John F. May, Ph.D.
The World Bank, Washington, D.C.

and

Jean-Pierre Guengant, Ph.D.
Institut de recherche pour le développement (IRD, ex-ORSTOM), Niamey

Population Projections as Modeling Tools for Socio-Economic Planning: The Case of Niger

ECOMOD Conference
Istanbul, July 3-6, 2003

ABSTRACT

Population Projections as Modeling Tools for Socio-Economic Planning: The Case of Niger
John F. MAY, Ph.D. and Jean-Pierre GUENGANT, Ph.D.

During the past two decades, both the impact of the HIV/AIDS epidemic on mortality and the role of the proximate determinants on fertility have been better documented and modeled. Yet these results are not integrated routinely into international and national population projections. Furthermore, these results are not being used by policy makers as modeling tools for socio-economic planning. This does not pose much of a problem in developed countries with low and stable population growth as well as low and stable mortality and fertility levels. However, this appears to be inappropriate for most sub-Saharan African (SSA) countries where rates of population growth have reached unprecedented levels: 3 percent and more per year, mainly a result of past mortality declines and persisting high fertility (above 5 children per woman on average). Moreover, in these countries already high mortality levels could not decline further, or could even rise again, because of the rapid spread of the HIV/AIDS epidemic. In the case of Niger, one the poorest nations in the world, with the highest total fertility rate (TFR) on earth (8 children per woman on average), and still a very low prevalence of HIV infection, population projections results indicate that only a rapid and significant fertility decline will allow the country to meet its objectives for poverty reduction, particularly in the areas of food security, universal school enrollment at the primary level, and complete health and immunization coverage. New projections and analyses for Niger pertaining to mortality and fertility should highlight variables amenable to policy and programmatic interventions and this in turn should help improve the policy decision-making process.

Today, Niger offers perhaps the most challenging demographic situation on earth. It has currently the highest total fertility rate (TFR) in the world, estimated at 8 children per woman on average. It has also the youngest population, with 50 percent of its people below age 15. All the other indices used to calculate the UN Human Development Index are virtually the worst in the world and Nigerien health and socio-economic conditions are truly dismal, even by sub-Saharan Africa (SSA) standards. Given the current demographic trends in Niger, the population of 11.5 million people in mid-2003 is bound to double in about 20 years (the demographic rate of increase is estimated at 3.1 percent per year). In 2050, according to the medium assumption of the United Nations Population Division projections released in 2002, the population will have quadrupled and will stand at 53 million. Then, Niger will be the second largest populated country in West Africa, behind Nigeria (United Nations, forthcoming).

The main demographic challenge in Niger appears currently to implement policy interventions that will trigger the onset of the fertility decline, the second phase of the demographic transition. Two sets of factors appear to work against the rapid inception of such a fertility decline. First, fertility appears still to increase because of the relaxed proximate determinants in fertility, such as postpartum abstinence and the postpartum insusceptibility period (traditional mechanisms of birth spacing do not play their role anymore but are not yet replaced by the recourse to modern contraceptive methods). Furthermore, Nigerien couples still want very large families; indeed they want larger numbers of children than those they currently manage to have. Second, policy makers and demographers in Niger tend to take current demographic trends as a given. They do not see that demographic trends are amenable to change, even in the relatively near future. In addition, they are not privy to the recent advances in the area of analysis of either the modeling of the HIV/AIDS epidemic or the proximate determinants of fertility.

Therefore, before the demographic challenge of Niger can be addressed, the authors of this paper will argue that two "intermediate" challenges need first to be addressed. For one, there must be a better recognition of the value of more accurate population projections, including HIV/AIDS and fertility modeling. Second, these refined projections must lead in turn to a better recognition that some demographic variables are amenable to policy interventions. In other words, policy-makers and demographers will need to admit that demography is not destiny but that, quite to the contrary, future population trends can be modified trough proper and timely policy and programmatic decisions.

This paper will first summarize the efforts of Niger to reduce its poverty level and the challenges it faces to do so, particularly in the areas of food security, education for all (at the primary level), and complete health and immunization coverage. Thereafter, the paper will review the available population projections for Niger, with a focus on mortality and fertility modeling, or lack thereof. The paper will then stress the need for, and usefulness of, more accurate population projections and highlight the policy and programmatic use of such modeling tools for socio-economic planning. The paper will also discuss the larger context of the demographic trends in SSA and explain how Niger could draw from the lessons of SSA as a whole. Finally, the paper will conclude with the prospects for major policy changes in the area of population, reproductive health, and the fight against HIV/AIDS in Niger, in light of the availability of new population projections as modeling tools for socio-economic planning.

THE CHALLENGE OF POVERTY REDUCTION IN NIGER

It was not until the later part of the 1990s that the government of Niger addressed the dual challenge of reducing the poverty levels and improving the living conditions of its population. Poverty levels had increased inexorably since the Independence in 1960. Today, it is estimated that close to 63 percent of the Nigeriens live in poverty. Indeed, such a large number of poor does reduce Niger's prospects to achieve its goals of sustainable socio-economic development. In addition, it makes the attainment of the Millennium Development Goals (MDGs) even more problematic.

In January 2002, responding to the call of the Heavily Indebted Poor Countries (HIPCs) initiative, the government of Niger issued a Poverty Reduction Strategy Paper (PRSP). The development of this document was coordinated by a Permanent Secretariat attached to the Prime Minister's Office and its preparation was based on extensive consultations with the Nigerien population (Niger, 2002).

The primary objectives of the PRSP were to : i) promote a durable and sustained economic growth; ii) develop the productive sectors; iii) enhance access to basic social services to the poor; and iv) reinforce the human capacity and promote institutional (i.e. good) governance and decentralization. The rapid demographic growth was identified as a major challenge, surpassing all others and actually threatening developmental efforts in all sectors. Although this was recognized during the preparation of the PRSP, demographic issues were not addressed head-on in the PRSP as can be seen from the four primary objectives of the PRSP. In addition, projections used in the PRSP were based on outdated information and were consequently too optimistic (the stalling of the mortality decline and the recent increase in fertility had not been taken into account). However, these population projections will be corrected in the forthcoming revision of the PRSP.

The rapid rate of population growth remains the key challenge to the socio-economic development of Niger and the fight against poverty. Unless this problem is addressed urgently, the alleviation of the high levels of poverty will remain out of reach. This appears very clearly in three key areas, namely the food security, the school enrollment at primary level, and the complete health and immunization coverage.

Niger faces tremendous challenges in the area of agricultural production and food security. The country is located in the Sahel region, just south of the Sahara desert and has predominantly sandy soils. About 12 percent only of the country's total land area is cultivable. Since the Independence, the area under cultivation has been reduced by half whilst the population had increased by a factor of three, hence dividing by 6 the ratio between population and the area of land used for agricultural purposes in about 40 years.

The harsh climate is another major difficulty. Farmers in Niger grow essentially a cereal called millet or mil, which is one of the most drought-tolerant food-crop known to man. Another crop which is largely used is sorghum. Maize which requires more water is cultivated in the South, on about 1 percent only of the country's total land area. Even with resilient crops such as millet and sorghum, Niger farmers' crops often fail or fail to produce enough food for their families. In addition, rainfalls are scarce. Although they are negligible in the North, they increase gradually to reach a level of around 700 mm (about 27.5 inches) per year in the South. In this area, rainy seasons are short, from June to October, and had become more variable and sometimes erratic during the past two or three decades. Overall,

the rainfalls have markedly shifted to the South and have become less abundant over the last 30 years, threatening the agricultural outputs.

Agricultural production remains the number one concern for villagers in Niger. Although innovative concepts, such as water harvesting, crop rotation, and soil fertility management are introduced, the recurrence of poor harvests only accentuates an increasingly chronic food deficit and food imports are increasing. This means that Niger is not able to meet the minimum vital food needs of the greatest number. Currently, the food shortage is estimated at 400,000 metric tons per years (about 15 percent of current needs) (Collomb, 1999). One can only imagine what will happen should the current population of 11.5 million quadruple by year 2050 (United Nations, medium scenario).

With respect to school enrollment, Niger has some of the poorest education indicators in the world. It has the world's lowest female literacy rate, estimated at 11 percent. The gender gap in enrollment is also significant, with girls net enrollment in primary school standing at 30 percent compared to the 39 percent for boys. Of those children who do actually enroll in school, 54 percent eventually drop out. An examination of the percentages of children who reach Grade 5 reveals stark regional differences (between 14 and 97 percent). The education system faces enormous challenges in access, quality, and achievement, particularly in a context of reduced government financial support to education.

Four main barriers to schooling have been be identified:

- *Insufficient school infrastructure and materials*. Few schools are being built or repaired, and school supplies and textbooks are usually not available. Boarding schools and school canteens have been closed. School sanitation facilities are rare and separate facilities for girls almost unheard of;

- *Irrelevant and inaccessible education*. The quality of instruction is poor, and most schools use French rather than national languages for instruction, except for the 2 percent of students in "experimental schools." Very few employment opportunities are available after graduation;

- *Socio-cultural and religious beliefs and practices*, including early marriage (half of the girls in the country are married by age 16). Low regard for girls' education among parents and communities, and practical and security issues, such as long distances between home and school, make parents reluctant to send their girls to school; and

- *High opportunity costs of educating girls.* Girls are expected to engage in domestic work or in labor outside the home that either prevents them from enrolling in school and/or interferes with their attendance and schoolwork.

Again, the rapid pace of demographic growth poses tremendous challenges for the universal enrollment of pupils, even at the primary level of education. For instance, it is expected that new admissions at the *Cours d'initiation* (the first year of the primary school), estimated at 360.000 in 2000 will raise to half a million in 2010, and increase to 800.000 in 2020 and more than 3 million in 2050 (under the assumption that fertility would not decline). Similar growth does apply to all primary school students (age 6-12). These children are estimated at 2.2 million in 2000 but will number 19 million in 2050 (under the same fertility

assumption). In addition to major efforts needed to improve the education system in terms of infrastructure facilities and the quality of education, the demographic growth will add huge numbers of pupils to a system that is already stretched to its limits.

As far as health is concerned, four main elements are lacking in that sector in Niger, namely: health infrastructures, health personnel, quality of services, and drugs (availability and affordability). However, it has been acknowledged recently by beneficiaries, local actors and opinion leaders that the health situation has somewhat improved. The reasons cited are as follows: opening of new health centers with surgical units (45 percent of those surveyed), increased outreach efforts (32 percent), renewed availability of drugs due to the introduction of cost recovery schemes (29 percent), and the emergence of community participation in health actions and activities (22 percent).

Nevertheless, low incomes affecting the population means that most people do not derive any benefit from the health services offered. In addition, physical isolation, especially in rural areas, is a major obstacle that increases the difficulties associated with referring the sick, which is still a problem despite the greater availability of carts for this purpose. There is a critical shortage of female nurses and midwives in the peripheral health care centers in Niger, especially in rural areas. Socio-cultural considerations, according to which *"it's better for a woman to be treated by another woman than by a man"* fuel the demand for female staff. The health sector in Niger also suffers from structural problems, mainly poor access and utilization of services and weak demand for such services.

Once again, the rapid population growth will stretch the current health system to its limits. The lack of health personnel will be a major bottleneck, and such will be the scarcity of financial resources to run the system. Therefore, complete health and immunization coverage might become even much harder to achieve, given the unrelenting growth of the population that will need to be served.

In order to address its demographic challenge, the country had adopted in 1992 a National Population Policy (NPP) (Niger, 1992; United Nations, 2002). The NPP had as its main objective to generate adequate economic resources in order to match the rapid growth of the population, but it fell short of recommending strong actions to curb the high fertility levels. Despite both the government's and its development partners' commitment to push for the implementation of the NPP, the results have been unsatisfactory, or at least mixed, due to several obstacles and constraints. These can be traced back to the overall connotation of the NPP (actually a largely pronatalist document, focused on the betterment of the human resources), the weak education levels of the population (in particular, the female population), the very poor socio-economic status of the population, and the inadequate network of reproductive health and family planning facilities.

Despite the lessons learned through the implementation of the NPP, the proposed strategies of the PRSP do not address population issues squarely either. Although population problems were identified as a major challenge during the preparation of the PRSP, they were not treated in the Poverty Reduction Strategy Paper in the same way, for instance, as education and health issues. As it is too often the case in the sub-Saharan context, the proposed actions to address population fall short of the vigorous promotion of family planning services. Proposed activities concern essentially: i) the valorization of human resources and the reinforcement of technical competence of the population; ii) the implementation of a sensitization program on the relations between population and development; and iii) the

support to a set of studies and research on population and health issues. Furthermore, as already mentioned, the demographic projections retained in the PRSP appear to be too optimistic and do not reflect the reality of the recent analyses available in Niger (however, these projections will be adjusted in the PRSP revision).

POPULATION PROJECTIONS FOR NIGER

The first cohort-component population projections ever produced in Niger, covering the years 1994 to 2025, were those prepared in 1994 by the Directorate of Population (*Direction de la Population*) at the Ministry of Social Development, Population, Promotion of Women, and Child Protection (Niger, 1994). However, these projections are now inaccurate and outdated. The trends in mortality and fertility, in particular, have changed dramatically since those projections were calculated. The secular decline in mortality, especially infant and child mortality, had stalled in the 1990s and mortality levels could even rise again with the recent spread of HIV/AIDS epidemic. As to fertility, the total fertility rate (TFR) had increased at the end of the 1990s – reaching 8 children per woman on average – because some proximate determinants of fertility (mostly those pertaining to postpartum insusceptibility) did no longer play their traditional inhibiting role on fertility outcomes.

More recently, two additional sets of population projections have become available for Niger. First, there were the projections prepared by Guengant and Banoin (2002) for their landmark study on agricultural systems in Niger, analyzed in relation with land tenure regimes and the availability of land. The second set of population projection was released earlier in 2003 by the United Nations Population Division (United Nations, forthcoming). The latter projections give a total Nigerien population of 53 million by year 2050 (medium scenario).

These two sets of population projections were prepared with the classic cohort-component method. However, the UN Population Division projections did also take into account the evolution of the proximate determinants of fertility (see next section) as a tool to help decide on the fertility assumptions to be adopted in the population projections. Nevertheless, the team who prepared the PRSP did not use these two sets of population projections, but used instead the old 1994 projections.

The spread of the HIV/AIDS epidemic could modify dramatically the results of the population projections that are currently available for Niger. According to survey results from the year 2000, the average rate of prevalence for HIV in Niger is approximately two percent of the adult population (age 15 to 49), though some regions have HIV prevalence rates as high as five percent. Although this number may seem low with respect to HIV/AIDS rates in the countries that border Niger, it probably should not be attributed to the general public awareness of the virus and/or to the impact of any national campaign to stem the spread of HIV. More likely, the probable reasons for this relatively low HIV prevalence are the same factors that have kept Niger at the bottom of the development scale, namely the harsh climate, the poor infrastructure, and the lack of access to shipping routes that have stifled commerce and slowed socio-economic development in the country.

However, the current level of HIV infection in Niger is at a critical point where prevention through education could halt the spread of the virus or, on the contrary, the lack of such interventions could lead to a devastating HIV/AIDS epidemic. Indeed, if aggressive

programmatic steps are not taken urgently, the HIV/AIDS epidemic has the potential to explode throughout the population, creating an unbearable burden on a nation already ranked second-to-last on the UN Human Development Index. Current developmental problems in Niger include poverty, illiteracy, malnutrition, poor health care, lack of arable land, desertification and overpopulation. In a country already struggling to feed its 11.5 million people, the compounding effects of HIV/AIDS has the ability to decimate entire communities, further weaken the agricultural production, and shake the fragile foundations of socio-economic development and progress.

Cultural sensitivity is an important factor when considering HIV/AIDS education. Nigerien culture, heavily influenced by Islam, discourages the discussion of sexually transmitted infections (STIs) and the shame associated with a positive HIV test result discourages many people from getting tested (in addition, they know that proper care would most likely not be readily available). The lack of education about the spread of HIV, the opportunistic diseases associated with HIV/AIDS, the absence of basic prevention methods, and the lack of access to testing, all this point to a dire need for greater emphasis on HIV/AIDS education.

Nevertheless, despite all this, HIV/AIDS is still a problem that can be dealt with in Niger. Nationwide education campaigns that target high risk groups, integration of HIV/AIDS education into the school curriculum, and aggressive efforts to reach adults and children at the village level, are some of the first steps toward stopping the spread of HIV in the country.

THE NEED FOR MORE ACCURATE POPULATION PROJECTIONS

Traditionally, population projections are computed with the classic cohort-component projection method. This method first projects the base population using a life table reflecting the mortality conditions of the projected population. Then, the method calculates the number of births occurring in the population (using age specific fertility rates). Since not all newly born will survive, those births are thereafter themselves projected using the same life table. Finally, migration patterns can be taken into account, using age specific migration rates. Last but not least, derived projections can be also calculated for the school age population, the active population, etc. Numerous computer programs are available to perform the calculations.

This method is used routinely by the United Nations Population Division. The key problem, however, is to decide on the assumptions that will be used, either for mortality or for fertility (migration assumptions are even more problematic, because of the volatility of migratory trends, and will not be discussed here). A traditional approach when projecting both mortality and fertility trends is to examine past trends and extrapolate them over time, with a ratio or a schedule of change (e.g. increases of expectancy of life at birth and decreases in the total fertility rate over periods of 5 years).

Nevertheless, during the past two decades, the impact of the HIV/AIDS epidemic on mortality and the role of the various proximate determinants on fertility, have been better documented and modeled. Concerning the HIV/AIDS epidemic, it is possible and it will be better to make several assumptions to see the various possible impacts of controlled, versus uncontrolled, spread of the HIV/AIDS epidemic. Indeed, several variables are amenable to

policy and programmatic interventions, such as condom distribution, treatment of sexually transmitted infections (STIs), delay in the onset of sexual activity, etc. These variables can be modeled and computer programs are also available to do so (e.g. those prepared by The Futures Group International). The main point here is to highlight to policy makers and planners the very key variables that are open to interventions and that will change the future course of the HIV/AIDS epidemic with a reasonable chance of success. In other words, the prescription is to model the HIV/AIDS epidemic with a view of the necessary actions needed to curb or at least control the epidemic (May, 1999).

As far as fertility is concerned, the "Bongaarts model" (Bongaarts, 1978, 1982) has highlighted and modeled the role of the proximate determinants on fertility. These behavioral and biological determinants (as opposed to the intermediate determinants of fertility such as education, economic growth, health systems, etc.) are as follows: percentage of women in union (exposure to the risk of conceiving), contraceptive use (traditional and modern methods), postpartum insusceptibility (linked to postpartum abstinence and breastfeeding practices), abortion (spontaneous or induced), and pathological sterility (primary or secondary).

The role of the proximate determinants of fertility and their weight on fertility reduction can be easily calculated by using the FAMPLAN computer program developed at The Futures Group International (Stover and Heaton, 1999). Starting from the cohort-component demographic projection model, FAMPLAN enables to evaluate the relationships between total fertility rates, on one hand, and the proximate determinants of fertility, as well as the average effectiveness of contraceptive use resulting from the contraceptive method mix (i.e. the percentage of all users according to the method they use), on the other. For each contraceptive method, method effectiveness is the proportion of users who do not become pregnant during one year of method use. Again, rather than projecting future trends of fertility (using simple extrapolations of past trends), it is possible and it will be better to make various assumptions on the proximate determinants of fertility. In particular, assumptions on specific determinants or variables that are amenable to policy interventions, such as increased contraceptive prevalence rates (CPR), changes in marriage patterns, and the potential trade-off between abortion and contraception, will be most useful for policy makers and planners. In conclusion, what is needed is a shift from trends population projections to interventionists population projections (Guengant, 2002).

Yet these new advances and methods (which are rather easy to implement with the availability of new software) are not widely known beyond the rather limited circles of demographers and population specialists. In most cases, economists do not take population issues into full consideration and, when they do use population data, economists either do not use population projections or use only ratios techniques to project the populations (based on annual growth rates). They also use population projections prepared by international organizations without a solid grasp of the computation of population projections and the implications of the use of such projections and the related population indicators.

POPULATION PROJECTIONS AS MODELING TOOLS FOR SOCIO-ECONOMIC PLANNING

As mentioned, these new advances and modeling analysis results are not routinely integrated into international and/or national population projections. This does not pose much of a problem in most developed countries with low and stable population growth and low and

stable fertility and mortality levels. However, this is inappropriate for most sub-Saharan African (SSA) countries where rates of population growth have reached unprecedented levels: 3 per cent and more per year, a result of initial declines in mortality and persisting high total fertility rates (above 5 children per woman on average). Moreover, in these countries already high mortality levels could not decline further, or even rise again, because of the spread of the HIV/AIDS epidemic (World Bank, 1999)..

In economic forecasting and projections, the demographic variable is generally considered as a given and, in most cases, only a constant rate of population growth is taken into consideration. Parallel to that, the classic method of cohort component population projections uses only extrapolation of past mortality, fertility, and migration trends to prepare assumptions for the future. In addition, this method of projection does not take into consideration any socio-economic factors and/or the impact of policies on these three variables. Demographers themselves seem to be satisfied with this situation. First, they tend to overemphasize the "inertia" of population phenomena. Second, they are inclined to only stress the long term impact of population policies aimed at reducing rapid population growth in developping countries (Guengant, 2002).

However, it appears that such (new) population projections based on an analysis of HIV/AIDS-related mortality and mitigation mechanisms as well as on the role of the proximate determinants of fertility will definitely help to improve the decision-making process on the relevant issues at the international and/or national levels, highlighting the critical policy and programmatic choices to be made in the future.

This new approach is particularly relevant in the case of Niger, one the poorest nations of the world, with the highest fertility rate (8 children par woman on average), and still a rather low HIV prevalence rate. Results obtained with such modeling tools indicate that only a rapid and significant fertility decline will allow the country to meet its objectives of poverty reduction. In particular, only a rapid decline in fertility would allow to meet the needs in the areas of food security, full school enrollment at the primary level, and complete health and immunization coverage.

DISCUSSION

The demographic situation of sub-Sahara Africa (SSA) points to a series of issues related to the pace of fertility decline, the increase of contraceptive prevalence rates, the future of population and reproductive health (Pop/RH) programs, the attitude and role of the leadership, and the spread of the HIV/AIDS epidemic (Guengant and May, 2000).

The most salient features of the current demographic situation in SSA can be summarized as follows:

- SSA is becoming fragmented in terms of fertility decline achievements, with Southern Africa most successful and leading the way, Eastern Africa somewhat less successful (with the notable exception of Kenya), and Western and Middle Africa lagging way behind;

- the intermediate determinants of fertility (e.g. education, employment prospects, etc.) are far from favorable in SSA and will not help trigger a rapid fertility decline in the continent;

- the HIV/AIDS epidemic will have an impact on fertility (through unfecundability), but this impact is probably less important than expected since overall fertility levels are still very high;

- the fertility transition in SSA will be slower than currently projected, in particular if contraceptive prevalence rates increase only at the pace of 0.5 percentage point per year;

- contraceptive method mix (modern and traditional) is a crucial factor, since traditional and folk methods are ineffective to achieve rapidly substantial decreases in fertility;

- unless effective family planning programs are put in place to respond to existing and/or implicit demand, induced abortion rates will increase, with detrimental effects on maternal mortality levels;

- the programmatic commitment of African leadership and donors toward the family planning needs in SSA must be rekindled;

- the broad reproductive health agenda adopted in Cairo (United Nations, 1995) must not dilute the focus on family planning needs, especially in countries that have not started their fertility transition and/or are only at incipient stages; and

- SSA Pop/RH programs need to focus on the delivery of family planning services, the needed shift to modern contraceptive methods, interventions to minimize the recourse to induced abortions, and the linkages with HIV/AIDS interventions.

Niger exemplifies several of the above mentioned conclusions. First of all, the onset of fertility decline has not started yet in Niger. Although Niger belongs to the Western Africa region, which is lagging behind the Southern and Eastern Africa regions, it appears to be the most extreme case in SSA in terms of late fertility transition, with the highest fertility in the world and one of the lowest contraceptive prevalence rates for modern methods in SSA. The country is also at the beginning of its HIV/AIDS epidemic, but it still has the opportunity to stem its course by acting now and decisively.

From a programmatic view point, Niger is still in a position to implement effectively several of the recommendations spelled out for the whole of SSA. In particular, better commitment of the Nigerien leadership and close attention to specific programmatic issues, such as the pace of increase in the contraceptive prevalence rate and the shift of the contraceptive method mix toward modern methods, would definitely help in accelerating the country's fertility transition. Last but not least, as mentioned already, proper attention to HIV/AIDS issues will enable Niger to mitigate the spread of the epidemic and avoid potentially catastrophic situations in the future.

It appears that the use of more refined projections building on recent advances in the areas of mortality and fertility analysis would also help the Nigerien leadership to better

address the issues at hand. What seems the most desirable and important change at this stage is a shift from trends population projections to interventions population projections and the accompanying commitment of the policy makers and planners in Niger to become truly social engineers.

CONCLUSION

The case of Niger is exemplary of the situation of many countries in sub-Saharan Africa trying to reduce their very high levels of poverty within the context of extremely rapid population growth. Classic population projections available for the planning of such efforts appear to be limited because they do not integrate the recent advances and modeling of the impact the HIV/AIDS on mortality and the role of the proximate determinants on fertility.

Such new population projections should be prepared for Niger, enabling a real shift from trends population projections to interventionists population projection. In turn, the Nigerien leadership will also need to become more proactive and use the new interventionists population projections as a modeling tools for socio-economic planning.

These efforts will be most necessary to boost the implementation of the newly adopted Poverty Reduction Strategy Paper (PRSP). The first step will be an update of the population projections that were used as the basis for the preparation of the PRSP document. However, further changes in attitudes will be needed to truly shift from laissez faire to proactive policies and programs.

BIBLIOGRAPHY

BONGAARTS, John (1978), A Framework for Analyzing the Proximate Determinants of Fertility, *Population and Development Review*, vol. 4, No. 1, pp. 105-132.

BONGAARTS, J. (1982), The Fertility-Inhibiting Effects of the Intermediate Fertility Variables, *Studies in Family Planning*, vol. 13, Nos. 6/7, pp. 179-189.

COLLOMB, P. (1999), *A Narrow Road towards Food Security in 2050*, Rome: Food and Agricultural Organization (FAO).

GUENGANT, Jean-Pierre (2002), « Revolution » in the Field of Population Projections, *CICRED Newsletter*, Supplement to No. 6 (available at http://www.cicred.org).

GUENGANT, Jean-Pierre and Maxime BANOIN (2002), *Dynamique des populations, disponibilités en terres et adaptation des régimes fonciers : le cas du Niger*, Roma-Paris : Food and Agriculture Organization (FAO) and Centre International de Coopération dans les Recherches Nationales en Démographie (CICRED) (available at http://www.cicred.org).

GUENGANT, Jean-Pierre and John F. MAY (forthcoming), Impact of the proximate determinants on the future course of fertility in sub-Saharan Africa, *Population Bulletin of the United Nations*, Special Issue.

MAY, John F. (1999), L'épidémie du SIDA, modélisation pour l'action, in *Chaire Quételet 1995, Le défi de l'incertitude. Nouvelles approches en perspectives et prospective démographiques*, Institute of Demography, Catholic University of Louvain, Louvain-la-Neuve: Academia-Bruylant/L'Harmattan, pp. 157-170.

NIGER (1992), *Déclaration de politique nationale de population*, Niamey: MDS/P/PF/PE.

NIGER (1994), *Projections démographiques 1994-2025*, Niamey: MDS/P/PF/PE.

NIGER (2002), *Stratégie de réduction de la pauvreté*, Niamey: Cabinet du Premier Ministre/Secrétariat Permanent du DSRP.

STOVER, John and Laura HEATON (1999), *FAMPLAN: Version 4. A Computer Program for Projecting Family Planning Requirements. Spectrum System of Policy Models*, Washington, DC: The Futures Group International, The POLICY Project.

UNITED NATIONS (1995), *Report on the International Conference on Population and Development. Cairo, 5-13 September 1994*, N° A/CONF.171/13/Rev.1, New York: United Nations, Department of Economic and Social Affairs, Population Division.

UNITED NATIONS (2002), *National Population Policies 2001*, ST/ESA/SER.A/211, New York: United Nations, Department of Economic and Social Affairs, Population Division.

UNITED NATIONS (forthcoming), *World Population Prospects, The 2002 Revision*, New York: Department of Economic and Social Affairs, Population Division (available at http://www.un.org/esa/population).

WORLD BANK (1999), *Population and the World Bank: Adapting to Change*, Washington, D.C.: International Bank for Reconstruction and Development.

WB72289
Q:\My Documents\JOHNMAY\NIGER\May_Guengant_Istanbul.doc
June 1, 2003 8:27 PM