

Lies, Damn Lies...

The false facts about food production



Soil Association



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Introduction

In the last couple of years, two statistics about the need to increase global food production by 50% by 2030 – and for food production to double by 2050 – to meet future demand have been used worldwide by scientists, politicians and agriculture and GM industry representatives alike. These figures have come to play a significant role in framing current international policy debates about the future direction of global agriculture.

These apparently scientific statistics are dominating the policy and media discourse about food and farming, leading almost everyone to assume we need vast increases in agricultural production to feed a population of 9 billion by 2050 (in the context of also needing to drastically reduce greenhouse gas emissions). While ensuring an equitable and sufficient future food supply is of critical importance, many commentators are using this to justify the need for more intensive agricultural practices and, in particular, the need for further expansion of GM crops.¹

This briefing paper reports our investigations into the sources and basis of these statistics. It outlines the assumptions upon which they are based and shows that, among others, the UK Government's Chief Scientific Advisors, the US Secretary of Agriculture, the Chief Scientist of the US Department for Agriculture (USDA), Syngenta, Monsanto and many US and UK politicians have all got their facts wrong.

Executive summary

- ▶ The two figures on increasing global food production – '50% by 2030' and 'doubling by 2050' – are being widely used by key individuals in current agricultural policy debates. The figures are claimed to represent the increases in food production that scientists say are needed to feed the world's growing population.
- ▶ However, when the Soil Association looked into the reported sources for these figures, none of the sources actually stated that global food production needs to increase by 50% by 2030, or to double by 2050, to meet global demand.
- ▶ Indeed, in the case of the '50% by 2030' figure, the authors of the report where it was supposed to have originally appeared would not provide a copy of it, and instead pointed to more recent publications which do not repeat the 50% claim.
- ▶ Recent calculations show that the key source for the 'doubling' claim – the FAO (2006)² report – implies that global food production for 2006–2050 would need to increase by around 70%, not 100%; a difference equivalent to the entire food production of the continent of America.
- ▶ The reports on which the claims are based do state that certain sectors, in certain parts of the world, may have to increase food production by significant amounts. For example, there is a projected increase of 1 billion metric tonnes annually for cereals over the 2 billion metric tonnes produced in 2005 (a 50% increase by 2050), mainly to feed animals. For meat, in developing countries only (except China), the reports say that some of the growth potential (for increased per capita meat consumption) will materialize as effective demand, and their per capita consumption could double by 2050. So this is a projected doubling of meat consumption

in some developing countries – not a doubling of global food production. Note that effective demand is the demand that is supported by the consumer's ability to pay.

- ▶ These projections are based on a 'business as usual' scenario, which includes the following assumed trends:
 - ▶ Increased global population and economic growth
 - ▶ Increased per capita consumption of calories in developing countries
 - ▶ Continued growth of imports of food by developing countries
 - ▶ Structural change in diets of people in the developing world (nutrition transition) to include more meat and dairy products.
- ▶ There are four key problems with continuing to use these 'business as usual' trends:
 - ▶ Negative health impacts of the diet transition: our diet in the developed world is causing serious disease and obesity problems and these are now starting to increase in the developing world
 - ▶ The limited way in which food security is measured: the data used to measure food security focuses attention solely on the level of agricultural production and does not consider access to food, distribution, and affordability which are all important in ensuring that people do not go hungry
 - ▶ Incorrect assumptions about trade patterns: the projections assume that the developing world continues to import growing quantities of staple food stuffs – others have argued that increasing local production of staple foods is vital in ensuring food security
 - ▶ Does not end hunger: meeting these projected

food demand targets will not solve food insecurity anyway.

- ▶ All those using these figures appear to be ready to contemplate dietary changes in developing countries that are likely to cause major new epidemics of diet-related ill-health, including heart disease, some cancers and Type 2 diabetes. Many of those misusing the statistics in the FAO (2006) paper to argue for massive increases in global food production appear unaware that they are, in effect, condemning many in developing countries to ill-health and early deaths.
- ▶ In addition, the FAO (2006) projections endorsed by various government and industry officials assume a huge rise in numbers of livestock, in particular that there will be over a billion extra beef and dairy cattle by 2050, which would cause catastrophic increases in methane emissions. Methane is an extremely powerful greenhouse gas, 23 times more potent than CO₂.
- ▶ A recent scoping study³ examined how we can feed and fuel a world of 9 billion people in 2050 sustainably, fairly and humanely. Significantly, the report provides evidence "that organic agriculture can probably feed the world population of 9.2 billion in 2050, if relatively modest diets are adopted, where a low level of inequality in food distribution is required to avoid malnutrition".
- ▶ In summary, all those claiming that we need to double global food production by 2050, or increase global food production by 50% by 2030, are wrong about the figures, are wrong about what the figures apply to, and are wrong to claim that achieving these figures will mean that we are feeding the hungry or halting starvation.

Who has been using these statistics?

Tom Vilsack, the Secretary of the USDA stated at the UN Climate Change Conference in Copenhagen in December 2009⁴ that global food production would have to double by 2050. The director of The National Institute of Food and Agriculture (NIFA) and the USDA's chief scientist, Roger Beachy, has also used the figures stating that food production must double by 2050.⁵

A number of prominent corporations have also used the disputed figures, including Land 'O' Lakes⁶ and Nutreco⁷, both global leaders in animal nutrition. At a recent conference, James Barkhouse, managing director for Syngenta Crop Protection, is reported to have talked of how farmers will have to deliver a doubling of food production by 2050.⁸ Monsanto have also used this statistic.⁹

Several Senators, including Richard G Lugar (R-Indiana) and Robert P Casey Jr.(R-Pennsylvania), have also made these claims – indeed, these senators used the figures to launch their 'Global Food Security Act'.¹⁰

A number of groups including the National Agricultural Biotechnology Council – which represents more than 30 of the leading not-for-profit research and educational institutions in North America – and The Global Harvest Initiative¹¹ – founded by DuPont, Monsanto, John Deere and the major agricultural commodities corporation Archer Daniels Midland – also use the assumption that food production must double by 2050 to frame their policies on crop production and biotechnology. DuPont pulled in former Senator Tom Daschle to chair an advisory committee to study agriculture and food production issues. In the press release for the launch of this committee the requirement to double food production by 2050 was once again noted.¹²

Outside of the US, Professor Julian Cribb, a fellow

of the Australian Academy of Technological Sciences and Engineering and Adjunct Professor of Science Communication at the University of Technology Sydney, has also used the same figures in his report *The Coming Famine: The global food crisis and what we can do to avoid it*.¹³

In the UK, Professor John Beddington, the Government's Chief Scientific Advisor, and Professor Bob Watson, the Department of Environment, Food and Rural Affairs' (Defra) Chief Scientific Advisor, have both publicly said that food production needs to increase by 50% by 2030.¹⁴ Watson is also reported to have said that food output needs to double within the next 25–50 years,¹⁵ and is joined by the Government's former Chief Scientific Advisor, Sir David King, who has also spoken of the need to double food production by 2050.¹⁶

As this paper demonstrates, all of them are making claims for which there is no scientific evidence, and which are contradicted by the scientific research that they claim to be relying on.

Who are the original sources of these figures?

Both the '50% by 2030' and 'doubling by 2050' figures can be traced back to two speeches given at the United Nations' Food and Agriculture Organisation (FAO) High-Level Conference on World Food Security in June 2008. Ban Ki-moon, Secretary-General of the UN, said "The world needs to produce more food. Food production needs to rise by 50% by the year 2030 to meet the rising demand."¹⁷ At the same event, Jacques Diouf, Director-General of the FAO, stated that "Global food production must be doubled to feed a world population currently standing at 6 billion and expected to rise to 9 billion by 2050."¹⁸ The UK Government's Chief Scientific Advisor, Professor John Beddington, told the Soil Association that he took the 50% by 2030 figure from the speech given by Ban Ki-moon.¹⁹ The USDA reports stating the need to double food production by 2050 also refers back to the UN as a source.²⁰

However, it is not immediately clear where Jacques Diouf and Ban Ki-moon sourced the figures. The UK House of Commons Environment, Food and Rural Affairs Committee have looked into this issue in its report *Securing Food Supplies up to 2050: The challenges faced by the UK*.²¹ This report states that the source of the 50% by 2030 figure was *Future Scenarios for Agriculture: Plausible futures to 2030 and key trends in agricultural growth*,²² while the source of the doubling by 2050 figure was an FAO report *World Agriculture: Towards 2030/2050*.²³ These were cited as the principal sources in e-mail correspondence between the Committee and the UK Department for International Development (DfID).

The latter report²⁴ was easily found on-line but the Soil Association had problems tracking down the former. Publication Services at the International Food Policy Research Institute (IFPRI), the authors of the report, informed the Soil Association that

"the paper you requested is currently not available". The authors suggested they instead look at two other documents²⁵ which "provide updates from the IMPCAT model compared to when the [WDR background] paper was produced".²⁶ The Soil Association asked the Clerk of the UK House of Commons Environment, Food and Rural Affairs Committee but the committee did not have a copy.²⁷ The Clerk suggested contacting the UK Department for International Development (DfID). DfID did not have a copy of the report but asked the publishers directly.²⁸ The Soil Association is still waiting to hear back from DfID as to whether they have been successful in obtaining a copy.

What are experts actually saying about future food demand?

The supposed source of the doubling by 2050 figure, the FAO report *World Agriculture: Towards 2030/2050*, does not contain the statement that total global food production needs to double by 2050 to meet demand. Instead, it contains the rather more complex and nuanced message that there will be a decline in the rate of growth of consumption in the future, although this still results in large overall absolute increases in production needed. The only specific statements about large percentage increases in demand are focused on the developing world (where the increases in population will be) and are concerned only with meat and cereal production, not all food.

The largest projected increases in food demand are for cereals and for meat and dairy products. For cereals, there is a projected increase of 1 billion metric tonnes annually over the 2 billion metric tonnes of 2005, a 50% increase in cereals by 2050. The report acknowledges that the bulk of the consumption increases will occur in the developing countries where animal feed will be required to support the projected expansion of livestock production.²⁹

For meat specifically, the report states "The rest of the developing countries [aside from China] still have significant scope for growth, given that their annual per capita meat consumption is still a modest 16kg. Some of this growth potential will materialize as effective demand and their per capita consumption could double by 2050, i.e. faster than in the past."³⁰ In the specific case of India, it is argued that "Overall, the force of growth of poultry meat consumption has the potential of raising India's average consumption of all meat to more than double present levels by 2030 and more by 2050."³¹

In this report, other food groups play a much less

significant role in their relative contribution to food demand than meat and dairy products. However, the potential exists for further growth in consumption of vegetable oils, and the same for sugar, although it will not be as vigorous as in the past. It is predicted that there will be reversal in the decline of roots, tubers and plantains while the consumption of legumes will stay approximately the same.³²

The references provided by IFPRI in place of the requested document for the 50% by 2030 claim paint a similar picture. Chapter 5 of the *IAASTD report*,³³ in its 'reference world' model, sees a rapid growth in meat and milk demand with increased diversification of diets. Total cereal demand is projected to grow by 1,305 million metric tonnes, or by 70%. Of this, 42% is for animal feed. The global population of bovines is projected to increase from some 1.5 billion animals in 2000 to 2.6 billion in 2050 (73% increase). Poultry numbers are projected to more than double by 2050. The ACIAR report³⁴ states that changes in cereal and meat consumption per capita vary significantly among regions. For example, per capita meat demand is projected to more than double in the South Asia and sub-Saharan Africa region. Total cereal demand is projected to grow by 56% (of this, 41% for animal feed).

The mystery over the source and basis of these figures has not gone unnoticed. In their response to the UK Environment, Food and Rural Affairs Committee report on *Securing Food Supplies up to 2050: The challenges faced by the UK*, the UK Government say they are further investigating the headline figures that have been used in international fora.³⁵ They have looked at the FAO (2006) projection and argue that if 2000 is considered the starting point then the "FAO projections roughly correspond to the Conference figure" (56% over the period

2000–2030 and 87% increase over the period 2000–2050).³⁶ Officials calculate that for the period 2006–2050 this would be an increase of around 70%. This figure has been confirmed in this year's OECD–FAO *Agricultural Outlook, 2009–2018*³⁷ and *The Resource Outlook to 2050*, both published in June 2009. The latter argues that in developing countries this increase will be nearly 100% (97%).³⁸

The UK Government acknowledges³⁹ that "The difference between 100% and 70% is not trivial: it is more than the food production of the whole American continent. So claims around food production needing to increase 50/100% need to be treated with care."

Back in the US there is also confusion about which figures to use. By April 2010, Agriculture Secretary Tom Vilsack had shifted from talking about doubling food production by 2050 to the figure of a 70% increase, although other USDA reports were continuing to report a doubling of food production at the same time.⁴⁰ While a re-evaluation of the veracity of the claim that food production needs to double by 2050 is to be welcomed, simply switching to the figure of 70% is still problematic. The statistic of a 70% increase is still predicted on the same 'business as usual' model as the 'doubling' figure; the problems with these projections are outlined in this report. And this leaves aside the fact that the USDA as a whole is still talking about doubling food production by 2050.

On what basis are these projections calculated?

Increases in global population and economic growth

The FAO (2006) report states that "the exogenous economic growth assumptions used here, together with the growth of population, are the major determinants of projected food consumption, though by no means are they the only ones".⁴¹ It uses population growth figures from the UN (2004), which predicts that by 2050 the world population may reach 8.9 billion. Income growth projections are based on World Bank projections (2004 and 2006) to 2030 and 2020–2050 based on the author's projections. The model describes a 'normal evolutionary path' with food consumption growing quickly with economic growth until it slows down, and eventually levels off, as high levels of around 3,000kcal/person/day are achieved.⁴²

Increased per capita kcal consumption in developing countries

These projected increases in demand for food are driven by increased per capita food consumption in the developing countries whose average will have risen from the present 2,650kcal to over 3,000kcal in 2050.⁴³

However, as stated in FAO (2006), "Many other factors besides population and average GDP growth influence the apparent levels and commodity composition of food consumption and have to be taken into account in the process of all phases of analytical and evaluation work."⁴⁴ These include:

Continued growth of imports by developing countries

FAO (2006) describes how the growing imports of, mainly, cereals, livestock products, vegetable oils

and sugar, by many developing countries has resulted in the group of developing countries as a whole turning from net agricultural exporters to net importers in most years after the early 1990s.⁴⁵ The structural factors underlying these trends are likely to continue. For example, in the case of cereals, the projections assume that the past trends of ever growing net cereal imports of the developing countries should continue to grow to some 300 million metric tonnes by 2050, as 2.7-fold increase over the 112 metric million tonnes of 1999–2001.⁴⁶

Structural change in diets of people in the developing world (nutrition transition)

The projections reflect a continuing pattern of structural change in the diets of people in developing countries with a rapid increase in livestock products (meat, milk and eggs), vegetables oils and to a smaller extent, sugar, as sources of food calories. These three food groups now provide 29% of total food consumption of the developing countries (in terms of calories) and their share is projected to rise further to 35% in 2030 and 37% in 2050.⁴⁷ From the perspective of the Soil Association, this is one of the most controversial predictions made in these papers.

What are the problems with these projections?

There are four key problems with these projections:

Health impacts of the nutrition transition: exporting our Western diet

First, related to the point above, there are widespread concerns about the health impacts that the structural changes in diet have already had in the developed world, and that are increasingly occurring in the developing world. While animal foods are important sources of protein, energy and nutrients (such as iron, calcium, vitamin B123 and zinc), they are also major sources of saturated fats in the human diet. In addition to other behaviors, such as physical inactivity and tobacco use, such diets are a leading cause of non-communicable diseases (NCDs) including cardiovascular disease, some cancers and Type 2 diabetes.⁹

The UK Cabinet Office acknowledged in 2008 that "existing patterns of food consumption will result in our society being loaded with a heavy burden of obesity and diet-related ill health" and "existing patterns of food production are not fit for a low-carbon resource-constrained future".⁴⁹ In 2007–2008 in the US, 33.8% of adults were diagnosed as clinically obese.⁵⁰ Between 1976–1980 and 2007–2008, obesity among pre-school age children (2–5 years of age) increased from 5% to 10.4% and from 6.5% to 19.6% among 6–11 year olds. During the same period, obesity among adolescents (aged 12–19) increased from 5% to 18.1%.⁵¹

According to a study of national costs attributed to both overweight (Body Mass Index (BMI) 25–29.9) and obesity (BMI greater than 30), medical expenses accounted for 9.1% of total US medical expenditures in 1998, and may have reached as high as \$78.5 billion (\$92.6 billion in 2002 dollars).⁵² These figures will only rise. In the UK, the costs of obesity were

approximately £1 billion in 2002 and are predicted to rise to £5.3 billion by 2025.⁵³ Note that this is a country with an adult obesity level of 24% – almost 10% less than the US.

Friel *et al* (2009)⁵⁴ found that, for the UK population, a 30% decrease intake of saturated fats from animal sources could reduce the total burden from ischaemic heart disease by 15% in disability-adjusted-life-years (DALYs), by 16% in years of life lost, and by 17% in number of premature deaths.

Wang *et al* (2003)⁵⁵ conducted an economic evaluation of a two year obesity-reduction program in schools in Massachusetts, which concluded that the prevalence of obesity among girls participating in the intervention program was reduced significantly compared to those in the control schools. At an intervention cost of \$14 per student per year, the program would prevent an estimated 1.9% of the female students from becoming overweight adults. As a result, an estimated 4.1 Quality Adjusted Life Years (QALYs) would be saved by the program, and society could expect to save an estimated \$15,887 in medical care costs and \$25,104 in productivity costs. These findings translated to a cost of \$4,305 per QALY saved and a net saving of \$7,313 to society.

The continuation of dietary transition in developing countries, as predicted by FAO (2006), is likely to cause worsening health problems. Diet-related heart disease and stroke have already taken over as the two leading causes of death in low and middle-income countries.⁵⁶ The report itself admits that "These rises are not always an unmixed blessing as the diet transitions experienced by many countries imply changes in diets towards energy-dense ones high in fat, particularly saturated fat, sugar and salt and low in unrefined carbohydrates." The report further acknowledges that "In combination with lifestyle changes, largely associated with rapid

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urbanisation, such transitions, while beneficial in many countries with still inadequate diets, are often accompanied by a corresponding increase in diet-related chronic non-communicable diseases (NCDs).⁵⁷

Experts in the US, such as the Global Health Council; in the UK, such as the Government Chief Scientific Advisor; and others across the world appear to be ready to contemplate changes in diet in developing countries that may cause major new health problems, and commensurate costs. Many of those misusing the statistics in the FAO (2006) paper to argue for massive increases in food production seem unaware that they are, in effect, condemning many in developing countries to ill-health and early deaths.

Measuring food security: focus on availability and agricultural production

As Amartya Sen famously wrote, "starvation is the characteristic of some people not *having* enough food to eat. It is not the characteristic of there *being* not enough food to eat. While the latter can be a cause of the former, it is but one of many *possible* causes."⁵⁸ His argument has made some inroads into current thinking about food security. Today, food security is commonly conceptualized as resting on three pillars:

- ▶ Availability (total amount of agricultural production)
- ▶ Access (what can be afforded given income and food prices, what safety nets exist, or what people can grow themselves)
- ▶ Utilization (for example, are the foods prepared in sanitary conditions, or is the person well enough to obtain the full nutritional value).⁵⁹

However, the measure used in the report (standard for FAO) is based on per capita food consumption in calories to calculate undernourishment and is based on the availability criterion (supply-side) only.⁶⁰ Crude food availability measures (like the FAO's) enable frequent and geographically broad estimates, but at the expense of neglecting waste, and the inevitably unequal distribution and uses of food within a population. Data obtained from individual and household surveys on a national scale provides disaggregated data that allows more accurate prediction of who is most likely to be affected adversely by potentially harmful shocks, such as food price increases, drought, or slumping demand for wage labor.⁶¹

The way that food insecurity is measured is important because it influences the policy response from governments. Historically, reliance on national food availability estimates has focused attention on agricultural production strategies to increase food supplies in the long term. Aggregate food availability is a poor predictor of other food insecurity indicators: the undernourished population has increased by 9% globally despite a 12% rise in global food production per capita since 1990.⁶²

Thus, the FAO (2006) report and the wider debate over feeding the world through increased food production fails to acknowledge that "The continuing, large-scale problem of food insecurity is primarily a distributional issue, a matter of getting available food to people who need it, when they need it, and of ensuring their regular, appropriate, affordable access to food."⁶³

It is even acknowledged by governments and other organizations that simply increasing food production will not end hunger. The UK government recognized that "Even when food was at its cheapest in 2000, there were still 800 million people without enough

food to eat. There are huge problems in terms of access to food, distribution, and affordability."⁶⁴

Assumptions about trade patterns: need for local staple food production for food security

The projections contained within the FAO (2006) report assume a continuing pattern of developing countries being net importers of cereals and livestock products (as well as vegetable oils and sugar). For example, it is argued that "Not all countries will be able to increase cereals production *pari passu* [hand in hand] with their consumption. Therefore, past trends of ever growing net cereal imports of the developing countries should continue and grow to some 300 million metric tonnes by 2050, a 2.7-fold increase over the 112 million metric tonnes of 1999/01."⁶⁵

A recent Christian Aid report from July 2008⁶⁶ noted that this trend of increasing imports of main food stuffs has left developing countries more at risk from high food prices, as they have come to depend more on buying food on world markets rather than growing their own. With the opening up of markets, cash crops for exports have been promoted, and the most productive land is then used to grow these crops, squeezing out domestic food producers. They argue that while the intention has been to raise the incomes of marginal producers, it has reduced agricultural diversity and countries have been left importing staples from abroad. Christian Aid state that "investing equally in staple crop production would have reduced the risks of food shortages and enhanced opportunities for development."

The importance of developing local agriculture is actually noted by the FAO (2006) report:

"Unless local agriculture is developed and/or other

income earning opportunities open up, the food insecurity determined by limited local production potential will persist, even in the middle of potential plenty at the world level. The need to develop local agriculture in such situations as the condition *sine qua non* for improved food security cannot be overemphasized."⁶⁷

So to reduce the risks of malnutrition and starvation, we need to move to a position where developing countries increase the local production of staple foods, and import less grain and livestock products from developed countries, not more, as the FAO (2006) report assumes.

Meeting these projected food demand targets will not solve food insecurity

Perhaps most significantly, even if the increases in food production were achieved this would not solve problems of food insecurity. FAO (2006) itself indicates there will still be several countries in which the per capita food consumption will not increase to levels allowing significant reductions in the numbers of undernourished people from the very high levels currently prevailing. Based on the projections outlined in Table 2.2 in FAO (2006), in 2030 12% of the developing country population (810 million people) will still be living in countries with low levels of food consumption (under 2,500 kcal) and the number will still be 130 million in 2050. Indeed, as FAO (2006)⁶⁸ states, the reductions in the prevalence of under-nourishment in developing countries would be "rather modest". The 810 million of 1999/2001 (17.2% of the population) may become 580 million in 2015 (10.1%), 460 million in 2030 (6.9%) and 290 million (3.9%) by 2050.

The approach of the FAO (2006) report is positive rather than normative. That is, its assumptions and

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projections reflect the authors' vision of the "most likely future"⁶⁹ but not necessarily the most desirable one.

A recent scoping study⁷⁰ examined how we can feed and fuel the world sustainably, fairly and humanely. It explored the feasibility of feeding 9 billion people in 2050 under different diet scenarios and agricultural systems. It recommended that "any effective measures to reduce the level of consumption of animal products (including those derived from eggs and milk) are beneficial in terms of environmental impacts, animal welfare, biodiversity and bioenergy potential".⁷¹

The report acknowledged that for a "western high meat diet" to be "probably feasible...would require a combination of massive land use change, intensive livestock production systems and intensive use of the arable land."⁷² This would have negative impacts for animal welfare and lead to further destruction of natural habitats like rainforests. Significantly, the report provides evidence "that organic agriculture can probably feed the world population of 9.2 billion in 2050, if relatively modest diets are adopted, where a low level of inequality in food distribution is required to avoid malnutrition".⁷³

Conclusion

It is clear that there is considerable uncertainty about the sources of the two figures stating that global food production must increase 50% by 2030 and double by 2050. The Soil Association was not even able to get hold of the supposed source of the '50% by 2030' figure, and the reference provided for the "doubling global food production by 2050" (the FAO 2006 report) did not contain this statistic. In fact, it is now calculated that the data provided in the FAO report shows that the increase between 2006 and 2050 might be 70%, not 100%.

In any event, the modelling work used in the FAO (2006) report assumes very large increases in cereal (nearly half of it for animal feed) and meat demand in the developing world. These are based on assumptions that include a continuing dietary shift to higher meat and dairy consumption in the developing world. Such shifts have drawn considerable concern over the health impacts. The data used to measure food security focuses attention on one aspect, not necessarily the most significant, namely levels of agricultural production, and does not consider access to food, distribution, and affordability. The projections are based on the assumption that the developing world will continue to import their main food stuffs. Others have argued that increasing local production of staple foods is vital in ensuring food security.

However, it is perhaps the biggest irony that the widely used figures for increasing food supply will not only be bad for the health of growing numbers of people in developing countries, but will not even ensure that others in those same countries get enough food to eat. This is despite the fact that those who use the figures justify them by the need to "feed the world". These calls are based on a report where the authors set out what they thought would be the most likely future, but not the most desirable

one. Our food and farming policy should be based on a strategy that aims to ensure no one in the world is going hungry by 2050, not a future of continuing hunger, growing diet-related ill-health and huge increases in greenhouse gas emissions from livestock.

Soil Association
April 2010

A Greener World
May 2010

Endnotes

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