwide during the last 100 years. Their index shows an increase in financial crises between 1920 and the end of World War II. After that, the

world economy remained stable for about 30 years. Following the end of the cold war in 1990, when many economies were liberalized, the financial sector started to experience difficulties in various regions of the world. Comparing this index with food (wheat) prices indicates changing linkages among financial and food commodity markets. Weak correlations before the 1990s turned into strong positive correlations when the world economy became more integrated after the 1990s. The 2008 food price hikes might have been partly caused by the cumulative effects of financial crises since 2004, and speculative engagement in commodity markets, including food, also played a role.

To distinguish the relative importance of the variables mentioned above, regression models were estimated using short time period panels for food commodities (for details see: von Braun and Tadesse, 2012). The three major variables such as supply shocks, energy price volatility, and financial market crisis were found to be statistically significant and robust across all alternative specifications. Food price volatility response (elasticity of 0.6 at mean values) to financial crisis is higher than the response to supply shocks (0.22) and oil price volatility (0.32). This implies that the three markets such as food, energy and financial markets are increasingly linked to each other. The linkage can happen in different ways. Biofuel demand, stock-to-use ratio, production cost and speculations can connect energy and the financial markets with the food market.

Since speculation has remained a prime suspect to link both energy and financial markets with the food market, a speculation index is included to control the side effects. However, controlling the effect does not change the result. The significance of speculation should be interpreted contextually. Speculation effects should be captured only in a non-linear analysis at higher and lower prices. Thus, the negative and positive effects may cancel each other out and become insignificant on average. Related analysis by Algieri (2012) also shows, that speculation has significantly boosted price spikes.

6.4 DEVELOPMENT STRATEGY AND MDG IMPLICATIONS FOR FOOD AND NUTRITION SECURITY

In 2000, the member states of the United Nations committed themselves to creating a “more peaceful, prosperous and just world,” to “free(ing) our fellow men, women and children from the abject and dehumanizing conditions of extreme poverty,” to making “the right to development a reality for everyone,” and to ridding “the entire human race from want.” Obviously,

ending hunger would be an essential component of the Millennium Development Goals, and MDG 1 actually calls for halving hunger and poverty by 2015 in relation to 1990. In pursuing the MDGs, we should seek the elimination of hunger on a realistic but ambitious time schedule. Cutting maternal and child malnutrition is to be part of the hunger goal, as these nutrition issues reduce cognitive ability, and robs nations of healthy and productive adults. Micronutrient malnutrition is a part of these larger, devastating “hunger” problems.

It is now well recognized that pursuing each of the eight MDGs separately without acknowledging their interlinkages will reduce the complex process of human and economic development to a series of fragmented, conflicting, and unsustainable interventions (von Braun, Swaminathan and Rosegrant, 2005). A comprehensive development strategy that addresses the whole set of goals is required for the efforts to be successful. These strategies differ by country due to resources and institutional conditions, so strategies must be tailored to the specific needs and circumstances of a given situation. The political and economic climate must be taken into account, along with historical, cultural, and geographic characteristics. At the same time, each of the goals needs to be reached and that requires specific action in the overall context. Policy actions that improve agricultural productivity and food and nutrition security are essential components of a successful MDG strategy that focuses on the poor, as there are strong, direct relationships between agricultural productivity, hunger and poverty. Two thirds of the world's poor live in rural areas and make their living from agriculture. Hunger and child malnutrition are more widespread in these areas than in urban areas.

The response to the food crisis should be multifaceted. It requires a strategic approach (development strategy), sector-relevant actions in production, consumption and trade policy. Moreover, under-nutrition should be addressed directly with new and strong actions. The world must also reduce waste in consumption and food processing. However, the often stated idea that the world food problem is mainly a problem of “distribution”, that is to say, that there is enough food in the world for all and that it just needs to be shared more fairly and equally, is a gross simplification. The root cause of the food crisis was lack of agricultural productivity, and acute policy failures. But a broader set of risks needs to be comprehensively addressed. These include:

- The risk of *high and volatile food prices*, which limit poor people's food consumption, diet quality, and spending on health and general welfare, is likely to increase in the future.

- *Financial and economic shocks*, which lead to job loss, expensive and scarce credit, and decreased demand for agricultural commodities, are also likely to persist in some parts of the developing world.
- The impacts of *climate change*, including an increase in the incidence of extreme weather events such as droughts and floods and a decrease in yields in developing countries, will further exacerbate food insecurity. These impacts will be severe because the majority of the poor depend on agriculture as a source of food and income.
- The risks that *political disruptions and failed political systems* pose for people and economies. This includes the risk of structural failures of policy change, such as lack of property rights and of traditional land and water rights leading to erosion of assets of the poor, as can happen under increased land grabbing. In addition, societal and political risks—such as food riots, destabilization of governments and domestic and trans-border conflicts—can result from these food system risks.

These complex system risks can assume a variety of patterns, and can become catastrophic “perfect storms”. In order to be comprehensive, the action agenda should include the following three packages:

Resilient agricultural production systems: linking end hunger with end land degradation goals

A sustainable and resilient agriculture in both small and large farm sectors, requires not only technological innovations, but sound institutional arrangements for well functioning markets that offer a conducive investment climate, access to infrastructure, and information and extension systems that serve men and women farmers. An essential component of resilient agriculture is an end of land and soil degradation, as the natural resource base needs to serve future food security. The end hunger goal must be combined with related environmental sustainability goals in an inseparable package. The costs of inaction to reduce land degradation are partly borne out by the costs of food insecurity.

The future of food security to a considerable extent relates to the transformation of small farms for two reasons: about half of the world's hungry poor live on small farms, and second, the small farms of the developing world have considerable potential for contributing to rural and economy-wide growth. In emerging economies, these two features of small farms connect development strategy with agriculture and food and

nutrition security strategy. Thus, attention to agriculture and rural change remains important for many regions of the developing world and the above-mentioned tasks require public and private investments at scale.

Besides the strategic structural change and investment priorities just mentioned above, technological breakthroughs, and their adoption on a large scale, are critical in preventing food insecurity. Numerous studies have shown that spending on agricultural research and development (R&D) is among the most effective types of investment for promoting growth and reducing poverty. Advances in plant breeding have increased staple crops' nutritional value, their suitability to subtropical and tropical weather conditions, and their resistance to diseases and pests. Plant breeding and genetic modifications (GM) have created beneficial traits such as disease resistance, environmental improvement, higher nutritional value, and increased yields—traits that are difficult to achieve rapidly through traditional breeding techniques. Disseminating new technology in agriculture requires substantial upfront investments in the foundations of effective technology utilization—that is, rural education, infrastructure, and extension services. However, public R&D investments have been stagnating since the mid-1990s, and the gap between rich and poor countries in generating new technology remains large, except in a few countries such as Brazil and China. At the global level, a science and technology initiative is needed to prevent further increases in agricultural prices, reduce competition for natural resources, and adapt to and mitigate the effects of climate change. That global initiative should focus on increasing agricultural productivity, making agricultural practices more sustainable, enhancing food quality and health, and improving natural resources management. The initiative can also address nutrition insecurity directly by breeding new varieties of staple crops that are rich in micronutrients. This approach would allow the poor to receive necessary amounts of vitamin A, zinc and iron through their regular staple diets. This “bio-fortification” provides a means of reaching malnourished populations in relatively remote rural areas and delivering naturally fortified foods to people with limited access to commercially marketed fortified foods or supplements.

Policies to prevent extreme price volatility

Staple foods can be viewed from different perspectives given different actors' roles in production, trading, and consumption. For farmers, they are an income source; for food processors they are an input; for traders

and financial investors they are part of an asset in portfolios; and for poor consumers they are implicitly “currency,” as they spend a large share of their income on them. The latter is the most neglected role. For the poor, grain price spikes mean hyperinflation in their currency, and they have no central bank that guards their currency. Food price volatility—unpredictable large swings in prices—affects the poor the most and undermines their health and nutrition. Extreme price volatility also hinders investment and leads to misallocation of resources. It increases the incentive to construct commodity asset portfolios, which foster speculative trading, further boosting price spikes.

In view of the adverse role of biofuels subsidy policies for food insecurity in times of tight grain supplies, these policies need to take food-security consequences explicitly into account, which they currently ignore. When food prices are high, subsidies for biofuel production should be frozen, reduced, or subjected to a temporary moratorium on biofuels from grains and oilseeds until extreme prices subside. Second-generation biofuel technologies are in the making but are still far from reality. If they are “smart,” these technologies may partly overcome the food–fuel competition and lessen the negative effects on the poor.

Extreme price volatility is an international issue that requires international action. Together, national actions such as increasing grain stocks or restricting trade are inefficient and make global matters worse. These policy decisions—such as export restrictions which many countries have applied in the food crisis—often appear to be panic responses that give little attention to potential global market consequences. Food markets must not be excluded from the appropriate regulation of the banking and financial system, as the staple food and feed markets (grain and oilseeds) are closely connected to speculative activities in financial markets. There is growing evidence that the price formation at the main international commodity markets was significantly influenced by speculation that drove spot prices upward beyond market fundamentals (Robles, Torero, and von Braun, 2009; Algieri, 2012). To prevent extreme volatility, it is essential to ensure open trade, and transparent, appropriately regulated market institutions. Closing down futures trading in commodity exchanges is not an appropriate answer when price crises occur. But there is an institutional vacuum at the international level to address these matters. One set of actions calls for coordinated regulation, which does not require an organization. Another set of actions would require a new organization to fill the institutional vacuum—in other words, to act as the equivalent of the (missing) central

bank that protects the currency of the poor (grains). Two sets of measures are proposed here:

Better regulation. The deregulation of commodity markets in the past decade went too far and contributed to the high economic costs of volatility mentioned earlier. Regulation should curb excessive speculation in food commodities—that is, futures trading needs to be more transparent (providing information on actors and transactions), and costs of speculation should increase when prices do spike (through, for example, capital deposit regulations that increase at times of spikes for non-commercial and index trading but can be insignificant under normal market situations). Simply excluding food from speculative futures markets would be wrong, because these activities also play a useful intelligence role in identifying prices and signalling scarcity to investors.

Institutional innovation. Global collective action for grain policy that enhances food security is needed to overcome the collective action failures in grain markets. The instruments should be composed of two elements: First, an independent grain reserve (that may include other healthy foods) should be established exclusively for emergency response and humanitarian assistance. Such a reserve could be handled in a decentralized way and backed by an international agreement that assures free movement of grains to address food emergencies at all times. Second, an “International Grain Reserves Bank” should be established and tasked specifically with protecting the currency of the poor—grain prices—from crisis-type spikes. It would be governed like an independent central bank and equipped with resources similar to those of a central bank: it would have a modest reserve shared by nations at the regional or global level and a financial fund that positions it as a potentially active market player. It would advise on market-oriented regulatory regimes. This reserve bank concept is not a price stabilization fund, but it is an institutional tool for reducing risk and preventing large spikes that cause hunger and trade disruptions. Any cost–benefit assessment of these proposed regime-changing institutional actions need to consider the cost of action versus costs of inaction in three domains—the costs of human resources and suffering from the food crisis, the costs of losses from trade and the political disruptions as trade would remain more open under such a regime, and the costs from higher national grain stocks and excessive self-sufficiency investments.

Regional policy bodies, such as the Association of Southeast Asian Nations (ASEAN), South Asian Association for Regional Cooperation (SARC), and African regional and sub-regional bodies have partly

implemented joint reserve policies, which could be one step in the proposed direction if they become meaningful in terms of scale and reliability. A regional set of arrangements, however, is suboptimal and may run into trust problems in regions with one or two dominating regional powers. A key role could be played by more open trade and stock release policies by India and China, who both sit on large grain stocks. More trade liberalization in general and especially by these two nations could improve the global food security situation (Kumar, Roy and Gulati, 2010).

Social protection and nutrition policies

Actions related to agricultural production, trade, and reserves are necessary but not sufficient for overcoming the food and nutrition security crisis, which is not just an acute problem, but a chronic global one. Another set of public policies is required to address health and nutrition risks through social transfers and health services. Most of these actions are carried out by national governments, but international support for these investments is also needed, especially in the least developed countries. Setting priorities in this area requires a sound metric for targeting actions and measuring progress. First, a focus should be put on lives saved and livelihoods improved (measured by reduced mortality and morbidity), criteria of success that might also be considered in any future MDG framework. Second, priority should be given to enhanced economic productivity, growth, and returns to investment (measured by human productivity and lifetime earnings). A framework that includes both of these very different concepts may be helpful for stimulating an informed policy discourse on priority setting. With that in mind, policy actions in three priority areas are called for: (1) expand social protection and child nutrition action to protect the basic nutrition of the most vulnerable; (2) take protective actions to mitigate short-term risks (such actions would include cash transfers, pension systems, and employment programs); and (3) adopt preventive health and nutrition interventions to avoid long-term negative consequences. Social safety nets not only ease poverty in the short term, but also enable growth by allowing poor households to create assets, protect their assets, and allocate resources to more risky but highly remunerative production activities. Since good nutrition is crucial for children's physical and cognitive development, as well as their productivity and earnings as adults, early childhood nutrition and school feeding programs should be strengthened and expanded to ensure universal coverage (Hoddinott and others, 2008). Interventions need to be developed and include the following options:

Transfer actions. Programs transferring income to the poor in response to food crises have a long tradition, in particular as food price subsidies and rationing schemes. Often, however, they are ineffective and fail to reach the most food insecure. Of relevance are also employment-related transfer programs, such as the Indian rural employment scheme, scaled up to the national level in the past decade. Cash transfer programs are increasingly common. These programs—which transfer cash to households partly on the condition that they meet certain requirements such as sending children to school and using preventive health services—have proven successful in reducing poverty in the short run (through cash transfers) and in the long run (through the human capital formation that they encourage). They work particularly well in countries with low school attendance and adequate schooling infrastructure. They are not magic, however—they do not work in every country, can have adverse fiscal and labour market effects, and alone they are not sufficient for reducing poverty sustainably. Early childhood nutrition actions should be connected to them where needed.

Nutrition and health actions. Lack of energy is generally an issue only in highly food-insecure areas, but micronutrient malnutrition is much more widespread and pervasive. The core problems of low birth weight and early childhood under-nutrition need primary attention in nutrition and health actions. One promising way to start is to identify gaps where existing programs are insufficient to reach needed coverage and impact. Communities with the highest concentration of poor and vulnerable can guide priority setting. While problems of insufficient and poor-quality food persist, changes in the global environment are creating new nutritional issues such as the “nutrition transition”—a process by which globalization, urbanization, and changes in lifestyle are linked to excess caloric intake, poor-quality diets, and low physical activity, which together lead to rapid rises in obesity and chronic diseases even among the poor in developing countries. The main challenge for agriculture, health, and nutrition is thus to adapt to the changing environment and address the double burden of under- and over-nutrition by maintaining adequate food supply while increasing the production of low-cost, high-quality foods to improve diet quality among the poor. There is still too little private sector engagement in food fortification and in child nutrition in developing countries, in such areas as the delivery of low-cost and healthy baby foods. New alliances among the private and public sectors and nongovernmental organizations (NGOs) are needed in this field of action.

6.5 CONCLUSIONS

Six statements summarize this chapter's main points to be considered in achieving global food and nutrition security in the years ahead:

- The current and future MDGs should have a strong focus on the poverty and hunger goals. The hunger target that accompanies the poverty target brings attention to the food and nutrition security of the extreme poor—those far below the poverty line—and that should be maintained and further strengthened.
- A next set of MDGs should actually include an “End Hunger”-goal over an ambitious but realistic time schedule, where hunger is defined as under-nourishment, and where the progress toward the goal is well monitored based on people-level (household) data, not just broad trend estimates, as currently the case.
- The actions for achieving future MDGs require stronger prioritization, sequencing, transparency, and accountability for successful implementation. Related governance practices in many developing countries must be strengthened, as well as global governance of food, which does not currently deliver the necessary public goods to achieve food and nutrition security for the poor.
- The global context has changed in two important ways: agriculture and food are now part of an emerging bioeconomy, and food markets operate within the context of financial markets and macro-economic forces. Thus, food security in the future is to a less extent just a matter of agricultural development, as important as that remains. The emerging bioeconomy does offer opportunities for the rural poor and is not mainly a risk.
- Strategic elements of the required policy and program actions include nexus-oriented approaches to overcoming supply constraints through enhanced food sector productivity. An essential component of resilient agriculture is an end of land and soil degradation. The end hunger goal must be combined with related environmental sustainability goals in an inseparable package.
- Actions to address the new causes of food price volatility driven by financialization of food commodity markets are called for. Volatility also requires even more attention to social protection actions, including their connection to health investments, remain an essential element of food and nutrition security policies in the future.

NOTES

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