



Projections for Contraceptives, including Condoms for HIV/AIDS in Nigeria

Determining Needs and Cost of Contraceptives for Nigeria 2003 – 2015

Federal Ministry of Health

December 2003



FAMPLAN MODEL

Foreword

Nigeria is committed to improving the reproductive health and well-being of its citizenry and this is shown through various initiatives of government and other relevant stakeholders to ensure easy access to affordable reproductive health services. This commitment is further expressed through its adoption of the National reproductive Health Policy of 2001, which reflects such international agreements as the International Conference on Population and Development Declaration of 1994 and the United Nations General Assembly Declaration of Commitment on HIV/AIDS of 2001.

Reproductive Health Commodity Security (RHCS) was recognized as an emerging issue when it was identified by experts in reproductive health that the demand for RH commodities gap has been found to be increasing yearly.

The need to develop a secure supply of Reproductive Health Commodities having been recognized, Nigeria took the initiative of being the first country to adopt a strategic plan using a comprehensive, long-term, holistic approach, which helps countries develop strategies to ensure that sufficient Reproductive Health commodities and supplies are available in the future. This strategic Pathway to reproductive Health Commodity Security (SPARHCS) framework is designed to be adapted to the needs and conditions of individual countries.

One major step in the process is a determination of the quality reproductive health commodities necessary to meet the needs of the country and the cost implications of these requirements. This led to the development of FAMPLAN. FAMPLAN is a model that enables us to project the country's requirements for contraceptives and condom for HIV/AIDS till the year 2010. This report using modelling techniques achieves this aim.

The needs are substantial but because Nigeria is committed to protecting the health of its people, it will certainly make plans to ensure that Nigeria progresses towards the realization of the availability of commodities and supplies available at all levels so that men, women and youth can choose, obtain and use quality contraceptives and condoms for HIV/AIDS whenever the need them.



Dr. M.S. Amaeshi
Director, Dept. of Community Development and Population Activities
December 2003

Acknowledgement

The Department of Community Development and Population Activities of the Federal Ministry of Health is sincerely grateful to the various Development Partners and individuals who worked with us in developing this report.

Our appreciation goes to the USAIDS, Nigeria for its support and to the POLICY Project/Nigeria, for providing the technical assistance for the development of this document.

Our final appreciation goes to the members of the Technical Advisory Group who developed the projections. These include Dr. Akinremi Dada, Dr Taiwo Avbayeru and Dr Bose Adeniran of the Department of Community Development and Population Activities FMOH; Professor A.A. Adewuyi of the Obafemi Awolowo University, Ile Ife; Mr M.K. Usman of the National Population Commission; Mr S.A. Adeyemi of the Federal Office of Statistics; Mr F. A. Okegunna of the Department of Planning and Research, FMOH; Mr I.O. Popoola of the Central Bank and Dr Wole Fajemisin of the POLICY Project/Nigeria.

I do sincerely look forward to the use of the report for commodity procurement decisions to achieve reproductive health commodity security in Nigeria



Dr. A. Adeyemi
Consultant Special Grade I (RH)
DCDPA/FMOH
December 2003

Executive Summary

Nigeria's population has grown rapidly in recent decades. The total population increased from 30.4 million in 1952, to 88.9 million in 1991 (National Population commission 1998).¹ The median variant population projection for the year 2003 was estimated at 126 million and this is expected to increase to 146 million in 2008 (NPC). Nigeria's present growth rate is estimated to be about 2.8%. The fast growing population has serious consequences on the health of the citizenry and the socio-economic development of the country.

The maternal mortality is too high (704 per 100,000)². One reason for this is the fact that too many high risk pregnancies occur. These include pregnancies occurring less than 24 months apart and having too many births (above 4). The infant and child mortality are also high (75/1000 and 140/1000 respectively)². Studies have consistently shown that children born to the same mother with less than 24 months between them are more likely to die in childhood than children more than two years apart. Children of higher birth order are also more likely to die in early childhood. Many of these children die unnecessarily because the Nigerian woman do not adequately space or limit their children, either due to ignorance or inability to obtain and use socially acceptable effective methods they require to enable them achieve family planning.

The national health policy states that the government has the responsibility to provide health care for its citizenry and this will be met through the provision of access to health care services. The policy also states that it is the responsibility of the government and the health care worker to provide adequate knowledge to the citizenry so that they can take informed decisions on matters that affect their health. The health policy therefore mandates the government to ensure that its citizenry can opt for healthy practices and to provide the necessary commodities to ensure that they can practice such choices, thereby improving the standard of living within the country and reducing the maternal, infant and child mortality which are unacceptably high.

¹ National Population commission: 1998 Population Census of the Federal Republic of Nigeria; Analytic Report at the National Level.

² National Population Commission 1999 National Demographic and Health Survey

FAMPLAN MODEL

Concerns about ensuring an uninterrupted supply of contraceptives around the world has led to a multi-agency effort called The Strategic Pathway to Reproductive Health Commodity Security (SPARHCS.) In August of 2002 the SPARHCS approach was field tested in Nigeria.

One of the recommendations of that initiative was to develop a set of family planning projections. The POLICY Project, which supported SPARHCS in Nigeria, was requested to prepare these based on the FAMPLAN model.

A technical advisory group was set up to use the FAMPLAN model to determine the country's contraceptive commodity needs for five years (2003 – 2007). The projections showed that in 2004 Nigeria will require about 188 million condoms, 3.7million hormonal injections, 243 thousand intrauterine contraceptive devices (IUD), and 3.5 million cycles of oral contraceptive pills. The study further shows that that about \$15 million is needed by the country in 2004 to supply country with reproductive health commodities to effectively space or limit childbearing, and prevent sexually transmitted infections especially HIV/AIDS. Of this amount \$9 million will be spent on buying condoms. Four and a half million dollars of the total will be needed to adequately meet the needs of persons who use the public sector for condoms. This figure however will increase yearly as the percentage of families that decide to plan their families and increases population of the country grows. By 2010 this amount needed to increase secure contraceptive commodities for the country is expected to reach \$22 million.

In 2001 the health budget was about ₦36,195 million (\$322 million) out which more than one third was for recurrent expenditure. This was unusual as the year before, it had been about \$141 million. When compared to the amount needed to adequately provide this essential commodity, it is clear that Nigeria may not be able to meet this need from its health budget.

Nigeria has had to prioritize the allocation of resources to various health challenges due to a downturn in its economy and a large national debt. In the prioritization, emergency problems have taken precedence over long term developmental challenges and resources for long term goals have declined appreciably. Therefore strategies have to be developed to ensure that the needs of the populace are met. A strategic plan for reproductive health commodity security is being finalised and some aspects of it are already being implemented. The goals of this plan are however still far from being actualised.

FAMPLAN MODEL

Developmental partners have been very important in filling in the gaps in funding for health issues in most of Sub-Saharan Africa, Nigeria inclusive. Unfortunately there has been a noticeable decline in funding of reproductive health commodities by donors, and the gap

between needs and that amount supplied has been increasing. In spite of this it is hoped that while Nigeria develops a strategy to ensure reproductive health commodity security and puts in effect, developmental partners will continue to fill in the gap to ensure that the gains of the past are not lost and that children can be born into the country with better prospects of survival, and that the needless death of women as a result of high risk pregnancy will be eliminated.

INTRODUCTION

Purpose

Family Planning and other Reproductive Health services have been available in Nigeria for quite a while. The public sector provides a considerable percentage of the services using various outlets especially the primary health care system. A number of NGOs and the private commercial sector also provide services. Most of the family planning commodities used by these outlets are sourced largely from donors who ensure that the commodities are affordable to the average Nigerian who needs to use them. The imminent adaptation of a revised national population policy as well as the recent adoption and launching of a reproductive health policy and strategic plan, demonstrates a renewed interest in bolstering family planning in Nigeria. This brings to the fore issues regarding the anticipated needs of family planning clients, especially in the public sector.

This report is aimed at providing a set of data that can guide program planners. Specifically the report provides information about the future numbers of contraceptive users, number of contraceptives required by method, number of contraceptives required by source and the costs of such contraceptives.

Demographic Background

Nigeria's population has grown rapidly in recent decades. The total population increased from 30.4 million in 1952, to 88.9 million in 1991 (National Population commission 1998).¹ The median variant population projection for the year 2003 was estimated at 126 million and this is expected to increase to 146 million in 2008 (NPC). Nigeria's present growth rate is estimated to be about 2.8%.

Nigeria is presently undergoing demographic transition from a high fertility – high mortality state to a low fertility and low mortality state. Presently, it is at a mid-transition point with a high fertility rate and a declining mortality rate. This has led to a rapid population growth mainly due to a high fertility rate and the relatively young population which the high fertility/low mortality situation has created.

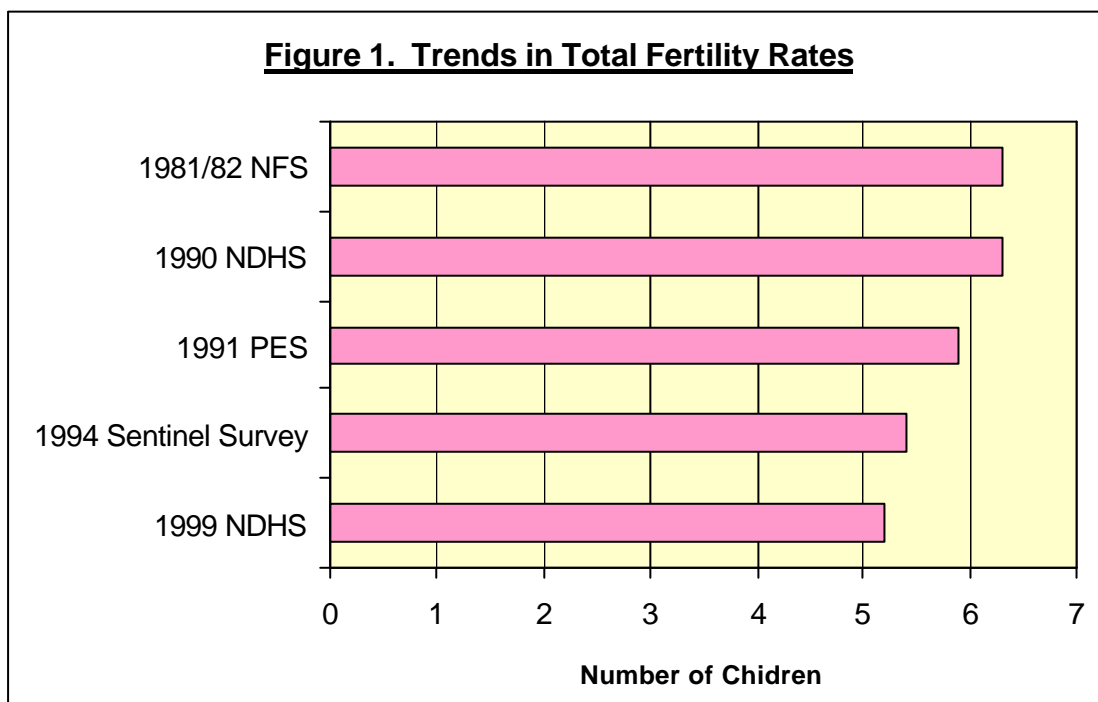
¹ National Population commission: 1991 Population Census of the Federal Republic of Nigeria; Analytic Report at the National Level.

FAMPLAN MODEL

Life expectancy increased from 45 years in 1963 to 51 years in 1991 mainly due to improved living conditions and better health services. The further gains in life expectancy may however not have been realised due to the effects of the HIV/AIDS epidemic.

The Nigerian total fertility rate (TFR) in 1990 was 6.01¹. This was said to have reduced to 5.2 in 1999². Authorities believe the 5.2 total fertility rate to be an under estimation, taking into consideration the proximate determinants of fertility including the contraceptive prevalence in the same year (1999 NDHS). The various figures estimated as the Nigeria's TFR from different sources show the level of uncertainty about it. The World Development Indicators Database states that the TFR was about 5.3 in the year 2000²; the World Population Data Sheet states the TFR for 2001 to be 5.8³; while the WHO estimated it to be 5.7⁴.

In 1999 the contraceptive prevalence rate for modern methods among married women of reproductive age was 8.6%⁵. This low level of contraceptive usage was however an improvement on the 1991 level which was 3.5% (1990 NDHS)^{3,6}.



NFS: National Fertility Survey; NDHS: Nigerian Demographic and Health Survey; PES: Post enumeration survey;

¹ Nigeria Demographic and Health Survey 1990

² National Population Commission [Nigeria]. 2000. Nigeria Demographic and Health Survey 1999. Calverton, Maryland: National Population Commission and ORC/Macro pg 35

³ Population Reference Bureau 2001 World population data sheet

⁴ The World Health Report 2001

⁵ 1999 Nigeria Demographic and Health Survey

⁶ 1990 Nigeria Demographic and Health Survey

FAMPLAN MODEL

The high population growth rate is of great concern and this is clearly stated in the National Policy on population for Development, Unity, Progress and Self-reliance of 1988: *'Population pressures at the societal level: if the present high fertility and populations growth rates continue, Nigeria will have to double its entire infrastructure for food production, health services, water supply, housing sanitation and electricity in about twenty years just to maintain the present standard of living'*¹ Anecdotal evidence suggests that Nigeria has not been able to do this, and the standard of living is falling.

To reduce the rapid population growth rate, the National Policy on Population for Development, Unity, Progress and Self-reliance of 1988 developed strategies which included making family planning services easily affordable, safe and culturally acceptable to all couples and individuals seeking such services on a voluntary basis.

More recently the 1988 policy has been updated and gone through a series of reviews. A final draft has been written. The revised population policy also seeks to promote the voluntary child spacing, limiting number of children and preventing of sexually transmitted infection through the use of appropriate and acceptable methods. The revised policy is discussed below.

Nigeria's Population Policy Goals

In 1988, the Government of the Federal Republic of Nigeria adopted the National Policy on Population for Development, Unity, Progress and Self reliance. This policy was designed to improve standard of living and quality of life, and promote maternal and child health. The targets pertaining to the policy were not reached. These include achieving a decrease of the population growth rate to 2.0% by the year 2000 and the reduction in the total fertility rate from 6 to 4 by the year 2000. From the present standpoint it is certain that these targets were not achieved. In 1998 the Department of Community Development and Population Activities, Federal Ministry of Health carried out an evaluation of the policy and its implementation. The reasons adduced for the policy targets not being met include weak programming, inadequate resources, weak institutional framework and a lack of strategic planning².

The goals and targets then intended, and the strategies that were then articulated, now require revision in the light of developments after its adoption; including the International Conference on Population and Development (ICPD) in 1994; the greater attention accorded reproductive and sexual health for all persons at all stages of life; the HIV/AIDS pandemic which has also

¹ FMOH. 1988 The National Policy on population for Development, Unity, Progress and Self-reliance of 1988 page 7

² FMOH, UNFPA 1998: Report of the National Population Policy Review, Nigeria 3, 31

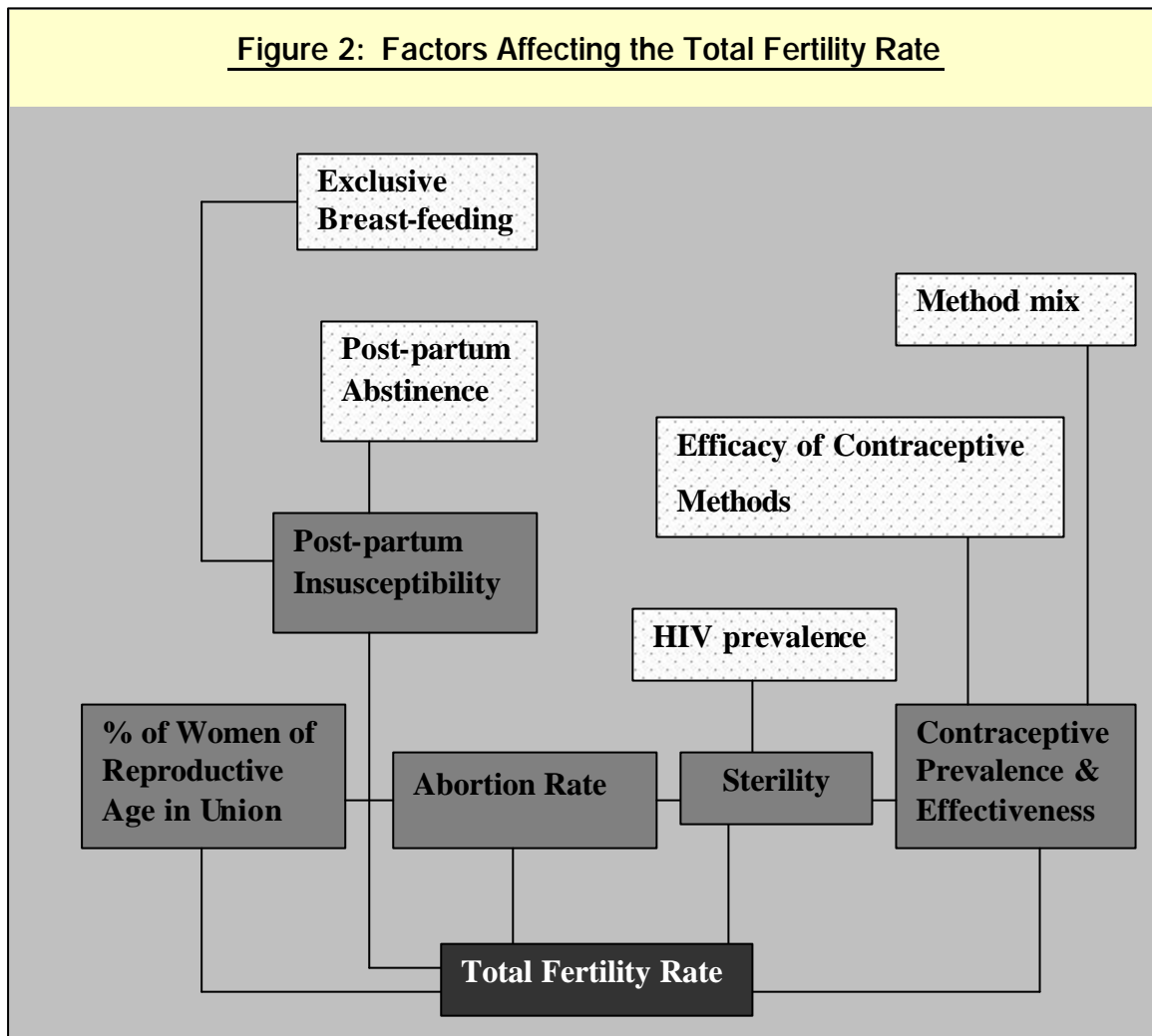
FAMPLAN MODEL

affected Nigeria; and the new information available from the 1991 national census and the 1990 and 1999 Nigerian Demographic Health Surveys. These considerations led to a decision to revise the National Policy on Population. The draft policy states among its targets the reduction in the national population growth rate to 2% or lower by 2015; a reduction in fertility rate of at least 0.6 children every five years; and the increase in contraceptive prevalence by at least 2 percentage points per year. The targets and goals though ambitious were based on the results obtained from other countries in which it has been found that these high targets are possible expectations with an enabling policy environment, and good programme design and implementation.

Methodology

There is presently no reliable data that can be used to assess the historical use of family planning clinics and commodities. The recently adopted National Health Information System has included data on the use of family planning commodities as one of its essential components, but this is yet to be implemented on a wide scale to produce country representative data. This projection is based on population-based data, especially from the Nigeria Demographic and Health Surveys. The determination of the contraceptive commodity needs was calculated by using a model; FAMPLAN developed by the POLICY Project (a USAID project) for the purpose of projecting the requirements for contraceptive commodities and to determine the cost to reach stated goals for contraceptive prevalence or desired fertility. The results were then compared with the supplies from major suppliers of contraceptives in the country and were found to be comparable when taking into consideration the market share of these suppliers.

The model calculates this by taking into consideration the effect of contraceptive usage on the future fertility rates; and the effect of the proximate determinants of fertility on fertility. This is described in the figure 2.



The FAMPLAN Model

The FAMPLAN model is based on the basic Bongaarts (1978) and Bongaarts-Stover (1986) model of proximate determinants of fertility. Conceptually simple, this model reflects the observation that a country’s total fertility rate is a function of average values representing the amount of time women of reproductive age are in sexually active unions, the quantity and quality of contraception practiced, the prevailing level of (induced and spontaneous) abortion, the level of postpartum insusceptibility from abstinence and intensive breastfeeding, the degree of primary and secondary sterility and the underlying level of potential fertility.

Conceptually, the model states that macro influences – such as social, economic and health act by modifying these proximate determinants (intermediate variables); and that it is possible to determine the value of any of the factors from knowledge of the others. In the FAMPLAN model, the focus is on estimating either the total fertility rate, contraceptive prevalence, using

FAMPLAN MODEL

data that provide other necessary coefficients. These data are usually drawn from Demographic and Health Surveys in developing countries.

The proximate-determinants model was tested first on data given from the Nigerian 1990 DHS and found to give satisfactory results, but on the 1999 NDHS data it suggested that the TFR was underestimated, a fact that the report of the NDHS also admitted¹.

The coefficients may be best understood if translated to “responsibility” of each proximate determinant to lower Nigeria’s “potential fertility” of 15 potential children per woman. As such the proximate determinant coefficients have been converted here into “child units” to illustrate the relative weight of the various factors:

Table 1. Effect Proximate Determinants on TFR in Nigeria		
Factors in “Child Units”	NDHS90	NDHS 99
Union duration	2.57	3.31
Postpartum insusceptibility	5.53	4.55
Abortion	0.21	0.24
Primary sterility	0.00	0.00
Contraception	0.58	1.36
TFR	6.12	5.53
Potential fertility	15.00	15.00

Sources:

FOS and Macro 1991: tables 3.2, 3.5, 4.4, 5.1, 5.9
NPC and ORC/Macro 2000: tables 3.2, 3.5, 4.4, 5.9 and p. 74
Estimates: Kirmeyer / POLICY Project

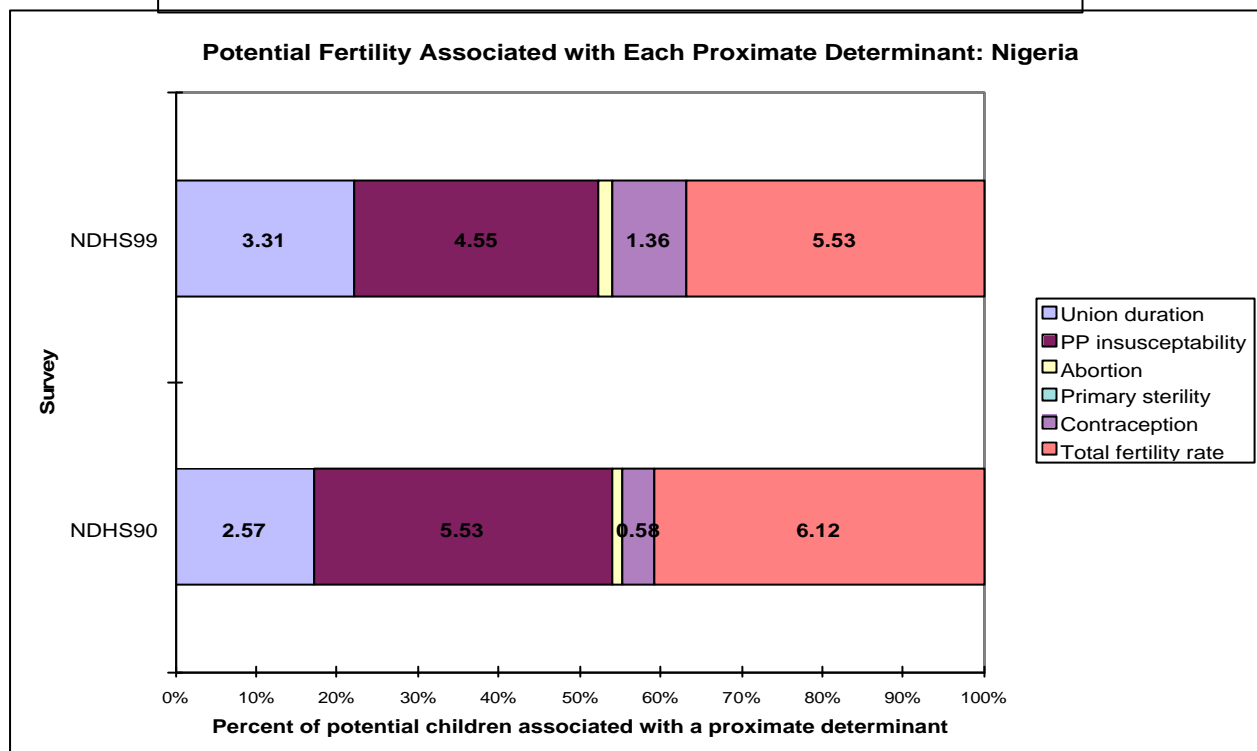
The Proximate Determinants of Fertility

¹National Population commission [Nigeria]. 2000. Nigeria Demographic and Health Survey 1999. Calverton, Maryland: National Population Commission and ORC/Macro pg 36,204

FAMPLAN MODEL

The relative importance of these proximate determinants in affecting the number of children per woman may be further explored by representing the above data graphically and are presented in figure 3 below.

Figure 3. Potential Fertility of Nigerian Women Associated with Proximate Determinants: 1990, 1999



As seen they include:

1. Post partum insusceptibility
2. Duration of Sexual union
3. Abortion
4. Primary Sterility
5. Contraceptive Prevalence Rate

Post partum Insusceptibility

Traditionally, the long duration of breastfeeding and the postpartum abstinence have had a major suppressing effect on Nigeria's fertility. There is evidence that the relative influence has waned considerably in the past decade are in keeping with what is occurring elsewhere. Post partum insusceptibility declined from 19 months in 1991¹ to 15.5 months in 1999¹ (Table 2). This trend will tend to increase fertility.

¹ 1991 NDHS Nigeria Demographic Health Survey 1991;
FAMPLAN

FAMPLAN MODEL

This trend is expected to continue as working women have less time for exclusive breastfeeding due to work out of home; women who marry late might desire to have their children faster; and the reduction in polygamy could lead to less postpartum abstinence for couples. The implication for this trend is that an expansion in the use of contraception will be needed just to maintain the present TFR.

Women in Union

The second most important factor has been the proportion of a woman's reproductive years that she spends in union. The percentage of women in unions has apparently decreased over the past decade. Comparing the years 1991 and 1999 (table 2), it can be seen that the percentage of women of reproductive age in union has decreased considerably. This is expected to continue as socio-economic development continues to occur and can be expected to continue into the future as women spend more years in school thereby delaying marriage.

Table 2. Proximate determinants of fertility in 1990 & 1999

Proximate determinants	1990	1999
Postpartum insusceptibility	19.0 months	15.5 months
Percent of women ages 15 – 49 years who are in union	78.3%	70.1%
Percent sterility (percent of women childless throughout their reproductive lifetime)	4.0%	3.0%
Percentage of women in union using contraception	6%	15.3%
Total abortion rate (average number of abortions over a woman lifetime)	unknown	unknown
HIV prevalence	1.4% (1991)	5.4%

Sources: Nigeria Demographic Health Survey 1991 & 1999; 2001 Technical report on the 2001 National HIV/Syphilis Sentinel Survey among Pregnant women attending ante-natal Clinics in Nigeria

Primary Sterility

The percentage of women who are sterile decreased from 4.0% to 3.0%. From past evidence there is no known trend in this determinant and therefore it will be difficult to predict a trend. It could be assumed that due to improvements in healthcare delivery couples with sub-fertility are able to obtain services which lead to decreased life time sterility. Known factors that affect sterility include the prevalence of sexually transmitted diseases. While these are endemic there is no epidemic of them other than the present HIV/AIDS epidemic. HIV/AIDS has been known to decrease the fertility of women worldwide. While no studies have been done in Nigeria, studies in other countries suggest that the fertility of HIV infected women decreases by 20 – 23%²

¹ 1999 NDHS Nigeria Demographic Health Survey 1999;

² Carpenter et al 1997 Estimates of the impact of HIV infection on fertility in a rural cohort

FAMPLAN MODEL

Abortion

It is difficult to arrive at the rate of abortion in Nigeria because the law in the country states abortion illegal except when it is done to save a woman's life. This makes obtaining information on it difficult and unreliable. The number of abortions performed was calculated to be 25 per 1000 women 15 – 49 years in 1996¹. The percentage of unwanted pregnancies that result in abortions has not been determined country wide but a study done in two Nigerian towns revealed that in these towns 58% of unwanted pregnancies were aborted. This however only reflects what may be occurring in the urban areas; it may not reflect the situation in the rural areas where most of the women dwell. Apart from these uncertainties it is impossible to predict whether there will be a change in the abortion rate as there is little evidence as to whether the law on abortion will be liberalised or more rigidly enforced than it is today.

HIV/AIDS

The effect of the HIV/AIDS epidemic is multi-fold. HIV/AIDS has been known to decrease the fertility of women worldwide. HIV/AIDS also reduces the life expectancy and thereby the population growth rate. Since it affects women in the fertile age group it will could affect the demand for family planning. The HIV prevalence has been rising over the years and still threatens to continue – even exponentially. The HIV prevalence in 2001 was 5.8%. It is possible that the prevalence could rise even further before beginning to decline.

Contraceptive Prevalence

Finally, in recent years, contraceptive practice has emerged to play a minor but noticeable role, perhaps responsible for lowering fertility outcomes by 1.4 children per woman.

Projecting Contraceptive Commodities

In the desire to ensure reproductive health commodity security in the immediate present and the future, there is need to forecast the quantities and types of commodities that will be required with a degree of certainty. Two ways have been adopted universally: the use of service provider data and the use of population data. In Nigeria it is hard to gather reliable service provider data due to the high level of under reporting. For this estimation therefore, the population data was used.

¹ Henshaw SK, Singh S, Oye-Adeniran BA et al. the incidence of induced abortion in Nigeria, International Family Planning Perspectives, 1998, 24(4): 156 – 164

FAMPLAN MODEL

In projecting into the future it is difficult to know to what extent and at what rate Nigeria will progress towards a low fertility rate. In order to make reliable estimates a study of other Sub-Saharan African countries was made. Table 3 below presents data from sub-Saharan African countries that had two or more Demographic and Health Surveys during the 1990s. From these it can be seen that the average annual increase was 0.9%.

Table 3: Changes in the CPR in Sub-Saharan Africa in the 1990's				
	TFR (15-49)	Total CPR	Modern CPR	Av. Annual %-point increase in modern CPR
Benin 1996	6	16.4	3.4	
Benin 2001	5.6	18.6	7.2	0.8
Burkina Faso 1992/93	6.5	24.9	4.2	
Burkina Faso 1998/99	6.4	11.9	4.8	0.1
Cameroon 1991	5.8	16.1	4.3	
Cameroon 1998	4.8	19.3	7.1	0.4
Cote d'Ivoire 1994	5.3	11.4	4.3	
Cote d'Ivoire 1998/99	5.2	15	7.3	0.6
Ghana 1988	6.4	12.9	4.2	
Ghana 1993	5.2	20.3	10.1	1.2
Ghana 1998	4.4	22	13.3	0.6
Madagascar 1992	6.1	16.7	5.1	
Madagascar 1997	6	19.4	9.7	0.9
Malawi 1992	6.7	13	7.4	
Malawi 2000	6.3	30.6	26.1	2.3
Mali 1987	7.1	4.7	1.3	
Mali 1995/96	6.7	6.7	4.5	0.4
Mali 2001	6.8	8.1	7	0.5
Niger 1992	7	4.4	2.3	
Niger 1998	7.2	8.2	4.6	0.4
Nigeria 1990	6	6	3.5	
Nigeria 1999	4.7	15.3	8.6	0.6
Senegal 1986	6.4	11.3	2.4	
Senegal 1992/93	6	7.5	4.8	0.3
Senegal 1997	5.7	12.9	8.1	0.8
Tanzania 1992	6.2	10.4	6.6	
Tanzania 1996	5.8	18.4	13.3	1.7
Tanzania 1999	5.6	25.4	16.9	1.2
Uganda 1988	7.4	4.9	2.5	
Uganda 1995	6.9	14.8	7.8	0.8
Uganda 2000/01	6.9	22.8	18.2	1.7
Zambia 1992	6.5	15.2	8.9	
Zambia 1996	6.1	25.9	14.4	0.9
Total Average annual increase				0.9

Source: compiled by POLICY Project from various DHS reports

For countries that are close to Nigeria's 10 % modern CPR the average increase was a bit higher at around 1.4% (Table 4).

FAMPLAN MODEL

Table 4: Increase in Modern CPR for Sub-Saharan Countries with close to 10% Modern CPR

	TFR (15-49)	Total CPR	Modern CPR	Average Annual increase
Ghana 1993	5.2	20.3	10.1	
Ghana 1998	4.4	22	13.3	0.6
Malawi 1992	6.7	13	7.4	
Malawi 2000	6.3	30.6	26.1	2.3
Tanzania 1992	6.2	10.4	6.6	
Tanzania 1996	5.8	18.4	13.3	1.7
Tanzania 1999	5.6	25.4	16.9	1.2
Uganda 1995	6.9	14.8	7.8	
Uganda 2000/01	6.9	22.8	18.2	1.7
Zambia 1992	6.5	15.2	8.9	
Zambia 1996	6.1	25.9	14.4	0.9
Total Average annual increase				1.4

Source: compiled by POLICY Project from various DHS reports

From the efforts of other countries it was estimated that Nigeria's yearly increase in CPR points is more likely to be between 0.9 and 1.4% with some amount of programming. As a result of this 3 scenarios have been chosen to represent different rates of change of fertility over time.

Other Factors affecting Fertility

Life Expectancy at Birth

Nigeria's life expectancy rose from 45 years in 1960 to 51 years in 1990¹. This has however fallen in recent times due to the effects of the HIV/AIDS epidemic. WHO estimate that without the HIV epidemic, due to the improvement in living standards coupled with the improvement in health care, the life expectancy at birth should continue to increase. Due to the HIV epidemic, life expectancy is falling; due the life expectancy in Nigeria is presently estimated to be 46.8 years².

Method Mix & Effectiveness

The "method mix" is the percentage of all users who use the different types of contraceptive methods available. These figures should sum to 100 percent. The effectiveness of different contraceptive methods are an important factor that needs to be taken into account when

¹ National Population commission: 1991 Population Census of the Federal Republic of Nigeria; Analytic Report at the National Level.

² World Development indicators database, April 2002.

FAMPLAN MODEL

considering the effect of contraceptive use on fertility. The method effectiveness is the reduction in the probability of conception occurring during a year of method use. This is determined by both the population's ability to conceive and the extent of contraceptive method failure. Different method mixes result in different levels of decline in population growth rate. Since different methods have different levels of effectiveness the distribution of users by method will affect overall contraceptive effectiveness. The National Demographic and Health Survey is usually the best source of this data. For these projections the 1990 and 1999 NDHS reports were used.

A second importance of the method mix is that it affects the cost of contraceptive commodities. The unit price of commodities and the number of commodities required to ensure a couple year of protection varies.

In projecting future contraceptive requirements it is necessary to determine what the future method mix would be. This can be determined by projecting the method mix from past and present method mixes; and also the effect that social marketing; programme effort and the availability of different contraceptive commodities; the effect that cost and acceptability will have on their further use. Nigeria at present does not have a policy to increase or promote any form of contraception over the other.

The method mix in Nigeria did not changed significantly between 1990 and 1999 ($p = 0.79$) when the two National Demographic Health Surveys were carried out. This is shown in the table 5 below:

Table 5. Comparison of Contraceptive Method mix for all methods (1990 and 1999)				
	All methods		Modern Methods	
	1990	1999	1990	1999
MODERN METHODS				
1. Injectable (hormonal)	11.67	16.7	20.0	27.9
2. Intra-uterine device (IUD)	13.3	13.9	22.9	23.3
3. Oral pills	20	16.7	34.3	27.9
4. Condoms	6.67	8.3	11.4	14.0
5. Sterilization	5.0	2.1	8.6	3.5
6. Implants	0.0	0.7	0.0	1.2
7. Vaginal barriers/foaming tablets	-	-	2.9	2.3
TRADITIONAL METHODS	41.67	40.3	-	-
	($P = 0.79$)		($P = 0.37$)	

Source: 1990 & 1999 Nigeria Demographic and Health Surveys

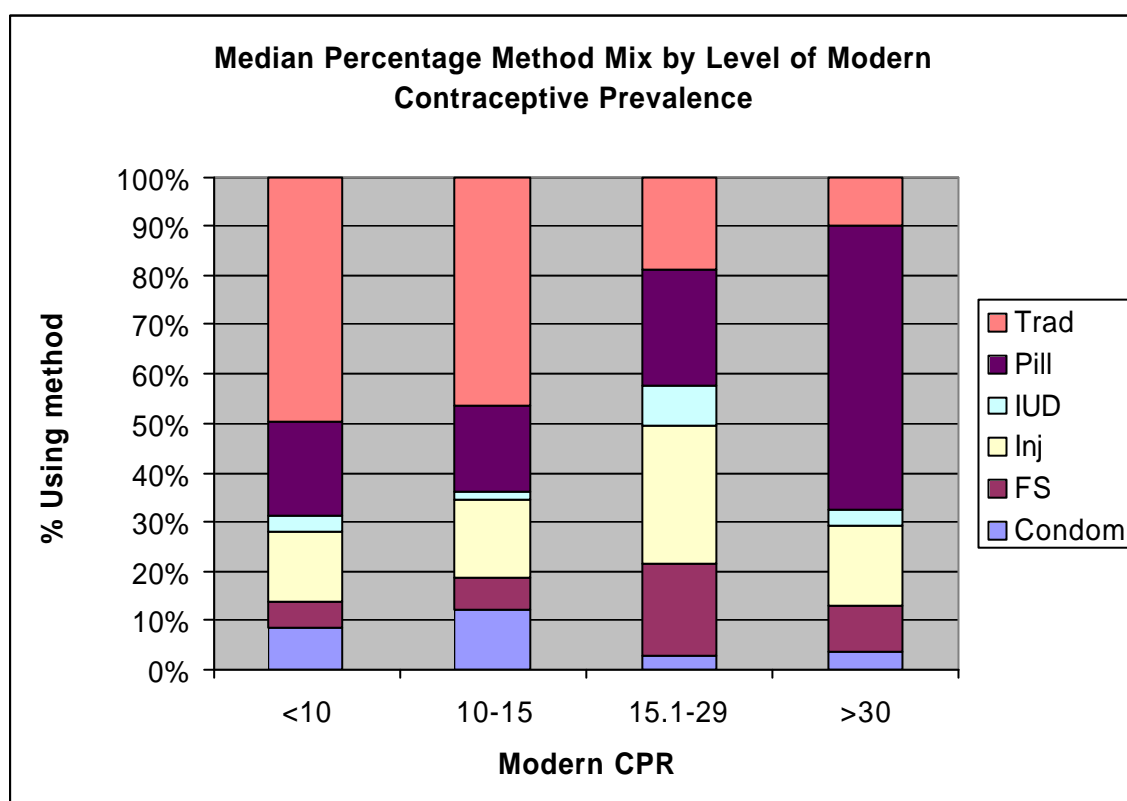
When examining only modern methods, there was a noticeable increase in the percentages of those using injectables and a decrease in percentage of those using pills. The difference

FAMPLAN MODEL

however was also not statistically significant. Traditional methods were a major form of contraception in both years. This occurred in spite of the doubling in contraceptive prevalence. If lessons can be learnt from the past then it is likely that as the contraceptive prevalence rises the percentage of women using traditional methods will decrease.

It is reasonable to assume that the modern method mix will not change much over the next 5 years except if very aggressive and effective means are taken to change the mix. There is no plan by the government, health ministries or authorities to promote the use of any commodity over the others. The use of condoms may however increase due to its dual usage.

There is, however, a plan to promote the use of modern methods over traditional methods. It



could therefore be logical to assume that the percentage of persons using modern methods will increase. If experiences of other Sub-Saharan countries are to act as a guide, the percentage of women using traditional methods could fall to as low as 20% when the CPR rises to about 30%. See Figure 4 above.

An assumption is made for these projections that the percentage of traditional method use decreases from 40% in 1999 to 30% in 2015. This is done to ensure that the projections do not underestimate the required commodities for future use.

Scenarios Defined

FAMPLAN MODEL

1. The first scenario for CPR growth is based on the assumption that very little change in the family planning programme effort occurs and therefore the increase in contraceptive demand is largely due to the increase in urbanization, increased female education and improved socioeconomic conditions. This assumes that the contraceptive prevalence rate increases by 0.75% every year from 2003
2. The second, the status quo scenario, is based on the fact that the Nigerian authorities who coordinate population programmes are able to undertake programme activities to meet unmet demand and increase the awareness of child spacing to some extent i.e. they make significant achievements but not the ultimate. In this scenario the assumption is made that the contraceptive prevalence increases by 1.25% a year.
3. The last scenario is based on the assumption that through very high-quality programmes and an improved enabling environment as shown by popular support at all levels, Nigeria is able to meet the target of an increase in contraceptive prevalence of about 2% per year as stated in the draft document of the revised population policy 2001.

While the three scenarios above were formulated to reflect a level of realism in terms of family planning objectives, it needs to be pointed out that even the most ambitious of these (scenario 3) will require more than 25 years to achieve contraceptive use levels comparable to those of present day developed countries of over 70%.

Assumptions

A projection is only as good as the assumptions made in obtaining it. It is important to examine the assumptions critically in order to determine if any assumption made could significantly bias the results accomplished.

Proximate determinants

In these projections, no change in percentage of married women of reproductive age was made after 1999. This is because there is no evidence that it has changed or if it has to what extent. For the same reason no change in post partum insusceptibility was made after 1999.

The sterility rate is also kept constant at the 1999 levels. This is due to the fact that there is no evidence of trend sterility in the country. The effect of HIV/AIDS on the pattern is however taken into account.

FAMPLAN MODEL

Finally there is no reliable estimate on the total abortion rate for women in Nigeria. The rate was kept at 0.0 abortions per woman. This is unlikely to affect the projections significantly as this number is kept constant throughout the period of the study.

Source Mix

The future assumptions on the source mix are also based on keeping the 1999 levels constant throughout the duration of the projections. Although no documented scientific evidence exists, it is commonly believed that the use of the public health services for family planning has dropped in recent times largely as a result of lack of commodities. It is expected that as commodities are made increasingly available and as women become more confident in receiving services at public health institutions the rate of use will again increase, perhaps even exceeding the 1999 levels.

Method Attributes, Effectiveness & Mix

In the absence of any scientific evidence to suggest that the effectiveness of contraceptives in Nigeria is different from that obtained elsewhere, the method effectiveness and attributes accepted universally were used. The assumptions made on method mix include those stated earlier: that there is no change in the proportions of modern methods used and that the number of traditional methods decreases gradually with increased contraceptive use.

Projecting Condom Requirements

One of the limitations of previous studies was the fact that such projections took into consideration women only. This is as a result of the fact that women take the major responsibility for spacing and limiting their families.

The use of female needs to estimate the condom requirements have been found to underestimate the needs for male condoms in present times when condoms are used more to protect against HIV/AIDS than preventing unwanted pregnancy. A number of reasons have been adduced for this, which include: the dual use of condoms (for both family planning and protection against HIV/AIDS and STI); the fact that married women do not truly represent the women who usually use condoms; the selective nature of condom usage by males having multiple sex partners and the non inclusion of men who have sex with men. These factors made it difficult to accurately estimate future requirements for condoms based on female

FAMPLAN MODEL

usage data only. In order to estimate the needs for condoms, it is more appropriate to determine the needs of the men that will be using the commodities.

Unfortunately there is very little service statistics data to estimate condom usage. This is even more so, due to the fact there is more likely to be wastage in the use of condoms than any other commodity. It is more expedient to use population data if such is available. It may however be useful to use national sales figures for condoms if available.

Methodology

The estimation of condom requirements is based on the number of sexual active men in the community, the percentage of men who use condoms during sexual intercourse and the average coital frequency. Sources of needed information include the reports of surveys including National Demographic Health and Surveys, behavioural surveys and research work.

Coital Frequency

Data on coital frequency among African societies are scanty and in the few cases where this information is available, it is limited only to people in union. DHS studies used to collect data on this question but not any more apparently because they used to get differing rates depending on who was present during the time of interview. Nevertheless, a review of literature shows that in general frequency of sexual intercourse is highest among the younger age groups and reduces with age. In addition, sexual intercourse among married people is more frequent than non-married sexually active people.

A review of several studies shows that average coital frequency among married people ranges from 4 times to 9 times a month with a median of about 8 per month¹.² Though very few studies have been done on the non-married sexually active people, studies in the USA reported an annual coital frequency of 59 times among sexually active adults (both married and un-married). Modelling has tended to use a factor of 60 – 80 to estimate the condom usage within countries and communities. When the Nigerian situation in 2002 was considered a factor 60 was found to fairly represent the condom usage in the country. It also fit in with estimates done using other measures. For this study we have opted to use a factor of 60 to represent the number of coital acts per man a year.

¹ Ronald Gray et. al. 2001. "Probability of HIV-1 transmission per coital act in monogamous, heterosexual, HIV-1 discordant couples in Rakai, Uganda." *The Lancet*, 357: 1149-1153

² Tom W. Smith, 1998. "American Sexual Behavior: Trends, Socio-Demographic Differences, and Risk Behavior." National Opinion Research Center, GSS Topical Report No. 25

FAMPLAN MODEL

Condom Usage

Various studies in Nigeria have shown that condoms are the major type of contraceptive reportedly used by males. The 1999 NDHS reported an 8.6% current use of condoms by all men and a 6.4% use by married men. The 2003 NARHS study reported that 13.2% of men used condoms while 8.6% of married men reported current condom use. Studies elsewhere have shown that most persons reporting use of condoms do not use such regularly. This is also revealed in the NARHS study and smaller studies done in various states especially amongst the Edo state youth¹. Previous efforts at modelling condom usage in other countries have shown that the percentage of sexually active men that give a positive response to the question on use of a condom during the last sexual intercourse gives a fair representation of the condom usage coupled with the regularity of condom use.

The age distribution for positive responses to this in the National Reproductive and Health Survey is shown in table 6.

Table 6: Male Condom prevalence rate			
	All males	Currently married males	Sexually active unmarried males
Age			
15 - 19	8.1	8 ^a	29.5
20 - 24	20.3	6	41
25 - 29	22.5	9.9	31.7 ^b
30 - 39	14.9	12.1	
40 - 49	8.3	8.4	
50+	3.2	3.4	
TOTAL	13.2	8.6	
a: based on a small sample size		Source National Reproductive Health	
b: 25+		Survey: 2003	

An assumption has to be made as to what proportion of men will use condoms in the future. To understand this it is important to understand that condoms are used for two purposes; family planning and prevention of STI and HIV/AIDS. The new population policy aims to increase the use of voluntary use of contraceptives including condoms. One target will therefore be to increase its usage.

In controlling the spread of HIV/AIDS, the target is increase the use of condoms during risky sex. This target is however limited to risky sex which itself is a target for reduction. The

¹ Okonofua F et al. 2000. Profile of sexual and Reproductive health of adolescents in Edo state, Nigeria . Policy Project (unpublished).

FAMPLAN MODEL

increase in use of condoms during risky sex would therefore be affected by the degree to which risky sex is practised. It is very hard therefore to determine the degree to which a rise in condom use will occur.

When comparing the male condom use in the 1999 and 2003, the prevalence in use increased from 8.6% to 13.2%. While these prevalence were from two different types of studies they do show a rise in use. Similarly, when comparing female condom use between the 1991 and 1999 NDHS, there is an increase in use of condoms. For the present projections some assumptions are therefore made. In the first – the low CPR growth - scenario no increase in condom usage was assumed; the increase in condom needs is as a result of increase in the population. For the medium (status quo) scenario a marginal increase of about 1 percentage increment in condom prevalence per year was assumed will occur, and for the high CPR growth an increase of about 2.0% was assumed.

RESULTS

Demographic characteristics of Nigeria (1990 – 2015)

The demographic characteristics of Nigeria show that while the population of Nigeria was 88.9 million in 1990 it is estimated to be about 125.5 million in the year 2003. This will increase to 132.2 million in the year 2005 an increase of about 7.7 million people within 2 years.

The table 3 shows the yearly increase in number of women of reproductive age that will occur. This has implications for family planning activities because it infers that to maintain the same contraceptive prevalence an increase in the number of persons using family planning methods will be needed and subsequently more commodities will be required. The number of women of reproductive age remains the same from 2003 to 2015 in all 3 scenarios because this is not affected by immediate changes in contraceptive prevalence. The differences noticed in the number of commodities is therefore mainly as a result of the difference in the anticipated CPR goals.

YEAR	Total population			Women of Reproductive Age
	Low CPR	Medium CPR	High CPR	All Scenarios
	scenario	scenario	Scenario	
2003	125,807,192	125,807,192	125,807,192	28,558,644
2004	129,316,512	129,293,216	129,258,280	29,310,550
2005	132,858,856	132,786,456	132,677,888	30,086,822
2006	136,438,608	136,290,000	136,067,200	30,880,766
2007	140,062,736	139,809,408	139,429,664	31,700,788
2010	151,262,800	150,507,120	149,374,656	34,271,020
2015	171,442,624	169,095,440	165,579,120	39,962,260

Effect of Contraceptive Prevalence on Fertility

CPR (all)		CPR (Modern Methods only)			TFR			
Low CPR	Medium CPR	High CPR	Low CPR	Medium CPR	High CPR	Low CPR	Medium CPR	High CPR

FAMPLAN MODEL

	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario
2003	15.0	15.0	15.0	9.11	9.11	9.11	5.60	5.60	5.60
2004	15.75	16.25	17.0	9.69	9.99	10.46	5.56	5.53	5.49
2005	16.5	17.5	19.01	10.28	10.9	11.83	5.51	5.46	5.38
2006	17.25	18.75	21.01	10.88	11.82	13.24	5.47	5.38	5.26
2007	18.0	20.0	23.0	11.49	12.76	14.68	5.42	5.31	5.13
2010	20.25	23.75	29.0	13.39	15.71	19.18	5.27	5.07	4.77
2015	24.0	30.0	39.0	16.8	21.0	27.3	5.02	4.67	4.13

Though the contraceptive prevalence was based on scenarios which assumed a yearly percentage incremental targeted goal of between 0.75% - 2%, the total fertility rate was not predetermined. The table 8 shows what could be expected based on achieving the set contraceptive prevalence rate goals in each scenario. This was determined by estimating the effect of the contraceptive prevalence rate on the fertility rate, other assumptions kept as previously stated.

It can be seen that the effect of the stated goals is to decrease the total fertility rate to about 4.13 – 5.02 by the year 2015, depending on the scenario. It also shows that the percentage of women using modern methods of contraception only increases to about 19% – 28% by the same year 2015. The population policy stated target of achieving a 0.6 decrease in TFR every 5 years will only be achieved if the high impact scenario (2 percentage point increase in CPR is achieved) occurs.

FAMPLAN MODEL

Contraceptive Users

The increases in contraceptive prevalence rate shown in Table 8 will be as a result of an increase in the number of women who voluntarily opt to limit or space their children. The projections of the number of women who will be using family planning by method and by year are shown in Table 9.

<u>Table 9 Estimates of Modern contraceptive users excluding condoms by method by year (in thousands) in the three scenarios</u>							
		Female					
		sterilization	Injectables	IUD	Pills	Total	
Low CPR scenario	2003	68.1	541.7	450.9	541.7	1602.5	
	2004	74.4	591.3	492.2	591.3	1749.2	
	2005	81.0	643.8	535.9	643.8	1904.4	
	2006	88.0	699.5	582.2	699.5	2069.2	
	2007	95.4	758.5	631.3	758.5	2243.6	
	2008	103.2	820.7	683.1	820.7	2427.6	
	2009	111.4	886.3	737.7	886.3	2621.7	
	2010	120.1	955.4	795.2	955.4	2826.3	
	2015	171.3	1362.1	1133.7	1362.1	4029.3	
Medium CPR scenario	2003	68.1	541.7	450.9	541.7	1602.5	
	2004	76.7	610.1	507.8	610.1	1804.7	
	2005	85.9	682.8	568.3	682.8	2019.9	
	2006	95.6	760.3	632.9	760.3	2249.1	
	2007	106.0	842.7	701.4	842.7	2492.9	
	2008	117.0	930.1	774.2	930.1	2751.3	
	2009	128.6	1022.6	851.2	1022.6	3025.0	
	2010	140.9	1120.6	932.7	1120.6	3314.8	
	2015	214.1	1702.7	1417.2	1702.7	5036.6	
High CPR scenario	2003	68.1	541.7	450.9	541.7	1602.5	
	2004	80.3	638.2	531.2	638.2	1888.0	
	2005	93.2	741.4	617.1	741.4	2193.0	
	2006	107.1	851.6	708.8	851.6	2519.0	
	2007	121.9	969.1	806.7	969.1	2866.8	
	2008	137.6	1094.2	910.8	1094.2	3236.8	
	2009	154.3	1227.2	1021.4	1227.2	3630.0	
	2010	172.1	1368.3	1138.9	1368.3	4047.5	
	2015	278.3	2213.5	1842.3	2213.5	6547.6	

The table shows a yearly increase in the number of women who practise family planning. These figures represent the total number of users each year, and not just the new users or acceptors. Persons sterilised remain so for life and acceptors of IUD may use the same implement for up to 10 years. The figures do not include persons who use condoms which have been calculated using male needs. This is shown in table 10.

FAMPLAN MODEL

Table 10: Estimated number of Male condom users in various scenarios (in thousands).

Year	No of men (15 – 64yrs)	Number of sexually active men	Number of condom users		
			low growth rate scenario	Medium growth rate scenario	High growth rate scenario
2003	32,515.3	21,350.4	2,872.6	2,872.6	2,872.6
2004	33,448.9	21,942.1	2,950.8	3,129.6	3,353.2
2005	34,401.6	22,540.9	3,029.9	3,443.0	3,902.1
2006	35,449.1	23,164.8	3,111.2	3,771.2	4,478.3
2007	36,522.2	23,802.4	3,194.8	4,114.5	5,082.6
2008	37,736.4	24,456.6	3,281.6	4,475.0	5,718.0
2009	38,736.4	25,130.5	3,372.7	4,854.6	6,387.6
2010	39,880.4	25,823.8	3,467.9	5,254.4	7,093.4
2015	46,012.4	29,763.0	4,043.4	7,657.9	11,333.6

The number of men who use condoms is a reflection of the number of sexually active men and the percentage of these who use condoms users.

Contraceptive Commodity Requirements

The number of contraceptives that is required each year varies with method used as each method has a different number of commodities needed to provide a couple with a year's protection (CYP). The amount of commodities needed to provide one year of CYP is shown in Table 6 below.

Table 11: Commodities per method necessary to achieve a year of protection for a couple

Method	No of units required for one couple year protection/ no of years of protection per user	Effectiveness of method of contraception
Injectable (Noristerat)	6	99%
Injectable (Depo Provera)	4	99%
IUD	3.5 years	96%
Oral Contraceptives	15 cycles	92%

Source: Evaluation project

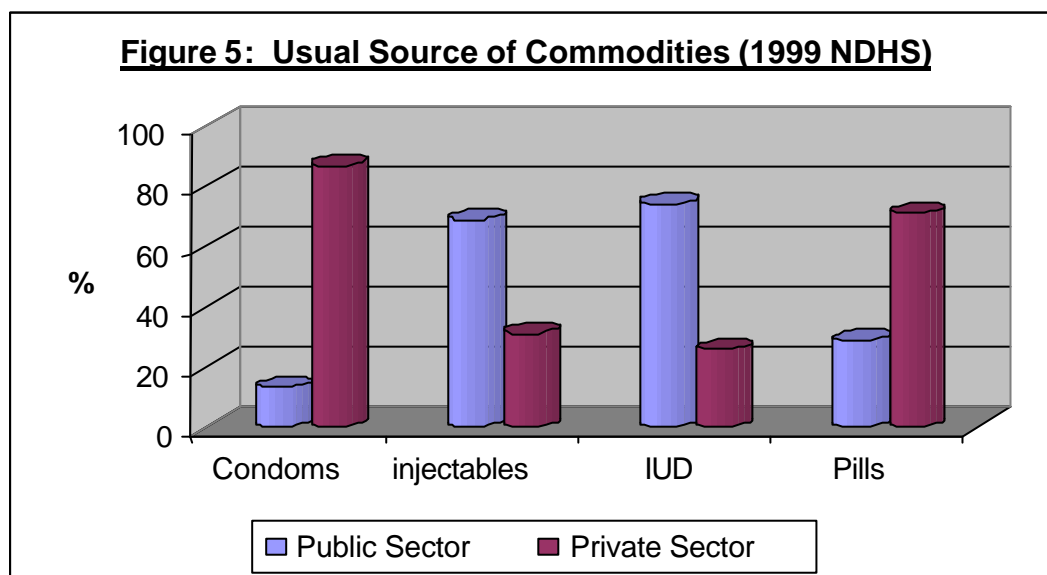
For condoms this is computed by determining the coital frequency. A factor of 60 – 80 has been shown to provide good estimates of condom requirements. In this projection a factor of 60 was used. When compared to the known estimated number of condoms used in 2002, a factor of sixty closely reflected the number used.

Commodities are obtained from various sources. Forty three percent of users obtained from the public sector through government hospitals, government health centres, family planning clinics, community health workers and other public sources. Another 43% of users obtain them from the private medical sector including private hospitals, pharmacies and medical

FAMPLAN MODEL

stores etc. while others obtain them from other sources including shops, religious institutions and non governmental organisations¹.

It is important to know the sources of various contraceptive commodities because this will determine the immediate needs and cost to the public sector. Figure 5 shows the usual sources as seen noticed during the 1999 NDHS. it shows that the source of commodities varies with type of commodity. Condoms that are available over the counter and do not need prescriptions are more commonly sourced from the non-public sector – mainly pharmacies. The same is seen for oral pills which once recommended are usually bought in pharmacies. Injectables and IUDs however require medical supervision and a considerable number of users rely on the government to provide these commodities.



When comparing the sources of commodities as seen in the 1990 and 1999 NDHS (table 12), it was evident that contraceptive users were increasingly depending on the public sector for IUD and hormonal injectables. The use of the public sector for condoms and oral pills did not change significantly. It is possible that this trend of increasing dependence on the public sector will continue. There is however anecdotal evidence that there has been a decline in the patronage of the public sector due to a decline in services provided in them including the common place ‘out-of-stock syndrome’. For this forecast the source of supply of commodities was assumed to remain at 1999 levels

Table 12: Sources of contraception

¹ Nigeria Demographic and Health Survey 1999;

FAMPLAN MODEL

	1990		1999	
	<u>public</u>	<u>non-public</u>	<u>public</u>	<u>non-public</u>
Condoms	13.4%	86.6%	12.9%	87.1%
Injectable	44.9%	55.1%	68.6%	31.4%
IUD	61%	39%	74.4%	25.6%
Pills	29%	71%	29.1%	70.9%

Sources: 1990 & 1999 National Demographic Health Survey

A considerable amount of commodities are necessary to meet the needs of a country with 126 million people the requirements of the country are shown in table 8 disaggregated by usual source through which the users are expected to source them using previous experience.

Table 13: No of commodities by source needed to meet expected demand

		<u>Male Condoms</u>		<u>Injectables</u>		<u>IUD</u>		<u>Pill</u>	
		<u>Government</u>	<u>Private</u>	<u>Government</u>	<u>Private</u>	<u>Government</u>	<u>Private</u>	<u>Government</u>	<u>Private</u>
Low CPR Scenario	2003	22,234,188	150,123,860	2,229,796	1,020,636	149,478	51,433	2,364,689	5,761,391
	2004	22,839,022	154,207,662	2,433,858	1,114,040	161,948	55,724	2,581,095	6,288,648
	2005	23,451,207	158,341,097	2,649,904	1,212,930	175,244	60,299	2,810,211	6,846,872
	2006	24,080,797	162,592,048	2,879,189	1,317,880	189,225	65,110	3,053,368	7,439,305
	2007	24,727,530	166,958,749	3,121,819	1,428,937	203,899	70,159	3,310,675	8,066,216
	2008	25,399,953	171,498,909	3,377,898	1,546,152	219,339	75,471	3,582,246	8,727,878
	2009	26,104,494	176,255,925	3,647,933	1,669,753	235,604	81,068	3,868,617	9,425,599
	2010	26,841,405	181,231,506	3,932,604	1,800,055	252,720	86,957	4,170,510	10,161,139
	2015	31,295,570	211,305,751	5,606,520	2,566,250	355,344	122,269	5,945,690	14,486,234
Medium CPR Scenario	2003	22,234,188	150,123,860	2,229,796	1,020,636	163,040	56,100	2,364,689	5,761,391
	2004	24,223,205	163,553,580	2,511,123	1,149,406	180,513	62,112	2,663,035	6,488,288
	2005	26,649,099	179,933,065	2,810,504	1,286,441	199,181	68,535	2,980,527	7,261,834
	2006	29,188,845	197,081,271	3,129,553	1,432,478	218,915	75,326	3,318,878	8,086,200
	2007	31,846,061	215,022,631	3,468,687	1,587,708	239,730	82,488	3,678,528	8,962,461
	2008	34,636,300	233,862,149	3,828,284	1,752,305	261,719	90,054	4,059,879	9,891,595
	2009	37,574,651	253,701,711	4,209,153	1,926,639	284,962	98,051	4,059,879	9,891,595
	2010	40,668,796	274,593,192	4,612,313	2,111,176	309,503	106,496	4,463,789	10,875,691
	2015	59,271,913	400,200,287	7,008,150	3,207,812	458,509	157,767	7,432,113	18,107,794
High CPR Scenario	2003	22,234,188	150,123,860	2,229,796	1,020,636	183,383	63,100	2,364,689	5,761,391
	2004	25,953,434	175,235,979	2,627,021	1,202,456	208,360	71,694	2,785,944	6,787,747
	2005	30,202,312	203,924,141	3,051,404	1,396,707	235,088	80,890	3,236,001	7,884,277
	2006	34,661,753	234,034,009	3,505,100	1,604,375	263,451	90,650	3,717,143	9,056,544
	2007	39,339,252	265,616,191	3,988,991	1,825,865	293,476	100,981	4,230,307	10,306,831
	2008	44,257,494	298,823,858	4,503,864	2,061,536	325,288	111,927	4,776,328	11,637,171
	2009	49,440,330	333,818,041	5,050,984	2,311,966	358,998	123,526	5,356,546	13,050,828
	2010	54,902,875	370,700,809	5,631,878	2,577,857	394,677	135,803	5,972,582	14,551,754
	2015	87,722,432	592,296,425	9,110,595	4,170,156	613,619	211,138	9,661,747	23,540,132

FAMPLAN MODEL

Table 13 shows that due to the difference in sourcing of commodities by the contraceptive users, government will be responsible for only a small percentage of the condoms needed but will be responsible for the most of the IUDs and injectables needed.

Family Planning Commodity Costs

The cost of contraceptives is a small but significant part of the costs of family planning. Contraceptives are an essential element in family planning service provision, along with direct service provision, clinic-level costs, such as provider salaries and clinical facility costs. To estimate the contraceptive costs of family planning, we used international unit cost estimates of contraceptives. Since contraceptives are an internationally traded commodity, such an assumption is reasonable. Table 14 shows the unit cost assumptions that were used for these calculations.

Method	Cost in Naira (?)	Cost in US\$
Condoms	6.4	0.0495
Injectables	120.9	0.93
IUD	189.8	1.46
Oral contraceptives	28.1	0.216

Source: JSI/deliver

* US\$1.00 = ₦130.00

The total commodity costs for the public sector will therefore be dependent on the percentage of commodities that will be sourced from the public sector. Using the various estimated unit commodity costs the table 15 below shows the disaggregated and total costs needed per year to provide the contraceptive commodities.

		(Cost in Naira)			(Cost in US\$)		
		Government	Private	Total	Government	Private	Total
Low Scenario	2003	364.4	294.9	659.3	2.8	2.3	5.1
	2004	397.5	321.8	719.3	3.1	2.5	5.5
	2005	432.5	350.3	782.9	3.3	2.7	6.0
	2006	469.7	380.6	850.3	3.6	2.9	6.5
	2007	509.1	412.6	921.7	3.9	3.2	7.1
	2008	550.6	446.3	996.9	4.2	3.4	7.7
	2009	594.4	481.9	1,076.3	4.6	3.7	8.3
	2010	640.5	519.5	1,160.0	4.9	4.0	8.9

FAMPLAN MODEL

	2015	912.2	740.2	1,652.5	7.0	5.7	12.7
Medium Scenario	2003	375.3	358.2	733.4	2.9	2.8	5.6
	2004	422.2	403.2	825.5	3.2	3.1	6.3
	2005	472.2	451.2	923.4	3.6	3.5	7.1
	2006	525.5	502.3	1,027.8	4.0	3.9	7.9
	2007	582.1	556.6	1,138.7	4.5	4.3	8.8
	2008	642.1	614.2	1,256.3	4.9	4.7	9.7
	2009	705.7	675.2	1,380.9	5.4	5.2	10.6
	2010	773.0	739.7	1,512.7	5.9	5.7	11.6
	2015	1,173.1	1,123.5	2,296.6	9.0	8.6	17.7
High Scenario	2003	377.6	359.0	736.6	2.9	2.8	5.7
	2004	444.0	422.6	866.6	3.4	3.3	6.7
	2005	514.9	490.6	1,005.5	4.0	3.8	7.7
	2006	590.7	563.3	1,154.0	4.5	4.3	8.9
	2007	671.5	640.8	1,312.3	5.2	4.9	10.1
	2008	757.5	723.3	1,480.8	5.8	5.6	11.4
	2009	848.8	810.9	1,659.7	6.5	6.2	12.8
	2010	945.8	903.9	1,849.7	7.3	7.0	14.2
	2015	1,527.1	1,461.3	2,988.4	11.7	11.2	23.0

* US\$1.00 = ₦ 130.00

Table 16 shows the cost to meet the condom requirements by source of commodity

Table 16: Projected Cost of condoms, by source (in millions unit currency)							
		(Cost in Naira)			(Cost in US\$)		
		Government	Private	Total	Government	Private	Total
Low Scenario	2003	143.1	966.0	1,109.1	1.1	7.4	8.5
	2004	147.0	992.3	1,139.3	1.1	7.6	8.8
	2005	150.9	1,018.9	1,169.8	1.2	7.8	9.0
	2006	155.0	1,046.3	1,201.2	1.2	8.0	9.2
	2007	159.1	1,074.4	1,233.5	1.2	8.3	9.5
	2008	163.4	1,103.6	1,267.0	1.3	8.5	9.7
	2009	168.0	1,134.2	1,302.2	1.3	8.7	10.0
	2010	172.7	1,166.2	1,338.9	1.3	9.0	10.3
	2015	201.4	1,359.8	1,561.1	1.5	10.5	12.0
Medium Scenario	2003	143.1	966.0	1,109.1	1.1	7.4	8.5
	2004	155.9	1,052.5	1,139.3	1.2	8.1	8.8
	2005	171.5	1,157.9	1,169.8	1.3	8.9	9.0
	2006	187.8	1,268.2	1,201.2	1.4	9.8	9.2
	2007	204.9	1,383.7	1,233.5	1.6	10.6	9.5

FAMPLAN MODEL

	2008	222.9	1,504.9	1,267.0	1.7	11.6	9.7
	2009	241.8	1,632.6	1,302.2	1.9	12.6	10.0
	2010	261.7	1,767.0	1,338.9	2.0	13.6	10.3
	2015	381.4	2,575.3	2,956.7	2.9	19.8	22.7
High Scenario	2003	143.1	966.0	1,109.1	1.1	7.4	8.5
	2004	167.0	1,127.6	1,139.3	1.3	8.7	8.8
	2005	194.4	1,312.3	1,169.8	1.5	10.1	9.0
	2006	223.0	1,506.0	1,201.2	1.7	11.6	9.2
	2007	253.1	1,709.2	1,233.5	1.9	13.1	9.5
	2008	284.8	1,922.9	1,267.0	2.2	14.8	9.7
	2009	318.1	2,148.1	1,302.2	2.4	16.5	10.0
	2010	353.3	2,385.5	1,338.9	2.7	18.3	10.3
	2015	564.5	3,811.4	4,375.9	4.3	29.3	33.7

* US\$1.00 = ₦ 130.00

Table 17. Cost for both Contraceptives and Condoms for HIV/AIDS (2003 – 2015)

	Year	(Cost in Naira)			(Cost in US\$)		
		Private sector	Total Public Sector	Overall Total	Private sector	Total Public Sector	Overall Total
Low Scenario	2003	1,261.0	507.4	1,768.4	9.7	3.9	13.6
	2004	1,314.2	544.4	1,858.6	10.1	4.2	14.3
	2005	1,369.3	583.5	1,952.7	10.5	4.5	15.0
	2006	1,426.9	624.7	2,051.6	11.0	4.8	15.8
	2007	1,487.0	668.2	2,155.2	11.4	5.1	16.6
	2008	1,549.9	714.1	2,264.0	11.9	5.5	17.4
	2009	1,616.1	762.4	2,378.5	12.4	5.9	18.3
	2010	1,685.7	813.3	2,498.9	13.0	6.3	19.2
	2015	2,100.0	1,113.6	3,213.6	16.2	8.6	24.7
Medium Scenario	2003	1,324.2	518.3	1,842.5	10.2	4.0	14.2
	2004	1,455.7	578.1	2,033.8	11.2	4.4	15.6
	2005	1,609.1	643.7	2,252.8	12.4	5.0	17.3
	2006	1,770.5	713.4	2,483.9	13.6	5.5	19.1
	2007	1,940.3	787.1	2,727.3	14.9	6.1	21.0
	2008	2,119.1	865.0	2,984.1	16.3	6.7	23.0
	2009	2,307.7	947.5	3,255.2	17.8	7.3	25.0
	2010	2,506.7	1,034.7	3,541.4	19.3	8.0	27.2
	2015	3,698.8	1,554.5	5,253.3	28.5	12.0	40.4

FAMPLAN MODEL

High Scenario	2003	1,325.0	520.7	1,845.7	10.2	4.0	14.2
	2004	1,550.3	611.0	2,161.3	11.9	4.7	16.6
	2005	1,802.9	709.3	2,512.1	13.9	5.5	19.3
	2006	2,069.3	813.8	2,883.1	15.9	6.3	22.2
	2007	2,350.0	924.7	3,274.7	18.1	7.1	25.2
	2008	2,646.2	1,042.3	3,688.5	20.4	8.0	28.4
	2009	2,959.0	1,167.0	4,126.0	22.8	9.0	31.7
	2010	3,289.4	1,299.1	4,588.5	25.3	10.0	35.3
	2015	5,272.7	2,091.6	7,364.3	40.6	16.1	56.6

* US\$1.00 = ₦ 130.00

The Table 17 shows that the estimated cost of providing contraceptive commodities for the public sector in the year 2003 is \$4 million. This increases yearly, and by 2007 would have escalated to \$6 million. The cost of providing commodities for the whole country will amount to about \$14 million in 2003 reaching \$21 million in 2007. The cumulative cost of providing contraceptive commodities for the public sector between 2003 and 2007 is estimated to be about \$25 million and for the whole country about \$87 million.

The total cost of commodities for the whole country is significantly greater than the anticipated costs for the public sector only. This is largely due to the fact that condoms which are by far the most costly of contraceptive commodities to achieve a CYP are mainly sourced from the private sector. In all years of the projection more than two thirds of the cost of commodities is borne by the private sector.

Conclusions

The Government of Nigeria has the responsibility to meet the needs of its citizenry. It also has the duty to devise and execute population policies and plans that will ensure that country's rate of the country's growth is such that it allows for sustainable social and economic development and has no adverse consequences on the people or the land in which they live. The people have scripted a revised population policy that articulates these objectives. While the draft goes through the various stages of adoption by the bureaucracy and the government, the stated goals, targets and objectives reflect the viewpoint of the various stakeholders and are laudable.

FAMPLAN MODEL

One of the major strategies to achieve the desired goals was the increased access and use of family planning commodities. To further give credence to the importance of this strategy the policy states that the contraceptive logistics and distribution network has to be strengthened. It also states that the government will be responsible for the procurement of contraceptive commodities in order to ensure its continuous availability.

The contraceptive logistic management system has been revised and the first steps towards its implementation are being carried out. The other initiative requires a determination of the quantities of commodities required and how these will be supplied. This study was conceived to answer this question.

Unfortunately, Nigeria is one of the many countries facing a growing shortage of contraceptives and other reproductive health commodities. The global contraceptive shortage is projected at hundreds of millions of dollars annually in the coming years. The cost of quality contraceptives and condoms needed is projected to rise from \$811 million to \$1.8 billion between 2000 and 2015. While the cost of services to deliver and provide these commodities are projected to increase from \$4 billion to \$9 billion over the same period¹. The main reasons for the short fall in supply of commodities are the increase in number of women of child bearing age opting for family planning/child spacing, the increasing number of women in the reproductive age, the high population growth rate in developing countries, the increased use of condoms for prevention of HIV/AIDS, the declining donor support and dwindling financial resources within countries.

To close this gap a global strategy for reproductive health commodity security was articulated in 2000 by UNFPA and its partners. It called on all partners to use their comparative advantages in a coordinated and systematic joint effort to secure sufficient supplies of contraceptives and other Reproductive Health commodities now and in the future for those countries at risk of the lacking these essential supplies.

Part of the process of ensuring contraceptive security is determining the quantity of commodities required now and in the future. To this would be determining what organization or organizations could be counted on to bear the cost presently and in the future.

This study has determined that a considerable amount of money will be needed to meet the need of the country. In the year 2004 an estimated \$9 million will be needed to meet the needs for condoms and another \$9 million needed to meet the needs for other contraceptives

¹ UNFPA. 2002. Reproductive Health Essentials: Securing the Supply. ISBN 0-89714-626-3 E/10,000/2002
FAMPLAN

FAMPLAN MODEL

commodities. The amount required increases yearly as a result of the anticipated increase in contraceptive usage and the number of women who will be of reproductive age. By the year 2010 the amount is estimated to be about \$15 million for condoms and \$11 million for other contraceptive commodities.

The amount of required funds poses a challenge to a country that is embroiled in many other challenges which include an unstable economy, ethnic unrest, undeveloped social infrastructure, unemployment, inflation, poverty and the HIV/AIDS epidemic.

In spite of these many challenges Nigeria will have to meet its responsibilities to its citizenry. Many studies have shown a willingness of the people to pay for health services if the cost is well within their ability to pay. The fact that 43% of the populace obtain their family planning commodities and services from private medical services implies that a considerable number of users are already paying. Most of the persons using public sector health services pay a part of the cost of the services though this may be subsidised. It is likely however that the payments made will cover the cost of the commodities being used. The challenge for the country is to devise strategies that will ensure cost recovery while not discouraging citizens from using services they might want to use.

A lot of the family planning commodities in the country are brought in by developmental partners notably DFID and USAID through their implementing partners. This has helped meet the needs of a lot of persons who require these commodities. About 75% of the condoms in the country are brought in through these developmental agencies. While this helps to ensure some amount of reproductive health commodity security, it also leaves the country's population plans and goals vulnerable, since it is not being driven by in-country factors. The out-of-stock syndrome that affected many of the country's public health facilities is an example of this. Another reality of donor dependencies is the fact that it has reduced the ability of governmental agencies to acquire the logistic skills in carrying out the tasks expected of them. It would be better if civil servants who ought to carry out functions are empowered to carry out these tasks even if they are supervised while doing it.

The stated decision to have the government buy all family planning commodities could be a step in the right direction but previous observations have shown that family planning is not a priority concern of the government and therefore the decision to carry it through may not actualise. The Policy Environment Score for Nigeria in 2002 showed a lacking in the government's willingness to commit resources to family planning initiatives. Furthermore the

FAMPLAN MODEL

requirements for ensuring contraceptive commodity is a considerable percentage of previous health budgets and due to the competing needs it is unlikely that the government will be able to afford to fund it wholly. Buying the goods may also limit private initiative in this regards as less profit would mean that the government will have to take on the task of storage, distribution for not only the public sector but the whole country as more shift to public sector use due to cost differences.

Opportunities exist. The present government is committed to the control of HIV/AIDS. Increased condom usage during risky sex is one of the strategies being targeted in the behaviour change communication strategy. It is therefore possible to leverage resources by ensuring that the HIV/AIDS control program takes on the job of securing most of the condoms which account for more than 50% of the total cost for ensuring contraceptive commodity security. Funds are also more available for HIV/AIDS control from developmental partners.

The country is in the process of developing a strategic plan to ensure contraceptive commodity security using the SPARHCS initiative. This five year plan will address many components of the task including advocacy, logistics, finance, service demand and coordination. It is hoped that the plan will be implemented and result in a better level of supply of needed commodities.

While the plan is being conceptualised and later when it is being implemented there is a need to ensure that supplies exist and are adequate. During this phase between implementation and results generation, it is important that developmental partners will continue to fill in the gap to ensure that the gains of the past are not lost; that children can be born into the country with better prospects of survival; that the needless death of women as a result of high risk pregnancy will be eliminated; and so the country can march on to social and economic development unhindered by the effects of a rapidly growing population and its consequences.

FAMPLAN MODEL

Appendix

Appendix 1: Cost of Contraceptive commodities by type and source in US\$ (millions)

	<u>Injectable</u>		<u>IUD</u>		<u>Pill</u>	
	Government	Private	Government	Private	Government	Private
2003	2.07	0.95	0.22	0.08	0.51	1.24
2004	2.26	1.04	0.24	0.08	0.56	1.36
2005	2.46	1.13	0.26	0.09	0.61	1.48
2006	2.68	1.23	0.28	0.10	0.66	1.61
2007	2.90	1.33	0.30	0.10	0.72	1.74
2008	3.14	1.44	0.32	0.11	0.77	1.89
2009	3.39	1.55	0.34	0.12	0.84	2.04
2010	3.66	1.67	0.37	0.13	0.90	2.19
2015	5.21	2.39	0.52	0.18	1.28	3.13
2004	2.26	1.03	0.16	0.06	0.83	2.01
2005	2.53	1.16	0.18	0.06	0.92	2.25
2006	2.82	1.29	0.20	0.07	1.03	2.51
2007	3.12	1.43	0.22	0.07	1.14	2.78
2008	3.45	1.58	0.24	0.08	1.26	3.07
2009	3.79	1.73	0.26	0.09	1.38	3.37
2010	4.15	1.90	0.28	0.10	1.52	3.69
2015	6.31	2.89	0.41	0.14	2.30	5.61
2003	2.01	0.92	0.17	0.06	0.73	1.79
2004	2.36	1.08	0.19	0.06	0.86	2.10
2005	2.75	1.26	0.21	0.07	1.00	2.44
2006	3.15	1.44	0.24	0.08	1.15	2.81
2007	3.59	1.64	0.26	0.09	1.31	3.20
2008	4.05	1.86	0.29	0.10	1.48	3.61
2009	4.55	2.08	0.32	0.11	1.66	4.05
2010	5.07	2.32	0.36	0.12	1.85	4.51
2015	8.20	3.75	0.55	0.19	3.00	7.30

Bibliography

World Development Indicator Database April 2002.

World Health report 2001 Annex table 1 Basic indicators for all countries

National Population Commission. 1991 population census of the Federal Republic of Nigeria. Analytic report at the National level

Federal Office of Statistics [Nigeria].1992. Nigeria Demographic and Health Survey 1990. Calverton, Maryland: National Population Commission and ORC/Macro

National Population commission [Nigeria]. 2000. Nigeria Demographic and Health Survey 1999. Calverton, Maryland: National Population Commission and ORC/Macro

Population Reference Bureau 2001 World population data sheet

The World Health Report 2001

Federal Ministry of Health 1988. The National policy on Population for Development, Unity, progress and Self reliance

Federal ministry of Health, UNFPA 1998: Report of the National Population Policy review, Nigeria

Federal Ministry of Health. 2001 Technical Report on the 2001 National HIV/Syphilis Sentinel Survey among Pregnant Women attending ante-natal clinics in Nigeria

Carpenter et al 1997 Estimates of the impact of HIV infection on fertility in a rural cohort

Henshaw SK, Singh S, Oye-Adeniran BA et al. the incidence of induced abortion in Nigeria, International Family Planning Perspectives, 1998, 24(4): 156 – 164

Ronald Gray et. al. 2001. “Probability of HIV-1 transmission per coital act in monogamous, heterosexual, HIV-1 discordant couples in Rakai, Uganda.” The Lancet, 357: 1149-1153

Tom W. Smith, 1998. “American Sexual Behavior: Trends, Socio-Demographic Differences, and Risk Behavior.” National Opinion Research Center, GSS Topical Report No. 25

Okonofua F et al. 2000.Profile of sexual and Reproductive health of adolescents in Edo state, Nigeria. Policy Project (unpublished).

UNFPA. 2002. Reproductive Health Essentials: Securing the Supply. ISBN 0-89714-626-3 E/10,000/2002