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Access and excess in the developing world: the role of international agencies in addressing the challenge

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Introduction

The term 'malnutrition' does not any longer refer to the nutritional problems of the developing world nor is it characteristic of the relatively poorer socioeconomic populations confined to the peoples of 'low-income' developing countries. In the new millennium malnutrition refers to all deviations from adequate nutrition, including under- and over-nutrition, and encompass both inadequacy of food or excess of food relative to need. It is hence central to any discussion on the topic of 'access and excess'.

Undernutrition is defined as being the result of insufficient food caused primarily by an inadequate intake of dietary energy, whether or not any specific nutrient is an additional limiting factor. This emphasis on dietary energy as a general measure of food adequacy seems justified since an increase in food energy largely derived from normal staple foods brings with it most other nutrients. Thus, in most situations, increased dietary energy is a necessary condition for, and is reflective of, good or adequate nutrition even if it is not always sufficient in itself.

Undernutrition however, also encompasses deficiencies of other essential nutrients and thus includes deficiencies of specific nutrients like vitamins, minerals and trace elements generally caused by habitual diets based on wrong kinds or improper proportions of foods. Goitre, scurvy and anaemia are some examples of this type of malnutrition at the undernutrition end of the spectrum.

Undernutrition is associated with an inability to maintain adequate growth in infancy and childhood, to achieve appropriate body weight and to sustain acceptable levels of economically necessary and socially-desirable physical activity patterns along with poor health outcomes throughout life. It is almost always associated with marginal or low food energy intakes brought about by an inadequacy in food – both quantity and quality.

On the other hand, conditions such as overweight and obesity, though not the result of inadequacy of food, also constitute malnutrition and occupy the over-nutrition end of the spectrum. In the presence of other risk factors (both dietary and non-diet-related) overweight and obesity are associated with an increase in heart disease, hypertension, stroke, diabetes and cancer and the related increase in

morbidity and premature mortality. Thus obesity and the associated co-morbidities, many of which are diet related, may be considered as the other end i.e. the excess end of the spectrum of malnutrition.

This chapter focuses only on issues of 'access and excess' in the developing world as the role international agencies play is largely, perhaps solely, relevant to them. Developed countries generally have had ready access to the knowledge, scientific expertise and resources – financial and otherwise – to tackle their national health problems related to excess and do so all the time. Apart from some of the poorer of the newer countries that have joined the European Union, international agencies generally have limited inputs to addressing these issues in the developed world. Perhaps the only important role international agencies play in this field relates to a normative function that involves the collation and distillation of scientific evidence which then drives the development of global recommendations to address the challenges of excess. Good examples of this in recent years include the joint WHO/FAO Consultation Report on Diet, Nutrition and the Prevention of Chronic Diseases (2003) and the WHO Report on Obesity (2000). However important these global reports are, many of the rich developed countries continue to organize their own scientific expertise to generate national recommendations that they apply to their populations. An example of this would be the US NIH recommendations for obesity (1998).

Access and the persisting problem of food insecurity in the developing world

The pre-eminent determinant of hunger or household food insecurity is poverty in societies. The recognition that poverty and hunger go hand in hand is manifest in the UN's Millennium Development Goal 1 (MDG 1), which specifies targets for the reduction of both global poverty and hunger by the year 2015. Improving household food security is one of the stated objectives of all democratic societies and constitutes an important element of the human right to adequate food.

Food security is defined as the access by all people at all times to the food they need for an active and healthy life. The inclusion of the term household ensures that the dietary needs of all the members of the household are met throughout the year. The achievement of household food security requires an adequate supply of food to all members of the household, ensuring stability of supply all year round, and the access, both physical and economic, which underlines the importance of the entitlement to produce and procure food. At the household level food security is a complex phenomenon attributable to a range of factors that vary in importance across regions, countries and social groups, as well as over time (Shetty, 2006).

Food insecurity exists when individuals lack access to sufficient amounts of safe and nutritious food and, therefore, are not consuming enough for an active and healthy life. According to the UN's Food & Agricultural Organization (FAO) food insecurity is, 'a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life' (FAO, 2000). Thus food insecurity may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level.

Access that a community, household or individual has to food is a reflection of

the ability to either grow and retain the food grown for consumption, to purchase the food from the market or to acquire it by a combination of strategies that Amartya Sen (1982) has described as representing 'entitlements' to food. This depends on a range of factors such as: access to resources such as land, water, agricultural inputs and improved technologies; the nature of the food marketing system and the infrastructure to support it; employment opportunities, purchasing power and food prices; consumer perceptions, behaviour and preferences.

Undernutrition is not only causally-related to food insecurity at the household or individual level, but is also determined by other health-related factors such as access to safe water, good sanitation and healthcare as well as the care practices that include proper breastfeeding and complementary feeding and ensuring fair and appropriate intra-household food distribution. The causes of undernutrition are thus multi-dimensional and its determinants include both food and non-food related factors, which often interact to form a complex web of biological, socioeconomic, cultural and environmental deprivations. Although establishing a relationship between these variables, and the indicators of undernutrition do not necessarily imply causality, they do demonstrate that in addition to food security many social, cultural, health and environmental factors influence the prevalence of undernutrition.

In summary, inadequate access to food, limited access to healthcare and a clean environment, and insufficient access to educational opportunities, which are determined by the economic and institutional structures as well as the political and ideological superstructures within society, contribute to undernutrition. The close links between food security and poor nutrition are evident as nutritional status is the outcome indicator.

Our current concept of food security evolved over the last 60 years since World War II through a sequence of definitions and paradigm shifts and changed according to the views expressed over this period and has been well summarized in several publications (Hall, 1998; Shaw, 2007; Shetty, 2009). The necessity to include nutrition into food security also evolved over time largely due to the recognition of the larger global problem of micronutrient malnutrition often referred to as 'hidden hunger'. It is hence now accepted that, 'food and nutrition security is achieved, if adequate food (quantity, quality, safety, socio-cultural acceptability) is available and accessible for and satisfactorily utilized by all individuals at all times to achieve good nutrition for a healthy and happy life' (Weingartner, 2005).

The emerging problem of excess in the developing world

Economic growth and prosperity can also contribute to the spectrum of the problems of malnutrition in populations by creating conditions that are conducive to the development of overweight and obesity and other chronic diseases of adulthood which include heart disease, hypertension, diabetes and cancer. Urbanization, which characterizes economic development of developing societies, alters several environmental factors including the pattern of diet and changes the lifestyles of individuals. It is well recognized that economic prosperity helps attain adequacy of food in quantitative terms for much of the population. This improvement, however, is accompanied by a qualitative change in the diet with increased dietary energy being provided by fat in the daily diet replacing the carbohydrates from staples or cereals.

There is an increase in the consumption of food from animal sources, which has other ecological consequences. Consumption of salt and sugars also increases. Lifestyle changes, particularly with relation to the level of occupational and leisure time activities, also occurs, predisposing populations to an increasingly sedentary lifestyle which consequently leads to the occurrence of overweight and obesity. These developmental changes in largely rural societies break down social support systems and networks, favour inequalities in societies and increase stress levels of individuals. In addition the deterioration of the physical environment, particularly the increase in levels of environmental pollution, contributes to further increase in the health burden of societies in economic transition.

The increasing awareness of over-consumption and over-nutrition not just in developed, economically advanced societies but also in the rapidly industrializing and urbanising developing countries has added a new dimension to food and nutrition security (Shetty, 2000). What is striking, however, is that the health burden due to these chronic diseases is dramatically increasing in developing countries and even among those with modest per capita GNPs in some stage of rapid developmental transition. Thus even a modest increase in economic prosperity that accompanies economic development seems to be associated with marked increases in the mortality and morbidity attributable to these diet-related non-communicable diseases. These transitions in the disease burden of the population are mediated by changes in the quality of the diet and activity patterns that typify the acquisition of urbanized lifestyles. There is now increasing concern over this growing problem of over-nutrition and its health consequences in developing countries which continue to struggle with the unfinished agenda of food insecurity, hunger and undernutrition thus contributing to the 'double burden' of malnutrition (Kennedy et al, 2006) i.e. both under- and over-nutrition. Consequently the nutritional challenges faced are one of both access and excess.

To take these emerging challenges into account, food and nutrition security is more appropriately and broadly defined now to 'encompass stability in availability, access, and utilization of safe and nutritious food to prevent both positive and negative deviation from nutritional balance for all, in a manner that is economically, environmentally, socially and culturally sustainable' (Dube et al, 2008). Food and nutrition security and issues around access and excess are thus fundamental to the achievement of the Millennium Development Goals and to reduce the burden of nutritional disorders that accompany economic development and urbanization of societies worldwide.

Policies to promote food and nutrition security and good nutrition in developing countries

A recognition and proper understanding of the range, complexity and interplay of the factors that sustain the problem of malnutrition in developing societies, both related to access and to excess, is crucial to help develop policies and programmes that address the nutritional needs of these populations and to reduce the burden of all forms of malnutrition in these countries.

The pre-eminent determinant of household food and nutrition insecurity is poverty in societies. Several policy measures undertaken by governments in

developing countries are aimed at ensuring food supply and household food security (Shetty, 2008). These include: (i) Macroeconomic policies and economic development strategies that ensure both public-sector and private-sector investment in agriculture and food production. (ii) Appropriate policies to promote expansion and diversification of food availability and agricultural production in a stable and sustainable manner, and to regulate the import or export of foods and agricultural products to ensure food security. (iii) Policies that help create adequate employment opportunities for the rural poor and improving market efficiencies and opportunities. (iv) Policies that improve distribution and access to land, and to other resources such as credit, as well as other agricultural inputs. (v) Legislating for policies that deter discrimination and ensure equal status for women, and ensuring their effective implementation. (vi) Identification of good and culturally appropriate caring practices and policies that protect, support and promote good care and nutrition practices for children. (vii) Promotion of food-based approaches to improve household nutrition and to enable families to have access to the production and consumption of diversified diet. (vii) Regulations to improving food quality and ensuring food safety. (vii) Policies that enable public health measures to reduce the burden of infectious diseases and to ensure access to primary healthcare. (viii) Ensuring good governance and democracy and well-targeted aid from developed countries in the implementation of these policies and the relevant programmes aimed at reducing the burden of hunger and malnutrition.

The recognition of the emergence of the new problems posed by issues related to excess while still coping with those imposed by the overwhelming burden due to the problems of access would require new strategies and approaches. The deleterious consequences of rapid economic growth and development need to be guarded against and policies need to be in place to prevent one problem of malnutrition replacing another in these societies. Polices that need to be developed must tackle the wide range of nutritional problems that are faced by these societies. They hence need to be joined up to deal simultaneously with both ends of the spectrum of nutritional disorders and should be internally consistent in that solving one does not promote the other. They also need ensure the active involvement of a wide range of stakeholders in a joined up and integrated manner in order to be effective in addressing these challenges.

International agencies: Their role in addressing the dual challenges of access and excess in the developing world

While the answer to the question of whether international agencies have a role to play in addressing these nutritional challenges of access and excess faced by developing societies may well be a resounding 'yes', what role do they have and how have they have been playing this role hitherto may be up for serious debate.

Numerous international organizations and agencies have been playing an important role in reducing the burden of undernutrition in the developing world. They include: agencies of the United Nations (UN) system, international and regional development banks, regional cooperation organizations such as the African Union, bilateral (ie country-to-country) aid agencies, charitable foundations and the implementing agencies they create, international non-governmental organizations, major universities

and research centres and the dedicated centres of the Consultative Group on International Agricultural Research, academic journals and the non-specialist media, and multinational corporations and commercial food and nutrition companies (Morris et al, 2008). These international actors are able to mobilize financial, intellectual, and political resources that support country-level initiatives. Although they comprise a disparate group, with different objectives, products, and ways of working they are interlinked, financially, intellectually, and personally, and they also share a common target group—the malnourished populations that are their beneficiaries and clients. Despite their great potential for complementary and mutually reinforcing actions, it is stated that the various organizations often behave adversarially and compete for attention from the same few interlocutors at country level. They are also subject to criticism that they siphon off scarce human resources and promote poorly designed solutions to problems they cannot solve independently (Morris et al, 2008).

The discussion below relates to only the major international agencies involved in these activities which include both those which are designated developmental aid agencies funded mostly by governments from the economically developed world and those that are part of the UN system. The more recent interest, accompanied by funding, shown by multinational commercial corporations is of note, and thence a usurpation of the agencies' role.

Role of international development aid

International aid has played and continues to play an important role in tackling the problems of malnutrition in the developing world. A discussion on the developmental aid provided by rich countries to address the challenges of hunger and poverty is not the focus of this paper. There has been much debate and discussion in this area and interested individuals are directed to the erudite papers and debates available on this subject, some of which are provided here (Maxwell, 2005; Court, 2006, Rocha Menocal & Rogerson, 2006).

International aid programmes are not driven solely by science and, as with any geo-politically influenced policy strategies, scientific evidence is just a part of the mix. It is important to remember that the main aid policy drivers are first and foremost to further the national interests of the major donors ie the governments of the rich donor nations. The biggest donor of overseas development assistance in absolute terms is the USA largely thorough the US Agency for International Development (USAID). By federal law, USAID programmes, however beneficial to recipients, must further the interests of the USA, as interpreted by the US government of the day. It is also not out of place to reiterate that most often the bulk of the aid is spent on transactional costs favouring the peoples of the donor nations more than benefiting the recipients.

There has been much criticism on the quantum of development aid and the manner of its provision in recent times. The UNDP's Human Development Report (2005) specifically addresses the inter-related issues of aid and trade. The HD Report suggests that international development aid against hunger and poverty needs to be renovated and reshaped and should be considered as an investment as well as a moral imperative. It argues that the three conditions for effective aid are sufficient quantity, better quality and country ownership.

More focused critique of international aid relevant in this context relates to the diminishing support for agriculture in the last two decades. Support to small farms and farm holders, and to small-scale agriculture, is critical in tackling hunger and poverty. Most of the world's 450 million farmers are smallholders and 85% of them cultivate less than two hectares. Seventy-five per cent of the world's poor live in rural areas and agriculture is the principal source of employment and hence income and access to food. Agriculture stimulates at least 2.5 times more growth for the poorest third of the population than investment in other sectors. International donors have shifted their emphasis away from agricultural development. They are now spending only half as much in real terms on agricultural aid as in 1980 - $3.9 billion in 2006 compared to $7.6 billion in 1980. Aid to agriculture now accounts for just 3.4% of aid budgets and much of it prioritized in favour of the interests of global corporations over smallholders (Action Aid, 2008). More and better international aid needs to be targeted to support agriculture including rural infrastructure, inputs to increase sustainable food production, support for small-scale farmers, plant breeding research, development and knowledge sharing, and credit and insurance facilities for the poorest farmers.

Further there has been much debate recently on international food aid as a means to alleviate hunger. While there is recognition that food aid in emergency situations has provided food for starving populations and has saved millions of lives there is much criticism that food aid is a donor-driven response serving the interests of the donor nations rather than the food security needs of the recipients. Food aid is accused of creating 'dependency' on the part of recipients, undermining incentives for local agricultural development and distorting international trade. While the criticism that it creates dependency is not supported by evidence (FAO, 2006), food aid can depress and destabilize market prices in recipient countries, but evidence linking these price effects to negative outcomes for local agricultural production and development is poor. Food aid displaces commercial imports by recipient countries in the short run, but it may stimulate effects in the longer term as incomes grow and consumer tastes diversify. Thus well-targeted food aid can minimize the trade displacement effect. However the FAO report (2006) cautions donor nations to avoid falling into a 'relief trap' in which longer-term needs of recipient nations are neglected.

Role of UN agencies in food and nutrition security

The United Nations (UN) system was established after the Second World War and despite all its faults and limitations, it is a system of international governance with a level of built-in accountability (Latham, 2010). Relevant UN agencies with a role in food and nutrition include the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), the UN Development Programme (UNDP), the UN Children's Fund (UNICEF), the World Food Programme (WFP) and the International Atomic Energy Agency (IAEA). It also includes organizations such as the World Bank and the World Trade Organization (WTO). The heads of UNICEF, WFP and the World Bank are appointed by the US government while most others are elected by the member nations.

The UN nutrition system plays an important role acting as a knowledge base, providing technical advice and guidance and fulfilling a range of normative activities

to further good nutrition globally. An obvious problem with the UN system is that different UN agencies tend to have different and often competing or conflicting priorities, which contributes to some degree of dysfunctionality. The UN system set up a co-ordinating body whose task was to harmonize the UN agencies policies and programmes related to food and nutrition. Founded in 1977, this UN System Standing Committee on Nutrition (SCN), originally known as the ACC-SCN, continues to function although constrained by lack of funds and ability to co-ordinate a united UN response in this area. The general impression is that this effort of coordination and centralization has largely been a failure. Even when polices and programmes are supported by a strong research base, adequate programmatic experience, and growing public interest consequently leading to widespread donor interest and availability of resources UN agencies resort to turf wars, vie with each other to get their share, and rarely ever agree that the SCN should take on the role of a central coordinator (Latham, 2010).

The inability of the UN nutrition system, despite its stated shared objective of working together is largely attributed to lack of capacity, interest and incentive at all levels for integration. There is lack of interest from donors and emphasis on short-term outcomes. The inter-agency rivalries, overlap of activities and lack of coherence in strategy has also been blamed on the UN system. Issues related to conflicts of interest of advisors have also been recently highlighted (Cohen & Carter, 2010) while the close relations between some within the UN and the food or pharmaceutical industry has been highlighted in the past. While the UN system is now considered a principal proponent of public-private partnership and now espouses partnerships with business and industry, critics argue that the UN system needs to devote greater attention to seeing the bigger picture and to take account of key contributions, contradictions and trade-offs from this approach (Utting & Zammit, 2006). While UN system bashing seems a common enough occurrence, more attention needs to be given to the positive role it plays, while at the same time focusing on the sober analysis and pragmatic advice that is often generated to make it function more effectively in addressing the issues of under and over nutrition (Morris et al, 2008).

Role of multinational corporations in food and nutrition

Business and industry in the private sector are an important driving force and are increasingly playing an important role both in the developed and developing nations. This includes big agriculture, fertiliser, seed and livestock companies, large multinational food companies and big pharmaceutical companies that produce and market synthetic nutrients. Linked to them are the many organizations that are funded by them to interact with academia and governments.

In recent years both national governments of rich countries and the UN system organizations and other international agencies have recognized the importance of the role the private sector can play as a crucial stakeholders in international development in the food & agriculture and the health fields. Increasingly the rich developed nations are encouraging and incentivizing the involvement of the private sector in addressing the challenges of food and nutrition security in the developing world. The private sector in turn has also embraced this enlightened selfishness as it realizes that

economic development implies upward mobilities within societies and enhanced purchasing power and access to products, thus widening the existing consumer base for its numerous outputs. In short it makes eminent market sense to invest in improving the lot of the poor, marginalized and undernourished communities who are likely to move into the future accessible middle-class consumer base currently at the bottom and thus an unreachable and un-tappable market.

There are several good examples of private sector multinational corporation involvement in improving nutrition. The World Food Programme (WFP) launched a multi-million dollar programme harnessing the power of leading multinational companies to work together to end hunger and malnutrition among children in the developing world (WFP, 2009). Launched by the Clinton Global Initiative, this programme combines the know-how of WFP with the business expertise of private sector partners such as DSM, Heinz, Kraft Foods, Unilever and the Global Alliance for Improved Nutrition (GAIN). Multinational companies like Pepsico, Kellogg, DSM (Dutch State Mines/De Nederlandse Staatsmijnen) and others are also funding intervention trials to improve the nutrition of populations in the developing world. The important role of multinationals in agriculture, fertilizer, seed and livestock production and marketing enterprises including biotechnology precedes the recent investment seen directly in targeting malnutrition.

One important area where private sector involvement and contribution appears to pay rich dividends is in food fortification to eliminate micronutrient malnutrition or hidden hunger. Fortification of commonly eaten foods with micronutrients offers a cost-effective solution that can reach large segments of the population. Effective and sustainable fortification of food is possible only if the public sector, which has the mandate and responsibility to improve the health of the population, the private sector – which has experience and expertise in food production and marketing – and the social sector which has grass-roots contact with the consumer collaborate to develop, produce, and promote micronutrient-fortified foods (Mannar & van Ameringan, 2003).

Multinationals and the food industry are indeed an important partner with a crucial role in improving nutrition and promoting public health. A strong case has recently been made for a role for the industry (Yach, 2008). This argument is based on the emergence of new business models that tackle social problems while remaining profitable, which offers promise that the long-term nutrition needs of people can be met. Businesses can have greater impact acting collectively than individually. Food, retail, food service, chemical and pharmaceutical companies have expertise, distribution systems and customers' insights, which if well harnessed, could leapfrog progress in addressing the food and nutrition crises (Yach, 2008). However the recent debate between spokesmen of the industry (Yach et al, 2010) and public health specialists (Monteiro et al, 2010) in the American Journal of Public Health illustrates some of the problems we face both with regard to perception and practice in this arena. Time will tell whether the role played by the private sector has contributed much to reducing hunger and to increasing access while curbing excess.

Conclusions

The challenges to food and nutrition globally, but more specifically those populations of developing countries, is the old unresolved agenda of poverty, hunger

and undernutrition complicated now by the emergence of diet related diseases and obesity resulting from rapid economic development, globalization and urbanization. Many international agencies have played a role in addressing these issues and continue to do so. These include international development aid agencies, UN agencies and the private sector. Promoting their positive contributions while addressing the criticisms to ensure a more effective role for these international players is the challenge all nations face.

References

Action Aid (2008) Failing the rural poor: Aid, agriculture and the Millennium Development Goals. Action Aid International. South Africa.

Cohen D & Carter P. (2010). Conflicts of interest: WHO and the pandemic flu 'conspiracies'. BMJ 340: 1274-1279.

Court, J. (2006). Governance, Development and Aid Effectiveness: A Quick Guide to Complex Relationships. Briefing Paper, Overseas Development Institute, London.

Dube L, Webb P, Hawkes C, Shetty P & McKnight W. (2008). From crisis to a new convergence of agriculture, agri-food and health: what business and communities can do to help society to afford food and nutrition security worldwide? Mc Gill Univ. (Unpublished document).

FAO (2000) The state of food insecurity in the world 2000. FAO, Rome.

FAO (2006) The state of food insecurity in the world 2006. FAO, Rome.

Hall DO. (1998). Food security: what sciences have to offer? A study for ICSU. International Council for Science(ICSU). http://www.icsu.org/Gestion/img/ICSU Food_Security.pdf (accessed 26 July 2010).

Kennedy G, Nantel G & Shetty P. (2006). The double burden of malnutrition: Case studies from six developing countries. FAO Food & Nutrition Paper 84, 1 – 20. Rome, FAO.

Latham M. (2010). The great vitamin A fiasco. J World Publ Hlth Nutr Ass 1: 12-45.

Mannar MG & van Ameringen M. (2003). Role of public-private partnership in micronutrient food fortification. Food Nutr Bull 24: S151-154.

Maxwell S. (2005). Spyglass. Spigot. Spoon. Or Spanner. What future for bilateral aid? Working Paper 250, Overseas Development Institute, London.

Monteiro CA, Gomes FS & Cannon G. (2010). The snack attack. Am J Publ Hlth 100: 975-981.

Morris SM, Cogill B, Uauy R for the Maternal and Child Undernutrition Study Group. (2008). Effective international action against undernutrition: why has it proven so difficult and what can be done to accelerate progress? Lancet 371: 608-21.

Rocha Menocal A, Rogerson A. (2006). Which way the future of aid? Southern civil society perspectives on current debates on reform to the international aid system. Working Paper 259, Overseas Development Institute, London.

Sen A. (1982). Poverty and famines: An essay on entitlements and deprivation, Oxford, Clarendon Press.

Shaw DJ. (2007). World food security: A history since 1945. Palgrave Macmillan, New York.

Shetty PS. (2000). Diet and life-style and chronic non-communicable diseases: What determines the epidemic in developing societies? In: Nutrition Research: current scenario and future trends (Ed K Krishnaswamy), pp153-168. Oxford & IBH, New Delhi.

Shetty PS. (2006). The Boyd Orr Lecture: Achieving the goal of halving global hunger by 2015. Proceedings of the Nutrition Society 65: 7-18.

Shetty P. (2008). Malnutrition and nutritional policies in developing countries. In: The companion to development studies. (Editors: Desai V & Potter RB) Second edition. P399-402. Hodder Education, London.

Shetty PS. (2009). Incorporating nutritional considerations when addressing food insecurity. Food Security 1: 431-40.

UNDP (2005) Human Development Report 2005: International co-operation at a crossroad: Aid, trade and security in an unequal world. United Nations Development Programme, New York.

Utting P & Zammit A. (2006). Beyond pragmatism: appraising UN-business partnerships. United Nations Research Institute for Social Development, Switzerland.

US National Institute of Health (1998) Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: the evidence report. National Heart Lung & Blood Institute, USA.

Weingartner L. (2005). The concept of food and nutrition security. In: Achieving Food and Nutrition Security: Actions to Meet the Global Challenge (Editor: K. Klennert) InWEnt (Internationale Weiterbildung und Entwicklung gGmbH), Germany.

WHO (2000) Obesity: preventing and managing the global epidemic. World Health Organization, Geneva.

WHO/FAO (2003) Diet, nutrition and the prevention of chronic diseases. Technical Report series 916. World Health Organization, Geneva.

World Food Programme (2009) News 25 September 2009: Global companies join forces with WFP to end hunger. http://www.wfp.org/news/news-release/global-companies-join-forces-wfp-end-hunger (accessed 31 July 2010).

Yach D. (2008). The role of business in addressing the long-term implications of the current food crisis (Editorial). Globalization and Health 4: 12.

Yach D, Feldman ZA, Bradley DG & Khan M. (2010). Can the food industry help tackle the growing global burden of undernutrition? Am J Publ Hlth 100: 974-980.