34. This point has also been made in ECA : *The Persian Gulf crisis and the African Economies,* Report to the 26th session of the Commission/ 17th Conference of Ministers E/ECA/CM. 17/3, 17 April 1991 *op cit.* p. 6.
35. See, *Overseas Development Institute,* London : Briefing Paper *op cit.* p. 1.
36. For some typical examples of recent analyses; See Zbigniew Brzezinski, "Selective Global Commitment" Foreign Affairs, Fall 1991 and Peter McGrath, "The Lonely Superpower" in Newsweek, October 7, 1991 p. 18 - 19.
37. See Alvin Z. Rubinstein "After the Gulf War" *Foreign Affairs* Fall 1991, p. 58.
38. See statement by Mr. Anwar Ibrahim, Malaysian Minister of Finance in *International Herald Tribune,* May 6, 1991 p. 4.
39. See *Overseas Development Institute,* London Briefing Paper *op cit.* p. 1 [The ninenteen countries are : Benin, Botswana, Chad, Cote d'Ivoire, Egypt, Ethiopia, Ghana, Kenya, Lesotho, Liberia, Madagascar, Mali, Mauritius, Mauritania, Morocco, Mozambique, Rwanda, Sudan and Tanzania].
40. See ECA : *The Persian Gulf Crisis and the African Economies, op. cit.* p. 6.

Refining the Issues for Realistic Population–Development Policies in Africa

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Introduction

The debate on the effect of population growth on development seems to have reached a mind unsettling, indeed an unfortunate settlement to reduce, without qualification, rapid pupulation growth, effectively by reduction of fertility. This state of affairs can be seen from a change of attitude on this at Arusha and Mexico, respectively, and at Regional and World Population Conferences since Bucharest, 1974. At Bucharest, with China playing a significant role in the debate, developing countries insisted on development as the best "contraceptive" for solution of population problems (See an evaluation by Jonhson, 1987).

What is curious, indeed worrisome, is the recent virtual resignation, since the early 1980's by African countries, not just to the dictates of IMF–World Bank conditions, the source of the anti–natalist policy, but the abrupt change of orientation, even if forces, "without a fight", particularly after "drawing the battle lines" at Bucharest. Ironically, the Reagan Government through the United States mission to the Mexico conference took the earlier developing country Bucharest position of development as a solution, through the fundamental difference was the United States urging of free enterprise and markets.

Even before meeting at Mexico for the subsequent 1984 World Population Conference, African countries, in coming to adopt the Kilimanjaro Declaration in Arusha, January, 1984, showed they had swung like a pendulum to the other extreme, of virtually a frontal approach to population problems by limitation of fertility. (China itself, with the one child policy, is already falling into a bottomless pit, as will become clear later).

However, although it is not an excuse for change for basic positions – and in this paper they are urged to go back to their Bucharest stance – the practical reasons that have made African countries do so are understandable. In reviewing the evolution of population policy in the case of Tanzania which had the Bucharest position even much earlier, Kamuzora (1989a) shows it has been economic difficulties, solution of which the government has sought external financial assistance; conditions attached to this source of finance has forced it to work towards a population policy which prominently is anti-natalist. It is because donors insist on adoption of IMF and World Bank conditions which normaly include reduction of fertility as a condition for the assistance. (The latest lambasting of African countries to adopt "birth control" as

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one of the measures for economic recovery was by the then British Chancellor of the Exchequer John Major, now Conservative Prime Minister (Colin Legum, 1990).

This donors' "stick" seemingly has also a "carrot" going with it: reduction of fertility certainly reduces the proportion of the young population whereby, instead of spending on e.g. education, is throught to result into savings that could be put into directly productive investment; appealing indeed!. This is the neo–classical Malthusian model by Coale and Hoover (1958) that has influenced donor policy in the first place, and it is now an unresistable bait to underdeveloped country governments currently facing population pressure with seemingly limited development options in sight.

The Coale – Hoover model has generated debate. A virtually exhaustive tackle of population issues, at that dramatically and stimulating further controversy has been done by Simon (1981) who is very emphatically optimistic about long-term positive effects of population growth (A summary review is given in Kamuzora (1986b)). Earlier than Simon, Kuznets (reported in Easterlin (1967)) reviewing country data around the world, did not find any conclusive evidence of correlation between population and development; nor later did his student Easterlin (1967). However, Kamuzora (1980b, 1976, 1989b), (a student of Easterlin (1974/75)), sees there are relationships, and critical too for Africa, hence the issues in earlier and in this paper.

Subsequent to Coale and Hoover (op.cit.), varied population issues have sprung up as the population–development question has received more attention with time (indeed with attempts to find scapegoats for the deepening economic crises). Significant have been issues of maternal and child health (MCH), and the environment.

This paper takes up these issues and refines them in the perspective of African realities for long–term development. It is argued that the assumptions on which the Coale–Hoover model is based are untenable in the African circumstances. Equally untenable - argued and dismissed in Kamuzora (1989b) – is the Boserup (1965) opposing thesis, proposing instead population pressure as necessitating, hence resulting into higher productivity innovations. In fairness to Boserup however, in Boserup (1981) on *Population and Technological Change,* a proper population/development "long–term" perspective is adopted. Even environmental considerations of using up of resources are minor relative to developed countries, importantly, compared to permanent damage of chances for development by old age structures resulting from unqualified fertility reduction. The worst for Africa is already here: fertility has shown all signs of decline indeed it has actually began to fall, recorded, of all places, in rural Kenya's Chogoria area in Meru District to a total fertility rate (TFR) below 5.0 (Goldberg et al., 1988). (It may be remembered how Kenya has been in the limelight in the 1980's as having the highest fertility in the world, a TFR of about 8.0).

Lastly, even maternal and child health advantages of relatively late age at start of childbearing that seem to have given the modern family planning movement a noble basis for its frontal approach (simply put according to their practices, it means providing the means of fertility regulation and limitation direct to women regardless of their social, economic and cultural circumstances), are also not without blemish: according to scientific evidence shown later, starting childbearing at age 16 is optimal, given that it may be ideal from a pure biological point of view (that is, it has less innate health risks), and is rational in the realities of African high mortality conditions that pose low chances for a social desirability of one being survived by adult children.

Let us at this juncture be clear on two basic points. First, one is not necessarily against slower population growth. Indeed ultimately, the world has to go back to near zero population growth that prevailed for millenia. The question is the rate at which one would like the current high rates to fall to near zero, with the critical variable being the rate of decline of the current high fertility rates. Secondly, a word of caution, indeed warning, it is critically important not to confuse the short-term and long-term benefits of fertility decline. Certainly the current high fertility countries, by reducing fertility, will, in the short-run experience some relief from consumption expenditures of taking care of young populations)less crowded classrooms, less pressure on health services). However when the low birth generations go into labour force ages (after only fifteen years since birth) they will be relatively few compared to the high birth rate old generations who will need to be taken care of by no other group but by the relatively small generations. That is where the troubles of old age structures start. That is exactly what European countries are going through. (Though not shown in this paper, the experience of the United States provides a dramatically interesting near textbook but real illustration of effects of fertility decline contrasts between young and old generations).

Perspectives on policy orientations and implementation, with prerequisite research arising from these issues will be given in the concluding section.

Review of the Population Debate: Refining the Issues for Africa.

The critical issues in the debate on population–development inter–relationship in sub–Saharan Africa have been discussed in Kamuzora (1988b). It is their refinement in the context of realities and long–term development of Africa that this paper is concerned. The issues, basically four, and having a common denominator, namely, reduction of current high fertility, are as follows:

(a) old age structure and prospects for economic development;
(b) the danger for Africa of rapid decline in fertility;
(c) maternal and child health advantages; and,
(d) environmental protection.

Old Age Structure of Prospects for Economic Development

The thrust of the Coale–Hoover model is virtual guarantee of potential investment savings from reduction in fertility as there would be, immediately, relatively few children to spend on: on food, clothing, building schools, hospitals, and associated flow of services. The fallacy of the model, and the serious socio–economic implications of old age structures resulting from fertility decline have been shown in Kamuzora (1989b), Since the Coale–Hoover model hinges on the savings assumption, an element that has greatly influenced donor policy, providing a basis for the frantal approach of the family planning movement, and worst of all a bait for underdeveloped countries it needs recapitulation before dwelling on old age structures.

The Savings Fallacy of the Coale–Hoover Model

The savings fallacy of the Coale–Hoover model is that a look at the reality of African economies – indeed for most under–developed countries – savings for investment

are meagre due to a number of problem realities, the origin of which having nothing to do with high population growth rates, but with historical factors unique to the continent as has been reviewed in Kamuzora (1986): slavery, colonial and neo–colonial exploitation, foreign disease and incompetence of post independence governments. Indeed high population growth rates themselves have been shown as having resulted from these factors (ibid.).

The specific factors for low savings are: (a) general economic stagnation of economies, effectively meaning low productivity, hence lower savings, (b) a limited monetary sector of most economies from which savings can really be generated, (c) unequal exchange in the international market, i.e. low prices of exports and high prices of imports, and at a micro level within a country are low producer prices and wages, (d) repatriation of profits by multinational corporations through various mechanisms including overinvoicing of imports and under-invoicing of exports, and (e) mismanagement (including embezzlement) by officials of most governments as being the order of the day (see Mukandala, 1983). Due to these factors national savings are hard to come-by; and the little that is available is not translated into investment (Kamuzora, 1989b).

Coale himself has come to acknowledge this fallacy: his concern now is the size of the population if fertility would remain high e.g. for India to which together with Hoover he simulated the model (personal communication, September, 1989, IUSSP New Delhi Conference). However, relative to the socio-economic implications of old age structures resulting from fertility decline, shown next, population size is a minor problem, especially that the societies of concern are at the low end of consumption of resources, as will be discussed later under environment. Afterall, still reduction of the growth rate, though at a slower pace, is suggested in this paper.

Implications of old age Structure on Development

Old age structures resulting from fertility decline is a non-debatable (textbook) demographic "truth". A layman can learn from a vivid example of European populations: they have old age structures, not because people are living longer, which is an appealing but, false explanation, but because subsequent generations (in other wor ds the bases of the population pyramids) became relatively smaller and smaller as fertility declined since the 1870's. (More in Kamuzora (1989b)).

At issue, therefore, are the implications of old age structure for long–term development in Africa. The critical problem elements are (a) labour supply in production, and (b) ability to care for the increasing aging population.

(a) Labour shortage

Casual consideration of the possibility of labour shortage in economies with past rapidly growing populations would seem to be ludicruos. Analogous to the expression of "poverty amidst plenty" so would the situation of African economies be likened: labour shortage will occur in attempts for economic expansions, even th ough they have a momentum for significant increases in population growth for the foreseeable future, due to, up to now, young age structures. It should be noted however that one is here talking of possible labour shortages in the context of economic expansion, therefore not concerned with past and current unemployment, which has been due to economic contraction, and has had nothing to do with population growth [Kamuzora, 1986a).

The fear of labour shortage arises from two realities: one, labour intensity of production characteristic of African economies, and two, experiences of labour shortage in both Africa and developed countries, notably Europe, with the latter having actual experience of both fertility decline and labour shortages.

Production in Africa – indeed the whole socio–economy is characterised by high labour intensity of operations, in other words, use of human versus auto mechanical power in both production and leisure activities (use of elementary tools e.g. a hoe, push cart (mkokoteni), walking, bearing the burden on the head, etc.). The peasant sector, the most labour–intensive sector, predominates African economies: therefore high labour demand will be with African economies for the foreseeable future. Empiracal evidance, from both Africa and Europe drive the point home.

In Africa, even without fertility declines, labour shortage has been reported in agriculture as the most serious factor limiting output, for example in most areas of Tanzania (Ruthenberg, 1968). A wider survey and analysis of results of micro level smallholder farm studies done as early as 1950–60's in Anglophone Africa by Cleave (1974) gives an intimate understanding of the nature of this labour shortage. Farmers reported spending little time on farm activities, an average of three to four hours a day, and not much more on total economic activities. This, again, has been found to be due, not to the classical conception of the African as being lazy, but to what can be summarily put as obligatory social activities related to a perilous environment of high mortality and morbidity. (The development of mutual obligation in Africa has been observed and explained by Caldwell (1977)). Indeed it is not a surprise at survey observations of children as labour assets as a pervasive pronantalist factor here (Caldwell, 1977; Kamuzora, 1984).

The author of this paper has been interested in the subject of labour availability and allocation particularly in Africa. In a 1976 time (budget) allocation study of smallholder farmers in Bukoba District, Tanzania, the observations made by Cleave (ibid.) for the rest of Africa were found to hold also here (Kamuzora, 1980a). The Bukoba study enabled an in-depth analysis to show the constraints to labour time availability as being the social obligatory activities. Even the leisure time was on activities that were for "self reproduction", such as taking meals and resting after work; and course for women much less leisure time was found due to domestic activities.

European countries which have experienced declines in fertility for over a century since circa 1870's, and worthy of note, without enacting population policies, provide important lessons. European countries, with needs for post World War II reconstruction and actual economic expansion, experienced labour shortages which they solved by importation of labour from sourthern Europe and north Africa. Important to note is that European economies were already using capital intensive technologies which Africa has yet to reach. If then African countries, with labour intensive technologies, start economic expansion, won't they be in a worse situation?.

Developed countries are not only suffering from old age structures, they are increasingly worried of what the future of low fertility holds for then: increasing labour shortage and problems of taking care of the aged. That these issues are concerns in these countries can be observed at the activities and fora specifically organised for these subjects; three examples suffice: a report of the United States

Commission on Integrated Longterm Strategy reported and dubbed "Economic and Demographic Trends and International Security" by Population and Development Review (1989) brings out a worrisome picture of the future in all aspects of life; and of course the International Union for the Scientific Study of Population (IUSSP) has whole sessions on ageing at its quartriennial conferences (International Population Conference, New Delhi, 1989; Florence, 1985); they have yet to come up with viable solutions. (A remark by the author at the conference in New Delhi, that given current fertility trends, there will not only be few Europeans to see after 30–40 years, but also that Turkey, with relatively high fertility will be the dominant power in Europe provoked "irating" anxiety). Finally in Japan, various official meetings on below replacement fertility that the country has fallen into is a common feature reported in the monthly newsletter, JOICFP News, particularly since 1990.

(b) Taking Care of the Aged

European countries have developed technologies and sophisticated health services to take care of the old. Yet they are still encountering a variety of problems: peoples homes, increasing expenditures especially in disfavour of the young generations. Worst, due to further declines in fertility since the 1970's, is the dwindling proportion of the population that has to take care of the increasing proportions (and numbers) at old ages: in effect these lower proportions have to be taxed more and probably highly to take care of the aged. (Of course, though not an issue here, increasing life expectancy in developed countries, 10 to 15 years beyond retirement ages, has not meant much for the majority who have to live alone in misery, significant proportions in peoples' homes, all just waiting to die, worst still without any relative around them!. How would Africa fare? No infrastructure to take care of the old population and meagre resources to develop one and flow of services: doom is the answer. That is, Africa would be in a worse situation.

Ironically, for UNFPA's 20th Anniversary, celebrated at a gethering of government and NGO delegatioons in Amsterdam, November 6–9, 1989 under the theme, International Forum on Population into the 21st Centrury, the UNFPA Executive Director, Dr. Nafis Sadik, had a commemorative booklet titled, "Safeguarding the Future": yet even though she sees aging resulting from fertility reduction, she just leaves is at that, with no further single word (ibid., page 11).

The worst inevitable situation, again Europe provides a good lesson, is that once fertility starts to decline it is irreversible (Knodel and van de Walle, 1979). Older and still order age structures will be the result. Most European countries have reached below replacement fertility. Permanent damage to society is therefore not inconceivable. Are African countries insulated from below replacement fertility? Not at all. Asian countries, with Japan having started earlier, have experienced faster fertility declines than those of Europe. As a result they are going into higher proportions of their populations above retirement ages faster. As a matter of fact with over 11 percent of the population aged 65 and over, Japan is "...aging faster than any one earth...", where, inspite of the traditional culture of filial piety and reverence for elders, common now are the old praying for "quick death" and suicide (POPULI 1989, p. 45). (For proportion of aged in other countries see also Population and Development Review (op. cit.).

The dangers of old age structures for Africa are real because fertility decline is around the corner. It is being registered in some areas, e.g. Kenya as will be discussed later. This is the second refinement of the critical issues in population development inter-relationships that is considered next.

The Danger for Africa of Rapid Decline in Fertility

At first thought, rapid fertility decline in Africa, which has had, up to today, persistently high and in a number of areas rising fertility, seems ludicrous. Indeed current statements from persons who have up to now been considered as informed scolars on Africa would seem to confirm the status quo. This position has largely been explained in terms of supposedly peculiarities of African culture (Caldwell and Caldwell, 1987, 1988). However more insight on African realities of today, lent support by survey evidence of actual fertility decline in some areas, and experiences of rapid fertility decline in some Asian countries, shows rapid fertility decline in the African continent as a serious consideration that exposes the fallacy of the status quo argument. It will not be any more of past expression of "Africa is full of surprises", because it would have been foreseen.

One piece of information that is important to note from the start is that fertility decline in Europe was slow: it took about a 100 years to fall from a total fertility rate (TFR) of about 5 (children per woman) in 1870's to about 2 in the 1970's (Knodel and van de Wale, 1979; United Nations, 1988). Today, 1990, most European countries are experiencing below replacement fertility, and have near zero, and in some e.g. Germany negative growth rates; that is they are entering into the unenviable situation of decline in numbers.

For Asian countries, as example show later, the decline has been rapid: in only 15 years, fertility declined from about 6 in the early 1970's to less than 4 in the mid–1980's (United Nations, 1988). Better appreciated in terms of rates of decline, it took Europe a 100 years for fertility to decline by 60 percent, a linear annual rate of only 0.6 percent points; but in Asia it has been 33 percent in only 15 years, a linear decline of 2.2 percent points per years, almost four times that of Europe.

Past and current high fertility in Africa cannot be denied. Indeed in his epochal article, and on the basis of real survey evidence across Africa from the Changing Africa Family Project directed by Caldwell himself (Caldwell, ed., 1977), Caldwell (1977) was very instrumental in explaining high fertility as rational, because it was a response to objective conditions experienced by African communities. It did away the simplistic argument from the family planning movement that saw high fertility by poor couples as being due to lack of means of fertility control. Rapid fertility decline in Asia, e.g. in Thailand and Indonesia, seems to have created impatience in the Caldwells by resigning to cultural explanations for Africa's continued high fertility (Caldwell and Caldwell , 1987, 1988). This position would also seem though, to be that probably because they had moved physically, and had their attention drawn to Asia, coupled with possible influence from the resting on cultural diversity, by Knodel and van de Walle (1979), the variation in European fertility decline. Writing from a distance, the Caldwells seem to have confortably assumed that no changes had taken place as revealed by still generally high levels of fertility.

Far from the Caldwells' current assumptions, fertility in Africa has not only shown clear and definite signs of rapid decline but it has actually done so in some areas.

Importantly, this is happening not just because of cultural changes, but due to social and economic changes that had determined desires for high fertility in the first place.

In a rural area, Chogoria (Meru District), of all places in Kenya which has been alarmingly depicted as having both and highest fertility (a total fertility rate (TFR) of 8) and growth rate (4 percent) inthe world, women and men have not only expressed preferences for few children, they have actually limited their fertility to a few (Bauni, 1989). The total fertility rate (TFR) has fallen to below 5 (Goldberg et al., 1989) due to high pressures on land (as a cause) (Bauni, ibid.) and an efficient family planning programme (as a means) (ibid.). In other areas in Kenya preliminary results from an ongoing survey in Maragoli, Western Province, (Bradley, 1989; and personal communication, June 1989), and now the Demographic and Health Survey (DHS), confirm the onset of fertility decline. Indeed most African DHS's are indicating the onset of fertility decline (these are reported in the series of the Population Council monthly, Studies in Family Planning).

It is not to be denied that fertility in Kenya stayed persistently high, at that "stubbornly" at that level even with an anti-natalist government policy and family planning programmes since 1969. The failure of Kenya's 20 year-old family planning programme to reduce fertility has been understood and explained as having been inevitable by Frank and McNicoll (1987), because the conditions for adoption of family planning did not exist then. But now changes have taken place in the factors that had made people desire high fertility (Dow and Werner, 1983).

Could the decline in Kenya be an isolated case? Not at all: other areas in Africa are showing similar development. Other areas in Africa, though it is one example, its relevance, findings apart, is that it has actually been observed and studied by the author himself. An in-depth survey where tape recorded interviews were made with women of Kigarama village (Bukoba District, Tanzania) in 1986/87 on the role of children in their lives, women state desires for fewer children, because, they say, life today is difficult; that, thus one should have the number of children that one can afford (Kamuzora, forthcoming).

In the Maragoli and Kigarama studies, younger generations, the relevant group of concern for the future, are expressing desires for lower fertility. Interestingly, in the Kigarama study, older women, arguing from actual experience, were the majority of those asserting that children are of no benefit now (ibid.). Whether the parent's dissatisfaction is the usual 'grumbling' about children can be a subject of debate; but that can be gauged for in an in-depth study: this the author has conducted and analysed as not being the case.

Experiences of fertility decline at relatively low levels of development from Asian, lend support to the possibility of rapid decline in Africa. Thailand, India and Indonesia provide good examples. In Thailand, fertility has declined from 6-7 children ever-born that reigned up to the early 1960's. Within the single decade, between 1969 and 1979, marital fertility fell by about 40 percent (Knodel et al., 1984, p. 297). Interestingly, "...Thai experience in this respect is particularly remarkable becasue it has been rapid and pervasive and has been occurring while the majority of the population is still rural and agrarian". (ibid., p. 297). Knodel et al. continue that "...socio-economic changes played an essential role in creating the initial and continued receptivity to limitation of births...." (ibid., p. 324). Further, from excerpts of discussions of Thai respondents themselves, it is clear that the 'traditional' base

(consisting of elements of high benefits from and low costs of children) making for the associated pronatalist culture had changed to that of reduced benefits and increased costs, thus laying a new base for attitudes and behaviour (the culture) for low fertility.

The Punjab study by Nag and Kak (1984) presents an interesting case study of change from desire for and actual high fertility to moderation to a few, as stated by the same respondents at two time points, 12 years apart. Mamdani (1972) interviewed farmers in this area in 1970 and reported them desiring a large number of children because children met *inter alia* their labour and old age security needs. In 1982 Nag and Kak interviewed the same farmers and also their children who were then already adults.

In between the two study visits significant economic changes took place, notably agricultural mechanisation that did away virtually all the activities that had needed the labour of children. The non-agricultural occupations that children could undertake needed higher education and both necessitated living far away from home. Thus new costs were introduced. With reduced benefits from children desire for many children changed to a few. These views were expressed by both parents who had been interviewed by Mamdani, and now also their children in the new study.

Indonesia's fertility declined from over 5.7 in the early 1970's to 4.1 in the mid 1980's (McNicoll, 1982; United Nations, 1988). It is politically attributed to the role of President Soeharto for his active support of the family planning movement (the President has received a Population Award before from the UNFPA), and hence also lauded on the success of the movement. However, scholars who have long observed that society are skeptical on whether the decline would not have occurred anyway, in view of the fundamental underlying socio-economic changes that have taken place since the 1960's (McNicoll and Singarinbum, 1986).

The above examples have shown that rapid fertility decline in Africa is very much with us in the immediate future. Once the decline starts it will be irreversible as observed for the case of Europe (Knodel and van de Walle, (op. cit.). Their social and economic implications have been indicated above with Europe as the best example. The latter, had slow decline but still creates worries; Africa with impending rapid decline should worry us much more therefore. The implications of reorienting the mind and actual policy from the current anti-natalist to mild-pronatalism being implied here must be mind tingling.

Cries could be expected of dangers of continued population growth on the environment, and concerns for maternal and child health, the two remaining of the four issues we set out to fine tune. These concerns will be seen to have no much substance compared to not only the virtual permanent demise of the chances for development as shown above, but close analysis of these very two issues also. We start with maternal and child health.

Maternal and Child Health Advantages

The family planning movemement has been moving withluck: now they have a nobler cause, maternal and child health (MCH), for their frontal approach to population problems. Indeed the revealed aims of MCH services are underbatably noble: reducing risks to maternal and child mortality associated with childbearing by a

dren (above four), and closely spaced (less than two year). Such risks are revealed for example in the analysis by Trussel and Pebley (1984) of World Fertility Survey data which included African countries.

However, put in the realities of socio–cultural and demographic circumstances African communities are in, the MCH services that are virtually biased on medical basis, hence lacking reality, might not be availed to by the target population. Thus the family planning movement still faces an uphill task, on two grounds. One, the KAP Gap (simply put, it means one states wanting no more children but does not adopt modern family planning methods, knowledge of which most women have) looks big, hence the justification of the family planning movement. Yet Westoff (1988), who has studied family planning issues since the 1960's, now studying the DHS results that include African countries, is raising questions as to whether the KAP Gap really exists.

Closer scrutiny of survey respondents on the realities of their status e.g. pregnancy, coitus, (hence exposure to conception), secondary sterility, intention to use contraception etc. for possibilities of them using contraception, shows that only small proportions really are in a position to do so; and it is not because of the usual obstacles given. In a later article, Westoff et al. (1989) show that the current magnitude of unwanted fertility, hence the demand for family planning, is little: significant declines in desired family size are still necessary, they conclude; meaning: changes in the factors underlying the need to limit fertility to low levels, inevitably changes in the socio–economic–cultural factors, are yet to take place.

The second problem for the family planning movement are issues on reality, all having a common policy issue of the age at start of childbearing, and this is coming up in view of scientific information which one would like to utilise to arrive at an informed conclusion, are the best biological age for childbearing, and the chances of parents' aspirations for being survived by adult children, given prevailing mortality conditions. These issues will later be better understood when put together as a complex whole; indeed partitioning or partial analysis is what has derailed modern social science practice into the state of unreality.

The current MCH ideal for the age at start of childbearing to be 20 years and above is being challenged both on pure biological and socio–cultural basis (Nortman (1974) has widely reviewed maternal age and risks to both mather and child). Reviewing evidence from the bio–medical literature, Geronimus (1987) reports:

> The hypothesis that teenage childbearing is intrinsically associated with greater neonatal risks that maternity at older ages ....is at odds with evidence from the biomedical literature.... Indeed the results of some of these studies have been interpreted as evidence for the developmental superiority of teenagers for childbearing. (emphasis of author of this paper). (ibid. p. 249)

Specifically referring to Marchetti and Menacher (1950) in the *American Journal of Obstetrics and Gynecology* (Vol. 59), further, to Merritt, Lawrence and Naeye (1980) in the *Pediatric Annals* (Vol. 9), and then a 1982 opinion of the American College of Obstetricians and Gynecologists (Standards for Obstetric–Gynecologic Services), Geronimus continues:

> Marchetti and Manaker (1950) declare that "from the purely obstetrical point of view 16 years or less is the optimum age for the birth of the first baby" (p. 1020). Merritt *et al.* conclude that "the ideal time to give birth, from a medical viewpoint, would appear to be between the ages of 16 and 19" (p. 49). The American College of Obstetricians and Gynecologists (1982) considers only teenagers of less than 15 years to be at high risk for childbearing,...(ibid.).

Indeed to a lay person, ages about 16, 17, 18, 19 appear to be when girls look mature physically, signifying the body's readiness for reproductive functions. Note: this is from a purely biological point of view.

In general, Geronimus observes, .."innate obstetrical risks caused by teenage childbearing is absent from obstetrical textbooks.." (ibid.). Only socio–economic status factors appear as significant determining factors (ibid.). On this aspect Geronimus own research on black compared to white Americans provides instructive insights. Neonatal mortality (death under four weeks of age) accounts for about two thirds of infant deaths in the United States. While risk to neonatal mortality for whites clearly follows a reverse J–shaped curve – it declines through the teen ages and early twenties before it begins to rise at age 26 – for blacks the risk is both excessive and of a fairly uniform magnitude for ages 16 and above (ibid. pp. 250–251). As a matter of fact.

> ....white mothers above age 14 experience lower rates of neonatal mortality than black mothers of any age. Ratios of neonatal mortality rates (black to white) increase with maternal age from the teens through the 20s. The largest disparities between the races are evident at just those ages (24–29) assumed to be socially optimal for the transition to motherhood: the ages, presumably, to which those focusing their policy recommendations on teenage pregnancy prevention would propose that members of their target populations delay their first births (ibid., p. 251).

In other words due to the poor social economic circumstances most black Americans find themselves in, it does not matter at what age one starts bearing children, the risk to death for infants is the same. Indeed as far as the sizes of black – white disparity by maternal age are concerned, they are lowest at ages 16 to 18, the ages that, from a purely biological point of view, would be recommended.

Geronimus goes further to give a socio–economic interpretation of the uniformity of levels of neonatal rates at all maternal ages of black Americans – in actual fact the rates for ages 17 to 19 are lower than those after age 24. It is simply that at teen ages the girl is still living with, that is, she and her child are still being taken care of by her parents; but after the mid–twenties the girl not only would she have moved out of her parents' home but she would actually be assuming the responsibility for the care of her parents, thus experiencing much pressure on her averagely meagre resources.

Reproduction for most African communities starts between ages 15 and 19, when marriage actually takes place, e.g. in Tanzania, it is about age 17 (Henin, 1973); marriage for all practical purposes can be taken as a proxy for start of childbearing. Confort can be taken in the fact that these practices are based on communities' millenia of experience adapting to objective circumstances facing them; it would indeed be peculiar that society would continue with practices that are so risky. From a pure biological point of view then, the problem of teen age childbearing seems to have been exagerated: probably the socio–cultural problem of premarital pregnancy,when one has little economic ability, is what is actually causing anxiety. Of course, socio–economic problems, namely ability to take responsibility of child care can be said to be paramount in recommending higher age at start of childbearing.

However, the prevailing mortality conditions can explain early childbearing behaviour prevailing in Africa as rational.

The issue of concern in considering mortality conditions is parents' desire for being survived by adult children. Continuation of the family line has indeed been shown to be one of the socio–cultural reasons for childbearing in African society (Caldwell, 1977). Indeed there are risks of losing family property if one does not leave an adult child, as observed for example in Bangladesh (Cain, 1977). Chances of one achieving that objective is very much determined by risk of death. Let us look at the chances of one being survived by adult children in the case of Tanzania.

Mortality level in Tanzania has been estimated from the 1978 census by Sembajwe (1983). The national average level was estimated at a life expectancy at birth of 44 years; most of the 25 regions had life expectancy between 40 and 47 years, with only five regions above that, between 48 and 50 years; only one region, Kilimanjaro, showed life expectancy of 58 years. Inspite of what institutions like the World Bank would like one to believe, that life expectancy is about 57 years now, mortality is not expected to have changed much since the 1978 estimates – it could have actually increased – in view of worsening of economic conditions, indicated by e.g. high malnutrion ratios, and the deterioration of the already poor health and medical services, indicated by now frequent epidemics of infectious diseases.

With the above estimates, chances of parent/child joint survivorship can be calculated. We consider three mortality situations in Tanzania: the worst (life expectancy of 40 years), the highest at 58, and the national average at 44 years. Coale and Demeny (1983) model life tables provide the (5Lx) information: the "West" model has long been considered to depict mortality patterns in African populations (United Nations, 1967). The life tables at levels of life expectancy at birth of 40, 45, and 57.5 are used as corresponding to the situation in Tanzania. Female mortality examples suffice to make the case.

Two scenarios are compared: start of childbearing between ages 15 and 20, and 20 and 25. The age at which a daughter is considered to become an adult is taken to be in the 20–25 age–group. Thus what is being looked for is the joint probability of a daughter surviving to age–group 20–25 and her mother surviving till her daughter reaches that age; the mother would then be of age 35 to 39 for the scenario of starting childbearing in the 15–19 age–group and 40–45 if starting in the 20–25 age–group. The following table provides the information.

Current Mortality levels in Tanzania
(Based on Coale–Demeny West Model, Female)

	Life Expectancy at Birth		
5Lx	40.0	45.0	57.5
5L15	335,002	362,939	426,305
5L20	321,825	351,295	418,978
5L35	273,552	307,600	389,291
5L40	255,899	291,107	376,911

Individual survival chances to:

Age–group			
15–20	0.670	0.726	0.853
20–25	0.644	0.703	0.838
35–40	0.547	0.615	0.779
40–45	0.512	0.582	0.754

Joint (20 to 24 years) survival chances: mother and daughter:
Mother starting reproduction at ages:

15–19	0.352	0.432	0.653
20–24	0.330	0.409	0.632

Note: The results are not appreciably different by use of the North Model, because its difference with the West Model is particularly at ages below 5.

What should be observed first are the mortality risks individuals face. The chances for a woman in Tanzania to survive to childbearing ages of 15–20 range between 67 to 85 percent, for the majority being about 73 percent (middle column); survival to ages 20–25 the chances are 64 to 84 with a 70 percent average. In developed countries where most are, above 75 years average life expectancy at birth, the chances are about 98 percent, that is almost all survive to adulthood. The chance of reaching the late 30's and early 40's in Tanzania are respectively only 61 and 58 percent on average, compared to developed countries where chances are 97 and 96 percent respectively. In other words, for the latter countries almost nobody dies till the advanced ages.

The chances for a mother in Tanzania leaving a daughter at adult ages range from 35 to 65 percent, the average situation being 43 percent. That is less than 50 percent chance for most areas in the country if she starts childbearing early in the 15–19 age range; starting 5 years later decreases the chances slightly, 33 to 63 percent, with only a 41 percent average. Developed countries have 94 to 95 percent chance. Although once a woman in Tanzania reaches at least age 35 or 40 she would expect to live respectively about 31 and 27 years more, the problem still remains of the low chances of crossing the first hurdle in the first place. And of course, life is meaningful if children survive these years to provide the services.

Chances of being survived by two children (say a boy and a girl, because both sexes are preferred) are even much smaller: taking the survival chance of the daughter roughly as being the same (though they are actually lower) for the son (0.703 to age–group 20–25, the Tanzania average), applying it to the coresponding mother/daughter joint survivorships (0.432 and 0.409, respectively for the scenarios of early and later start of childbearing), the chances are 0.304 and 0.288 correspondingly. Indeed the daughter and son package is the ideal objective for parents. Thus it is only about 30 percent chance that a mother would be survived by an adult daughter and a son. (Adding the also desirable survival of the male parent would lower the chances even further). These are the risk people have faced, and they have behaved accordingly to try to meet their aspirations by early childbearing. Given the biological adequacy of childbearing in the 16–19 age range, such behaviour can be said to have been all round rational.

It is taken that behaviour is largely determined by the cultural code – in everyday life it is doing like everybody else. Culture itself is an embodyment of millenia of adaptation. Therefore if childbearing had proved to be risky, particularly in a stage of development where a large number of children is highly valued, certainly adaptation would have gone for the ages that are less risky. In Africa both the current obstetrical information referred to above and actual behaviour are matching. Thus the MCH biological reasons for early start are not valid, and socio–cultural desires of early dhildbearing, hence current early marriage practices, responding to objective conditions of high mortality, have no health risk consequences by themselves.

The only reason that seems to remain for recommending marriage in the twenties could be economic ability. Would postponing the start of childbearing, effectively marriage, from the teen ages to the early twenties improve chances for one to prepare oneself economically? A lot depends on availability of economic opportunities. Currently these are meagre: farming where one could try out, has low returns, therefore it has not been an attractive option, hence the increasing rural to urban migration; and of course job employment opportunities everywhere are poor. It could be therefore that the continued practice of early marriage and the universally undesirable premarital teen age pregnancy for women is because there are no other options as interpreted for the proximate determinant 1980 survey in Mwanza Region (Kamuzora, 1986b). Of course the option, if one is not economically able for marriage and childbearing, is non–marriage or childless marriages. Could these be realistic options? Theoretically yes for individuals in a modernising (westernising) society, using the rationale of why bring forth children if you are unable to take care of them; but African culture of up today would seem to resist that strongly. The bigger problem of course would be the macro ill effects of the implied sharp reduction in fertility that has been dealt with at length in Section 1.1.

A question that immediately comes out of this impasse is what does one do then? This is where appropriate national policy, planning and action programmes to have couples bear the number of children that is desirable for both national and individual aspirations become of critical imprtance. This will be dealt with in the policy and research perspectives in the concluding section of this paper.

Environmental Protection

Concerns on the relationship of population growth on the environment arise due to development of a threat to physical existence itself from two dangers: (a) exhaustion of renewable and non–renewable resources, and (b) degradation of the environment from human activity in both production and consumption, with the satisfaction of increasing numbers and higher standards of living (indeed consumerism) being the two factors underlying the dangers (Kamuzora, 1989b). In this indictment however, recent assessments of current disproportionate patterns of high levels of both production and consumption in developed compared to underdeveloped countries, pitted against the dangers of rapid fertility decline, it is debatable whether threats to the environment are critically deriving from underdeveloped country population growth rates.

Ehrlich and Ehrlich (1990), who wrote The Population Bomb, thus laying the blame on rapid population growth rates in underdeveloped countries, are in their newest book indicting developed countries, particularly the United States, as posing by far the greatest threat to both immediate and future survival of practically all living organisms, by what the UNFPA jounal POPULI dubbed "Too Many Rich Folks" *(Populi,* 1989). This couldn't be explained better than some of the excerpts:

> Population growth and overpopulation among the rich are creating a lethal situation for the entire world. It is the rich who dump most of the carbon dioxide and chlorofluocarbons into the atmosphere. It is the rich who generate acid rain. And the rich are 'strip–mining' the seas and pushing the world towards a gigantic fisheries collapse. The oil staining the shores of Prince William Sound was intended for the gas–guzzling cars of North America. The agricultural technology of the rich is destroying soils and draining supplies of underground water around the globe. And the rich are wood–chipping many tropical forests in order to make cardboard to wrap around their electronic products. (POPULI, p. 20) (emphasis by the author of this paper).

Therefore, the Ehrlichs go on:

> It is not the crude numbers of people or population density per se that should concern us; it is the impact of people on the life support systems and resources of the plannet. That impact can be conceived as the product of three factors: population size; some measure of affluence or consumption per capital; and an index of enviromental damage done by the technologies used to supply each unit of affluence. (ibid., p. 22).

Thus for developing countries it is assessed,

> Poor people don't use much energy, so they don't contribute much to the damage caused by mobilising it. (ibid., p. 25).

International comparisons show not only that developing countries are "innocent" of environmental degradation, but indict the US gravely:

> A baby born in the United States represents twice the disaster for Earth as one born in Sweden or the USSR, three times one born in Italy, 13 times one born in Brazil, 25 times one in India, 140 times one in Bangladesh or Kenya, and 280 times one in Chad, Bwanda, Haiti or Nepal. (ibid., p. 26).

Underdeveloped countries, though at low consumption levels, certainly are contributing their own kind of problems to the environment: deforestation, impoverishment of top soil by land overuse and overgrazing, and overurbanisation are the critical problems threatening most of the Third World. However these problems could easily be addressed, compared to the "lethal situation" created by developed countries.

Conclusions: Policy and Research Perspectives

The fallacy of the Coale–Hoover savings argument for reducing fertility has been shown not to hold for underdeveloped countries. Instead the triggering of old age structures by fertility decline for labour intensive economies of Africa would lead the continent into permanent social and economic abyss. Indeed Africa is already falling into a more serious danger than Europe: fertility has began to fall, as definitely observed in Kenya; it is expected to fall even faster than in Asia where it has taken less than 20 years, from atotal fertility rate of six to less than four. Europe took a hundred years and are suffering from old age structures, what will it be for Africa! Low population growth is desirable. However the real danger is rapid fertility decline to achieve that desire. Given such a serious situation, proper population policies, and not hands off the population, are very much needed. This is a subject deserving a paper in its own right. However broad policy directions are necessary here.

Mild pronatalism: to maintain a total fertility rate (TFR) of about four for the foreseeable future should be the policy – even this, if fertility were to fall immediately to four, would already bring about an old age structure of about 6 percent of the total population of age 65 years and over, a rise from the current 3 percent at a TFR of 6 to 7. The policy measures would follow the basis of a given: most of fertility takes place within a family, therefore official support of familyhood by encouragement of marriage with reproduction to at least four children and enabling its sustenance would be the basic thrust of the broad policy. (Developed countries are already in that business e.g. the former East Germany).

Proper policies can only be formulated on the basis of a firm information base. Research is therefore the key. Unfortunately the field of population studies had made very little headway, particularly the social science aspects. Yet it is social science that is more difficult because, putting it simply, why man behaves in a certain manner can be explained by 'a thousand and one reasons'. The unique position, therefore importance and perhaps indispensability of indigenous scholars, who understand their societies better couldn't be expressed better than for example the population issues presented above.

Needed research itself has to have proper foundations to have a proper direction. The basis for population research and policies should be the consideration and actual learning from Africa's rich past. This orientation is derived from the fact of all indications of African origins of man, and what is certain being ancient civilisation and scientific discoveries on which the modern world is actually based (van Sertima (ed.)). Further, and this has perhaps more to do with protection of the environment, science should be oriented to understand nature and learn from it, rather than trying to control and experiment with it; here, it is thought, man has not been successful. With such a basis, efforts of looking for a way out for Africa will not be in vain.

REFERENCES

Bauni, E.K., 1989: "a Qualitative Study of Fertility Behaviour in Chogoria, Maua and Kyeni of Eastern Kenya, 1989". (Research Report, Centre for Population Studies, London School of Hygiene and Tropical Medicine).

Boserup, E., 1965: *The Conditions of Agricultural Growth* (London: Allen and Unwin).

_____ , 1981: *Population and Technological Change: A Study of Long–Term Trends* (Chicago: University of Chicago Press).

Bradley, C., 1989: "The possibility of fertility decline in Maragoli: An anthropological approach". (Seminar paper, Population Studies and Research Institute, University of Nairobi, June 8, 1989).

Cain, M.T., 1977: "The economic activities of children in a village in Bangladesh". *Population and Development Review* 4(3): 201–27.

Caldwell, J.C., 1977: "The economic rationality of high fertility: An investigation illustrated with Nigeria data". *Population Studies* 31(1): 5–27.

_____ , 1987: "The cultural context of high fertility in sub–Saharan Africa". *Population and Development Review* 13(3): 409–38.

_____ , 1988: "Is the Asian family planning program suited to Africa?" *Studies in Family Planning* 19 (1), Jan./Feb.: 19–28.

Cleave, J.H., 1874: *African Farmers: Labour Use in the Development of Smallholder Agriculture* (New York: Praeger Publishers).

Coale, A.J. and E.M. Hoover, 1958: *Population Growth and Socio–economic Development in Low Income Countries* (Princeton: Princeton University Press).

Coale, A.J., and Demeny, 1983: *Regional Model Life Tables and Stable Populations* (New York, London: Academic Press).

Easterlin, R.A., 1967: "The effects of population growth on the economic development of developing countries". *The Annals,* Jan.: 98–108.

Frank, O. and G. McNicoll, 1987: "An interpretation of fertility and population policy in Kenya". *Population and Development Review* 13(2): 209–43.

Goldberg, H.I., M. McNeil and A. Spitz, 1989: "Contraceptive use and fertility decline in Chogoria, Kenya". *Studies in Family Planning* 20 (1), Jan./Feb.

Geronimus, A. T., 1987: "On teenage childbearing and neonatal mortality in the United States". *Population and Development Review* 13 (2): 245–279..

Johnson, P.: World Population and the United Nations: Challenge and Response (Cambridge: Cambridge Unviersity Press, 1987). (Reviewed in PDR 14 (1), 1988, p. 206).

Kamuzora, C.L., 1976: "Population growth: can it limit economic growth?" *12th Annual Social Sciences Conference of East African Universities.* University of Dar es Salaam, December, 1976.

_____ , 1980: "Constraints to labour time availability in African smallholder agriculture: the case of Bukoba District, Tanzania". *Development and Change* 11 (1), 1980.

_____ , 1984: "High fertility and the demand for labour in peasant economies: the case of Bukoba District, Tanzania" *Development and Change* 15 (1), 1984.

_____ , 1986a: "Population growth and the development problems of Africa: origins and implied solutions" UTAFITI: Journal of the Faculty of Arts and Social Sciences, Vol. VIII.

_____ , 1986b: "Socialisation gap and high fertility behaviour among younger generations: evidence from Wasukuma of Mwanza Regions, Tanzania". *Biology and Society* 3 (1) 28–36.

_____ , 1989a: "Evolution of population policy in Tanzania: drawing on, and the influence of international experience". Paper presented at the IUSSP Seminar on Population Policy in Sub–Saharan Africa: Drawing on International Experience held in Kinshasa, Zaire Feb. 27 to Mar. 2, 1989 (Liege: IUSSP).

_____ , 1989b: "Critical issues in population–development inter–relationships and policy in sub–Saharan Africa". *Eastern Africa Social Science Review* (OSSREA): 1–16.

_____, forthcoming: "Impending fertility decline at low levels of development in Kigarama village, Tanzania: cultural materialism versus idealism". (Working paper).
Knodel, J. and E. van de Walle, 1979: "Europe's fertility transition: new evidence and lessons for to–day's developing world" *Population Bulletin* 34(6). A shorter version in "Lessons from the past: policy implications of historical fertility studies". *Population and Development Review* 5(2) 1979: 217–45.
Knodel, J., N. Havanon and A. Pramualratana, 1984: "Fertility transition in Thailand: a qualitative analysis" *Population and Development Review* (10(2): 297–328.
Legum, C., 1990: "Who speaks for Britain?" *Sunday News,* June 10, 1990 (Dar es Salaam, p. 8).
McNicoll, G., 1982: "Recent demographic trends in Indonesia". *Population and Development Review* 8(4): 811–9.
McNicoll, G. and M. Singarinbum, 1986: *Fertility Decline in Indonesia: Analysis and Interpretation* (Yagyakarta: Gadjah Mada University).
Mamdani, M., 1972: *The Myth of Population Control* (New York, London: Monthly Review Press).
Mukandala, R., 1983: "Trends in civil service size and income in Tanzania, 1967–82". *Canadian Journal of African Studies* 2 (2): 253–63.
Nag, M. and N. Kak, 1984: "Demographic transition in a Punjab village" *Population and Development Review* 10 (4): 661–78.
Population and Development Review, 1989: "Economic and demographic trends and international security? A US analysis" *Population and Development Review,* 1989, vol. 15 (3): 587–
POPULI, 1989, vol. 16, no. 3 (New York: United Nations Population Fund).
Ruthenberg, H., 1968: "Some characteristics of smallholder farming in Tanzania", in H. Ruthenberg (ed.): *Smallholder Farming and Smallholder Development in Tanzania* (London: C. Hurst and Co.).
Sembanjwe, I.S., 1983: "Mortality Levels in Tanzania": 1978 Population Census Vo. VIII", (Dar es Salaam: Bureau of Statistics).
Simon, J., 1981: *The Ultimate Resource* (Princeton: Princeton University Press.
Trussel, J. and A. Pebley, 1984: "The potential impact of changes in fertility on infant, child, and maternal mortality". *Studies in Family Planning.* 15: 267–280.
United Nations, 1967: *Manual IV:* Methods of Estimating Basic Demographic Measures from incomplete Data (New York: United Nations).
United Nations, 1988: *Demographic Yearbook.* (New York: UN).
Van Sertima, I. (ed.), 1978: *Blacks in Science: Ancient and Modern.*

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