

POPULATION AS A VARIABLE OF SUSTAINABILITY

The case of Karatu District in Tanzania

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In the writing moment, the population of the world is estimated to include some 6,031,021,089 souls. And if the estimations that demographers make today are correct, we will be close to 9,300,000,000 at 2050. Already today hundreds of millions face chronic malnutrition. Thus, if the estimations come close to the real situation, then we have to ask ourselves a crucial question: will there be enough food in the future, enough water and enough energy? Is sustainability at all a possibility under these conditions? In this case study, we will review some theories concerning the causes and effects of population growth. We will also review the situation in Karatu district (Tanzania) in order to put some flesh to the theories.

1

WHY, WHERE AND 'WHAT TO DO'?

ISSUES AND CONCERNS FOR A GROWTHING POPULATION

World Vital Events Per Time Unit: 1999

(Figures may not add to totals due to rounding)

Time unit	Births	Deaths	Natural increase
Year	131,468,233	54,147,021	77,321,212
Month	10,955,686	4,512,252	6,443,434
Day	360,187	148,348	211,839
Hour	15,008	6,181	8,827
Minute	250	103	147
Second	4.2	1.7	2.5

source: www.census.gov/cgi-bin/ipc/pcwe

These figures may seem to be telling enough. However, their true significance can only be appreciated if we (a) consider them in a historical perspective, and (b) look at the geographical distribution of the growth.

HISTORICAL PERSPECTIVES ON POPULATION GROWTH

The statistics in table 1 gives us an idea why the number 6,031,021,089 is not only a very big figure but also a big problem. Whereas, the population of the earth doubled during the first 1650 years AD, the numbers have increased more than tenfold since then. How did this situation come about? And what does it entail for our attempts to achieve sustainable ways of life?

Year	annual increase	Estimated population	Estimated
A.D 1		250,000,000	
1650	0.04	545,000,000	
1750	0.29	728,000,000	
1800	0.45	906,000,000	
1850	0.53	1,171,000,000	
1900	0.65	1,608,000,000	
1950	0.91	2,486,000,000	
1970	2.09	3,632,000,000	
1980	1.79	3,995,000,000	
1990	1.70	5,286,000,000	

Source: Todaro 1989

Boiled down, the general explanation goes like this: more or less all societies, who face economic and technological development, go through a similar transition in their demographic structure. Initially they experience both high rates of fertility and mortality. Developments in health care, agriculture etc. will then decrease the mortality while fertility remains high. Accordingly, growth rates will accelerate. After some time, people will adjust their reproductive behaviour, and a new balance is reached at lower levels of both mortality and fertility. Thus, increased rates of population growth are attributed to the time lag between lowered death- and birth rates.

Within in this body of thought at least two reasons behind this lag can be identified:

- Customs and practices change slower than the often rapid effects of the different means that are invented and introduced to improve health and reduce death rates.
- Even when people begin to adjust their behaviour, the changed demographic structure will continue to generate population growth. Thus, even when people have begun to adjust to lower death rates, it will take two generations before the balance is reached.

Historians have been prone to supply demographers with lots of examples that seem to complicate the relation between economic growth and decreased fertility. The over all trend is none the less clear: fertility will decrease in face of economic development.

The growth itself is only one part of the problem. It is the distribution of the growth that makes 'population' a key issue today.

GEOGRAPHIC DISTRIBUTION OF POPULATION GROWTH

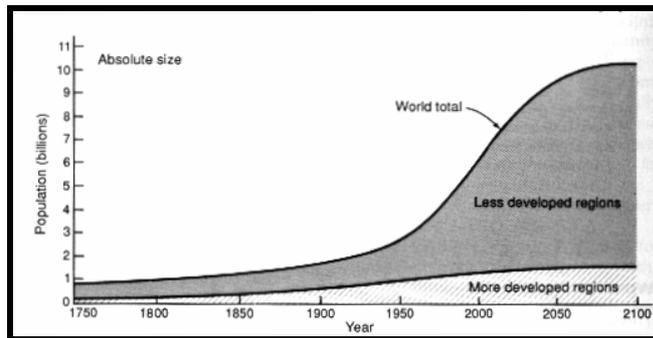


Figure 1

Two important things can be learned from a quick look at figure 1 (Todaro 1989:190):

- The dramatic increase in growth rates (and crude numbers) starts somewhere during the 1950s.
- The bulk of this acceleration took (and takes) place in less developed countries.

How can we account for the uneven changes in the demographic structures? It should be obvious that the theory of demographic transition is insufficient to explain the radical change. Accordingly, several reasons have been identified to explain why less developed countries have experienced such a dramatic increase in growth rates. First of all, it has been pointed out that knowledge and means to lower mortality emerged slowly in the west, thus allowing people time to adjust their behaviour step by step. When these means were rapidly introduced in less developed countries, the gap between death- and birth rates became bigger than in, for example, Europe during the 1900th century.

	World	Developing Nations	Developed Nations
Crude birth rate (per 1000 pop.)	30	38	17
Crude death rate (per 1000 pop.)	12	14	9
Growth rate (percent)	1.8	2.4	0.8
Doubling time (years)	39	29	88
Microsoft Illustration			

Table 1

A related circumstance is that initially, when new technology is introduced, even small investments have big effects. Finally, it is argued that the fertility rates are/were extraordinary high in less developed countries. This is exemplified by the fact that, during 1950s, the death rates in the less developed world more or less equalled death rates in Europe during the middle of the 1900th century. The birth rate, however, was considerable higher (6.2 in less developed countries whereas it was less than 5 in Europe.) This is quite important. What could the reasons be for this difference? It is often suggested that western world had developed more or less conscious means to curb fertility, for example relatively high age of marriage and a fairly high rate of people that never married. Apparently, it is also assumed by many that fertility was always high in less developed countries.

However, it would be a mistake to think that less developed countries ‘traditionally’ have favoured high fertility. In fact, there are some reasons to think that fertility *increased* as result colonialism and the following integration in different global systems. First of all, it is well documented that for example Christianity wiped out many local customs and beliefs that served to control fertility. It is also reasonable to assume that the high fertility rates in many parts of the less developed world in fact was a response to the drastic increase in death rates, due to new diseases etc., that was the initial mark that colonialism put on the demographic structures in the colonised territories. Another possible reason is that people in many areas were robbed of their traditional means of subsistence, for example land and livestock. In some areas, the only remaining means of survival was to sell the labour capacity of the family. Thus, more children meant more hands that could work.

High fertility rates - the engine of accelerated population growth in poor countries - could thus be a result of 'modernity' rather than traditional survivals.

EFFECTS OF POPULATION GROWTH

As noticed above, it is possible to argue about the fundamental causes behind the rates of growth and its distribution. The fact that the bulk of the population lives in poor countries cannot be ignored however. Already today, most countries in, for example, Africa face tremendous problems in trying to provide even half of their populations with water. Malnutrition is common, and land degradation is becoming a severe problem in more and more areas. All this underpins conflicts and/or migration (which in turn all too often lead to conflicts as well). It is not surprising then the effects of population growth often (but not always) are cast in gloomy colours.

Two strands of thought can be identified:

- Malthusian theories that claim that population growth sooner or later will lead to environmental degradation, and eventually to increased mortality that will restore balance.
- Theories in the line of Boserup that suggest that population growth spurs innovation and increased production.

The problem with these competing interpretations is that it is difficult to prove them right or wrong with empirical evidence. Historical and contemporary evidence seem to support the optimistic view: the capacity to produce food has more than matched the growing number of humans. This is especially true in developed countries where the present population, who has tripled since 1870, is not only better fed than ever, but it is also fed by much smaller proportion of the population than 100 years ago. It is none the less quite possible for the Malthusian scholars to reply that the technological and scientific development has bought us some time, but sooner or later, misery will come.

While we are waiting for the future to provide the evidence that will settle the dispute, we may move on to ponder possible ways to deal with the problem today.

WHAT TO DO

In 1990 Dr King warned that birth rates in many poor countries did not decrease fast enough (if they decreased at all). In Dr. King's view a number of societies were approaching their Malthusian ceiling, the point where population growth leads to over-exploitation, mass starvation etc. Dr King made two suggestions:

- Increased efforts to introduce family planning.
- No new resources to public health in societies with too high growth rates.

The second suggestion can crudely be translated into: It is better that some extra children die today, than to have many children facing total misery tomorrow. Understandably, the second suggestion caused a heated debate. A team of Swedish researchers (Lithell et al) argued that increased child mortality (even *if* we did accept the moral implications of such a solution) is far from effective. Calculations on the population of Nigeria showed that if the child mortality rate was allowed to double, the result would only be that the doubling time of the population would increase from 22 to 28 years. In other words, that would not be a solution.

Family planning is a means that can be shown to have a good impact on population growth. But how should family planning be disseminated to larger parts of the world's population? Education? Education is clearly one important variable, but the key question is: what is the precondition for family *planning*? Predictability. Families need to be able to predict the survival rates of their children, the expected quality of their own lives and -crucially important - to make predictions concerning the quality of the welfare system in their countries. If families cannot make reasonable and optimistic predictions of these things, then we are likely to continue to see reproductive behaviour that leads to 'demographic waste'.

In the introduction we noted that some 15 000 babies are born every hour. The majority of these babies are born in more or less poor countries. Are their poverty a result of the rapid growth of their populations, or is the rapid growth a result of their poverty (and instability)? That is one of the more important questions of our times. Available evidence does not allow us to draw final conclusions, but we have suggested that rapid growth should be seen a function of poverty. In either case, people are not numbers in statistics but real people living real lives. In the next section we will turn to the reality in Karatu district in Tanzania

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WHEAT, MACHINES AND MARKETS

Social, political and economic aspects of population as a dependent variable of sustainable ways of life – the case of Karatu, Northern Tanzania

Context of the study

During the 1940s and 1950s a group of market oriented wheat farmers, of Iraqw origin, emerged in Karatu district.¹ These farmers employed a highly mechanised production, using tractors and harvest combines; some cultivated fields as big as 1000 acres.² On the other side of the social spectrum a class of dependent smallholders and land less squatters emerged. These constituted a pool of seasonal labours for the Iraqw wheat farmers and white settlers in the area.³ Independence and the subsequent forceful implementation of the Ujamaa-policy (the "operation") changed this situation drastically.⁴ All land holdings in the area, regardless of their size, were confiscated and redistributed. However, the Ujamaa-policy was implemented in great rush and, apparently, without sufficient support in the constitution.

Thus, as the liberalisation began to gain momentum during the 1980s, a number of persons who had lost large land holdings during the "operation" reclaimed their land, or demanded compensation. The success of some of these court cases alarmed the political establishment. In order to avoid social upheaval and restore its creditability, the parliament passed a law (Regulation of Tenure Act, No 22 of 1992) that extinguished all claims to village land that refers to the time prior to the Ujamaa-policy. In the old days, of party-hegemony, this might have solved the problem, but the land act was challenged in the increasingly independent court system. In 1994 the land act was ruled unconstitutional and nullified by the High Court. Since then new cases have flooded primary- and district courts.

The 11th of April 1996 a newspaper in Dar es Salaam boosted "Village land cases doomed".⁵ After a visit in the Karatu area, the Chief Justice urged the courts not to consider more land

¹Throughout this paper "Karatu" will be used to designate Karatu district, and "Karatu town" to designate Karatu town. All other names of places and persons are fictional.

² To be compared with the ordinary subsistence farm which cultivated 1 - 2 acres, according to Raikes 1975b.

³ Raikes 1975a; Tibaijuka et. al 1993:4.

⁴ The forced resettlement of the rural population during the mid 1970s will hereafter be as the "operation".

⁵ The Guardian 1996-04-11.

disputes relating to the redistribution of the "operation".⁶ According to the Chief Justice the legal aspect of these conflicts was dead and the courts should not longer trouble those who had received land during the "operation" by continuing to process these cases. However, the result has been that the conflicts have been brutalised instead.⁷

From Irqwar Da'aw to Karatu

The people who live in Karatu migrated into the area some 70 or 80 years ago from a valley 70 kilometres south of Karatu called Irqwar Da'aw, widely acknowledged as the traditional heartland of the Iraqw people. It is unclear when then the first Iraqw settled there, but the valley seems to have been populated for at least 200 years. The high altitude and plentiful rainfall made it a favourable place for agriculture. Furthermore, the surrounding mountains and dense forests provided protection from the neighbouring nomadic peoples (the Datoga and Maasai). In conclusion, Irqwar Da'aw was safe both in terms of food security and security from military threats. Thus, the Iraqw continued to live there even when the population pressure began to be quite high. In response to the demographic pressure the Iraqw developed a very sophisticated form of intensive agriculture that has been admired by colonial and post-colonial observers for its high level of sustainability.

It is impossible to make accurate estimations of the population growth in Irqwar Da'aw during the pre-colonial and early colonial times. Winter and Molyneaux (1963) estimated that the population growth has been as high as 2.4 % for at least 100 years. This is a quite remarkable growth rate, even within the African context (remember that the growth rates for Africa as a whole did not 'take off' until the 1950s). Yet, when we want to explain local changes in agricultural practices, the growth rate in itself plays but a minor role. It is true that population pressure in Irqwar Da'aw, led to the development of a very intensified agriculture, where soil conservation played an important role. However, the decisive factor in this process was not the growth rate but the ecological and political factors that constrained their migration out of Irqwar Da'aw.

It was a small pox epidemic at the end of the 19th century, that weakened the Maasai people, and the presence of colonial law enforcement that weakened the constraints that confined the Iraqw in their valley. In the initial phase, the emigration was slow and based on the decisions

⁶ The Chief Justice referred to the fact that the Court of Appeal (the supreme court of Tanzania) had dismissed a case in which land, lost during the "operation", was claimed back (Civil Appeal No.19 of 1992); Ibid.

of individual families. The Iraqw that settled in new areas reorganised their subsistence activities and put more emphasis on pastoral elements. This was, in turn, a function of the low population density and the low fertility of the soils in the early expansion areas.

The big push out of Irqwar Da'aw was triggered by the colonial administration in a more direct way. The development program in the early 1950s more or less forced many farmers, who did not want to sell their livestock, to move to the Karatu area. When they came there, the transition to a world market oriented production of wheat was already under way. Four factors made this transition possible:

- The very fertile volcanic soil in the northern part of Karatu.
- The customary form of land distribution: in Iraqw society new comers in an area were granted rights to land by the first person (or his descendants) who had settled there: the *kahamusmo*. The plots that this person distributed could be very big, but due to the low level of technology and lack of markets it was usually impossible for a family to utilise the whole area received. They would, accordingly, in turn also give away land to other new comers until a fairly even distribution of all land in a given area was achieved.
- The rules governing tenure for foreign settlers in Tanganyika. In difference to the other colonies, Tanganyika was protectorate under the United Nations, governed by United Kingdom. Tanganyika's status as a protectorate put restrictions on alienation of native land to foreign settlers, both in terms of the size of the fields and the time of the leases. On the other hand, the settlers had easy access to credit to buy tractors and other capital inputs. In short, this meant that the foreign settlers close to Karatu was over-capitalised, whereas many of the Iraqw farmers had far more land than they could cultivate. This structural relation between settlers and indigenous farmers opened the way to a co-operation where the settlers used their surplus machinery to cultivate the land of the Iraqw farmers, and then they shared the profit. After some years some of the farmers had accumulated enough profit to buy their own tractors and harvest combines.
- The link to the world market: even more crucial than the access to machinery was access to the world market through the colonial economy. The Second World War that led to a drastic increase in the demand of wheat fuelled the indigenous wheat production.

⁷ Consult URT 1994 and Tibaijuka et al 1993 for a review on the history and nature of land tenure and disputes in Tanzania

When these four factors came together it provided the first comers in the area with the possibility to create the most efficient production of wheat in Tanzania. However, the mechanised cultivation had suddenly made it possible for the 'first' farmers to actually cultivate the vast areas that they had received from the kahamusmo. Accordingly there was no rationale for giving away land to those who came later. This new situation effectively denied lots of other families access to good farm land, and a class of land less labourers emerged.⁸ It is true, that the high rate of population growth among the Iraqw provided the members of this class. But they did not become land less as a result of population growth itself, but because of the specific socio-economic context.

This situation changed drastically during the 'operation' in the 1970s. All land was pooled together and redistributed on equal basis. Now every family, even those marginal families that would have had difficulties in any other situation, gained access to land. However, the fragmentation of land holdings wiped out the efficient mechanised wheat cultivation. The food production was once again organised on the basis of household subsistence.

As noted earlier, changes in the international balance of power during the 1980s forced Tanzania to implement political and economic changes that made it possible for farmers that lost land during the operation to claim it back through the courts. Even though almost no one actually has managed to regain control over lost land, the disputes in themselves have created lots of social tension. The mistrust and resulting uncertainty provide farmer with poor incentives to invest time, money and space in actions to protect the long-term quality of their environment. A number of development projects in the area have tried to implement measures (for example tree planting) to protect the environment on the village level. In spite of 'participation', bottom up approaches and gender concerns, most - but not all - of these projects have had poor results. Why? Because villagers in conflict are not likely to sit down together under the acacia tree and reach a shared understanding on the nature of shared problems. Nor are they likely to 'pull together' in order to solve them. The problems are local, but local solutions are not possible because the problems are structured on the national and international level, that is beyond the borders of the local community.

⁸ Some of the land less farmers were land by choice, i.e. they preferred life at the estates over life as a farmer.

The contemporary situation in Karatu is accordingly characterised by two things: i) land disputes caused by the 'operation'; and ii) environmental deterioration. Again it is possible to outline a very complex web of causes and effects. People are more prone to 'fight' over land because it has become such a scarce resource in the area. The scarcity is of course caused by the continuous increase of population in the area. This increase, in turn, is caused by at least two reasons: a) the fertile soil that makes it possible to extract enough food from rather small fields (it is quite possible for a family of six persons to subsist on a field not bigger than 2 acres); and b) in order to find new land one has to move a rather long distance (some 200 km). In Tanzania that kind of distance usually means that you become disconnected from the social networks that you need to get through the ordinary difficulties of day to day life.

Thus, people stay in Karatu, and this leads to environmental deterioration. More people need to find water, firewood, building material and so forth from basically the same area. This leads to social tension, which fuels the existing conflicts... and the wheel continues to roll.

In conclusion, sustainability is not a matter of awareness but of social, political and economic relations.

TOPICS FOR DISCUSSION

Provocative introduction

There can be no doubt that population, in terms, of numbers is an important variable in the Karatu equation. It is equally important to note that it is a variable that is dependent on a wide range of other variables. It is crucial to note that many of the factors that have played major roles in shaping the social and ecological landscape of Karatu, have their source far away from local scene. During the 1940s and 1950, the migration to Karatu and the emergence of the successful wheat cultivation were conditioned by the colonial context. The land less dwellers in Karatu during the 1960s were not land less because of lack of land, but because they were denied access to land. Today, the area experiences environmental deterioration because it is difficult for people to move to areas where land is available. In other words, the local actors lack the capacity to deal with some of the real problems that effects their lives.

Maybe this goes for the population problem even when we move to the level of nations and continents. Less developed countries experience a myriad of problems; many of these problems are internal, but it can not be denied that the magnitude of the problems depends on *the international relations in which these countries are embedded*. It is true that it is a problem that 80% of the population growth takes place in less developed countries, but is it *the problem*? Granted that the richest quarter of the world consumes 80% of the resources, then - in terms of resource use - every new-born child in the developed world represents 16 children in the less developed parts of the world. If we then acknowledge that most demographers agree that population growth will decline, sooner or later, in the face economic development, is it then reasonable to suggest that the population problem should be solved by letting death rates increase among the poor?⁹

Problems and dilemmas

It is sometimes said that the difference between a problem and a dilemma is that there is a solution to a problem, but only more or less imperfect ways of dealing with a dilemma. Lots

of time and effort can be lost while trying to find the solution to dilemma. It is therefore of importance to learn how to identify the problems and dilemmas.

1. One common type of dilemma is a conflict between different principles or perspectives. For example, attempts to achieve ecological sustainability may undermine economic sustainability. Draw from the case study and your own experiences to formulate different dilemmas of this kind.
2. In many cases we may find that perceived ‘conflicts of perspectives’ are in fact a result of our lack of understanding of the relations between the different perspectives. Review the dilemmas, identified in question 1, and discuss to what extent they are real or apparent dilemmas.
3. In some cases, however, the dilemmas are real; principles and conflicts are truly in conflict with each other. How should we, for example, deal with a situation in which the ecological and ethical perspectives are in real conflict? Can any of the perspectives be viewed as more fundamental than the others?
4. In the case study it is stated that, “sustainability is not a matter of awareness but of social, political and economic relations.” A number of arguments can be put for and against this proposition. Use, for example, ethical and ecological perspectives to analyse the proposition.
5. In your mind, what is the basic problem and the basic dilemma related to ‘population and sustainable development’?

What would you do?

- i) You are the father or the mother in a household with three young children in a village close to Karatu. You have about three acres of land that is enough for the subsistence of the family, but it will not be enough for the children when they reach the age of marriage. Still even children that move away, for example to the regional capital, can provide for you when you become old. How would you organise the future of your family in order to gain maximum security (in terms of subsistence)? Given that a lower rate of population growth is something worth striving for, what would you need (in terms of information, social security etc) in order to use family planning methods to control the growth of your family?

⁹ Cf. The Dr. King- debate on how to deal with the population trap (introduction).

- ii) What kinds plans and projects would you try to implement if you were a development officer in (a) Karatu district, (b) Dar es Salaam (the capital of Tanzania, i.e. if you were a development officer on the national level, or (c) Someone formulating strategies for the World Bank? What would be the strengths and weaknesses of each position? In what position would you be able to do most ?

- iii) If you were exactly the one who you are? What can you do? What do you do? Is it enough? If not, why?