

# Development and Demography: A Relationship That Requires Research

The *PLoS Medicine* Editors

One of the most unsettling images for newcomers to many parts of Africa is the sight of undernourished women bearing unfeasibly large vessels of water long distances over rough terrain to supply the needs of their families. A sense of outrage that anyone should have to live like this in the 21st century forms the basis of the humanitarian imperative that drives development programs, especially those that focus on basic needs such as access to safe water.

When such a program reduces from three hours to 15 minutes the time that women spend fetching water each day, surely it can be described as a success, without the need for any “scientific” assessment of what has been achieved? In this issue of *PLoS Medicine*, we publish a study that did assess such a program. Mhairi Gibson and Ruth Mace (DOI: 10.1371/journal.pmed.0030087)—from the University of Bristol, United Kingdom—compared villages in Ethiopia that benefited from a tapped water supply with other villages that did not. Outcome measures included the nutritional status of women and children, mortality rates, and birth rates. There were a number of surprising findings, most notably the large increase in birthrate in the villages where the water supply intervention took place.

In an accompanying Perspective (DOI: 10.1371/journal.pmed.0030192), Yemane Berhane—Addis Ababa University, Ethiopia—points out some limitations of the study and discusses how future evaluations of such programs should be conducted. Nevertheless, Berhane agrees with Gibson and Mace that their findings show it is essential for development programs to adopt a multisectoral approach. In particular, improved access to contraception should form a part of development interventions.

There has been, till now, a worrying lack of studies that have examined the long-term demographic impact of development. This is surprising given

that the global population is now a little over 6.5 billion and is predicted to reach 9 billion by 2050 (<http://www.unfpa.org/pds/facts.htm>). The continuing increase in human numbers raises many issues globally, but there are more acute concerns in countries, such as Ethiopia, where resources are scarce and the carrying capacity of the environment is already severely stretched. Such countries have been described, most notably by Maurice King who takes a particularly bleak view on population matters, as being “demographically entrapped” (*Trans R Soc Trop Med Hyg* 87: S23–S28)—i.e., basic needs in these countries can no longer be met without outside support.

Development and population issues are “officially” recognized as being connected. Thus, the United Nations Population Fund (UNFPA) says its “...work on population is central to the goals of the international community to eradicate poverty and achieve sustainable development,” and that there is “substantial evidence that slower population growth reduces poverty” (<http://www.unfpa.org/pds>). Nevertheless, targets to reduce population growth have not been set in the Millennium Development Goals.

The prevailing wisdom is that when death rates (particularly child death rates) fall, communities will respond by having fewer children. There is some evidence to support this view as, globally, fertility rates are continuing to fall. In 1950–1955, the average woman had five children; in 2000–2005, the worldwide fertility rate was 2.65 children per woman (<http://www.unfpa.org/pds>). Nevertheless, in the world’s 50 poorest countries—most of which are in Africa—population is projected to more than double by 2050, and to at least triple in 12 of them. Perhaps a fall in birth rates in these countries will happen, but only after several decades of reduced death rates. However, the worry is that, unless the rise in population begins to tail off rapidly now, the population

increase will result in suffering on an unimaginable scale as carrying capacities are exceeded.

Mounting an adequate response to this situation is difficult, because we lack an understanding of how trends in population growth change when development programs are introduced. More research along the lines of the Gibson–Mace study is urgently required. Also needed is a response to the calls that have been made (*BMJ* 326: 507; DOI: 10.1371/journal.pmed.0010055) for more open debate around the question of whether well-meaning humanitarian development efforts might have long-term adverse effects. King has alleged both that there is a conspiracy of silence preventing such a debate and that, psychologically, human beings are unable to adequately confront population issues (*BMJ* 319: 998–1001). Does he overstate his case, and is he going too far when he says that the only solution is a “one-child world”? The prevailing view is that such talk is alarmist, but more data on the wider outcomes of development interventions will be needed before it becomes clear which view is correct.

It would be tragic if the findings of the Gibson–Mace study were misinterpreted by those who would like to see savage cuts made in development spending. Humanitarian efforts should obviously continue, but monitoring is required so that the impact of each project is carefully and comprehensively assessed. We need humanity and we need common sense, but we also need scientific study. ■

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