FSN FORUM DISCUSSION
DO POPULATION DYNAMICS AGGRAVATE FOOD AND NUTRITION INSECURITY? MONITORING CHANGE IN COMPLEX TIMES

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I. GENERAL INFORMATION

Duration:	From 10.11.2008
Facilitator:	Charles Teller
Number of participants:	8
Number of Contributions:	11

II. INTRODUCTION OF THE TOPIC

Dear Forum Members

I am **Charles Teller**, a sociologist-demographer/ecologist who has taught, lived and worked as a social scientist and multidisciplinary planner/evaluator of food, nutrition, health, population and development programs in over 50 countries in the Latin America, Asia and Africa. I am currently Visiting Scholar at the Population Reference Bureau in Washington, DC, as well as adjunct associate professor of Population and Development, Institute of Population Studies, Addis Ababa University, Ethiopia (where I lived from 1994-2002).

Given my experience and interest in population and human development issues, I would like to launch a discussion on the **population-food-nutrition and development linkages**. As a starting point, I would like to bring your attention on the today's most hotly debated issues:

1. Ideological bias: The Malthusian pessimists and the Bosrupian/Simonian optimists have often clouded an impartial analysis of the population-food-nutrition linkages. The 2008 World Food Day pundits were either split on whether population was "the most important factor in the increase in the number of undernourished people in the last 5 years" (eg, J. Sachs at the Oct. 2008 Dublin Food Conference), or didn't mention it at all.
2. Muddy FS/N indicators: The conceptual confusion over the valid and reliable measurement of the outcome FS/N indicators was pronounced: the international analysts had a "milk shake" of negative impacts: starvation, famine, hunger, food insecurity, food stress, food poverty, undernourishment, lack of dietary diversity, undernutrition, underweight, stunting, wasting, GAM, SAM, excess nutritional mortality, and vitamin/mineral deficiencies.
3. Unreliable measurement of the demographics of FS/N change: reliable and timely demographic, surveillance and information on specific acute and chronic vulnerable groups was often not available for policymakers. Thus the media and advocacy organizations often "cherry-pick" the data they need to make their case or sell their product! However, the long-term trends in sub-Saharan African in "stunting" show more positive evidence that about one-third of the countries have had significant improvements (PRB, October 2008), and that most of the increase in the undernourished since 2000 are found in the most fragile states (eg., DRC)
4. Multiple demographic dynamics and human development: there are at least five dynamics at macro and micro levels:
   1) population size and growth rates;
   2) spatial distribution, population-land/natural resource density;
   3) migration and urbanization;
   4) family size, fertility and birth spacing; and
   5) Age distribution, youth bulge and ageing.

   All five should be considered as demographic factors that effect household food security and nutrition, and whether positively or negatively depending on the context and vulnerability and resilient of the particular population group.
5. Broken international systems to address FS/N: see the recent Lancet series on international nutrition (Black et al, Lancet, 371, 2008), the very recent Blog on the "Failed leadership in health sector.." (Teller, in: http://aphaih.wordpress.com). A recent paper by the Center for Global Development on the "Global Nutrition Landscape" highlight a crisis on international players as disconnected from country priority-setting, policy-making and implementation systems.

To inform these discussions and form the basis for further action, I look forward to hearing your experiences and insights as to the following:

1. What **types of analyses** do you have about the recent **effects/impacts of demographic dynamics** on specific and different food/nutrition insecure and vulnerable

populations within a country? Are they related to the current global energy, food, and financial crises? Do these dynamics either significantly **aggravate and/or help these vulnerable populations** in their resilience and resourcefulness? How? Please provide specific sources of information in support of your contribution

2. **Who, when and where are the most vulnerable population groups**, communities and agro-ecologies **affected by demographic changes** in the size, distribution, structure and composition? How these changes influence their resilience, local capacity and resourcefulness? Please identify the specific groups.
3. What are the **policy and program responses** (if any) to these various population trends and its implications on FS/N in your country (e.g. family planning; land reform; rural resettlement; food safety nets)? Are the population dynamics adequately taken into account and which of the dynamics seem to be prioritized by decision makers? Have there been good evaluations (if any) of policy response effectiveness?

I have learned from many of you in the FSN forum who work at local level and are intimately struggling with the complexity of these every changing contextual situations. I would most appreciate learning from reliable, representative, timely and responsive **demographic and food/nutrition/health information systems** (of any type) **which track seasonal and yearly changes in population dynamics** of vulnerable populations and households, and case studies of the remarkable resilience and local capacity to withstand frequent shocks.

Your responses and information will be most useful to our work on this topic in Ethiopia. Your contributions will indeed generate a valuable source of information that can contribute to new ideas and the collection of concrete experiences on the linkages between population dynamics, food security/nutrition and socio-economic development and cultural change. It will also have relevance to other countries in Africa and South Asia.

Looking forward to hearing from you!

Charles Teller

III. LIST OF CONTRIBUTIONS

Contribution by Jacques du Guerny, former Chief of the FAO Population Programme Service

Dear Forum members,

Since I left FAO in 2000, the invitation to join the FSN forum discussion came as a surprise… I wondered first whether I should decline, then if somehow I could still provide some useful information despite having been out of the loop! It seems that relating the discussion to the World Food Summit of 1996 might then be useful and if so, then I might be able to shed some of background light of why and how the technical document “Food Requirements and Population Growth” was prepared. This would facilitate the present day critical rereading of the study and thus help relate the forum members to a process which evolved over time.

It must be stressed that I have not kept files on the preparation process and therefore the note you can find at:
http://km.fao.org/fileadmin/user_upload/fsn/docs/Note_WFS_TechnicalBackgroundDocument.doc is a recollection of something which happened from mid 1994 to mid 1996 and is

thus subject to errors of recollection and filtering by memory. It is a personal account. If any of the participants in the discussion have different or supplementary information, I shall be delighted to learn of it and, eventually, stand to be corrected.

Many points could be raised, I would just like to select a few general ones without entering into a detailed discussion.

1. Did the document have an impact?

a) This is difficult to measure because just checking a search engine for citations would probably not be a reliable one due to the fact that if it has an impact in ministries references would often not appear in final documents and in those years few documents were published on the web and especially not internal documents. Still, my candid impression is that it did not have much impact on the intended audience, ministries of agriculture. No feedback arrived from them: it seems that like for other long term issues, it is difficult for political bodies to take them into account. Which agriculture minister would take a half century time horizon and the associated challenges into account? **The lesson to be learnt is that such documents would in fact need to be followed up in media dissemination**, in workshops, etc. in order to let the messages be discussed and taken into account. One document is not sufficient, a delivery strategy is necessary.

b) However, **the document did generate an interest and perhaps an impact where it was not anticipated**. There were reactions from military and geo-strategic organizations who felt such issues and scenarios needed to be taken into account within an evolving concept of security. There were also some symptoms of interest from agribusiness and pharmaceuticals. This appears logic in view of the need for long term strategies and the time necessary to develop new products. Such work can have potential implications for fertilizers or medicine (ageing, obesity, etc.).

2. **Traditional geographic divisions, Africa, Asia, Latin America are not very helpful when dealing with issues such as food requirements**. Tables of requirements are presented in the document using this classical typology and using a typology based on dietary patterns. Although the dietary patterns are rough, the sharpness of needs appears much more clearly, for example, Africa has three patterns with quite different results; presenting Africa as a continent hides the differences and misleadingly improves the picture. It would be really helpful to go down to finer geographical detail to establish dietary patterns and these could then be also refined.

3**. Dietary patterns. As mentioned this concept was an innovation**. Naturally, it was recognised as a crude typology which probably could be considerably improved with the data now available. Although, the assumption was made of the stability of the patterns, one was aware that this would probably not be the case, but one did not dare make assumptions on the directions and intensity of the changes. Improvements in diet were assumed in a minimalist way where some catching up was needed. One factor appeared crucial: increase in meat consumption and shift upscale in plant calories needed to feed the animals, from chicken to cattle. The document makes implicitly clear that meat consumption could create havoc in increases in food production (in the mid 90s one did not talk about competition between food and biofuels yet). Such a change is now occurring with emerging economies. There was also a shift away from certain traditional diets based on roots and tubers towards cereals and maize.

4. **The scale of certain of the food requirements was unexpected and mostly concentrated in Asia and Africa**. Asia's needs were to more than double and certain parts of Africa's increase by 5 and even 7 times depending on the dietary pattern! Considering that

Asia represents half the world population, a doubling of its requirements implies staggering amounts for a region where land availability and quality are limited: the geopolitical implications are, to say the least important… In parts of Africa, the multiple increases required was also impressive and out of sync with the usual discourse although there still remains land.

5. **The main demographic driving factor identified for food requirements was population growth and therefore fertility remains a crucial variable**. To this now needs to be added changes in dietary patterns which might be somewhat dampened by increases in prices and changes in poverty levels.

6. The document tried to convey in an acceptable diplomatic manner a sense of urgency if needs were to be met and that food production should be an inescapable priority! Maybe the expression was too diplomatic...

I hope these points and some of my thoughts can facilitate the present day critical rereading of the study and thus help the forum members relate to a process which evolved over time.

Best Regards

Jacques du Guerny

Contribution by Charles Teller

Thank you Jacques for your historical contribution. Your point on how to influence the ministries still remains true: **policymakers need to be "fed" digestible data which meets their needs**. Thus their participation from the beginning in your research goes a long way to keeping their attention.

Although I am on a very slow connection in Ethiopia, let me add **some current day considerations on food requirements and population**.

1. Mortality has declined more rapidly in sub-Saharan Africa than fertility, so that this is contributing to **maintaining high pop growth rates**
2. **Urbanization** and **changing urban diets** is increasing requirements
3. Where fertility has declined, there is still much demographic momentum, and **the working age bulge in the pop**. Pyramid also feeds greater consumption needs.

I look forward to more contributions.
Charles Teller

Contribution by Jacques du Guerny

Please find below some excerpts from an article by Jeffrey D. Sachs.

Are Malthus's Predicted 1798 Food Shortages Coming True? (Extended version)

It remains to be seen whether his famously gloomy prediction is truly wrong or merely postponed
By Jeffrey D. Sachs

In 1798 Thomas Robert Malthus famously predicted that short-term gains in living standards would inevitably be undermined as **human population growth outstripped food production**,

and thereby drive living standards back toward subsistence. We were, he argued, **condemned by the tendency of population to grow geometrically while food production would increase only arithmetically**.

For 200 years, economists have contended that Malthus overlooked technological advancement, which would allow human beings to keep ahead of the population curve. The argument is that food production can indeed grow geometrically because production depends not only on land but also on know-how. With advances in seed breeding, soil nutrient replenishment (such as chemical fertilizers), irrigation, mechanization and more, the food supply can stay well ahead of the population curve. More generally, advances in technology in all its aspects—agriculture, energy, water use, manufacturing, disease control, information management, transport, communications—can keep production rising ahead of population.
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Yet the Malthusian specter is not truly banished—indeed far from it. Our increase in know-how has not only been about getting more outputs for the same inputs, but also about our ability to mine the Earth for more inputs.

.....In countless ways, we have not gotten more for less but rather more for more, as we've converted rich stores of natural capital into high flows of current consumption. Much of what we call "**income**," in the true sense of adding value from economic activity, **is actually depletion instead, or the running down of natural capital**.

And although family planning and contraception have indeed secured a low fertility rate in most parts of the world, the overall fertility rate remains at 2.6, far above replacement. Sub-Saharan Africa, the poorest region of the world, still has a total fertility rate of 5.1 children per woman, and the global population continues to rise by about 79 million per year, with much of the increase in the world's poorest places.
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In the coming decades we will have to convert to solar power and safe nuclear power, both of which offer essentially unbounded energy supplies (compared with current energy use) if harnessed properly and with improved technologies and social controls. Know-how will have to be applied to long-mileage automobiles, water-efficient farming, and green buildings that cut down sharply on energy use. We will need to re-think modern diets and urban design to achieve healthier lifestyles that also cut down on energy-intensive consumption patterns. And we will have to help Africa and other regions to speed the demographic transition to replacement fertility levels, in order to stabilize the global population at around 8 billion.

There is nothing in such a sustainable scenario that violates the Earth's resource constraints or energy availability. Yet we are definitely not yet on such a sustainable trajectory, and our current market signals do not lead us to such a path. We will need new policies to push markets in a sustainable manner (for example, taxes on carbon to reduce greenhouse gas emissions) and to promote technological advances in resource saving rather than resource mining. We will need a new politics to recognize the importance of a sustainable growth strategy and global cooperation to achieve it.

Read the full article at http://www.sciam.com/article.cfm?id=are-malthus-predicted-1798-food-shortages

Contribution by Cristina Lopriore, FAO Italy

Nutrition and Population
By Rolando Figueroa and Rosalia Rodriguez-Garcia

The Links between Nutrition and Demographic Change

Nutrition and population changes are intimately linked in several ways. First, a population's ability to nourish itself is a major factor in fertility and mortality rates. Maternal nutritional status affects fecundity, and hence fertility.This relationship has been observed during famines,when birth rates drop markedly.

In addition,good nutrition reduces maternal, neonatal, and child mortality. Improved child survival helps slow population growth by increasing birth intervals and reducing
the demand for large families. A situation of fewer pregnancies, in turn, reduces the risk of maternal death.
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Not only does nutrition affect population growth and reproductive health,but population and demographic changes also have an influence on people's nutritional
status. Rising population, for instance, threatens food availability in many developing countries, especially those in which populations are expected to double in the next 20 to 25 years.

Population growth is sure to go hand in hand with increased urbanization. By 2020 populations in urban areas of developing countries, where malnutrition is
commonplace,may double to reach 3.4 billion. In many poor and congested urban
areas,diarrhoeal diseases and undernutrition are frequent because of poor food
hygiene, inadequate water supplies and waste disposal, poor housing, and the declining prevalence and duration of breast-feeding and the corresponding increase in
bottle-feeding. Other demographic changes also affect people's quality of life and nutritional status. For instance, the number of people over 65 years of age has increased substantially in most countries.According to estimates, about 60 percent of the world's population over the age of 65 lives in developing countries. This situation has a significant impact on the types of health and social services people demand. The health sector must cope with the increased incidence of no communicable diseases that occur with aging.And the transition to highly processed market foods coupled with reduced physical activity compounds the effects of age, with the result that obesity now affects 250 million individuals worldwide and cancer,diabetes, and coronary heart disease are becoming more common in developing countries.
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Read the full article at
http://www.unscn.org/Publications/foundation4dev/03Population.pdf

Contribution by José Miguel Guzmán, Chief of the Population and Development Branch, United Nations Population Fund (UNFPA)

The Growing food crisis: demographic perspectives and conditioners

George Martine
Jose Miguel Guzman
Daniel Schensul

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Some excepts

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Demographic dynamics are a key but poorly-understood component of both structural factors and the effectiveness of the humanitarian response. This note aims to clarify the particular contribution of demographic processes in the current crisis and to identify promising avenues for intervention from the perspective of the population field.

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Population growth is routinely cited as a causal factor of growing hunger. As illustrated in this note, the relevance of population dynamics goes much beyond absolute size in the context of the current food crisis. Rapid demographic growth is largest and most enduring in exactly those countries and social groups that have the most difficulty attending to their food security needs. Fertility is almost universally higher among the most deprived and vulnerable strata, wherein women rarely have access to quality reproductive health support. These are also the groups in which the gap between desired and actual fertility is highest.

The spatial distribution and composition of the population are also significant elements in the aetiology and relief of food insecurity. The generally unfavourable attitude of policymakers towards urbanization and urban growth, as well as the true nature of rural-urban synergies, will need to be urgently reviewed in order to formulate a more accurate assessment of the structural changes that should be implemented in order to favour a longer-term reduction in food insecurity. As concerns population composition, clearly the most urgent measures to be taken involve helping those whose needs are most immediate. It is estimated that the WFP would need at least $500 million of additional food supplies to meet emergency needs. The good news is that this represents a pittance in comparison to what is being spent monthly on arms and warfare. Hence, with minimal commitments by donor countries, hunger could effectively be assuaged in the short run. However, it should be recognized that full funding is not sufficient to assuage emergency food needs. Other barriers such as violence and political restrictions often prevent effective distribution in the neediest localities. In addition, social programs to alleviate the impact of higher food prices should be rapidly strengthened.

Nevertheless, dependency on food handouts is a stopgap measure, especially in a context of swelling prices. Broader and longer-lasting solutions that will promote development, rather than increase dependency, need to be formulated even while enhanced international aid comes to the rescue of the needy. This will require a more perceptive understanding of the linkages between long-term structural and historical causes on the one hand, and the more immediate conjuncture underlying the current predicament on the other.

Read the full paper at
http://km.fao.org/fsn/resources/fsn-viewresdet/en/?no_cache=1&r=728&nocache=1

Contribution by George Kent, University of Hawai'i, USA

The conclusion of the paper on **The Growing Food Crisis: demographic perspectives and conditioners** says:

"*Broader and longer-lasting solutions that will promote development, rather than increase dependency, need to be formulated even while enhanced international aid comes to the rescue of the needy. This will require a more perceptive understanding of the linkages between long-term structural and historical causes on the one hand, and the more immediate conjuncture underlying the current predicament on the other*."

Who is to formulate these "broader and longer-lasting solutions"? There is a need for "more perceptive understanding" **on whose part**, exactly? It might be useful to draw out the unspoken underlying assumptions here.

Discussions about how to deal with large-scale problems of malnutrition in the world are often unclear about who the agents will be, under what authority they operate, what management bodies they use, and what resources they have to work with.

Aloha,
George

Contribution by Gustavo Anríquez, Agricultural Development Economics Division, FAO Italy

Long-Term Rural Demographic Trends
May 2007

Gustavo Anríquez

Paper available in full at http://www.fao.org/es/ESA/riga/index_19_en.htm

Abstract

This paper studies rural demographic trends at the global level with an analysis of a specially prepared database of population age/ gender/ rurality tables from population censuses. The focus is to identify the main demographic differences in the evolution of rural and urban populations. Among the main findings of this study, we report that with the exception of Sub-Saharan Africa there is no rural feminization. Also, rural ageing is not observed at aggregate levels in rural regions of the developing world. Perhaps the main adverse demographic trend of rural populations is the high dependency ratios brought about by higher fertility rates. This paper also carries out a census- based cross- country net- migration study identifying the main characteristics of rural out- migration in Latin America, and searches for common threads in East Africa. This analysis shows important improvements of welfare indicators and asset accumulation in rural Latin America (promoting an upward convergence of poorer and richer areas of countries), partially explained by migration. We did not find common characteristics in rural out- migration in East Africa, but report that education is the key asset that enables out-migration from poorer rural communities in East Africa.

Contribution by Geoffrey McNicoll, Senior Associate, from the Population Council

Population and Poverty: the Policy Issues

by Geoffrey McNicoll

Paper available at http://km.fao.org/fsn/resources/fsn-viewresdet/en/?no_cache=1&r=748

This discussion paper aims at a policy-relevant understanding of the population-poverty relationship. It has six sections: (1) A brief discussion of the relationship (or apparent absence of relationship) at the aggregate level; (2) an analysis of the ways in which population growth can influence poverty, working through a society's institutional and cultural make-up, its resource endowments, and its natural and built environments; (3) a partial typology of situations in which poverty is sustained through localized actions that are rational within their immediate context but harm others in the society; (4) a discussion of policy options and issues, that arise from (2) and (3); (5) a note on some political dimensions of the subject; and (6) conclusion.

Where not further qualified, "poverty" here will be taken to refer to "absolute poverty" or "income poverty"-a condition of per capita income below a fixed "poverty line" that is typically set at a purchasing power equivalent of US$1 per day at 1985 prices.

Contribution by Nikos Alexandratos, Agricultural Development Economics, FAO Italy

Countries with Rapid Population Growth and Resource Constraints: Issues of Food, Agriculture, and Development

by NIKOS ALEXANDRATOS

Article available at http://km.fao.org/fsn/resources/fsn-viewresdet/en/?no_cache=1&r=754&nocache=1

Abstract

Recent long-term demographic projections suggest a fast deceleration of global population growth and the eventual peaking of world population later in this century at about 9.2 billion, roughly 50 percent above the present level. Some low-income and food-insecure countries, however, have projected populations in 2050 that are multiples of present ones. In some of these countries agriculture must play a leading role in their development efforts because they have high economic dependence on that sector. For those among them that have scarce agricultural resources, a prima facie case can be made that the high population growth rates projected may not be compatible with the development potential offered by such resources. Their demographic projections may need to be revisited, taking into account such inadequate potential. The global demographic slowdown notwithstanding, the "population explosion"-related issues pertaining to food and agriculture will not become irrelevant but will be become increasingly localized.

Contribution by Geoffrey McNicoll

Managing Population–Environment Systems: Problems of Institutional Design

By Geoffrey McNicoll

Paper available at http://km.fao.org/fsn/resources/fsn-viewresdet/en/?no_cache=1&r=747

Abstract

In population–environment systems human activity is inherently part of the system rather than something to be minimized in order to maintain or restore “natural” environmental conditions. Issues arising in managing such systems are discussed in this paper. Three preliminary sets of problems are first dealt with. The system’s boundaries must be identified, defining its human participants and its ecological content. Procedures for monitoring demographic and environmental change in the system must be set up. And consensus must be reached on how to evaluate that change. Each of these tasks calls for technical knowledge of demographic and ecological relationships (and assessment of uncertainties); in addition each has important political and administrative dimensions. Unclear or contested boundaries, large numbers of participants, complex system dynamics and outcome indicators, and unequal stakes by participants complicate the management task. Among the general problems of designing governing institutions for large and complex population–environment systems are devising compensation arrangements to remedy major asymmetries in returns to participants, enforcing compliance to agreed access rules, and building in adaptability to changing knowledge and circumstances.