

Nutrition–Relevant Actions in Tanzania

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Nutrition–Relevant Actions in Tanzania

by

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with contributions by **S.S. Mushi**

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UNITED NATIONS

ADMINISTRATIVE COMMITTEE ON COORDINATION – SUBCOMMITTEE ON NUTRITION

(ACC/SCN)

The ACC/SCN is the focal point for harmonizing the policies and activities in nutrition of the United Nations system. The Administrative Committee on Coordination (ACC), which is comprised of the heads of the UN Agencies, recommended the establishment of the Subcommittee on Nutrition in 1977, following the World Food Conference (with particular reference to Resolution V on food and nutrition). This was approved by the Economic and Social Council of the UN (ECOSOC). The role of the SCN is to serve as a coordinating mechanism, for exchange of information and technical guidance, and to act dynamically to help the UN respond to nutritional problems.

The UN members of the SCN are FAO, IAEA, World Bank, IFAD, ILO, UN, UNDP, UNEP, UNESCO, UNFPA, UNHCR, UNICEF, UNRISD, UNU, WFC, WFP and WHO. From the outset, representatives of bilateral donor agencies have participated actively in SCN activities. The SCN is assisted by the Advisory group on Nutrition (AGN), with six to eight experienced individuals drawn from relevant disciplines and with wide geographical representation. The Secretariat is hosted by WHO in Geneva.

The SCN undertakes a range of activities to meet its mandate. Annual meetings have representation from the concerned UN agencies, from 10 to 20 donor agencies, the AGN, as well as invitees on specific topics; these meetings begin with symposia on topics of current importance for policy. The SCN brings certain such matters to the attention of the ACC. The SCN sponsors working groups on inter–sectoral and sector–specific topics. Ten–year programmes to address major deficiencies, vitamin A and iodine, have been launched.

The SCN compiles and disseminates information on nutrition, reflecting the shared views of the agencies concerned. Regular reports on the world nutrition situation are issued, and flows of external resources to address nutrition problems are assessed. State–of–the–Art papers are produced to summarize current knowledge on selected topics. As decided by the sub–committee, initiatives are taken to promote coordinated activities – inter–agency programmes, meetings, publications–aimed at reducing malnutrition, primarily in developing countries.

ABBREVIATIONS AND ACRONYMS

| | |
|---------|--|
| ACC/SCN | Administrative Coordinating Committee Sub–Committee on Nutrition of the United Nations |
| AIDS | Acquired Immune Deficiency Syndrome |
| BMI | Body Mass Index |

| | |
|--------|--|
| BRALUP | Bureau of Resource Assessment and Land Use Planning (now IRA) |
| CBS | Central Bureau of Statistics |
| CCM | Chama cha Mapinduzi, ruling party in Tanzania |
| CDWAC | Community Development, Women Affairs and Children |
| CMR | Child Mortality Rate |
| CSD | Child Survival and Development |
| CSPD | Child Survival Protection and Development |
| DHS | Demographic and Health Survey |
| ECSA | Eastern Central and Southern Africa |
| ERB | Economic Research Bureau |
| ERP | Economic Recovery Programme |
| FAO | Food and Agriculture Organization |
| GDP | Gross Domestic Product |
| GNP | Gross National Product |
| HBS | Household Budget Survey |
| HESAWA | Health Environmental Sanitation and Water |
| HIV | Human Immuno–deficiency Virus |
| ICCIDD | International Council for the Control of Iodine Deficiency Disorders |
| IDD | Iodine Deficiency Disorders |
| ILO | International Labour Organization |
| IMR | Infant Mortality Rate |
| INACG | International Nutritional Anaemia Consultative Group |
| IVACG | International Vitamin A Consultative Group |
| JNSP | Joint Nutrition Support Programme |
| NCCIDD | National Committee on Control of IDD |
| NNACG | National Nutritional Anaemia Consultative Group |
| NVACG | National Vitamin A Consultative Group |
| NCHS | National Centre for Health Statistics |
| MCH | Maternal and Child Health |
| MOH | Ministry of Health |
| PEM | Protein Energy Malnutrition |
| PEU | Protein Energy Undernutrition |
| PED | Protein Energy Deficiency |
| PMO | Prime Minister’s Officer |
| SIDA | Swedish International Development Agency |
| SUA | Sokoine University of Agriculture |

| | |
|--------|---|
| TANU | Tanganyika African National Union |
| TBA | Traditional Birth Attendants |
| TDHS | Tanzania Health and Demographic Survey |
| TFNC | Tanzania Food and Nutrition Centre |
| UDSM | University of Dar es Salaam |
| UNDP | United Nations Development Programme |
| UNICEF | United Nations Children's Fund |
| U5MR | Under Five Mortality Rate |
| UPE | Universal Primary Education |
| UNHCR | United Nations High Commission for Refugees |
| URT | United Republic of Tanzania |
| VAD | Vitamin A Deficiency |
| WHO | World Health Organization |

PREFACE AND ACKNOWLEDGEMENTS

I would like to acknowledge the significant contributions by Prof. Samuel S. Mushi to chapters two, five and eight. I would also like to acknowledge the useful comments on the initial draft received from Dr. Stuart Gillespie, and by the external reviewers Dr. Simon Maxwell, Ms Barbara Huddleston and Dr. Hans Bantje. Useful comments were also received from Dr. Benedicta Mduma and Ms Valerie Leach. The review greatly benefitted from enriching discussions with Dr. Urban Jonsson, Dr. Bjorn Ljungqvist, Ms Laetitia van den Assum, Dr. Ted Greiner, Prof. Michael Latham, Prof. Marjorie Mbilinyi and Mr. Dan Toole. However, I am responsible for any deficiencies that might be noted. A substantial part of the illustrations have been taken from "Women and Children in Tanzania" (URT and UNICEF, 1990) and other reports as indicated under source. I would like to thank UNICEF Dar es Salaam for printing this review. I would like to particularly thank the ACC/SCN for affording me the opportunity to critically review the nutrition situation in Tanzania as part of its series of country-wide reviews and think of options for the 1990s. This opportunity led to an indepth review of TFNC activities and the development of perspectives and strategies for the 1990s. A substantial outcome of the review was also used in the preparation of the country paper for the International Conference on Nutrition and in the development of the National Plan of Action (NPA) for Tanzania to achieve the World Summit for Children goals. It is an important contribution by the ACC/SCN to nutrition related intervention in Tanzania in the 1990s.

This Tanzanian case study provides an example of how a poor country can combat malnutrition through political commitment and choice. It gives hope that while socio-economic development is important to achieve the nutrition goals of the 1990's, much progress can be made without waiting for the trickle down effects of economic development. Thus nutrition improvement was not only seen as important for development, but as a pre-requisite for development through the incorporation of social issues (moral and ethical) in both the analysis and interventions. Specifically, the factors responsible for success in the Tanzanian case are related to the simultaneous inter-sectoral actions taken on the immediate causes (service delivery); underlying causes (capacity building); and basic causes (empowerment) with a clear conceptual framework and community-focused process approach within an enabling political environment. This kind of analysis was able to capture a more comprehensive set of policies and programmes some of which would traditionally not be perceived as having a nutritional effect. While countries differ in the details of their socio-economic context, we believe that a number of the lessons from the Tanzanian situation can be adapted by other countries with a similar socio-economic profile. More importantly, to Tanzania they provide the basis for more focused and accelerated action in achieving the nutrition goals of the 1990's.

It is also my hope that this review will challenge the widely held pessimistic view by many people in the west whose media coverage on Africa concentrates only on "bad news" about drought and starvation; wars and

refugees; economic crisis; and bad taboos and practices. For most of the western media “good news” about Africa is “not good news” for dissemination. Stories of successes and optimism, like the nutrition–relevant actions in Tanzania and other countries, need also to be documented and capture the headlines of the western media. True the situation in Africa in many aspects is bad and the challenges ahead are enormous; but there is also cause for optimism. It is my hope that the changing economic and political situation in Tanzania and Africa at large characterized by stabilization and structural adjustment programmes, increased democratization and decentralization will provide further opportunities for development and in particular the elimination of hunger and malnutrition. The National Plans of Actions (NPAs) of the World Summit for Children, the International Conference on Nutrition (ICN) and the Better Health for Africa (BHA), should strongly draw on the experiences gained from the successful nutrition programmes. The XV IUNS Congress should provide the post–ICN forum for the advocacy for the incorporation of such experiences in the country plans. An important lesson is the need to integrate the WSC, ICN and BHA initiatives into a single National Plan of Action (NPA) rather than separate competing NPAs.

This publication is the first in Africa to be jointly published by ACC/SCN and an African institution, the Tanzania Food and Nutrition Centre (TFNC). The joint publication is part of ACC/SCN’s efforts in promoting coordinated nutrition activities through publications aimed at reducing malnutrition in developing countries. The publication also marks the 20th Anniversary of TFNC (1973–1993). The idea of a joint publication which was advanced by Stuart Gillespie of the ACC/SCN also flags off TFNC’s efforts to establish a Monograph Series aimed at critically analyzing various nutrition–relevant actions in Tanzania. Thus it is also published as TFNC Monograph Series No. 1. As Dr. Abraham Horwitz, the chairman of ACC/SCN points out in his foreword, it is hoped that this publication will provide guidance and strengthen future actions for reducing malnutrition in Tanzania and in other developing countries where the lessons learnt could be applied.

Festo P. Kavishe
Managing Director, Tanzania Food and Nutrition Centre.

FOREWORD

Viewing improved nutrition as an outcome of development processes expands the area of concern for policy–makers and practitioners who seek to combat malnutrition. These processes operate at different levels in society, from the individual through to the whole arena of governmental policy and indeed international relationships. The SCN, in deciding on initiating a series of country–wide reviews of nutrition–relevant actions in 1990, aimed to provide a rich base of documented experience of why and how such actions were undertaken and what was their effect on nutrition.

This country–wide approach built on progress made at the 1989 workshop on “Managing Successful Nutrition Programmes” held at the 14th IUNS Congress in Seoul. The focus here had been on nutrition programmes, and the essential factors determining their success, and the synthesis of findings and individual case studies were later published as ACC/SCN Nutrition Policy Discussion Paper No. 8.

Two other influential documents were the SCN’s “Nutrition–Relevant Actions” which emerged from the 1990 workshop on nutrition policy held in London, and UNICEF’s 1991 Nutrition Strategy document. Together, these provided both a common analytical framework for organising the reviews and a common language for discussing the various actions that impinge on nutrition. The value of such a framework has been demonstrated by the case with which it lends itself to analyses of both the nutrition problem and its potential solutions. The food–health–care triad of underlying causes of malnutrition, in particular proved to be a very useful framework for orienting inputs and subsequent discussions at the 1992 International Conference on Nutrition, co–sponsored by FAO and WHO. Communication and thus advocacy are facilitated when people share such a conceptual understanding.

UNICEF had originally proposed that a series of country–wide reviews be undertaken and the results presented at the 15th IUNS Congress in September 1993. At the time of writing, preparations for this workshop are well underway – in fact, the richness of documented material has necessitated the organization of an additional two–day satellite meeting in Adelaide. We are extremely grateful to UNICEF for their financial support throughout this exercise. The series editor for these country reviews was Stuart Gillespie, and the SCN Advisory Group on Nutrition (AGN) also technically examined the drafts as these emerged. In addition, I would like to express gratitude to the external reviewers, selected for their in–depth knowledge of particular countries, who provided the authors with comments and suggestions on initial drafts.

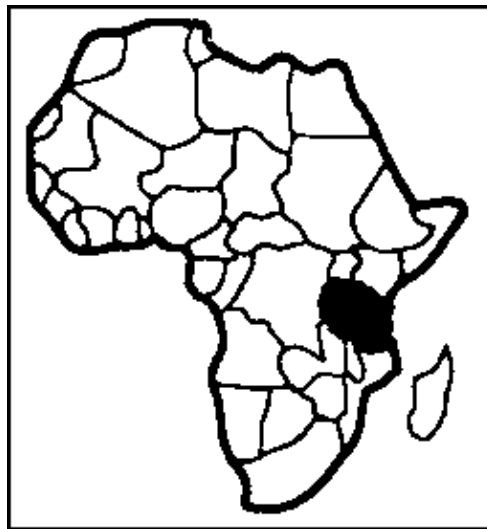
The essential value of these country case studies lies in their ability to describe the dynamics involved when a national government attempts to combat malnutrition. Questions such as the role of the political economy in determining policy options, obstacles met in implementation, how programmes are modified or expanded, and how they are targeted, are all addressed. The need for actions to be sustained to achieve results over the long-term, and the importance of both measurable objectives and a system of surveillance to monitor progress, are examples of important conclusions. These reviews thus provide valuable insights into the questions of “how” as well as “what”, in terms of nutrition policy.

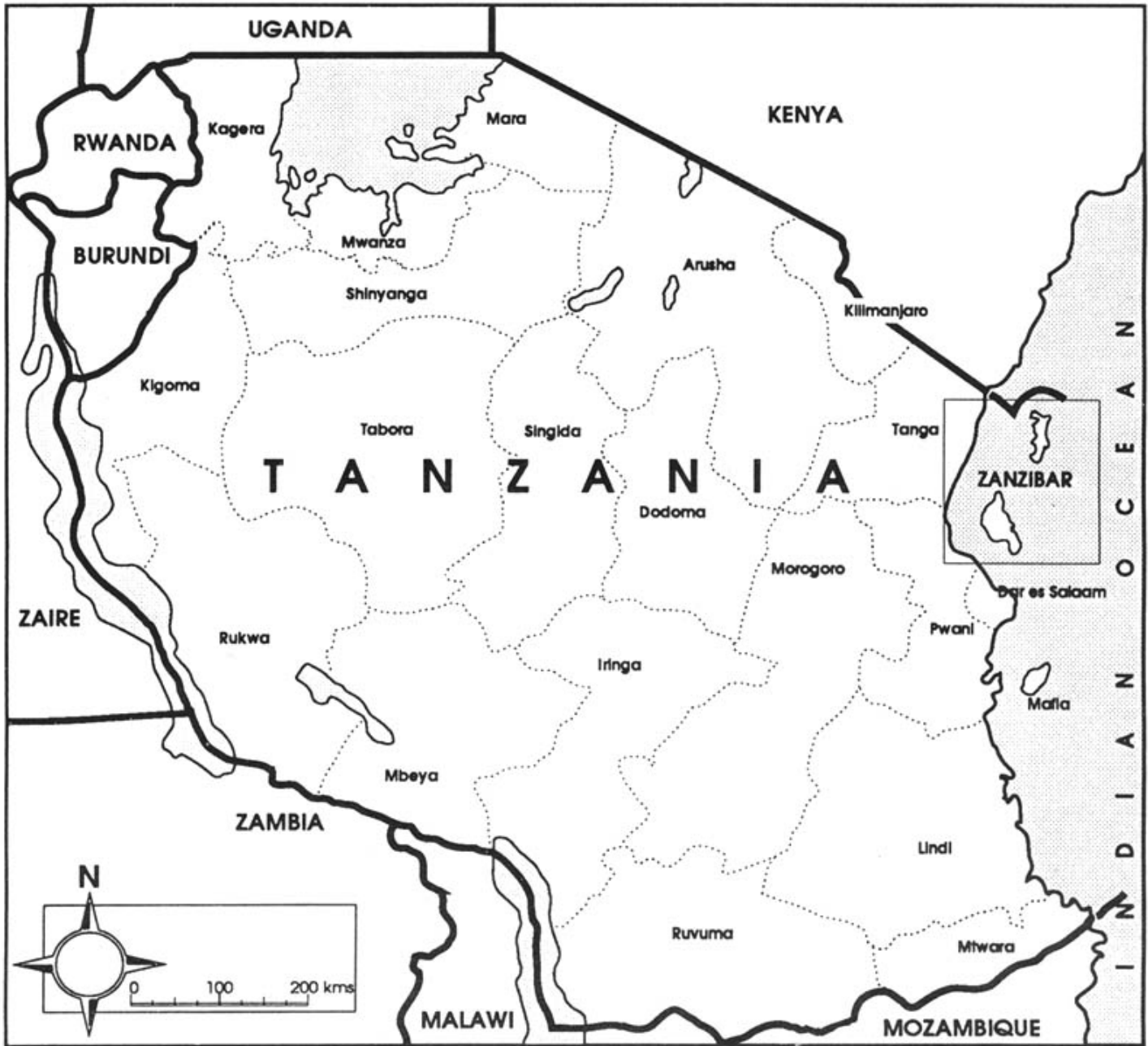
The country reviews are intended for a wide audience including those directly concerned with nutrition in developing countries, development economists, and planners and policy makers. Along with the output of the Adelaide meeting, they will be valuable for advocacy in underscoring that effective actions will improve nutrition. It is hoped that these reviews and the proceedings of Adelaide will provide guidance for a strengthening and expansion of future actions for reducing nutritional deprivation.

Dr. A. Horwitz

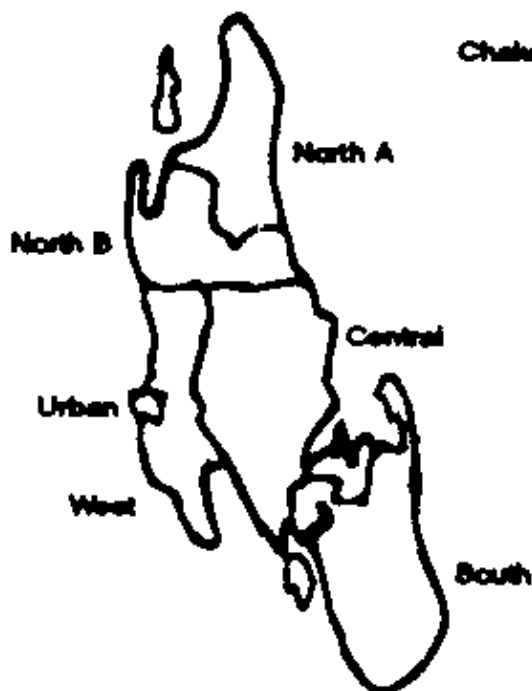
Chairman, ACC/SCN

Map 1: Tanzania and regional boundaries

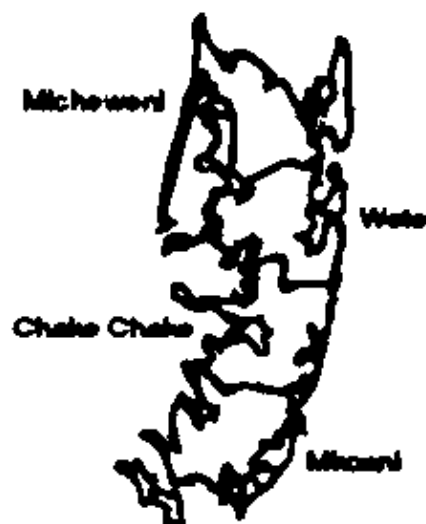




ZANZIBAR



Unguja



Pemba

Table 1: A socioeconomic profile of Tanzania mainland

| | |
|--|---------|
| 1. Area (sq. km.): | 945,000 |
| 2. Population millions (1992 estimate) | 27.0 |
| 3. Population growth rate {1978–1988} (%) | 2.8 |
| 4. Rural population (%) | 85.0 |
| 5. Urban population (%) | 15.0 |
| 6. Population density (persons/sq. km.) | 28.0 |
| 7. Income per capita (US \$) | 160.0 |
| 8. GNP allocate to health (%) [1990] | 7.6 |
| 9. Health expenditure used at district (%) | 29.0 |
| 10. Life expectancy at birth (years) | 54 |
| 11. Perinatal mortality/ 1000 live births | 15 |
| 12. Infant mortality rate (IMR)/1,000 | 115 |

| | | |
|---|--|------|
| births, 1988 | | |
| 13. Underfive mortality rate/1,000 live births, 1988 | | 191 |
| 14. Maternal mortality rate/100,000 live births, 1991 | | 215 |
| 15. Malnutrition prevalence rates (%) in underfives (1992): | | |
| (From initial results of national nutrition module) | | |
| (a) PEM: | Stunting (Low height-for-age): | |
| | Moderate (between minus 2-3 SD) | 28.2 |
| | Severe (minus 3 SD and below) | 12.3 |
| | Total (minus 2 SD and below) | 40.5 |
| | Wasting (low weight-for-height): | |
| | Moderate (between minus 2-3 SD) | 7.3 |
| | Severe (minus 3 SD and below) | 1.2 |
| | Total (minus 2 SD and below) | 8.5 |
| | Underweight (low weight-for-age): | |
| | Moderate (between -2-3 SD) | 19.9 |
| | Severe (minus 3SD and below) | 5.3 |
| | Total (minus 2SD and below) | 25.2 |
| (b) Anaemia (Hb < 10 g/dl): | | |
| | Total population | 28.0 |
| | Pregnant women | 80.0 |
| | Under-fives | 45.0 |
| (c) IDD (goitre, cretinism, cretinoidism): Total population affected (%). | | 25.0 |
| (d) Vitamin A Deficiency (prevalence (%) of undersixs with serum level <20 ?g/dl) | | 30 |
| 16. Access to safe water (%): | National | 42 |

| | | |
|--|----------|-------|
| | Rural | 45 |
| | Urban | 65 |
| 17. Adult literacy rate (%): | National | 90 |
| | Female | 88 |
| | Male | 93 |
| 18. Rate of completion of primary school (%) | | 75 |
| 19. Full immunization coverage rate (%) 1989 | | 83 |
| 20. Average food production per capita (kg/day) | | 0.87 |
| 21. Average daily per capita energy production (kcal), 1984–87 | | 3,052 |
| 22. Average daily food adequacy per capita (%), 1984–87 | | 125 |
| 23. Average daily energy adequacy per capita (%), 1984–87 | | 110 |

Source: TFNC, MOALD, UNICEF and Central Bureau of Statistics

EXECUTIVE SUMMARY

This paper reviews nutrition trends and relevant actions in Tanzania that have been formulated and implemented during the 1980s. The aim is to draw conclusions as to which programmes are effective in preventing malnutrition, why, and how they are best managed. A national level perspective is adopted with descriptions of relevant policies as well as individual programmes, including considerations for their design, implementation and impact. The scope, however, goes beyond “nutrition” programmes per se and includes various macroeconomic adjustments and indicators relevant to nutrition. The national political and socioeconomic context during the last decade is considered paying particular attention to trends.

Interest is focused on understanding community level processes for addressing nutrition problems paying particular attention to the communities ability and capacity to assess, analyze and act on their nutrition problems with necessary support from other administrative levels. The effect on local institutional capacity to plan and implement nutrition interventions and future prospects and lessons for policy for nutrition improvement is also considered.

The review draws mainly on secondary data from published and unpublished reports from various relevant institutions in Tanzania and where appropriate primary data was collected. The experience of the authors in participating or influencing the formulation of nutrition policies and programmes and in managing and researching on them for more than a decade has been invaluable in carrying out the review.

The review starts with a discussion on the framework used for the analysis and briefly discusses the basic political and macro-economic and institutional determinants of the nutrition situation during the 1980s. The nutrition trends, policies and programmes during this period are critically presented. In each section possible lessons for the future are derived.

The review reveals that over the last decade the major nutrition problems in Tanzania have manifested as high rates of malnutrition and mortality among children under-five years and women particularly those pregnant. Like for other countries in sub-Saharan Africa the major nutrition problems are protein energy deficiency (PED), and the micronutrient deficiencies of iron leading to iron deficiency anaemia (IDA); iodine

leading to iodine deficiency disorders (IDD); and vitamin A leading to vitamin A deficiency (VAD) and xerophthalmia. Other nutrition problems affecting smaller and more defined sections of the community are fluorosis, overweight and obesity and diet related cardiovascular disease in the elite and business sections of urban communities emulating harmful food habits and life styles.

The **immediate causes** and problems are related to low frequency of feeding; low energy density of consumed food staples; and diseases particularly malaria, diarrhoea, measles, intestinal worms and respiratory infections. AIDS is becoming an increasingly important cause of infant and adult malnutrition and deaths.

The major **underlying problems and causes** are related to inadequate household food security; inadequate caring capacity of the vulnerable groups; and inadequacies in the quality and quantity of the provision of basic services like health, education, housing and water and sanitation.

The poor economic situation combined with climatic (floods, drought); environmental problems like deforestation and low production technology are serious **basic causes of poor nutrition**. Unfavourable terms of external trade and the debt burden are added basic problems. These problems have been made worse by a high population growth outpacing the growth of essential services and the rate at which potential and actual resources are exploited.

Also the review reveals a significant improvement in both general and micronutrient nutritional status during the 1980s despite a severe economic crisis during the first half of the decade. Apart from reductions in the rates of malnutrition, notable reductions in child mortality, women's workload, gender disparities, and increases in marital accord and cooperation and increases in the allocation of resources for the alleviation of malnutrition have been recorded. Life expectancy increased from about 40 years in the 1960s to about 55 years in the 1980s. The infant mortality rate decreased from about 190 per 1,000 live births in the 1960s to 115/1,000 in the 1980s. There has also been a substantial decrease in the rates of under-five child mortality from a very high 300/1,000 live births in the 1960s to 191/1,000 live births in the 1980s. Substantial decreases in the rates of maternal mortality from more than 450/100,000 births during the 1960s to about 200/100,000 births in the 1980s have also been achieved. The present levels of mortality are still very high by world standards and there is a major concern about an increasing trend in maternal mortality during the first two years of 1990s an indication of the deterioration of the quality of health services. Initially these improvements in the manifestations of the problem of malnutrition were mainly related to improvements of health care rather than improvements in the nutritional status.

However, the last decade has seen substantial improvements in the nutrition status of children under-five years of age especially in areas implementing integrated nutrition programmes like the Joint Nutrition Support Programme (JNSP) and the Child Survival and Development (CSD) programmes. In eight regions implementing these programmes total malnutrition as measured by weight-for-age below 80 percent (minus 2 SD) of the Harvard reference values decreased from an average of about 50 percent during the mid-eighties to about 30 percent during the early 1990s. Severe malnutrition decreased from an average of about 6 percent to about 2 percent during the same period. The rates of reduction of underweight in these eight regions in an average period of 4 years was about 59 percent for severe underweight, 29 percent for moderate underweight and 32 percent for total underweight. At the national level the 1991/92 Household and Demographic surveys have also indicated that just about a quarter of the under-five children were underweight as compared to survey averages of 40-60 percent in the early 1980s.

At the national level, there also seems to be an improvement in the prevalence of low birth weight, which is an indication of an improvement in the nutritional status of women. While estimates for the prevalence of low birth weight in the early 1980s was 14 percent, the prevalence for 1990-91 was about 9 percent.

There have also been improvements in the micronutrient situation. For IDD, in some places severe IDD as manifested by visible goitre rates has decreased by nearly 60 percent while total goitre rates have decreased by about 30 percent through oral iodinated oil distribution. Vitamin A deficiency in the form of xerophthalmia has decreased by about 25 percent through integrated dietary, supplementation and public health measures. In one region, Shinyanga, it was possible to reduce severe vitamin A deficiency measured by the prevalence of serum retinol levels of below 10 µg/dl from about 20 to below 2 percent in a period of two years in two divisions through universal periodic distribution of capsules.

These improvements are particularly significant because the nutrition situation even during the good economic times of the 1960s and early 1970s was described as constant over time and geographical location. The improvements in the nutritional situation is a reflection of a series of positive nutrition related policies and

programmes carried out during the mid- and late 1980s. It is of interest to note that the initial improvements in the indicators of the nutrition situation occurred at the same time as the economic indicators were improving.

The economic reforms and structural adjustment programmes which followed the economic crisis during the 1980s have begun to generate economic growth currently at a Gross Domestic Product (GDP) of above 4 percent compared to a population growth rate of 2.8 percent. The reforms which were highlighted by the liberalization of trade, introduction of flexible management of foreign exchange transactions and cutting down on government spending, have also been accompanied by institutional and political reforms to increase accountability and greater participation in the mobilization of people for grassroots development and official participation of the private sector in the country's economy. This kind of economic growth is essential to enable the government to effectively finance "social security" for those adversely affected by the short-term effects of the economic reforms and further develop human resources for sustained development. The political reforms are meant to strengthen people's participation in the growth of the economy.

The basic reason for success in both the improvement of nutrition and the economic and political reforms lies in Tanzania's political stability and ideological commitment to social action. This politically favourable climate backed up by an unprecedented grassroots social mobilization structure from the national to the village level has resulted in the mobilization of some kind of a nutrition movement in Tanzania and to a very large extent the inclusion of nutrition considerations in sub-national and national development plans.

The formation of the Tanzania Food and Nutrition Centre (TFNC) by an act of parliament as early as in 1973 to catalyse and harmonize nutrition related policies and programmes is seen as one of the important forces behind the improvements in the nutrition situation. Nutrition advocacy for decision makers, assessment, analysis, operational research, training and conceptualization done during the late 1970s and early 1980s by TFNC laid down the ground work for the major nutrition programmes in the form of the WHO/UNICEF supported Iringa JNSP and the UNICEF supported CSD programmes in the mid- and late 1980s. It was also during this period that the micronutrient malnutrition control programmes initiated by TFNC, under the various component financial support of SIDA, the Netherlands Government, UNICEF, WHO, FAO and a soft loan from the World Bank were started. It is pertinent to mention that a number of NGOs have also increased their nutrition activities on the basis of the TFNC/UNICEF conceptual model during the last decade.

Thus although Government financial resource allocation to the nutrition related sectors declined during the 1980s due to the severe economic crisis and an apparent shift in emphasis, a closer examination will reveal that if donor and NGO support was included in the equation, financial, human and organizational resources to support nutrition during the last decade were more than in previous decades. It seems that donor financial support was able to mobilize apparently idle human and organizational resources and created widespread community concern about malnutrition and child and maternal mortality.

An analysis of the successful programmes shows a number of characteristics which should act as lessons for the 1990s.

Firstly they are **community-based with strong community participation and management** through the Government and Party administrative structures. National, regional and district technical supportive mechanisms were strengthened or in some cases established. The major stimulus for undertaking the programme came from broad developmental thrusts of the government and the programmes were distinctly inter-sectoral in nature with a wide variety of health, agriculture, education, planning, community development and other productive activities linked to nutrition. The lead role was played by planning or community development with health playing an important role. Community members actively participated in the programmes with specific and relatively concrete tasks such as helping in the quarterly weighing of children, running feeding stations and participating in the selection of village staff like Village Health Workers. Secondly there was a strong component of **social mobilization through animation, advocacy, information and communication** which led to the creation of community concern with regard to the problem of child deaths and malnutrition. Results of nutrition monitoring using weight-for age were effectively reviewed and used for making various decisions at all levels beginning right in the community through the "triple A cycle" of assessment, analysis and action. Both a top-down and bottom-up approach was used in social mobilization. The top-down approach focused on the improvement of local conditions by trying to meet their practical needs. The **empowering bottom-up** approach recognized the people as able to act on their own behalf to acquire new skills and knowledge in order to increase their power and control over resources for the improvement of nutrition. The environment created by the process of social mobilization permitted the use of both approaches without necessarily creating a conflict.

Thirdly active participation was sustained through **improved management; the result of the systematic strengthening of the process of continuous assessment, analysis and action.** The management systems emphasized improved information through quarterly **child growth monitoring** using children's growth cards and the understanding by both men and women of the child's growth. Programme design was flexible and decision making was sufficiently responsive to feed-back and feed-up so that it was possible to make any necessary adjustments throughout. Starting relatively small and then expanding after careful review of results was also an important programme management design.

Also **management** was strengthened through **training** at all levels and discussing results from the information systems in the health and nutrition committees. Training was mainly in-service and was augmented with frequent supervision. Some people have described the Child Survival, Protection and Development (**CSPD**) **programmes as an Open Rural University** stressing the educational component implemented at all levels. To a very large extent this improved the implementation and decision making process. This indicates that with some training field staff with limited basic education can perform adequately. As a result nutrition improvement was included as a goal to be achieved; and to some extent the contradiction between men and women with regard to nutrition related information and resource allocation improved. More household and community resources are now been allocated towards the improvement of nutrition. Management was also strengthened through the provision of essential management tools like supervisory transport and other expendables. The management systems created helped also in monitoring programme impact.

The fourth characteristic was the **integrated multi-sectoral and multidisciplinary approach** used. Actions on the improvement of household food security, caring capacity, health services, education and water were carried out at the same time. In many cases extension staff from the relevant sectors including NGOs continued to do the same things they used to do. But with an understanding of the consequences of their actions on the nutrition situation, they did them better. The **explicit conceptual approach used facilitated dialogue and analysis of the causes and problems** of malnutrition. The emphasis on the **triple A approach** prevented the intrusion of external magic packages of solutions. As a result emphasis was initially placed on the development of the **process** for the reduction of child and maternal mortality and malnutrition. Coupled with extensive internal and external technical contacts, this resulted in the creation of confidence and capacity in community and national institutions.

But success is usually accompanied by problems and contradictions. As local people become more empowered to act on their own behalf, they are more likely to challenge authoritarian leadership styles common in village and district leaders. Women would be less likely to accept gender discrimination as enforced by tradition. Many extension staff are somewhat naive about the existence of social differentiation at the local level. The delineation between mobilization from above and animation inherent in the social mobilization process provides space for people to raise questions concerning the behaviour of state officials and local leaders. Though this is useful for furthering grassroots democratization it has a potential to lead to increased conflict and tensions. Practitioners must learn how to cope up with this issue. There is also the issue of the contradictory role of external funding and external control even if it is unintended. External donors, national and sub-national levels and the beneficiaries may need to pay special attention to this at the local level as it affects sustainability. The "Mtwara Initiative" is an example of what can be done.

The coverage of actions in relation to nutrition needs need to be expanded. Out of the 20 regions in Mainland Tanzania only nine regions had been covered and only in selected districts between 1983 and 1991. There are plans to cover the rest of the regions during 1992-96. The whole of Zanzibar is covered by the JNSP which started in 1989. As the 29th largest country in the world, the geographical vastness of Tanzania and the general low population density of about 27 per kilometre makes it difficult to evenly spread out the nutrition programmes without compromising impact. The villagization programmes of the 1970s partly resolved this problem. In the face of limited continuing limitation of resources, targeting was done to those in greatest need. Thus activities initially were targeted to those areas with highest levels of infant and child mortality and malnutrition. In these areas the programmes targeted children and women in general and children and women in "poor" households and villages in particular.

While mechanisms for targeting women and children were set in place, no mechanisms were developed to help identify and target the poor. Indicators for the assessment of the manifestations, immediate and underlying causes of malnutrition as articulated by the 'conceptual framework' are available, but no social indicators exist to assess and monitor the basic causes. There is need to work out conceptual tools of assessment and analysis of the basic causes at local as well as district, national and even at the international level. There is clearly a need to pay more attention to social indicators. The lack of a clear formulation about social and economic relations in the conceptual framework is indicative of the inherent difficulty there is in concretizing better what is meant by these relationships.

Observations from the programme areas clearly show that there are two opposing conceptions by focusing on women alone. The first is the “women focus” where the analysis of the problems, causes and solutions tend to be focused on women, thus reinforcing the gender division of labour, with the woman pushed more and more into the home. The “gender” view includes men in the analysis and assumes that gender relations themselves need to be changed and not just individual women and men. Since it is the women focus view which dominates over the gender view there is need to further articulate the gender view in the social mobilization and animation process.

There are indications that the achievements which have been made can be sustained provided that further mobilization of financial, human and organizational resources continue and that the economic and political reforms currently under way continue to be peaceful and create adequate safety nets for social security of the vulnerable groups. There should be increased national and local resource mobilization for nutrition and if possible fix the proportion of financial resources allocated to the social sector by law. Ways should be found to further increase the cost-effectiveness of the programmes and create a conducive mechanism for the convergence of resources. The 1993 National Plan of Action (NPA) for the implementation of the 1990 Child Summit, the 1991 National Food and Nutrition Policy and the 1992 International Conference of Nutrition (ICN) goals are steps in the right direction to achieve convergence of resources for nutrition.

Political advocacy will be needed to maintain the political support and awareness on nutrition of the 1980s since there seems to be a danger that the current economic and institutional reform programmes and the democratic climate of multi-partyism are shifting the “people centred development” paradigm of the 1960s and 1970s to “a material centred development” paradigm. There is a need to make health and nutrition improvement good politics for all parties so that any party should be embarrassed if it does not put these as priority issues on their agenda. Democratization of donor institutions is also called for, so that they become increasingly more responsible to the people they serve rather than only the bureaucracies they represent. This can take place only if there is more global justice and national accountability. In the 1990s, global and national resource allocation to nutrition should move from the plane of political commitment to that of being a political choice. As a political choice it will not be possible for a country not to have enough resources to allocate to nutrition improvement.

This means that the flexibility of the conceptual framework would need to be called into play and even modified to improve the designing of nutrition related actions for the 1990s. Much more advocacy at all levels is needed to seek consensus to share the ethical and scientific position reflected in the conceptual framework. The community-based approach which has been used in the JNSP and CSD programmes and especially the triple A cycle approach has already created a good basis for the redesign of programmes as it cycles. It has several advantages. Its ability to deal with successive rapid approximation of the situation avoids delays in taking action and focuses better assessment, analysis and action as it cycles. The process recognizes the existence of direct and indirect misinformation and thus the need to advocate for behavioral change. In this process planning is with the people and deals with all resources including financial, organizational and human resources. It also recognizes the existence of the triple A process at all levels and is therefore not an imposition. In this process, there is an urgent need to learn from the only two major generalizable experiences gained so far.

The first is that the ‘only magic bullet’ for a successful nutrition programme is a “process approach” of a cyclic assessment, analysis and action done within an explicit conceptual framework where you learn and adapt as the programme progresses. Several key factors in this approach need to be born in mind (Jonsson, 1992). The first is that the people should be regarded as key actors in the process. Secondly, provided that they have access to adequate information and resources, the people are in a better position to judge what will work or not work in their local situation. Thirdly, their mere existence in a continuously changing and sometimes hostile environment, indicates that their survival and coping strategies are adaptive processes, which need to be recognized and facilitated. Thus instead of preparing detailed multi-year nutrition plans, a mechanism should be established to facilitate what Jonson calls “adaptive programming”. The fourth factor is empowerment of the people in terms of among other things, resources, reduction of social and gender disparities and improved knowledge and health. Community participation is the fifth factor and is a means and outcome of empowerment. Often participation is sought at the stage of implementation only. This is not participation, but involvement. Participation should cover all stages of the project including planning, assessment, analysis and action. The sixth factor is community ownership which is an outcome of participation and empowerment. Local ownership is important for sustainability. People will feel inclined to contribute or take some risk in an issue they feel it is theirs. The best programme would be that which after it is successfully over, people would say “we did it ourselves”. That would be the best way to implement the various global plans of action on nutrition of the 1990s. This approach requires social mobilization and animation which will create enthusiasm and commitment. Again, there is no one magic formula which will lead

to successful mobilization/animation for nutrition or other goals except using the process approach.

The **second major lesson is the shift in emphasis in the analysis of the malnutrition problem at all levels from a biological perspective to a social perspective.** Conceptualization and methodology were valued at all stages. This was facilitated by the integrated conceptual framework. Thus the major arguments for action started to be based not on economic developmental issues but on what Jonsson (1992) calls “normative, moral or ethical arguments.” The successful programmes incorporated moral and ethical issues pertaining to equity, accountability, dignity and justice with a high degree of commitment, solidarity and cooperation among the various actors who included scholars and social activists. This provided space to carry out deep analysis of issues for innovative actions and correction of mistakes. The lesson is that social factors need to be emphasized more in nutrition programmes if they are to be successful. This was exemplified by the growth monitoring systems which provided a quantitative goal within a long time frame, which were not primarily designed for impact monitoring, but for mobilizing social action. In many villages the concept of the growth monitoring card with green (normal), grey (moderately underweight) and red (severely underweight) was given a new social meaning and scope: – **the green household, the green school and the green village.** The implication is that you cannot maintain a “green child” in a “grey or red” household in which access to resources is not adequate to sustain the “green revolution.” In the final analysis, households, schools and villages need to be “weighed” just as the child to determine its position on the colour band and take appropriate action. This village social concept could be extended to a “green district, a green region, a green nation and even to a green globe.” The challenge is to determine a minimum set of social indicators needed to nutritionally weigh the household, the village, the district, the region, the nation and the globe.

CHAPTER 1: INTRODUCTION

Why the review

Western media headlines on Africa only occur when an area is affected by drought, starvation, war, civil commotion or severe economic crisis. Thus it is not surprising that too many people in the west view Africa as an undifferentiated social and economic disaster area; a continent of drought and starvation, wars and refugees, economic crisis, taboos and primitive habits. Fortunately this widespread perception is slowly being challenged as more stories of optimism and success including nutrition policies, programmes and institutions working for nutrition are documented and lessons are drawn. True, there are serious problems in Africa; but there is also hope. This hope is reflected in a number of optimistic conditions and recent reforms. This review is intended to add to that hope.

Most of Africa's natural resources are as yet untapped indicating the continent's potential. Although there exist communities where the environmental carrying capacity has been exceeded; in general terms Africa and Tanzania in particular does not have the geographical population pressure of other continents. If the current high population growth of Africa is arrested, and effective environmental rehabilitation and promotion policies are pursued the population carrying capacity will continue to be favourable to the next century.

In Africa and especially in Tanzania, there still exist good traditional practices relevant to nutrition like sustained breast-feeding, caring for the pregnant woman, community-based child care arrangements, mutual aid and safety nets, consultative methods of community-based participation and decision making and strong traditional and religious moral and ethical systems. The persistence of the extended family traditional system partly accounts for this. Within the extended family system, wealthier members typically help poor members meet their basic needs especially in health and education. This is exemplified by the African tradition of leaving a “I have a big problem” message when wanting an immediate response from a relative or friend. This “economics of affection” traditional approach to Africa's economic crisis has prevented the collapse of many families and communities.

In recent years, there is also the changing political situation in Africa characterized by democratization, decentralization, the decline of apartheid and the trends towards the resolution of conflicts made possible by the ending of the cold war. This provides opportunities for development. In addition there seems to be emerging, albeit slowly, a new global development paradigm that sees health and nutrition improvement not only as the outcomes of economic development, but also as a prerequisite for economic development.

At the global level commitment and concern for nutrition, especially as it relates to the well-being of children and women is now world-wide. This concern is signified by four sets of actions. The first is the Convention on the Rights of the Child adopted unanimously in 1989. It stipulates legal standards for the protection of children against neglect, abuse and threats to survival, and enjoined all nations to take appropriate actions to guarantee proper growth and well-being of children. The second was the World Declaration on the Survival, Protection and Development of children adopted in New York by a World Summit of Heads of State and Government on September 30, September, 1990. The Declaration included a Plan of Action for implementing Global Goals which included Nutrition Goals for the 1990s. The third is the 1991 Montreal Conference on "Ending Hidden Hunger" which provided further political impetus for the elimination of micronutrient malnutrition. The fourth is the December 1992 International Conference on Nutrition (ICN) in Rome, where a World Declaration on Nutrition and a Global Plan of Action was adopted which put nutrition on the world developmental agenda for the rest of the twentieth century and beyond. Especially important for Africa is the recognition that priority needs to be given to Africa and the encouragement to continue to develop an African Nutrition Strategy which has already started under the Organization of African Unity (OAU).

Nationally within Tanzania, commitment and concern for the social well-being of the population with emphasis on children and women dates back to the early days of independence, but especially so after the Arusha Declaration (TANU, 1967) and the Tanganyika African National Union's (TANU's) directive of 1973 which gave priority to rural development, water, health and education free of user charges. An important and nutrition relevant move in 1973 was the legal creation of the Tanzania Food and Nutrition Centre (TFNC). More recently, several sets of actions have given practical effect to this commitment, namely: –(1) Ratification of the Convention of the Rights of the Child and the designation of June 16th as the Day of the African Child (2) President Mwinyi's personal endorsement of the World Declaration on the Survival, Protection and Development of Children; (3) the holding of a National Summit for Children in 1991 which was chaired by the Prime Minister, and attended by Ministers and Members of Parliament and the adaptation and adoption of the Global Goals and a National Plan of Action (NPA) (4) inclusion in the extended Economic Recovery Programme (1989/92) of a Priority Social Action Programme (PSAP) to improve the essential social services which suffered under previous structural adjustment programmes and (4) the creation of a Ministry of Community Development, Women Affairs and Children in 1990 (6) the declaration of a Food and Nutrition Policy.

The nutrition field is not a particular sector. It is a complex field depending on a number of variables. Here we shall focus on four sets of variables which affect nutrition both directly and indirectly. These are (1) the status of the economy; (2) the country's ideology and policies; (3) institutions and pattern of resource allocation; and (4) nutrition related interventions through the various sectors. These clusters of variables have not been static; they have changed during various phases of the country's history, with varying effects on nutrition relevant actions. While in the analysis of these variables a national level perspective is adopted interest is also focused on understanding community level processes for sustained nutrition intervention paying particular attention to the communities ability and capacity to assess, analyze and act on their nutrition problems with necessary support from other administrative levels.

This chapter introduces the reasons and basis for the analysis including the conceptual model frameworks within which the problem of malnutrition is analyzed. Chapter two analyzes the political economy and the institutional context. Chapter three discusses the nutrition situation and trends; chapter four introduces the analysis of the different problems and causes related to the nutrition situation and chapters five to seven discusses the major clusters of determinants of malnutrition (food security, health and care including women's control over resources). Chapter eight critically examines the different nutrition related integrated and sectoral policies and programmes and chapter nine provides the overall conclusions and recommendations.

The review draws mainly on secondary data from published and unpublished reports from various relevant institutions in Tanzania and where appropriate primary data was collected. The experience of the authors in participating or influencing the formulation of nutrition policies and programmes and in managing and researching on them for more than a decade has been invaluable in carrying out the review.

This review has been carried out as part of the ACC/SCN's efforts to review successful nutrition-relevant actions in some selected countries so that experiences from the eighties can be documented and lessons for the nineties be drawn (Gillespie and Mason, 1991; ACC/SCN 1991a&b). The review analyzes nutrition trends and relevant actions in Tanzania that have been formulated and implemented during the 1980s.

Framework and setting for the review

The review is primarily based on the terms of reference as given by ACC/SCN. The framework used is based on an explicit and flexible conceptual model for assessing, analysing and acting on the causes of malnutrition [Jonsson, 1988]. The framework has two components: a factual analysis (fig. 1) and an operational analysis (fig. 2).

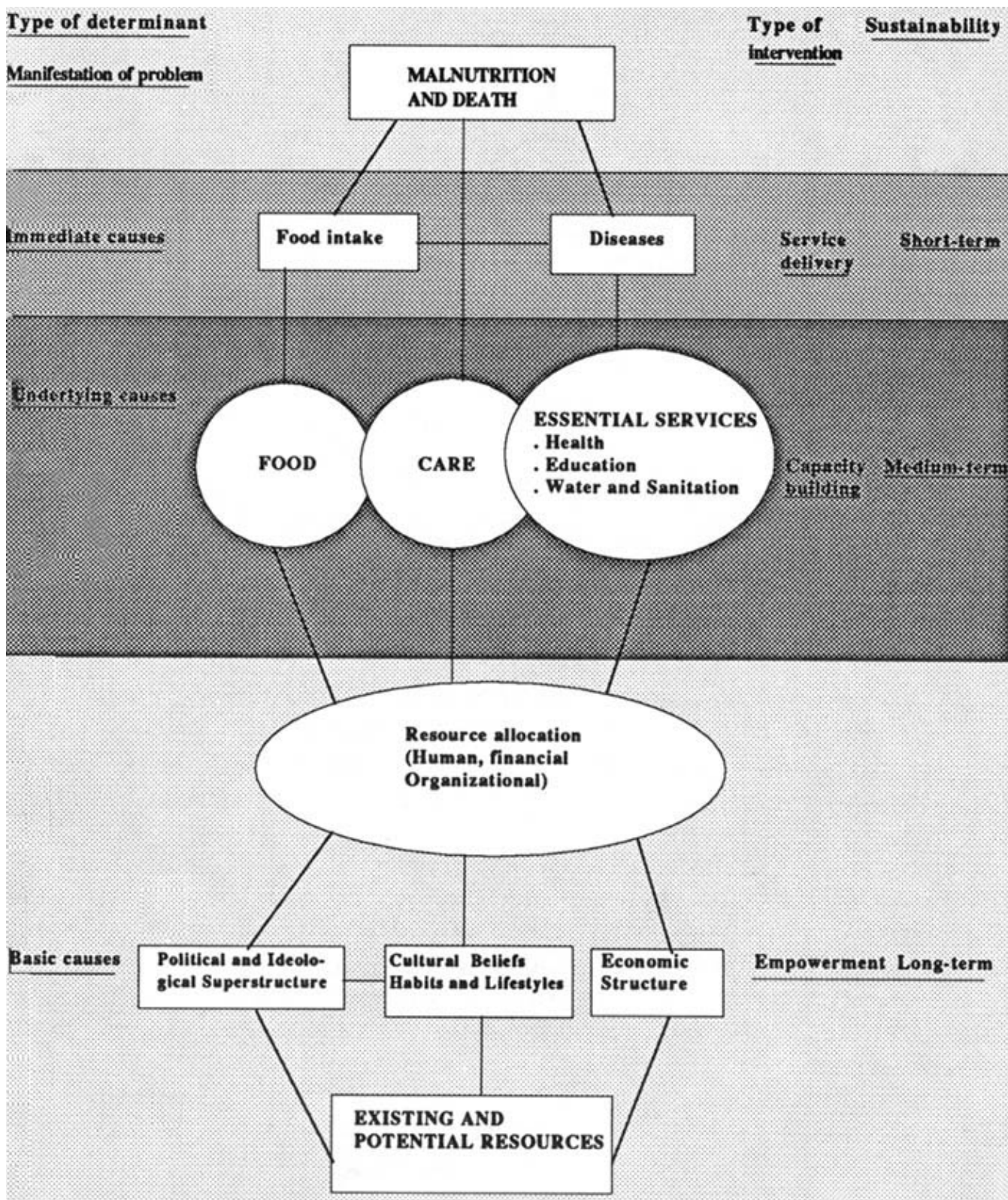


Figure 1: CONCEPTUAL FRAMEWORK FOR THE DETERMINANTS OF MALNUTRITION

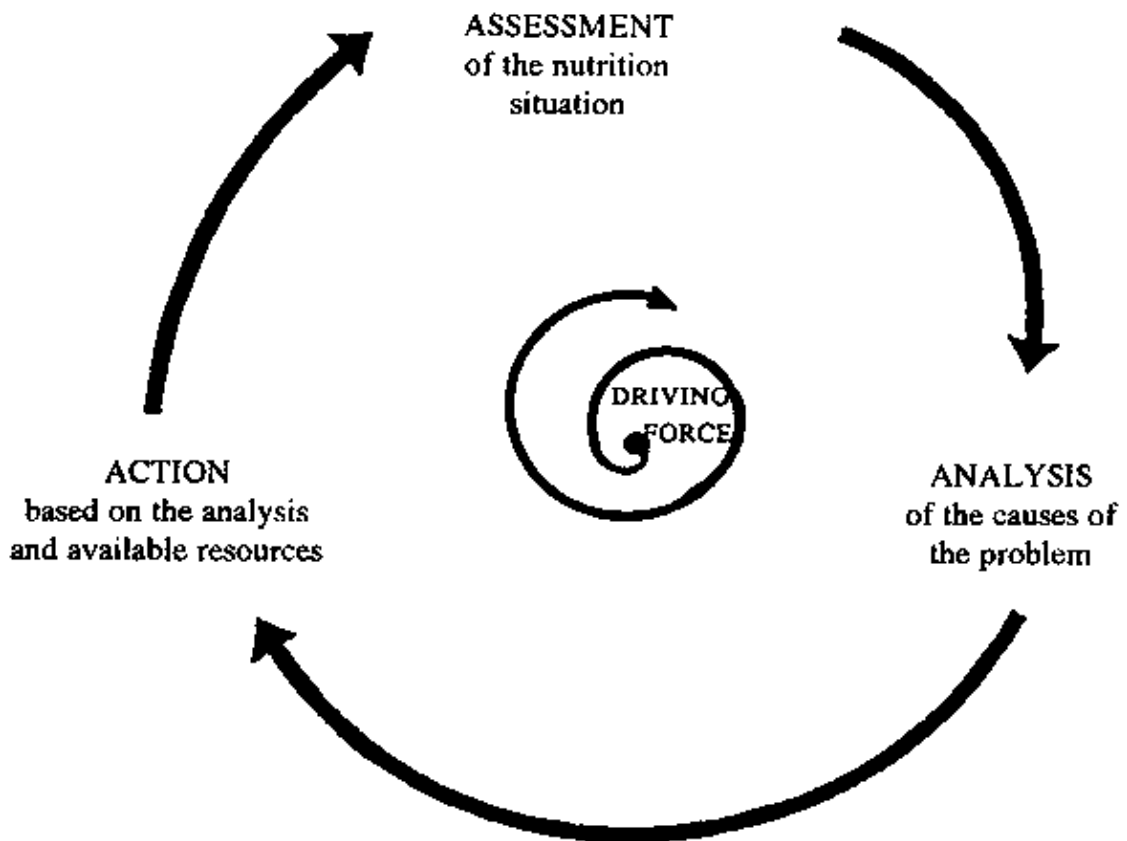


Figure 2: THE TRIPLE 'A' CYCLE

In the factual analysis, malnutrition is considered as the ultimate manifestation of various social and biological processes in society. This manifestation may be in the form of Protein Energy Malnutrition (PEM), chronic diet related diseases, or micronutrient malnutrition of which the deficiencies of iodine, iron and vitamin A are the most prevalent. The problems are then analyzed at varying depths of causality.

The **immediate** causes of malnutrition are those most proximal factors which finally precipitate malnutrition. They are related mainly to physiological relationships and their interventions are mainly based on **service delivery** and have traditionally been more visible. Given alone, the impact of such interventions is **short-term**. The causes have been identified as **inadequate food intake** (low feeding frequency and low energy density of foods as eaten) and **diseases** which usually interact in a mutually reinforcing manner. Diseases notably malaria and measles cause loss of appetite and the increased metabolism associated with the high fevers increase the body's need for food. Diarrhoea which is most often associated with vomiting decreases food intake and results into the loss of food already eaten. This worsens the nutritional state of an individual. Likewise the impact of disease is made much worse by the malnourished state, since malnutrition lowers the body's ability to resist disease.

The **underlying** causes of inadequate food intake and diseases are inadequacies in **food security, caring capacity and essential services** like health, education, housing, water and sanitation. Interventions at this level of causes are mainly **capacity building** in nature and the **impact is medium-term**. The underlying reasons are related to the availability and economic and social accessibility to these services which is determined in turn by economic, human and organizational resources.

The development of these resources and their allocation towards the amelioration of malnutrition depends at the **basic** level on the *development and structure of the economy, the prevailing political ideology, and social and cultural factors* related to gender (women's workload, the decision making process and resource allocation) and nutritional behaviour. Ecological and environmental conditions like climate, drought, floods, deforestation and other types of environmental unfriendly behaviour also affect nutrition. Interventions at the level of basic causes results in the **empowerment** of people and the impact is **long term**. This type of analysis also defines the concept of empowerment in nutrition intervention. Thus interventions at the level of immediate causes (service delivery) is the least empowering and those at the level of basic causes most empowering.

The second component of the conceptual framework emphasizes the operational approach of a process of **assessment** of the situation, an **analysis** of the specific causes, and deciding and designing **actions** to improve the situation (fig. 2). Since the various biological and social processes which determine the nutrition situation are not static but constantly changing a self starting cyclical process of assessment, analysis and action (**triple A cycle**) is needed in order to capture the changing situation and better focus the actions. Effective nutrition programmes will have the triple A cycles operating at all levels from the community to higher levels of government and concerned agencies and institutions in order to ensure programme sustainability. It is important for whoever wants to start a programme to work closely with the government because while some NGOs may come and go governments though may change remain a permanent structure in all communities. The role of the Tanzanian Government in promoting community based nutrition programmes is a case in point (Yambi, Jonsson and Ljungqvist, 1989). Since the triple A cycles are already operating as a normal logical way for problem solving, **advocacy** is needed as a driving force to make the triple A cycle and focus them on nutrition improvement. Ljungqvist (personal communication, 1993) compares the triple A cycles to the way the human body works; the driving force of advocacy (and information, education and communication) as the heart; assessment as the eyes, ears and other senses; analysis as the brain and action as the hands.

The **depth of analysis** is the first dimension of the conceptual framework. The second dimension is the **level of society** at which the analysis is performed. This can be at the level of the household, the village, the district, the region, the nation and even at the international level. The immediate causes of malnutrition operate mainly at the lower levels of society while the underlying and the basic causes operate at the higher levels. Programmes aimed at addressing the immediate causes may have an immediate impact on the nutrition situation in the short run, but their sustainability and, therefore, impact on the long run is low. Thus while programmes aimed at addressing the underlying and basic causes of malnutrition may not show an immediate impact, they are usually sustainable in the long run.

However, it should be realized that a combination of actions at all depths of causes is necessary. For many communities the immediate causes notably diseases constitute an area of urgent action if active community participation is to be secured. The logic is simple: survival must be assured before engaging in ancillary survival and development activities (probably the logic behind UNICEF's child survival and development programmes). Thus actions at the immediate level are a necessary entry point for actions at the underlying and basic causes.

Time is the third dimension of the conceptual framework. All factors related to nutrition at any particular moment are the result of a historical process. At the level of basic causes economic, cultural, and political changes take varying periods of time to reflect on the nutrition situation. Climatic shifts resulting from environmental degradation is so gradual in time perspective that the common person does not easily make the connection. Even at the level of immediate causes, time plays an important role. Diseases like malaria, diarrhoea etc also have their history. There is a period called the incubation period between contact with the disease causing organism and the manifestation of disease. The seasonal fluctuations in the nutritional situation of communities is another example of the time dimension. Thus though in this review the last decade will be the historical frame for the analysis, there will be frequent reference to longer historical perspectives. Certainly, history taking so important in some disciplines like Medicine is also extremely important in Nutrition.

CHAPTER 2: THE POLITICAL ECONOMY OF NUTRITION IN TANZANIA: POLICY AND INSTITUTIONAL CONTEXT

Introduction

Because the nutrition situation is a manifestation of complex biological and social processes in society, it is evidently intertwined with the social, political and economic developments of society. It is acknowledged that there is a two-way direct causal relationship linking social and economic conditions with nutritional status and the underlying determinants of food security, caring capacity and essential services like health services; education; water and sanitation. The implication is that a country with favourable socioeconomic conditions, is more likely to allocate substantial human, financial and organizational resources to nutrition-related programmes than a poor country irrespective of the political orientation. There is evidence to show that by and large, as a country's income (GNP) increases, the absolute and relative amounts of its social expenditure increases [Gillespie and Mason, 1991].

Examples of the nutrition–socioeconomic links exist. The impact of fertility on health implies, for instance that optimal age marriages and lower fertility lead to fewer high risk pregnancies and deliveries; small families and a low population growth rate which are all associated with good nutrition. Well educated persons are more likely to have or easily acquire the knowledge for individual and community action to improve the nutrition situation and would also be better placed to get better paying jobs than non–educated persons. Well nourished students are better able to concentrate in school and perform well academically than malnourished students. Likewise well nourished workers are more productive than undernourished workers. Thus while socioeconomic development is important for good nutrition, good nutrition is likewise important for socioeconomic development. This chapter discusses the political economy of nutrition in Tanzania paying particular attention to historical, political, social and economic sets of variables and their effect on nutrition.

Tanzania's economic structure

The strength and structure of the economy is one of the major factors determining the nutrition status of the people. Like all countries in the early stages of development, which is the case with most African countries, the economy of Tanzania suffers from low investment, low production, agricultural dependency, a small tax base and the legacy of colonialism. The basic structural features of the economy of Tanzania is thus characterized by two distinct economic structures: a large traditional rural agricultural sector and a low capital labour intensive urban industrial sector. The linkages between these two economies are not strong although the agricultural sector has the potential for producing the bulk of raw materials for domestic industry in addition to fostering export growth. Industry supplies inputs for agriculture, as well as consumer/incentive goods for the rural population. The linkage is further weakened by poor transport and communication infrastructure. The energy sector is also severely underdeveloped and apart from the aging hydro–electric plants, depends mainly on imported oil.

Cash crop farming, manufacturing, mining, transportation and construction activities all rely heavily on imported inputs, while foreign exchange earnings depend on the export performance of a small group of primary commodities. This has made Tanzania extremely sensitive to developments in the industrialized countries.

The major export cash crops comprise coffee, cotton, sisal, tobacco, tea, cashewnut and pyrethrum which together account for more than 75 percent of total foreign exchange earnings. Cocoa is emerging as a promising export crop. The major food crops include maize, rice, wheat, cassava, millet, beans, sorghum, bananas and a variety of vegetables, fruits, potatoes and other root plants. Large potential for expanding crop production remains unexploited, mainly as a result of low levels of technology, insufficient supply of inputs and tools, and poor agricultural infrastructure. Although the country is rich in rivers, fresh water lakes and irrigable plains, most current farming activities rely on the availability of rain. As a result agricultural production is far less than what can potentially be produced.

Because of the extreme dependence on primary commodities as a source of foreign earnings the global slump in commodity prices and the steady deterioration in the terms of trade during the last one and half decades have particularly hit the country. For development to take place in an orderly fashion, there must be large amounts of capital available. The low yield agricultural sector alone, which is the major source of capital, cannot be expected to generate the necessary revenue to provide for social welfare; maintain civil, law, order and security administration and still leave enough for investment including industrial development.

The colonial economic heritage

Tanzania's economic structure is a legacy of colonial heritage. Whatever merits one may accord colonialism in bringing Africa into the world economy, it certainly was not intended to impose balanced economic growth. Colonial possessions, are, by definition, acquired to supply raw materials, not to compete in the production of finished goods. Thus at independence in 1961, Tanzania's economic structure reflected British colonial interests, consisting of an export–import enclave geared to serving the colonial power on the one hand, and a large traditional sector supporting over 90 percent of the population on the other hand. The infrastructure – roads, railways and harbours – was designed to serve the export–import enclave. Both Gross Domestic Product (GDP) and exports were dominated by primary production (mainly coffee, cotton, sisal and diamonds), and the small manufacturing sector was dominated by consumption goods. Sectoral contribution to the GDP was dominated by agriculture, 50–60 percent, while industry accounted for 12–15 percent of

which the manufacturing sub-sector claimed only 36 percent. A similar pattern existed in employment: some 90 percent working their own land, 5 percent employed in rural areas (mainly on estates owned by expatriates and local Asians, and accounting for 3–4 percent of the agricultural land) and about 5 percent earning a living in urban settings. Income per capita stood at US\$ 50 (or Tsh. 380 at the time). The main economic sectors had many distorted features which could limit the rate of growth after independence. In agriculture, although the traditional subsistence sector was the largest in terms of population depending on it (90 percent) and agricultural land area (96 percent), it received little attention from the colonial administration. Most inputs (infrastructure, credit, etc.) went to the estates which produced 35 percent of marketed agricultural output and 45 percent of all exports.

The industry sector had several problems which had to be resolved after independence. First, in terms of ownership, most of the industries belonged to transnational corporations and Asians—local and foreign. Second, much of what was produced apart from processed food, beer and beverages, was for export. Third, most of the consumer goods produced catered for a small urban population.

In the financial sector, the commercial banks and other institutions were foreign-owned, served a small section of the economy and offered credit to whites and Asians only, thereby discouraging the growth of indigenous entrepreneurship. In terms of investment capital and external trade, there was near total dependence on a few countries, particularly Britain, the former colonial power.

The inherited state of the social sector had many inadequacies. Most government health services (hospitals) were urban based and the rural 'native authorities' were left to provide whatever service they could with assistance from church-based Non-Governmental Organizations (NGOs) and limited government subsidies. Most limiting as a developmental tool was the tripartite educational system—for Africans, Asians and Europeans – which allocated a trickle of resources to the African majority. Thus in 1961 enrolment in primary schools (for a population of nine million) was only 486,000 and in secondary schools 16,000. Only about 0.2 percent of the labour force was skilled, and less than 150 Africans had university education. Out of 3,100 jobs classified as professional and technical (like nurses, clerks, primary school teachers and medical technicians), only 1,300 (42 percent) were held by Africans. This situation limited the localization of the civil service posts to only 26 percent, with only 3 percent in top executive posts at independence (Wangwe and Luvanga 1990:4–5).

Post-independence economic State interventions

After independence the State intervened actively in the economy so as to change its structure, accelerate growth and correct the inherited inequalities and imbalances in social and geographical distribution of resources. The most dramatic interventions were those ushered by the Arusha Declaration (TANU 1967) which included (1) state take over of the commanding heights of the economy; (2) reorganization of the rural communities, replacing the World Bank sponsored Capitalist settlements (World Bank 1960) with Ujamaa/Socialist villages; (3) a policy on Education for Self-Reliance (Nyerere 1967a); (4) a specific policy on Workers' Participation (URT 1970) and a general one on people's right to participate in decision-making at all levels of the official bureaucracies and in other institutions (TANU 1971); (5) decentralization of government responsibilities and resources to the regions and districts (Nyerere 1972); (6) diversification of external trade and sources of aid to include the socialist camp; (7) import substitution strategies and a new industrial strategy (URT 1976), and (8) a host of specific state interventions in the economy affecting conditions of production, distribution and exchange. In so far as such interventions related to the classical political question of "who gets what, when and how", they have much relevance for nutrition analysis. They can be grouped into three sets (Mushi and Jackson 1990).

The first set of interventions related to settlement patterns and organization of the rural population and their modes of production. Specific programmes included the village settlement schemes, 1963–1973 (World Bank 1960, URT 1964); the Ujamaa villagization drive, 1967–73; the massive non-ujamaa villagization, 1974–77; and the creation of state farms for large-scale production of cereals (wheat, rice, etc) and dissemination of technical innovation among the peasantry (URT 1969).

The second set of interventions affected factor markets. The most important ones relate to land, capital and labour. In 1963 all land was converted into leasehold and its sale was prohibited. Nationalization of some private land (mainly of foreigners) was undertaken after 1967, and village land was protected against the encroachment of kulak or capitalist farmers. With regard to capital, credit was controlled in favour of co-operative farmers and state farms (till the liberalization policies of the eighties). With regard to labour,

post-1967 policies prohibited the employment of village labour on capitalist farms. This restriction was also abandoned in the eighties.

The third set of interventions affected product markets. The marketing role of the pre-1967 middleman was de-emphasized in favour of parastatal and cooperative marketing agents through crop confinement policies and various administrative measures. The government set producer and consumer prices and provided subsidies for production inputs and consumer goods till 1984.

As a result of these state interventions and the counter-reactions by various affected groups (which eventually led to liberalization policies in the eighties), the inherited structure of the economy changed substantially. The state sector became dominant in the economy especially in the industrial and services sectors. The state was the employer of over 75 percent of the wage earners in these sectors. Of more direct relevance to nutrition are the outcomes of state interventions in the agricultural sector. Five distinct farming systems now exist in rural Tanzania, each struggling for survival or dominance. Their fortunes have varied with the macro-policies of the party and state during different periods (URT 1982b; Mushi and Jackson 1990:11-12). We shall review them briefly.

First there are the socialist ujamaa farms established during the voluntary villagization phase, 1967-73 and which received lots of free state inputs. The assumption was that the socialist village governments would generate adequate funds from joint production to be able to look after village welfare and nutritional needs of the young, the aged and the disabled (Nyerere 1967b). Partly because of the dwindling state support thereafter, the ujamaa mode of production has now shrunk to less than 5 percent of the 8,000 registered villages on Mainland Tanzania. This means that nutritional programmes can no longer assume the existence of socialist organization at the village level since non-socialist actors have gained in importance.

Second, there are smallholder farms which constitute about 90 percent of the total farming area and produce about 95 percent of the drought-resistant staples, 85 percent of the maize and 50 percent of the rice. They thus provide the biggest source of foodstuffs and nutrients for the biggest number of the population. The farms are of two kinds: first, the homestead farms around the family at the village, estimated at 0.5 hectares per farm, usually devoted to vegetables, fruits and other non-staple foods, according to taste; and second, the block farms which are large land areas subdivided into individual family plots estimated at one to two hectares per farm. These produce food and cash crops.

Third, there are public commercial farms which include (1) state farms and ranches; farms of parastatal organizations (under Ministries of Agriculture, Livestock, Natural Resources) which are responsible for seed production (e.g. TANSEED Company) or respective cash crops, livestock or fisheries; (2) farms owned by the army, prisons, district and town councils; and (3) farms owned by such public bodies as the Party (via its company, SUKITA), women organization (UWT), workers' organization (JUWATA, now OTTU) and youth organization (VIJANA). Up to the mid-eighties the parastatal sector dominated in the local supply of some of the most preferred staples. For example it provided 95 percent of the wheat, 85 percent of the sugar and 50 percent of the rice. The liberalization policies (starting 1984) have continued to change this state dominance. For example the National Food Strategy (URT 1984a:78), which projected food nutritional needs to the year 2,000 de-emphasized the role that will be played by public institutions. It states: 'Almost all (of the public institutions) have an inadequate capital structure and suffer from insufficient or worn-out equipment. Their future role has been very carefully assessed; expansion and further development will be limited by the capacity of the nation to provide trained and experienced management, technical personnel and sufficient capital. They will be required to operate on commercial lines. Similarly, only a relatively small expansion is envisaged for state ranches; the primary aim will be toward private management in livestock production.' Furthermore, most of the state corporations involved in agriculture production make big losses (URT 1984a:40; MDB 1988:45).

Fourth, there are the private commercial farms. These comprise medium and large-scale farms owned by nationals and foreigners. Although most of these are engaged mainly in production of export crops (coffee, sisal, tobacco, tea, etc), a few mixed farms also exist, producing about 15 percent of the maize, 5 percent of wheat and 5 percent of the drought resistant staples. Given the current liberalization/privatization policies and inclinations of the state, this sector will certainly make a bigger contribution in the future. The government now views these private farms as the dynamic force behind exports to earn badly needed foreign exchange: 'so that they can contribute effectively to increasing production and exports, they will be treated in the same way as publicly owned enterprises as far as foreign currency requirements are concerned.' These farms are also diverting state attention away from the smallholder who enjoyed special attention until the early eighties. For example, although policy states that "village boundaries and those of large and medium-scale commercial farms will be given priority in being surveyed and mapped" (URT 1984a:78-79), in practice villages have

received secondary consideration and many complaints have continued to be received by the Ministry responsible for Lands. Indeed, the net result of the macroeconomic policies based on the Economic Recovery Programme (ERP 1986–89) have worked against the smallholder and in favour of the private commercial farmer who is also in a better position to attract the available agricultural services.

Finally, there are joint public–private farms. These represent a recent development and the Government intends to expand them. They are valued partly because ‘they can be of particular benefit where one partner is able to provide an initial investment of foreign currency or a particular expertise is being introduced for the first time’ (URT 1984a:78). A good example is the Korea–Tanzania Company (KOTACO) currently producing rice and other staples in Morogoro region.

Some disturbing features of the economy

State intervention brought about significant changes in the structure of the economy. Pertinent to nutrition was the growth of the share of services in the GDP which increased from 35 percent in 1961 to 50 percent in 1985 before declining to 43 percent in 1988. This was in line with the post–Arusha policies which emphasized development of human resources through education, health, water and related services. However, the economy shows many disturbing features which cast doubt on its ability to support these services. These include low growth rate, low labour productivity, low resource mobilization capacity, high external dependency and an underdeveloped private sector.

The rate of growth in GDP terms declined from an average of 5–6 percent in the 1960’s to an average of 4 percent during the 1970’s and then to a perilous level of one percent in the 1980–85 period. This decline grossly affected income per capita and the provision of social services because the rate of population growth was 2.8 percent per year. This situation forced the Government to accept the IMF/World Bank recommendations for a Structural Adjustment Programme (SAP) in 1982 and an Economic Recovery Programme (ERP) in 1986 after several years of wrangling and failure of the Party’s own recovery programme (National Economic Survival Programme, NESP, 1981). The ERP years saw some recovery in the GDP growth: 3.6 percent in 1986; 3.9 percent in 1987 and 4.1 percent in 1988 (URT 1988).

Labour productivity declined in virtually all sectors. The decline resulted from many sources: under–capitalization, failure in water and power supply, over–employment, under–utilization of available capacity (generally less than 50 percent), inadequate incentives, mismanagement, embezzlement of funds, etc. Among the worst cases was the manufacturing sector whose labour productivity declined by an average of 2.9 percent during the 1965–75 decade and 3.9 percent during 1975–85 decade.

Resource mobilization capacity, through taxation, has remained low. Tax–GDP ratio averaged 20 percent during the 1978–88 decade, but could have doubled with more effective tax management. In nominal terms, tax revenue grew steadily from Tshs. 5.5 billion in 1977/78 to Tshs. 43.0 billion in 1987/88. However, not all taxes grew at the same rate. Taxes on income, property and import duties were slower than those on goods and services (indirect taxes) which grew the fastest (Osoro 1990: 53–56), contributing over 60 percent to the total tax revenue (Due and Meyer 1989:62). This dependence on indirect taxes (on consumption goods and services) rather than direct taxes (on income and property) tends to protect the rich while penalizing the poor. There have been efforts to make taxes on wage income progressive, but in recent times this has ceased to have an equalizing effect since those in higher income brackets have non–salary ways of getting untaxable incomes which are several times higher than their official pay.

The other taxes have faced various problems of administration. Import, excise and sales taxes have been passed over to consumers in the absence of effective enforcement mechanisms, and they are undervalued by customs officials in collusion with unscrupulous businessmen. In 1989/90, for example, the Government suffered a loss of Tshs. 37 billion in these sources due to shoddy deals which disregarded tax rules. Export tax started going down since the “export drive” policies introduced in the mid–seventies, and further enforced by the liberalization policies of the mid–eighties. Currently it accounts for less than 3 percent of total tax revenue. Despite the country’s egalitarian policies, no adequate effort has been made to subject property to taxation; for example it is only now that urban and rural authorities are considering it as a potential source of revenue.

Dependency has remained high and growing despite efforts to change the structure of the economy. Apparent “successes” can be claimed in the change of the composition of imports which has somewhat shifted from consumer goods to intermediate production inputs and capital goods, indicating that the import substitution

industrialization strategy has had some effects (Wangwe 1983, 1988, 1990). The claim is supported by the fact that whereas only 30 percent of the total supplies of manufactured goods were produced locally in 1961, the figure had risen to 60 percent by 1985 (Silver 1984; World Bank 1987; SADCC 1988). However, the import substitution strategy has made local production more import-reliant, and during the ERP years in particular, such production has depended heavily on import support. The share of aid in the country's development has been increasing despite the policy of self-reliance. Thus external dependence of the government budget rose from an average of 36 percent in the 1962-69 period, 47 percent during 1975-80 period to around 50-60 percent during the ERP years (1986-1991). Ironically, during this "recovery" period a large part of recurrent costs (including salaries) was being met by external funds.

The economic shocks of the 1970's triggered by rises in oil prices and internal calamities were partly responsible for the demand for massive external aid in Tanzania. The 1974 four fold increase in the world market price of oil raised the cost of imports and by 1976, the cost of oil imports alone was 900 million Tshs. enough to nearly exhaust all reserves Tanzania had in 1973. Because of the severe drought of 1973-75, grain production was reduced and the imports of cereals rose from 12,000 tons in 1972 to 521,000 tons in 1975. The increase in food imports was of greater significance than the rising oil prices. To make things worse there was a four fold increase in the world market grain prices. In addition starting 1975, both the prices and quantities of the export crops declined while the price of all imports increased. Almost overnight the terms of trade were dramatically changed and has continued to get worse since then.

The increased import bill had a dramatic impact on the balance of payments. By December 1974 there was a negative balance of Tshs. 87 million and the first drawings on the facilities of the International Monetary Fund (IMF) of Tshs. 423 million were made. The nutrition related Government's response was a strategic package aimed at:- (1) increasing retail prices of both agricultural and basic foods; (2) increasing minimum wage by 40 percent; (3) budgeting of foreign exchange and credit; (4) limiting expansion of free social services to adult and primary education, rural health services and agricultural extension; and (5) strong mobilization of external finance.

These were backed up by food sufficiency campaigns and programmes like the World Bank financed National Maize programme (1974-76); the "Kilimo cha kufa na kuona" (Agriculture as a matter of life and death) campaign (1973-74) and the "Chakula ni Uhai" (Food is Life) campaign. It is also significant to note that it was at this time (November 1973) that the Tanzania Food and Nutrition Centre (TFNC) was formed and the national Maternal and Child Health (MCH) programme was started.

The cost of those shocks to the government has been estimated at US\$ 1,743 million, including some US\$ 630 million to meet oil bills, US\$ 500 million for the war against Amin of Uganda, \$ 423 million for food imports due to droughts and floods and \$200 million for building the country's own transport and communication infrastructure following the breakup of the East-African Community. Considering that the total value of exports at the end of the seventies was only about \$ 500 million annually, it is clear that the country had to resort to external borrowing, thereby swelling the external debt (Wagao 1990; URT_UNICEF 1990:6).

External debt is currently threatening economic recovery and the welfare of the people in general. Tanzania's external liabilities increased rapidly in the seventies and eighties, reaching US\$ 4.2 billion in 1986 and over \$5 billion by 1989. As a proportion of the GNP, total long-term debt disbursed and outstanding increased from 42 percent in 1976 to 59 percent in 1984, and further to 165 percent in 1988. Debt service increased from 6 percent in 1976 to 20 percent during the 1985-88 period. Actual figures of debt service are substantial for the country's economy. In 1988, for example, they were US\$ 309 million before rescheduling and \$222 million after rescheduling. Interest service payments rose from about 2 percent in 1976 to over 10 percent in 1987 (Lyakurwa 1990:43-46). Scheduled debt and interest service repayments were among the mandatory conditionalities in the ERP package. Thus Tanzania had to pay US\$ 460 million at the start of the programme in 1986 compared with her export earnings of under \$400 million that year. As a proportion of the government budget, National budget Servicing has been high, between a quarter and a third of the budget between 1986 and 1991. In 1986/87 it accounted for 25 percent; 31 percent in 1987/88; 30 percent in 1988/89; down to 25 percent in 1989/90 and up to 30 percent in 1990/91. Such a burden, even with rescheduling, has ironically meant sacrificing a substantial component of recovery, especially in the social service sector, in order to meet the conditionalities of recovery.

Unless these external obligations are written off it is difficult to see how the government can continue to support nutritional and social welfare programmes. The rate at which interest on loans accumulates is clear evidence that the government cannot get out of the aid trap. For example, interest on external debt arrears rose from US\$ 4 million in 1980 to \$ 183 million in 1985 just before the big money (over \$ 700 million for 1986-88) was allocated for ERP. At this rate of accumulation, the state will reach a point where it borrows in

order to pay debts rather than to invest in the recovery programme. At the end of ERP1 (1986–89), the government admitted its inability to meet the cost of the essential services and welfare programmes for the poor members of society was constrained by its purse and aid conditionalities. It, therefore, invited the private sector to make a contribution. The predicament is that the indigenous private sector is still under-developed while the more developed migrant Asian sector operates underground and is externally oriented. (The Asian community in Tanzania hardly invests in rural development or service projects. It is engaged in urban-based commercial and (light) industrial activities. It acts as a link between Tanzania and external commercial/industrial magnates, and has been a vehicle for resource transfer abroad through legal and illegal import-export activities and smuggling of foreign currency and valuable natural resources, especially minerals and ivory. It has gained most from the country's liberalization policies, especially from the "own fund" import scheme and the Open General Licence (OGL). It has developed its own underground financial institutions ('banks' and credit systems) to avoid the bureaucratism of the official ones, and to facilitate shoddy deals).

Liberalization and Privatization

The decision to nationalise the "commanding heights of the economy" in 1967 increased the role of the state economy, and until the mid-eighties the economy depended on what Kornai (1986) described as "bureaucratic coordination" as opposed to "market coordination". Bureaucratic coordination is a vertical relationship within an institutionalized multi-level hierarchy. The state bureaucracy is the chief allocator of resources using administrative coercion, and subordinates are financially dependent on the superiors. On the other hand, market coordination is a horizontal non-hierarchical relationship using the price mechanism, with motivation being based on financial gain (Eriksson 1991).

Emphasis on bureaucratic coordination led to several distortions in the economy. First it led to gross distortions in institutional behaviour and pattern of resource allocation. Second, it made the economy uncompetitive and essentially a seller's market defined and controlled by the state bureaucracy. Third, there was no proper definition of the economic space for the private sector. These operated semi-illegally, draining resources from the state economic bureaucracies, and by the end of the seventies a thriving informal sector styled "the second economy" had entrenched itself. The estimated value of the second economy during the 1979–86 period was 21–31 percent of official GNP, then settling about 22 percent during the 1986–88 period as the official economy picked up following trade liberalization and the release of ERP funds (Maliyamkono and Bagachwa 1990; Bagachwa 1989 and 1990; Kiondo 1990).

The second economy was mainly a response to the scarcities of basic consumer items, fuel and staple foods which had become widespread leading to extensive government controls, with essential goods rationed through special permits. Income generating activities called "miradi" became a key feature to survival in different parts of the country. The urban high and middle classes ended up tending gardens and raising chickens or cows in their residential areas to be able to get extra incomes. Small businesses by women were often the major source of income to purchase the rationed food. In rural areas, where the crisis was not as great, poor peasants suffered the most as they had to hire themselves to the wealthy farmers as labourers. Public sector employees found that they had to request for additional favours in order to make ends meet. Free social services started to be charged by the service providers. The country's social accomplishments eroded rapidly as national interests were gradually shaken by the desire for individual and household survival. The anti-economic sabotage battles which started in 1983 represented struggles between the two economies or between bureaucratic coordination which empowered the elite, and the market coordination favoured by private entrepreneurs, IMF, IBRD and most western donors.

The struggles initially led to stronger bureaucratic coordination with nation-wide controls concentrating government efforts on distribution leading into a further decline in production and a cumulative growth in smuggling, racketeering, corruption and "black markets" from which the nation is yet to recover. The struggles and the resulting liberalization and privatization policies resolved the conflict in favour of market coordination. The main pointers to this conclusion include the following:–

- a) imports were deregulated under the "own fund" import scheme introduced in 1984/85. The response to this confirmed that private people had exported substantial amount of foreign exchange to overseas banks through the second economy. For example between July 1984 and December 1985, the value of licences issued to imports of consumer goods through this scheme amounted to 57 percent of the total value of licences issued for consumer imports, and about 30 percent of all the import licences issued was under this scheme (Ndulu 1987). By 1986 the value of the "own fund" imports was estimated at US\$ 250 million or 27 percent

of total imports and over 70 percent of recorded official exports (Maliyamkono and Bagachwa 1990).

b) The export drive started in 1976 following the economic shocks of the seventies was further encouraged after liberalization policies of 1984. An export retention scheme was introduced so that the private entrepreneurs who exported non-traditional products could retain part of their earnings in foreign exchange. This incentive led to the export of all sorts of products, including rare woods and birds. Uncontrolled, this may lead to the depletion of rare species.

c) An Open General Licence (OGL) facility was introduced in 1988. This enabled importers of specified goods to receive foreign exchange automatically against their local currency. This facility has filled the shops (especially in urban areas) with an impressive assortment of consumer goods, but two snags exist. First, with the decontrolled prices, the goods are not affordable to the poor households. Second the facility seems to benefit the externally oriented Asian business community more than the up-coming indigenous commercial class, thereby creating tensions between the two. Presently, there are strong calls for indigenization of the economy and the Asians have been called upon to integrate and operate more transparently.

d) State subsidies to urban consumers (maize flour) and rural producers (farming inputs) were scrapped in 1984. This was followed up by a policy of reducing subsidies to ailing state corporations and proposed sale of those which had proved to be beyond repair.

e) During 1991, the Party National Executive Committee (NEC) made a resolution which permitted the workers and Party members to acquire shares in state and private firms. However, to date no guidelines have been issued to that effect, and it remains unclear as to how poorly paid workers can "buy" shares in these firms.

d) There has been a clear switch of preference from communal/cooperative entrepreneurs and farmers to private ones as far as credit and extension services are concerned. With regard to the farming communities, the *ujamaa* mode of production had already been weakened by the "new" agricultural policy of 1983 which, among other things, permitted private large scale farmers to acquire long-term lease of agricultural land, and these have continued to encroach on village land with tacit support of the state bureaucracy.

e) In 1990 the Parliament enacted an Investment Code which defined more clearly the economic space for private entrepreneurs, both local and foreign, and provided liberal incentives. An Investment Promotion Centre (IPC) was also established to administer the code and to facilitate would-be investors. A major criticism of the Code and the Centre is that they have focused more on the attraction of external capital than on the creation of an indigenous capitalist class. Like the OGL, it may also end up benefiting the Asian commercial class more than the infant African commercial elite. Laws permitting private banking and liberalization of foreign exchange were passed during 1991/92. Already the National Bank of Commerce and several private Bureau-De-Change have started operating. Two international banks, the Standard Chartered Bank and Meridian were expected to start business in April, 1993.

h) Economic liberalization has also led to pressure for political liberalization, and the ruling Party, CCM, has been compelled to take measures in that direction. One measure has been the reduction of party control over civil institutions such as worker's unions and peasants' cooperatives. A second measure was the dissolution of Party branches at places of work. The third was the adoption of a multiparty system. This ended the monoparty system legislated and embodied in the Constitution since 1965. Multi-partyism became effective in Tanzania on July 1st 1992. By April 1993, eleven political parties including CCM had been given permanent registration.

Despite all these changes, the economy still remains mixed, with both bureaucratic and market coordination. On balance, however, administrative controls still dominate over market forces as far as resource allocation is concerned, and the state remains the employer of the majority of the labour force.

The impact of structural adjustment

By mid-1993 Tanzania would have concluded seven years of economic stabilisation and adjustment efforts with the IMF, the World Bank and bilateral donor support and in some ways lived through nine years of a number of transitional measures of partial liberalisation of foreign and internal trade introduced first in the budget of 1984.

During the early 1980s, afraid of possible negative social effects of adjustment, the Tanzanian government of former President Nyerere, resisted strong pressure exerted by the IMF/IBRD to implement a stabilisation and/or structural adjustment programme. Instead, the government designed two "home grown" programmes to come out of the economic crisis. The first was the "National Economic Survival Programme (NESP)" in 1981 which aimed at increasing industrial output, attaining food self-sufficiency and rehabilitation of the export sector. However, the programme collapsed in one year because it was partly ill-conceived and implemented but mainly because it did not receive backing from the IMF/IBRD. In 1982-85, the NESP was replaced by the second "home grown" programme, a structural adjustment programme (SAP) which was designed with the support of the World Bank sponsored Tanzania Advisory Group. Although both "home grown" programmes contained elements favourable to the IMF/IBRD position, they were nevertheless considered inadequate to enlist support from these institutions. Lacking this support, and because international and bilateral donors suspended or cancelled their aid programmes, the economy further slipped into a foreign exchange crisis forcing the government to accept the IMF/IBRD stance.

With the new government of President Mwinyi taking office in 1985, a combined government and World Bank Consultative Group formulated the first three year Economic Recovery Programme (ERP1) in 1986 followed by a second three year Economic Recovery Programme (ERP2) incorporating a Priority Social Action Programme (PSAP) in 1989. This in effect, smoothened the unevenness and hesitation which characterized the extent and direction of economic and political structural changes during the early 1980s with a consensus emerging in favour of a market economy and political pluralism. The necessary legal adjustments have already been made to accommodate these changes. Despite the recent threats to peace by an Islamic fundamentalist group, Tanzania seems to have gone through very fundamental and thorough economic and political changes peacefully without substantial political resistance. Most intriguing, is that these fundamental changes have been brought about, albeit with some pressure, by the same leaders who used to advocate for state control of the economy and the supremacy of the single party. Historians, political scientists and economists will find the 1985-1995 decade an exciting period to carry out research and draw lessons for the future.

The Government's implementation of institutional changes for economic and political deregulation will take time to be completed and their full impact to be felt. The social and economic impact seem to be mixed. Preliminary impressions indicate a disturbing growing economic and political polarization because the adjustments have imposed severe costs on some and generated apparent benefits to others. Many poor people have found it difficult to take advantage of the freed market and do things which just some few months previously carried prison sentences. As a result some poor people have become poorer because of the devaluations which were not matched by increase in incomes.

Economic impact

By any standards, Tanzania's economic recovery programme can be termed a modest success [Economic Research Bureau and Planning Commission, 1990]. Over the period 1984-89, real growth in GDP averaged 3.6 percent per annum compared to a population growth of 2.8 percent. Official statistics show that the economy grew from 0.3 percent in 1984 to 4.4 percent in 1989 declining to 4.2 percent in 1990 less than the ERP's projection of 5.0 percent; but enough to impress any economist. This growth may be an underestimate as the official statistics do not include the "second economy" and in view of the rapid expansion of unrecorded economic activities during these years. The additional value of the "second economy" which is not reflected in the official statistics, and includes the value of illegal trade was estimated to be between 21 and 31 per cent of official GNP between 1979 and 1986 increasing over time [Bagachwa, 1990]. In 1988 the estimate was 22 percent of the GNP a reduction attributed to the picking up of the official economy [Bagwacha, 1990]. This is in sharp contrast to the growth in the early 1980s which on average was negative.

However, the improved performance of the economy remained crucially dependent on aid flows and a spectacular increase in both export earnings and government revenues is needed in order to extricate the country from the large external and fiscal deficits. Moreover, the current economic international developments are not favourable for Tanzania. The state of the world coffee market is poor; oil prices are still escalating; and the sluggish growth in the major industrial economies provide a poor external environment. Also the collapse

of the Soviet Union and other events in Eastern Europe has generated substantial competing claims for limited international financial resources.

Overall, there has been an impressive statistical economic growth, with a spectacular improvement in the availability of essential goods and commodities. However, there have also been winners and losers resulting in an economic polarization, eroding the equity policies and programmes of the 1960s and 1970s. While the economic reforms resulted in spectacular increases in the prices of food and other goods, for the majority of people real incomes have been declining reducing their access to the essential goods and services.

The immediate major benefactors of the good economic growth have been those entrepreneurs who are in a position to take advantage of the reforms. Such entrepreneurs have been those able to mobilize investments, foreign exchange and who can put cash cover for imports. As earlier noted because of historical reasons such entrepreneurs have been the externally oriented Asians and a few indigenous Africans creating both economic and social tensions which have become publicly manifest for the first time since the nationalization wave of the late 1960s. Both the African entrepreneurs and some political parties are accusing the Asians of causing external capital flight and marginalizing the Africans through corruption and social isolation. The Asians blame this situation on the Africans who wield political power and use it corruptly by accepting bribes. While this indigenization debate is good in bringing up submerged tensions under the one-party system, the racial overtones that it sometimes carries is a cause for alarm. It is hoped that the debate, will end in a balanced peaceful economic and social co-existence which has been a source of pride for Tanzania in the thirty two years of independence.

The SAP also resulted into an economic polarization between the business section on one hand and the workers and peasants on the other with the poor becoming even poorer. In addition considerable time lag may occur between the reforms themselves and their impact in the rural areas especially for Tanzania's "uncaptured peasantry". For example studies show that there was a substantial time lag between the macro-price policies and their impact at the micro-level in terms of effective incentives to producers [TARDEG, 1991]. As a result agricultural production was not stimulated to the extent expected. The mainly political sequencing and timing of the reforms alienated some of the groups from participation in the reform process turning some of them into potential enemies of further liberalisation. However, in the longer term improvements in transportation and communication infrastructure and in crop marketing institutions may be favourable to small farmers and other low income groups. Thus, in the short term, there is no question that deliberate policies and strategies in favour of the economically disadvantaged groups will need to be pursued to ensure that they are not left behind in improved access to agricultural inputs and technologies; and to social services. A larger social "safety net" than that encompassed in the Priority Social Action Programme (PSAP) would need to be made in order to adequately capture the most socio-economically vulnerable groups.

Social impact

Government hesitancy to fully implement cost sharing in the social services is indicative of such fears. This can be understood for a government which has largely built its credibility on the provision of "user free" social services. A mental and behavioural adjustment is also needed. There is also a growing concern about increases in the number of people who are unemployed partly because of both a freeze in employment and pruning of workers in the public sector which remains the major employment sector. The structural adjustment programme undoubtedly further compounded existing problems of unemployment, underemployment and overall poor utilisation of human resources. Faulty human resource development and utilisation policies have played their part in making the search for solutions more difficult.

The transitory negative effects of the reforms on food accessibility can be seen from the continued rise in both the general consumer and food price indices. During the early 1980s the consumer price index rose by more than 30 percent until 1989 when the annual rise declined to 26 percent [Doriye, 1990] negating any benefits which might have arisen from increases in producer prices, wages and salaries. This affected negatively economic access to food. Until 1990, when a decline started to be noted the food price index was fluctuating at a higher level than the general national consumer price index (NCPI).

Extended family system safety nets are breaking down and the stress on the capacity of the traditional caring systems brought about by the emergence of AIDS has led to the emergence of the new phenomenon of "street children". Public health care systems have continued to deteriorate rapidly with private care and health supplies emerging mainly in urban areas just as fast to save the situation but only for those who can afford.

The "egg and chicken" analogy with respect to structural adjustment and social deterioration is pertinent. While it is common to put the blame on the adjustment, we have no information on any developing country

which has started a structural adjustment programme before a substantial deterioration of the economy and social services has taken place. If the primary structure is to be adjusted, certain secondary structures would have to suffer temporary demolition before being rebuilt. Or as President Mwinyi has responded to this issue “the pill is bitter, but if we have to cure the malaria we must take the chloroquine. The bitterness is temporary, but if we do not take the pill or we take it at a low dose, we shall die of the malaria.” We would want to believe that the negative effects are transitory and that the social dimension of adjustment programmes will be able to respond adequately to these negative trends in the long run.

Pattern in sectoral resource allocation

The pattern of resource allocation is the third set of cluster of variables affecting nutrition directly. How much is allocated to nutrition programmes will depend not only on policies or economic status, but also on institutional behaviour. Thus the pattern of resource allocation is also an indicator of the values and priorities of decision makers on policies relevant to nutrition. We shall, therefore, briefly discuss the current behaviour of Tanzania’s institutions which, we believe, distorts formal policies, the economy and the pattern of resource allocation.

Institutional behaviour

A historical analysis of institutional behaviour in Tanzania indicate dual values held by the state [Mushi and Baregu, 1990 and Mushi, 1989]. One is the need for the central leadership to widen its “political space” for effective control of national activities. The second is the need to also widen the “political space” of local communities for purposes of empowerment and participation. Thus the growth and behaviour of institutions in Tanzania reflect the complementarity or conflicts in the implementation of policies or strategies meant to achieve these two values. Generally, there has been a tendency to form new agencies or formulate new policies in an attempt to manage the challenges of development including the improvement of the nutrition situation. At the same time there has been a tendency to shift from institutions of community control to institutions of central control including the re-centralization of whole ministries as a response to problems related to decentralization. Thus a paradoxical situation has arisen whereby while political pronouncements, policies and strategies clearly stress community empowerment and decentralization of power and resources, policy and decision makers have a centralist behaviour in practice. The low budgetary allocation to sub-national institutions described later is the strongest pointer to the centralist control behaviour.

During the first six years after independence the main institutional behaviour was related to preoccupations with state building and decolonization of inherited institutions. The racially based tripartite system of social service delivery was abolished. Likewise the tribal “native” authorities responsible for local social services like primary education and medical care were abolished and replaced by district councils. In order to organize and mobilize local effort village and ward development committees were established and were responsible for the work of the Community Development Programme which resulted in a peak self-help activities in the mid-sixties.

These institutional reforms were consolidated and further widened following the Arusha Declaration of 1967. The Declaration placed emphasis on socialism and self reliance and saw the rural areas and the agricultural sector as the major starting point with people’s efforts as the primary inputs. Collectivisation of rural communities and decentralization with the twin objectives of community empowerment and development; and social services delivery were the main institutional features between 1967 and 1975. Examples of community empowerment and development include the introduction of the Rural development fund (RDF) in 1967; the appointment of Zonal Economic secretaries to undertake zonal planning in 1968 and the introduction of annual regional planning as part of the annual national planning in 1971/72. Other examples include introduction of workers participation through workers councils by a Presidential directive in 1970; the 1971 “Mwongozo” (TANU guidelines) which upheld peoples rights to make decisions relating to their own development and welfare; the decentralization reform of 1972 which delegated planning authority to the regions and districts and given a growing share of the available national resources; and the Village and Ujamaa Villages Act of 1975 which created village governments with authority to raise revenue locally and plan their own development. With regard to social services delivery, the Arusha declaration itself emphasized villagization to enable efficient provision of social services. This was followed up by the 1973 Party directive on free and equitable distribution of rural water, education and health.

In adjusting to the economic decline of the last half of the 1970s the government and the Party shifted their emphasis from institutions of community empowerment to institutions of central control. As a result long established grassroots institutions were weakened or altogether abolished. For example the peasant interactive Cooperative Unions were abolished in 1976 and replaced by centrally based Marketing Boards which were strengthened and renamed Crop Authorities. The crop authorities were only for cash crops and the marketing boards for food crops such as maize were abolished altogether. The formation of many industrial under-capitalized parastatals shifted the focus of Credit institutions from village governments and cooperatives and economically weak groups to the emerging commercial institutions.

At the same time the Party (TANU) adopted a policy of Supremacy in 1975 which ideologically was supposed to empower the people but which in reality killed grassroots democracy and initiatives and facilitated top-down governance. According to the policy of Party Supremacy, the Government including the Constitution was subservient to the Party and the Party was supreme in all national matters. This was reinforced by the 1981 CCM guidelines (Mwongozo wa CCM). The introduction of multipartism in 1992 abolished the concept of Party Supremacy.

As the economic decline of the 1970s deepened into the economic crisis of the 1980s the Government's policy-institutional changes in summary reverted to that which existed during the first five years after independence. Between 1982 and 1984, Local Government and Cooperative Unions were re-introduced and crop authorities were reformulated with some reverting to marketing boards. From 1984 to date (1993) a process of "shedding off" responsibility to grassroots institutions has been taking place with less government and Party control of both the economics and politics. These frequent changes in national institutional behaviour results into response complacency by the rural communities and may be a reason why rural life in Tanzania remains to a very large extent unaffected by changes in institutional behaviour.

One outcome of the use of bureaucratic coordination of the economy has been what some people have described as "soft budget" constraints, defined as lack of strict financial discipline on the part of public institutions and the state generally. Budget restraints exist in the books, but in practice, they are not strictly binding and can be "stretched" at the will of higher authorities. As Kornai (1979:806-808) put it in connection with his Hungarian studies: "The paternalistic state guarantees automatically the survival of the firm." Studies in Tanzania's institutional behaviour (World Bank 1988; Hyden 1990; Moshi 1990; Ngowi 1990; Eriksson 1991) have attributed poor economic performance and resource allocation problems to the phenomenon of "soft budget" or "soft state". We can summarize this softness in ten orientations and tendencies:

- (1) Government subsidies are soft because they are negotiable and adjusted to cover cost overruns;
- (2) Taxation is soft because it is subject to bargaining and political pressures; and fulfilment of tax obligations is not enforced strictly;
- (3) Credit is soft because it is not based on evidence of good performance or security; it is used to bail out ailing state corporations and cooperative unions without any hope of repayment. This has been facilitated by the fact that all financial institutions are state-owned.
- (4) Planning is soft because both the mechanism and the will to control its implementation are weak; and central allocation of planning resources to regions, districts and villages is discretionary, i.e. the proportion is not fixed by law and, therefore, varies from year to year depending on political calculations.
- (5) Bureaucratically determined prices are soft because they are subject to pressures from producers and consumers, and are set on a cost-plus basis which encourages inefficiencies;
- (6) Import support is soft because it is available even to institutions which cannot recover, and much of it is not subject to import taxes;
- (7) Incentive packages are soft because they are in most cases not linked directly to performance; where linked, non-performance is not penalized or is not seen to be penalized.
- (8) Financial discipline is soft because the mechanisms for enforcing it are either absent or ineffective, with the result that even "the distinction between recurrent and capital expenditures has become blurred, leading to many recurrent activities being supported in the guise of development projects" (World Bank 1989-9);

(9) Policies are soft because they do not always operate within the law; for example, the liberalization policy initiated in 1984 operated for several years before being sanctioned by a legal Investment Code (URT 1990) and legal protection of private property rights is still incomplete, creating uncertainties in the private sector;

(10) Recruitment of staff is soft because (a) for executive positions (e.g. in the public economic firms) is often based on political record (e.g. one's standing in the Party) rather than on merit; (b) for junior staff, non-observance of recruitment regulations has led to overstuffed bureaucracies despite two reduction exercises (1976 and 1984).

Resource Allocation

These institutional tendencies and orientations affect the pattern of resource allocation directly. Available data indicate that budget allocation during the 1980's tended to favour the sectors which can "bargain" effectively in the budgetary process – (1) the consolidated funds and other special expenditures; (2) central institutions; (3) administration, and (4) defence and security.

In the recurrent budgets of 1988/89 and 1989/90, for example, the State House-controlled consolidated funds and other special expenditures claimed 44 percent. This high proportion enables the highest authority of the "soft" state to exercise a great deal of discretion in resource allocation, and the funds help the regime to accumulate political capital. Such funds can be – and often have been – put into good use, including promotion of nutrition and other programmes for the poor. However, it means very little is left for allocation to regular programmes of other sectors. Allocation of the remainder in 1988/89 was 41 percent for ministries and only 21 percent for regions and local authorities. The corresponding figures for 1989/90 were 42 percent and 13 percent respectively (table 2).

This pattern shows a clear bias in favour of central institutions. The bias is even more pronounced in the development budget which in 1988/89 allocated nearly 90 percent to ministries and parastatals, leaving only 10 percent and 12 percent, respectively to grassroots institutions (table 2). When the Decentralization Reform was introduced in 1972, it was stated that about 40 percent of the Government Budget would go to or have impact in the regions each year, and more was expected after re-introduction of local authorities in 1983. However, direct budgetary allocations to the sub-national authorities (excluding central government subsidies to local councils and discretionary use of consolidated funds) has never been more than 15 percent.

Table 2: Allocation of Recurrent and Development Budgets, 1988/89 and 1989/90 Tshs. (millions)

| Year | | 1988/89 ² | | 1989/90 ³ | |
|----------------------|-----------------------------|----------------------|-----|----------------------|-----|
| Budgetary allocation | | Tshs. (millions) | (%) | Tshs. (millions) | (%) |
| A. | Recurrent | | | | |
| | Total | 92.3 | 100 | 118.6 | 100 |
| | Ministries | 37.9 | 41 | 50.3 | 42 |
| | Local authorities | 10.2 | 11 | 10.8 | 9 |
| | Regions | 9.2 | 10 | 5.3 | 4 |
| | Other ¹ | 41.0 | 44 | 52.2 | 44 |
| B. | Development | | | | |
| | Total | 15.7 | 100 | 22.7 | 100 |
| | Ministries & Parastatals | 14.1 | 90 | 19.9 | 88 |
| | Regions & Local Authorities | 1.6 | 10 | 2.8 | 12 |

Note:

1. Includes consolidated funds and special expenditures
2. Actual allocations
3. Estimated allocations

Source: URT 1990, table 18, p.59

Budgetary allocations to different government services and activities during the 1986/87–1990/91 period (ERP years) indicate several disturbing features (table 3).

First, average allocations to three activities – administration (22.6 percent), state security, including defence, police, prisons, national service and regime security (16.4 percent) and servicing the national debt (28.3 percent) – consumed 67.3 percent of the government budget. To this figure should be added not less than 10 percent “leakages” resulting from bureaucratic corruption, bringing the total to 77.3 percent.

This analysis would suggest that the amount going into actual “development” activities (e.g. purchase of equipment, tools and inputs; buildings and construction of essential physical infrastructure) would probably be no more than 20–30 percent. This is a thin Salamis indeed considering current prices of essential (mostly imported) development inputs.

Second, allocations to the basic social services have generally declined relative to the other sectors. Whereas allocation to education averaged 17 percent during the early seventies, it averaged only 6.3 percent during the 1986/87–1990/91 period, a decline of over 60 percent. Health allocations fell from an average of 7 percent to an average of 4.7 percent during the same period, a decline of about 33 percent.

Table 3: Budgetary Allocations to Different Government Services 1986/87–1990/91 (Percentages)

| Services | 1986/87 | 1987/88 | 1988/89 | 1989/90 | 1990/91 |
|---|--------------|--------------|--------------|--------------|--------------|
| Administration | 22.2 | 23.0 | 22.8 | 25.0 | 20.0 |
| Security | 7.0 | 6.5 | 6.0 | 7.7 | 6.3 |
| Defence | 14.4 | 10.4 | 9.0 | 8.5 | 6.2 |
| Education | 6.4 | 5.4 | 5.7 | 7.2 | 7.0 |
| Health | 4.5 | 4.5 | 5.0 | 4.4 | 5.0 |
| Water and Sanitation | 2.0 | 2.0 | 2.1 | 2.1 | 2.5 |
| Other Social Services | 3.1 | 3.8 | 3.3 | 3.6 | 3.1 |
| Transport and communication (of which roads and bridges is) | 5.4 (4.5) | 4.8 (3.0) | 4.7 (2.9) | 4.5 (2.4) | 8.2 (2.7) |
| Agriculture, fishing and forestry | 6.4 | 5.3 | 5.4 | 5.0 | 5.8 |
| National debt servicing | 24.9 | 31.3 | 30.4 | 25.0 | 30.0 |
| Mining, industry and construction | 2.8 | 2.5 | 2.1 | 2.4 | 3.0 |
| Others | 0.6 | 0.5 | 3.4 | 4.1 | 3.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Notes:

1. Administrative costs include costs for foreign affairs (embassies, etc)
2. Security include police, prisons and state security.
3. Other social services include housing, community development, environmental sanitation, etc.

4. Transport and communications includes roads, bridges, sea and lake transport, and telecommunications.

5. Other services include financial and tourist services and provident fund payments.

Source: URT 1990, p.60 worked out from table 19.

Allocations to all the basic social services put together (i.e. education, health, housing, community development, environmental sanitation, etc) fell from an average of 25 percent in the seventies to an average of 14 percent during the ERP years, a decline of 44 percent. In comparison, defence allocations increased from 12 percent in the 1970s to 14 percent in 1986/87 being at par with all the social services put together. Since then, there seems to be an encouraging decline in defence spending. This means that the decline in allocations for nutrition-related services has not only been affected by dwindling state funds but also by changing policy priorities and institutional behaviour (considering particularly the hiking administrative shares elaborated below).

Third, ironically, allocations to administration has been increasing at a time when productivity has been declining in virtually all sectors. Its share in the GDP rose from a low of 6.6 percent in 1965 to 9.9 percent in 1975 and then skyrocketed to reach 21.6 percent in 1985. Moreover, a large share of the social services allocation has been consumed by administration "can really constitute the dynamic sector in the process of economic transformation and recovery" (e.g. Wangwe and Luvanga 1990:6).

Fourth, even though the IMF-sponsored ERP policies insisted on directly productive sectors and activities, the actual allocation pattern does not bear this out. For example, whereas administration and state security (including defence, police, prisons, etc) claimed nearly 40 percent of the budget, other sectors which are key to 'recovery' had relatively small allocations: agriculture, fishing and forestry (5.5 percent); mining industries and construction (2.6 percent), transport and communications (5.5 percent), of which roads and bridges had 3.1 percent water and electricity (2.1 percent). Scaling down the costs of administration and defence by about 50% could easily double allocations to these sectors and lead to some recovery. Such a decision, however, would require unavailable political stamina.

A disturbing feature in the relation of the central government and local authorities has been the growing dependency of the latter on the former for allocation of subsidies for their recurrent and development budgets. A recent survey of ten district council budgets on Mainland Tanzania (Semboja and Therkildsen 1991:17) showed that they depended on central government subsidies to a total of 81 percent of their total expenditure, 79 percent of recurrent expenditure and 93 percent of their development expenditure. What is even more disturbing is that the ten councils dependency ratio had been increasing with time; whereas they were able to raise up to 40 percent from their own sources in 1984/85, they could raise only 19 percent in 1987/88. The situation is worse for districts with poor local revenue sources. Since current policy does not provide for preferential grants to compensate for this their capacity to finance critical services has been running down fast with inflation.

Resource allocation within districts has also been problematic, especially between the district council and village governments. Village governments act as agent for the district council in collecting the Development Levy from their areas (using the ten-cell leaders). In return, they are allocated 20 percent of the collections (with 3 percent going to the ten cell leader and 17 percent to the village government development account). Villages complain that this share (which is sometimes delayed or even withheld) is inadequate for their development projects, let alone meeting the growing costs of operation and maintenance of the social services in their areas.

The current situation is such that all the three levels of government admit inability to sustain the services established with generous external funds during the seventies, and all are looking upwards for assistance; village councils to district councils; district councils to the central government, and the central government to external financiers whose response has been declining. It is in this context that policies of cost-sharing and various self-help funds and schemes (described later) arose.

Since the community management strategy adopted in Tanzania calls for decentralization of resources from the central government to the regions; from the regions to the district; from the district to the wards and from the wards to the villages; institutional adjustments in financial and technical manpower allocations need to be made. Already the central government has created or reshaped two ministries directly concerned with local development. The Ministries for Community Development, Women Affairs and Children and Regional

Administration and Local Government were created in October 1990. The last mentioned ministry was later transformed to a department under the Prime Minister's Office in 1991. These ministries are strengthening districts so that they can provide enough stimulus for village development. There are also indications that strengthened districts have started to reorient the district planning process from a "blue-print top down approach" to a "process bottom up approach." This reorientation reinforces Tanzania's participative planning approach which for a long time has remained a "theoretical goal." There is also the need to increase the share of the development levy retained by the villages in order to enable the villages to maintain or expand their social services. Presently communities/villages perceive districts not as an institution for their development but as a state instrument of resource extraction. This negative perception of the district need to be corrected as the district will continue to be the most convenient point for the coordination of the implementation of various development policies and programme.

Institutional involvement in nutrition relevant actions

Tanzania has elaborate institutions which support various aspects of development and nutrition programmes. The word institution is used in a wider sense encompassing families, households; formal and none formal community organisations and Government and Party administrative structures. Level-by-level institutional analysis will indicate the institutional potential that exists.

The Household as an institution

Households are the basic institutional units of nutrition related actions. The first contact with the individual's outside world is the household; then the immediate neighbourhood followed by the village, ward, division, district and eventually higher levels. It is at the level of the household that malnutrition manifests; and it is the level at which the immediate causes of malnutrition are most apparent. Food supply, economic and social accessibility are more apparently determined at this level; so are the levels of caring capacity. The most immediate decisions with regard to nutrition are made at the household. Gender polarization and prejudices in favour of men are developed, entrenched and, therefore, most pronounced at this level. The effects of floods, drought, famine and other calamities is first felt at the household level. Even the economic and political reforms have their first impact at the level of the household. In the face of bombardment of the household by a number of various internal and external pressures, household coping mechanisms would justify a study on its own right.

At the same time the most effective nutrition related actions are done at the level of the household since for children households provide the resources and care needed to promote their survival and development. It is at the level of the household that all programmes are integrated. Community actions as done in the JNSP and CSD programmes have largely been effective because of household action. Children's meal frequencies were increased; growth monitoring was followed by individual action at the household level; the use of germinated flour "power flour" (Kimea) in increasing energy density is practised at the household. Thus the most important institution as far as nutrition behavioral improvement is concerned is the household.

The village/community as an institution

In Tanzania groups of approximately ten households are organised within a "ten cell" structure with an elected "ten cell leader". In the rural areas several ten cells are organised in villages. Villages were established under the local Government (District Authorities) Act no 7 of 1982 as a body corporate. The official organs include the village government consisting of an annual assembly of all adults and a popularly elected council of not more than 25 members. The council consists of three standing committees responsible for Finance, Planning and Economic Affairs and three other committees responsible for Social Services, Self-help activities and Defence or Security. In addition there are committees for services such as water, health, education, primary cooperative society, nutrition etc. Recently, most villages have also created cell committees to assist cell leaders in their social mobilizational and conflict resolution work. Other institutions include informal and traditional organizations and the village Party Branch which is fused with the village government through an elected Branch Chairman who is also the village chairman. The adoption of multi-partysm has led to changing this arrangement so that villages will be led by a government executive administrator rather than a Party chairman.

With this community–level network of formal and informal institutions, it should be possible to know by name any child, woman or household with or at risk of nutritional problems. The poor can also be easily identified. This information which is crucial for targeting purposes is supposed to be in the village register maintained by the Village Health Worker (VHW) under supervision of the Village Health Committee (VHC). The VHC is primarily responsible for primary health care. With training and support from trained Village Health Workers (VHW) the village health committee can monitor the growth of children and progress of pregnancies. Villages which have set up such monitoring systems have shown substantial improvements in the nutritional status of their children. This is because these villages have set up organised child feeding posts to provide additional feeding for young children with special attention to those who are malnourished. This model of affordable village based child care organisation systems are supported by self help contributions in kind or in cash. For example Village Government organised compensation for village health workers and self help construction of schools, trenches for water pipes health and other facilities are common in the CSD programme areas. Also in some cases it has been possible to follow–up parents of children who are malnourished, or who have not been fully immunized or recently weighed.

Experience so far indicates that the social impact of the operation of community groups and organizations can be monitored through the monitoring of children's nutritional status if growth monitoring is adopted as a management tool for the group or organization [URT/UNICEF 1990]. There is evidence to indicate that the village based monitoring of nutritional status and the social concerns about nutrition it has created offers good prospects for further development of community based actions for wider developmental issues when proper training and managerial support is given. Extension staff, mass media and theatre groups should be assisted in the development of local communications like newsletters, wall papers, community theatre etc and these successes should be studied and documented and lessons learned should be adapted in other areas.

Ward Level

A ward is formed by several villages. The ward is much more functional than the higher division level. Most government extension staff are concentrated at the ward level which is led by an administrator called the Ward Secretary employed by the District Council. The Ward Secretary is the secretary to the Ward Development Committee (WDC) which comprises of all government extension staff, the village chairpersons and secretaries and councillors resident within the ward. The chairman of the WDC is elected from among the village chairmen and councillors. The WDC acts as a bridge leadership between the village government and higher levels. It is at the ward level that village plans are coordinated before being forwarded to the District Council. WDCs are responsible for the dissemination of information including nutrition relevant information to the village communities. The role of extension staff is mainly supportive, promotional and demonstrational. The quality of leadership at both the village and ward levels have been found to be crucial in the implementation of community based nutrition programmes.

Divisional Level

At the divisional level, there is a Divisional Secretary and a few sectoral extension staff. The Divisional Secretary is a central government agent responsible for law and order as well as security of the state at that level, but like the Regional and District Commissioners, he also performs political mobilizational and advocacy functions. Divisional and Ward Secretaries were key actors in the Iringa Nutrition Programme (JNSP) and were provided with transport facilities to perform advocacy functions. They have continued to play this role in areas where the Child Survival and Development (CSD) programmes have been introduced.

District Level

Under Tanzania's decentralized government structure, districts are entrusted with all development programmes in the localities, except those which are undertaken directly by central or regional staff. They are responsible for delivering such basic services as primary and adult education, health, water and sanitation, community development services, and maintenance of district roads and bridges. They are also expected to coordinate the services rendered by NGOs and private individuals in their areas. Higher education and some aspects of health such as district and regional hospitals are the responsibility of the central government.

District Councils are popularly elected and have legal authority to raise revenue through taxes and other means. None of the councils has, however, been able to raise adequate revenue to cover all the services they are expected to provide, and the central government provides subventions each year. District–village links are partly achieved through the councillors who represent wards which consist of five to seven villages. Much of the district council's work is done through its own committees which cover six functional areas: Finance and Planning; Establishment and Administration; Social Services; Education and Culture; Economic Services and Human Development. Although district nutrition policy, strategies and programmes are considered the responsibility of the Social Services Committee, minutes of the other committees confirm that they all handle nutrition–related issue. These are mediated at the meetings of the full council.

In each district there is also a District Development Committee (DDC) chaired by the District Commissioner (DC), consisting of officials and a few councillors; and a District Implementation Team (DIT) consisting of sectoral heads and chaired by the District Executive Director (DED). Special nutrition–related programmes such as the UNICEF–supported Child Survival and Development (CSD) or the Swedish International Development Authority (SIDA)–supported Health, Education, Sanitation and Water (HESAWA) have a coordination office and a coordinator who operates within the established institutional framework. In most cases, the coordinators have been community development officers who work under the supervision of the District Planning Officer. Although the District Commissioner's official functions relate to law, order and state security matters, his mobilizational and advocacy work for nutrition related programmes has been significant in all districts.

Regional Level

There are no representative bodies at the regional level. Resource allocation functions are performed by official dominated Regional Development Committees (RDCs) chaired by the Regional Commissioner (RC). Implementation is overseen by a Regional Implementation Team (RIT) chaired by the Regional Development Director (RDD). Like districts, regions have been free to establish (non–statutory) special services committees or coordination offices for particular programmes (e.g. that of the Iringa JNSP or HESAWA in the Lake Regions). Earlier tendencies of these programme–specific bodies to operate outside the established regional or district institutional framework have now been brought under control. The regional institutional network is expected to provide expertise and other forms of support to the districts which, in turn, have to do the same for wards and villages.

At the district and regional levels, development plans and budget including nutrition related activities are discussed and approved. The process is extensive and involves Government and Party officials both elected and nominated including the respective members of Parliament. Technical and functional Government officers serve the committees. Led executively by the District and Regional Commissioners; and administratively by the District Executive and Regional Development Directors are 10 functional sectors. These are finance; planning; health; works (roads, buildings and mechanical); culture; natural resources (forestry, beekeeping and game); trade and weights and measures; lands (survey, valuation, and land administration); cooperatives and community development. The District and regional development committees (DDCs and RDCs) considers all development plans for the district involving local, central government and other external sources.

National Level

At the national level, there are many institutions whose policies and programmes have a direct or indirect impact on nutrition. Some ministries have focal points for nutrition related concerns. The Ministry of Health has the technical arm of the Tanzania Food and Nutrition Centre (TFNC) as a multidisciplinary autonomous institute created by an act of parliament in 1973, dealing with nutrition from a multi–sectoral perspective. Because of its multi–sectoral and multidisciplinary perspective, TFNC has largely succeeded in catalyzing nutrition action in many sectors.

In addition the Primary Health Care (PHC) programmes like the Institute of PHC based in Iringa, the Maternal and Child Health (MCH), family planning, Essential Drug Programme (EDP), Expanded Programme for Immunization (EPI), HIV/AIDS programme, Control of Diarrhoea Diseases (CDD), Acute Respiratory Infections (ARI) programmes, National Family Planning programme etc all have nutrition related components. Training of Rural Medical Aids, Medical Assistants, MCH–Aids and Nurses in the training institutes run by the Ministry of Health include nutrition in their curricula. There is also the National Food Control Commission

(NFCC) which has been created by an act of parliament which is chaired by the Managing Director of TFNC.

The Ministry of Agriculture has separate units dealing with Food Security and Nutrition. The Ministry of Agriculture Training institutes (MAT) in Ilonga, Kilosa district and Uyole in Mbeya all teach food production, home economics and nutrition.

The Ministry of Education has included nutrition in the curricula of primary and secondary schools. The Ministry of Community Development, Women and Children promote the nutrition improvement of women and children. The Planning Commission in the Office of the President has a directorate of Social Services and coordinates programmes for child survival under the National Coordinating Committee for Child Survival and Development (NCC/CSD). Recently the Commission formulated a National Plan of Action (NPA) for implementing the goals adopted by the September 1990 World Summit for Children and the June, 1991 National Summit for Children. The University of Dar–Es–Salaam; the Muhimbili College of Health Sciences; and the Sokoine University of Agriculture all have institutes or departments carrying out nutrition relevant work. The Tanzania Bureau of Standards (TBS) under the Ministry of Industries formulates standards for food stuffs as well.

The administrative structure in mainland Tanzania is shown in figure 3. Apart from ministries, there are many parastatal institutions which are centrally based but operate locally through their branches or outreach programmes. Three categories of parastatals and national institutions are particularly relevant to nutrition:

First, there are the banks: the Central Bank (or Bank of Tanzania) which, among other things, determines loan ceilings, allocates foreign exchange and controls interest rates; the National Bank of Commerce (NBC) which provides commercial credit and seasonal financing to rural producers; the Cooperative and Rural Development Bank (CRDB) which meets the bulk of credit needs of the rural producers; the Tanzania Housing Bank (THB) which provides housing loans to urban and recently rural dwellers; and the Tanzania Industrial Bank (TIB) which provides medium and long–term credit to industries.

Second, there are a dozen or so crop authorities operating in the food sector: the National Milling Corporation (NMC) which handles procurement, importation, processing, storage and marketing of major staples, including maize, wheat and rice; the Tanzania Fertilizer Company (TFC) which is responsible for fertilizers; the Tanzania Seed Company (TANSEED) which is responsible for seed research, multiplication and supply; the National Agricultural and Food Company (NAFCO) which manages large–scale food farms; the Sugar Development Corporation (SUDECO) which is responsible for several sugar companies; several state–owned (cooking) oil processing companies; and several state ranches and fishing firms.

Third, there are the official cooperatives controlled by the government and the party. These are organized from a national apex, the Cooperative Union of Tanzania (CUT) which formulates cooperatives policy as well as marketing crops, secure credit and supply farming inputs to villages; to the village–based Primary Societies which collect crops from peasants for sale to the unions, and distribute inputs to the peasants. Recently (March, 1993), the CUT was disbanded by the government because it was disowned by primary societies, who according to a reformist Cooperative Union's Act of 1992 are the ones which should form their own apex union. The CUT was a government imposition.

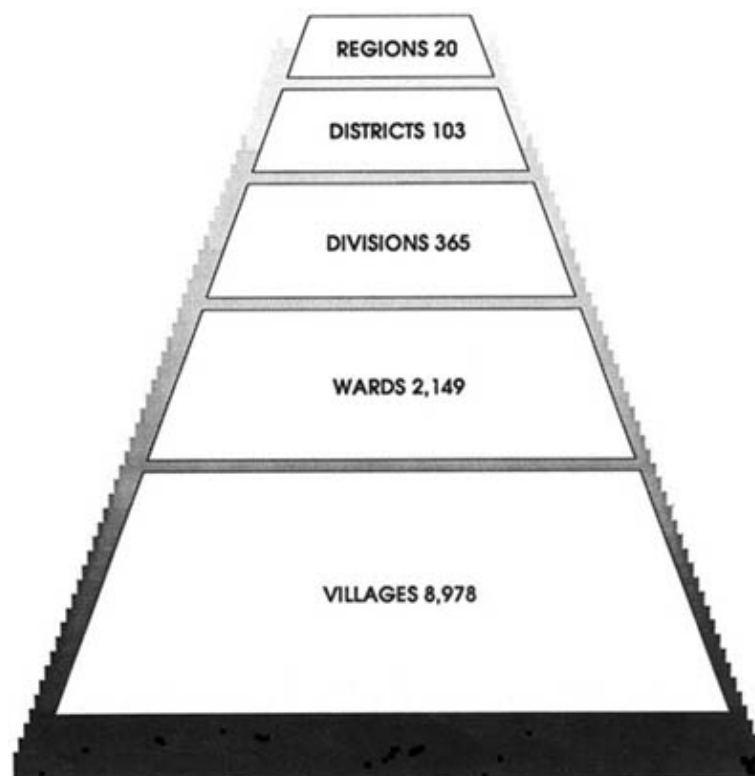


Fig 3: The administrative structure in Tanzania mainland (1991)

There are several other nationally based institutions which make a significant contribution to nutrition work. The most successful of this is the Tanzania Food and Nutrition Centre (TFNC) which is further described as annex to this report. Other institutions involved particularly in information and advocacy include Radio Tanzania, Party and State newspapers (national and zonal) and, recently, private newspapers. We will have a further word on these institutions when we turn to the role of information and advocacy in promoting nutrition programmes.

Popular and Non-Governmental Institutions

Popular and non-governmental institutions have also been active in initiating nutrition-relevant projects and programmes – especially the provision of basic social and economic services. These fall into three categories, namely (1) the formal cooperatives; (2) various self-help groups and funds, and (3) non-governmental organizations of various types.

Cooperative societies were abolished by a decision of the Government and Party in 1976, but were re-established in 1984. By May 1990, some 26 regional cooperative unions and 1616 community based cooperative societies and over 4,000 cooperative groups had been registered.

There are a lot more unregistered cooperating groups which operate informally in the villages. Most of these belong to youth and women who are supported by special “soft-loan” funds. These funds have enabled groups of youths, women and poor people to engage in productive activities. These groups contribution to nutrition-related services.

The “official” cooperatives have had many problems in delivering social and economic services to the villages, both before their abolition in 1976 and after their re-establishment in 1984. The main problems include lack of autonomy from party and government. However, several measures have been taken recently to improve performance of the formal and informal Cooperatives. First, a Cooperative supervision corporation (COASCO) has been established to ensure regular auditing of the societies and unions. Second, in 1991 the 1984 cooperatives laws was amended to give the cooperatives more autonomy from the state and the Party as well as to permit formation/registration of other cooperative groups (e.g. of women) at the village level. Third, to support the village-based cooperatives of small groups, a Prime Minister’s Fund for Self Reliance was established in 1990/91 financial year. The fund will extend assistance in the form of materials and equipment to community-based projects. Other sources which could be tapped for this purpose include the Presidential fund for Self-Reliance and the Community Development Trust Fund.

In addition to these central funds, many districts and villages have recently established their social services funds, largely in response to the failure of the state to continue servicing the huge infrastructure established in the seventies. Most widespread have been (trust) funds for education, health and water, in some cases at both district and village levels. The trust funds at the district level are supported by a council bye-law which sanctions the levying of special rates and soliciting contributions for a particular service.

At the village level, three types of funds have emerged. The first is the service fund (for water health or education) levied and managed by the village government. The second category includes all sorts of mutual help funds of small groups. Members can borrow from such funds to solve problems of all sorts – e.g. cost of hospitalization, burials, wedding ceremonies, school fees, etc. This practice has also spread to the urban areas where women have relied on each other for credit in “upatu” systems in which each member of a mutual help group contributes. The third – a recent development – includes funds collected by well-placed urban workers for the purpose of developing their “home” villages. Emphasis so far has been on building dispensaries, secondary schools, village roads and bridges. This positive response from the “grassroots” supports the current government policy of cost-sharing.

In addition to the local self-help organizations, recent policies have stimulated the growth of indigenous NGOs and private associations. As many of these engage in the provision of socioeconomic services, their activities have much relevance to nutrition. The church-based NGOs have set a good example in extending community development services, education and health facilities to areas which have not been fully covered by the state bureaucracy. Currently, for example churches run some 750 health facilities (hospitals, dispensaries, clinics and health centres) on Mainland Tanzania.

International Organizations and donor role in nutrition

Tanzania has benefitted from continued support from donors in nutrition related activities. Sweden through SIDA and UNICEF have supported TFNC since its inception in a number of its key programs. Recently (1990), WHO made TFNC its first collaborating Centre in Africa on Nutrition Research and Training. UNICEF, WHO, and the Italian Government have supported the JNSP; UNICEF has supported the Child Survival and Development (CSD) programmes. USAID, World Food Program (WFP), the European Economic Community (EEC) and others have provided food aid. SIDA, the Netherlands Government and UNICEF are supporting the IDD program. DANIDA and UNICEF are supporting the EPI and EDP programmes. UNFPA, GTZ and IPPF are supporting Family Planning. UNDP, ILO, UNESCO, IFAD have all supported nutrition related projects. The World Bank is supporting the Health and Nutrition Project (HNP) which includes support to the control of vitamin A deficiency and nutritional anaemia. FAO, GTZ, NORAD and other donors are supporting programmes related to food security. In addition, a significant number of other donors like UNU, SAREC, IPICS, IFS, IDRC, CIDA, the Netherlands, Australian and recently the Japanese Governments have supported nutrition relevant actions. Many NGOs like ICCIDD, IVACG, CRS, CMBT, OXFAM, CCT and other church based NGOs have provided significant nutrition-relevant support.

International support for nutrition related activities is required to facilitate local actions for improved nutrition. Technical and appropriate and accessible technological support is needed to improve household food security, reduce the workload of women and take advantage in procuring essential imports at internationally competitive prices. Financial support is needed to support credit systems for income generating activities; travelling for extension staff to exchange experiences; transport for supervisory and support staff; and monitoring and evaluation with strengthening of national and community based nutrition related information systems.

To assist in capacity building within communities and supportive institutions, technical and managerial in-service training support is required to complement the more academic education for which scholarships are provided. Physical structure and selected recurrent services support should also be considered by international agencies supporting human development. Donor recurrent cost financing could be used to strengthen budget management in the areas of expenditure control; budgetary discipline; preparation of more transparent and accessible financial statements; more efficient allocation of resources and stronger emphasis on and priority to operation and maintenance. Monitoring and evaluation and increasing capacity on local resource mobilization are also important areas for recurrent support. Donor focus on investment support need to consider the very high marginal benefits which would accrue from recurrent support which in many cases are occasioned by the investments. There is no doubt that if done selectively donor recurrent support would have a positive impact. It could activate idle or under-utilized public sector capacity by providing non-salary items that would allow staff to perform. The success of the Iringa JNSP in reducing child mortality and

malnutrition is a case in point.

The sectoral definition of the nutrition problem

Until the early 1980s when the unified integrated TFNC/UNICEF conceptual framework for the causes of malnutrition was largely adopted as the framework for guiding nutrition activities in Tanzania, most sectors viewed the nutrition problem from a sectoral basis. For example, the Ministry responsible for Agriculture viewed the problem of malnutrition as a food problem; the Ministry of Health viewed it as a medical problem and the Ministry responsible for Education viewed it as a problem of ignorance. The Ministry responsible for Community Development viewed it as a problem of poor community development and mobilization. Many NGOs and Donors also viewed it from the perspective of their own areas of mandate and it was not uncommon to find Food Aid being one of the major areas that NGOs and donors were doing in the “field of nutrition.” Thus each sector, donor or NGO worked independently on only one area of the malnutrition problem convinced that they were going to solve the problem. As it turned out many efforts went into those specific areas and the problem of malnutrition remained “constant over time and geographical area.”

Although a 1992 survey by TFNC on the sectoral conception about the causes and solutions of the malnutrition problem showed an improvement in the multi-causal and multi-solutions to the problem, there is still a strong conceptual sectoral bias. This and the results of a mini-survey conducted in Dar-Es-Salaam suggest that all ministries have at least an indirect relevance to nutrition, but six were claimed to affect nutrition more directly.

The Ministry of Agriculture enjoyed top ranking. The explanations of most interviewees was the popular association of nutrition with food availability and access. The Ministry of Community Development, Women Affairs and Children (created in 1990 and charged with the responsibility for the development of policies, strategies and programmes for improving the situation of women, children and communities) received second ranking. Three reasons were advanced. First, the focus on children would curb malnutrition at an early stage. Second, improvements in the situation of women would lead to the production of more foods, since women are the major producers in rural Tanzania. Third, community development work would make the people more aware of the nutrition situation and would motivate them to do something about it, like maintaining a clean environment, adopting better feeding habits and disease prevention practices.

The Ministry of Health came third with many people emphasizing the preventive side of health while a handful considered nutrition simply as a health or even a medical problem. The greater weight given to preventive measures reflects the government and the ruling party policies and campaigns since the early 1970s.

The Ministry of Education, which received fourth ranking, was hailed by those who link nutrition to intellectual capacity to control and harness the physical and social environments. The role of mass education in eliminating “anti-nutrition” cultural taboos was emphasized. To quote one respondent, “Food may be available and affordable, but people may fail to eat it because of cultural taboos.”

The ministry responsible for water came fifth, with one respondent summing up the argument nicely: “Without water, life ceases.”

The success of the use of the integrated inter-sectoral framework in the reduction of the rates of malnutrition in the JNSP and CSD programme areas has not only shown the need for a wider and multi-sectoral definition of the nutrition problem, but has also shown intervention measures taken should also be multi- and inter-sectoral. To emphasize this approach, the Planning Commission has coordinated national action plans for achieving the nutrition goals adopted by the various heads of state and government at the World Summit for Children held in New York in September, 1990. However, it is recognized that specific solutions can still be generated from single sectors, though their application may need the efforts of more than that sector alone. One of the major roles of TFNC is to facilitate inter-sectoral action in nutrition.

The use of nutrition information in policy and planning

In 1990 and 1992 TFNC conducted two surveys on potential and actual users of nutrition related information with the objective of identifying those groups, the types of nutrition related decisions they make; their nutrition information needs and to assess how and to what extent they have been using available nutrition data.

The first survey covered 24 institutions and the second covered 21 institutions including several villages and districts implementing and not implementing CSD programmes.

The results showed that there is a large pool of actual and potential users of nutrition related information for policy planning and programming. All the Ministries and institutions contacted indicated that they were using some kind of nutrition related information in their work. Nutrition information was required for policy setting for example the Agriculture and Livestock policies; National Food Strategy; price policies; setting of minimum wage; health policy; Food and Nutrition policy; education policy; water and sanitation etc.

Also nutrition information was required for programming purposes. Large programmes like the JNSP; CSD; Primary Health Care programmes (MCH, EPI, Health education, HIS); Diarrhoea Control; Acute Respiratory Infections (ARI) control; Food security and a number of the Regional Integrated Development Programmes (RIDEPs) all required a lot of nutrition and related data. The Priority Social Action Programme (PSAP) embodied in the Economic and Social Recovery Action Programme (ESAP) of 1989 – 1992 used a lot of nutrition and related information.

The type of information required depended on the institution under consideration. For example institutions dealing with food security wanted information on the adequacy of macronutrients (energy and protein) to be able to relate production to nutritional requirements; and food prices to measure economic accessibility. Macroeconomic Planners were desperate to get information on nutrition trends and its pattern in the population to measure the effect of the various economic and social policies especially the Structural Adjustment Programmes and to determine resource allocation. In setting up the minimum wage, the question which TFNC has always been asked is what wage will be adequate to just meet the Recommended Dietary Allowances (RDA)? As expected the poor economic situation has always forced the Government to give a lower minimum wage than what is nutritionally recommended. Health, Educational and related planners wanted the information to be/able to target their actions better. Nutrition intervention programmers have requested nutrition information to first justify the start of such programmes, secondly to plan and design implementable programmes and thirdly for purposes of impact monitoring.

The frequency with which the information is required will depend on the use. Food prices are reported on a daily basis. The Early Warning System and the Strategic Grain Reserve report on a monthly basis. Disease frequencies are reported also monthly within the Health Information System (HIS). The JNSP and CSD programmes get their information on a quarterly basis. The Planning Commission wants nutrition information on a quarterly basis but this has not been possible due to problems of data entry. It is presently planned for the Planning Commission to be responsible for the nutrition related data base and TFNC to support analysis and interpretation. For the setting of the minimum wage information is required when the Government is contemplating raising salaries. Sometimes the Bank of Tanzania requires food and nutrition related information for its fiscal policies on agriculture.

A few and important lessons were learned from the survey. The first is that potential users are many but do not know whether the information they require might be available and where. Second is that actual users were unable to get up to date information analyzed in the way that they could use it easily. From 1980 to 1983 TFNC used to produce a report entitled "Data report on the Food and Nutrition situation in Tanzania" on a sectoral sub-system matrix using the food cycle model from production, transportation, storage, processing and utilization subsystems. Many users found this report useful for research purposes and since it was a mere presentation of information without analysis decision and policy makers found it difficult to use. Many requested for a simpler, analyzed and graphical presentation of the data pointing out the major nutrition related trends and possible actions required to improve the situation. There were also problems of dissemination of information even when it was available. Many actual users found it difficult to get copies of documents they thought important for their work.

As a result TFNC through the Nutrition Surveillance programme is now producing a report entitled "Tanzania nutrition Trends" as a complement to the "Tanzania Economic Trends" which is simpler, analytical and graphic with comments on the salient features. But there are still large limitations in terms of the time lapse between availability of information and its analysis and release. Also it would be useful to desegregate the information into regions and districts. Efforts are presently being made to improve the situation so that relevant information for decision makers and programmers is timely available and desegregated to the lowest level possible.

The winners and losers of different policy decisions relevant to nutrition

Though all nutrition relevant policy decisions are intended to improve the nutrition situation of the population they may have different additional effects on people either individually or as groups. In the context of this discussion, those who are affected positively from the perspective of their interests are “winners” and those affected negatively are “losers.” There is only scanty information on this type of analysis and may be useful to study the situation in due course. Policies relevant to nutrition with these kind of “externalities” are mainly macroeconomic in nature which in many instances require confrontation with powerful interests.

The devaluation and trade liberalisation policies which led to major reforms in the marketing parastatals is a case in point. The reforms began with those parastatals concerned with food not only for ideological reasons but because the inflationary deficits of the food parastatals like the National Milling Corporation (NMC) could not be relieved through devaluation as it was the case for the marketing boards. The reforms which required NMC to relinquish its monopoly of grain marketing and allowed private traders to compete with it resulted in an improved grain distribution. As a result the price of maize, the major staple grain became lower on the open market than the NMC price. In order to operate commercially NMC had to lower the price of maize to that in the open market and in doing so had to make redundancies. Thus while the consumers were winners in this policy reform, the workers who were made redundant were losers.

At the same time NMC was not obliged any more to purchase food crops from farmers even in areas where it did not make economic sense. Those were the same areas shunned by the private entrepreneurs because of the very poor communication and deteriorating roads. As a result huge maize surpluses in places like Rukwa region were not purchased and farmers had to sell their maize at one third of the official price; which was not even enough to pay back the farm inputs. This acted as a disincentive to further production and a further increase of prices for urban consumers.

Thus while the food security objectives of the structural adjustment programmes were to increase household food access through price mechanisms, reorganization and rationalization of the marketing and distribution systems; not all people benefitted from the resultant good harvests which were the combined effect of incentives and good weather.

A peculiar and paradoxical situation emerged where high food prices in urban areas resulting from food shortages coexisted with huge stocks at the production level of the marketing chain. For example in January 1989, about 46,000 tons of maize had accumulated in Rukwa region against a storage capacity of 23,000 tons. Stockpiles of maize were also reported in Arusha, Iringa, Mbeya and Ruvuma. In Shinyanga and Mwanza paddy, stockpiles were exceptionally large during early 1989 and the Ministry of Agriculture and Livestock Development appealed for efforts to convert paddy into rice to be taken on a “war footing” in its Food Security Bulletin of January, 1989 [MOA, 1989]. Thus farmers did not benefit fully from the higher producer prices because they could not sell their grain.

On the other hand consumers faced high food prices at a time they should have been enjoying cheaper food because of a bumper harvest. Urban consumers dependent on the food market, especially the low income socioeconomically vulnerable groups were particularly affected. The problem of high and variable food prices stems from the highly seasonal nature of cereal marketing in Tanzania, compounded by changes in the structure of the domestic markets. Large seasonal surpluses place enormous burden on scarce trading, transport and storage capacities during the peak periods particularly during the heavy rains; impairing food outlets from surplus areas to the urban centres of demand.

CHAPTER 3: ANALYSIS OF THE NUTRITION SITUATION AND TRENDS IN TANZANIA

Introduction

The 1980's represent a unique period in the history of nutrition in Tanzania. It is a period when most nutrition information was collected. It can also be said to be the period when a critical level of political and decision makers awareness and commitment on nutrition intervention was possible to be mobilized on a large scale. Unlike in other decades the 1980s was characterized by possibilities for multi-sectoral and multidisciplinary nutrition intervention. The decade also boasts of a large number of nutrition related policies and programmes and for the first time in the history of Tanzania there were hopes that the apparently intractable problem of

protein–energy malnutrition could be significantly reduced without waiting for the trickle down effects of a high social economic development. Despite being the most economically crisis decade since independence in 1961, notable reductions in malnutrition were observed. It is against this background that the nutrition situation during the decade will be reviewed.

Sources of information and reliability of data

There is considerable information describing the nutrition situation in different parts of Tanzania, based on spot surveys, child growth monitoring systems or research work. Most of this information is not nationally representative and is focused more on children under–fives than other population groups. Only scanty serial national information is available making it possible to discern trends over time in only a few indicators and in specific areas of the country.

However, this situation is slowly changing. The collection of infant and child mortality data, parameters which are closely associated with the rates of malnutrition are in the process of been incorporated into the MCH system in order to obtain trends over a shorter period of time. Presently, such data is obtained from the national census which takes place every ten years and another three to four years for the mortality data to be available. For example the 1988 population data which provide the most comprehensive picture of infant and child mortality by the Bureau of Statistics and estimates by region and district were made available at the end of 1992. Thus efforts to obtain more regular child mortality information by using the Brass–Macrae “previous birth technique” has already been pilot tested in Mwanza region and found to be reliable for estimates of mortality among under–five year old children. Pilot testing of a revised MCH reporting system which has incorporated the previous birth question has been conducted in Mbeya and its possible expansion to the whole country’s MCH system is envisaged if an evaluation of the pilot test finds it possible.

The only nationally representative data on protein–energy malnutrition in children under–five years old has recently been obtained from two sources. The first is the nutrition module incorporated by TFNC into the Household Budget Survey (HBS) conducted by the Bureau of Statistics with analyzed information being available for the December 1991 to April 1992 period. The second is the Demographic and Health Survey (DHS) conducted by the Bureau of Statistics in October 1991 to March 1992. Reports for both the HBS and DHS are preliminary and the figures presented are provisional. The principal reports will be completed in 1993 and the final figures are not expected to differ markedly from those presented in this report.

Thus the sources of information on which this review will be based comes from the DHS and HBS, the data base at the Tanzania Food and Nutrition Centre (TFNC), the monitoring systems from the Iringa Nutrition Programmes (INP), Zanzibar Nutrition Programme (ZNP), the Child Survival and Development (CSD) programmes and the Census data from the Bureau of Statistics. Information from the Health Information System (HIS), Essential Drug Programme (EDP) and Maternal Child Health (MCH) from the Ministry of Health has been used from a variety of evaluation reports. Data has also been obtained from documents published by the Ministry of Agriculture and Livestock Development, Muhimbili Medical Centre and published and unpublished researches done by various institutions and individuals. It should be borne in mind that the objectives for the collection of the various data to be cited were different and thus the quality of some of it should be taken with caution. For example, the nutrition information systems in the Iringa Nutrition Programme (INP) and its extended Child Survival and Development (CSD) Programmes were designed primarily to catalyze the triple–A cycle at the household, village, and higher levels, although there has also been great interest and use of its potential to assist in the evaluation of the programmes’ impact on nutritional status. The DHS and nutrition module of the HBS give more accurate and representative information but only at the national level, as the primary objectives were to get good quality national data for decision making. However, the consistency in the trends from the different sources of data leave no doubt that positive progress is being made. The DHS and HBS data give figures which are lower than previous estimates. In the community based growth monitoring systems, consistently high rates of attendance and reduced trend rates of malnutrition are being reported. Efforts are being made to streamline the compilation and reporting systems so as to improve the quality of the data and its timely availability for use in decision making. The indications are that, monitoring systems for the achievements of the nutrition goals for the 1990s would be set in place by the end of 1993.

The public health significance of malnutrition in Tanzania

Tanzania's main problems of nutrition are similar to those of other countries in Sub-Saharan Africa. They are related to undernourishment and are:– **protein–energy–deficiency (PED), iron deficiency anaemia (IDA), iodine deficiency disorders (IDD) and vitamin A deficiency (VAD).**

Apart from these deficiency disorders, there are two nutrient excess disorders represented by **fluorosis** in the northern and north–western and central parts of mainland; and the problem of **overweight, obesity and diet–related non–communicable diseases** which seem to be increasing especially in the urban elite and business sections of the community emulating unhealthy food habits and lifestyles.

National estimates for the magnitude of malnutrition were done in 1987. These are shown in tables 4 and 5.

The estimates were based on various surveys which had been conducted in different parts of the country until then. Average prevalence rates for the various nutritional problems were calculated and then weighted against the national population group being considered. The weighted rates for each population group were then added to give the national picture for all age groups. These figures are being revised to take into account the positive changes which have occurred as a result of the implementation of specific and broad based nutrition programmes.

It should be observed that all the nutritional deficiencies affect mainly under–five year children and pregnant and lactating women. It should, however be pointed out that lactation protects women against anaemia for the period they are not menstruating.

Protein Energy Malnutrition (PEM)

Chronic energy deficiency is the most widespread and elusive nutritional problem in Tanzania. Normally, when the energy requirements are met from a mixed natural staple food, the protein and micronutrient requirements would also be met.

Table 4: National Estimates of the population affected by the Major nutritional deficiencies in Tanzania out of an estimated population of 25.0 (1987)

| Type of Deficiency | Severe | | Moderate | | Total | |
|------------------------------|--------|-----|----------|------|-------|------|
| | No. | % | No. | % | No. | % |
| 1. Protein Energy Deficiency | 0.7 | 3.0 | 5.6 | 25.0 | 6.3 | 28.0 |
| 2. Anaemia | 1.6 | 7.0 | 5.6 | 25.0 | 7.2 | 32.0 |
| 3. IDD (measurable) | 0.6 | 3.0 | 5.0 | 22.0 | 5.6 | 25.0 |
| 4. Vitamin A deficiency | 0.02 | 0.1 | 1.4 | 6.0 | 1.4 | 6.1 |

Where:–

PED: severe = weight for age(W/A) less than 80% of NCHS reference for children under–fives and Body Mass Index (BMI) of less than 18.5 for adults.

moderate = W/A between 60 – 80% of NCHS reference and BMI of 18.5–<20

Anaemia: severe = Haemoglobin (Hb) less than 8.5 g/dl

moderate = Hb of >8.5 – 10 g/dl

IDD: severe = cretins and cretinoids or sub–cretins, visible goitre or urinary iodine excretion less than 25 ug/dl

moderate = non–visible goitre or urinary iodine excretion of 25–50 ug/dl

Vitamin A deficiency: severe = serum retinol less than 10 ?g/dl

moderate = serum retinol 10 – <20 µg/dl

Source: Kavishe F.P (1987): The Food and Nutrition Situation in Tanzania. TFNC Report No. 1215

Table 5: The prevalence of various forms of nutrient deficiencies in Tanzania according to population groups

| Category of population affected | Type of deficiency and percent affected | | | |
|---------------------------------|---|---------|------|------|
| | PED | Anaemia | IDD | VAD |
| Children under-five years | 52.0 | 45.0 | 13.0 | 30.0 |
| Pregnant and lactating women | 13.0 | 80.0 | 52.0 | 0.7 |
| Remaining groups | 20.0 | 20.0 | 40.0 | 0.1 |
| General population | 28.0 | 32.0 | 25.0 | 6.1 |

Source: Kavishe F.P (1987), TFNC Report no. 1215

The methods for the assessment of protein–energy nutritional status vary with the age groups being considered, since each stage of human life has different nutritional considerations related to physiological needs, susceptibility to infection, and cultural benefits or hazards. Moreover, the risk of the different forms of malnutrition varies in different age groups. For example the anthropometric effects of protein–energy under–nutrition in rapidly growing young children plainly will be different from those of adults for whom physiological growth has ceased. Again, the reproductive burden carried by women means that pregnant women are a nutritionally vulnerable group. Differences in nutritional problems and manifestations make it useful to consider the following categories in nutritional assessment:– infant and young child nutrition; nutrition of school age children, nutrition of adolescents and adult nutrition.

Nutritional status of children aged under five years

Measures of child nutritional status using attained weight and height are commonly used to assess the overall nutritional and health status of children. The anthropometric indicators which will be used in this section and their interpretation are as follows:–

Chronic malnutrition

Height–for–age (H/A) below –2SDStunting

Current or acute Malnutrition

Weight–for–height (W/H) below –2SDWasting

Chronic and current malnutrition

Weight–for–age (W/A) below –2SDUnderweight

Underweight as measured by low Weight–for–Age reflects both recent and long–term malnutrition, especially in children older than two years. This is the commonest measure which has been used in monitoring growth and nutrition trends.

Clinical malnutrition

The data from the routine MCH assessments which use weight-for-age, is unfortunately not reliable due to biases and compilation errors. The biases in the MCH data derive from an over-representation of the under one year age group who because of the widespread breast-feeding at that age tend to be better nourished than all children under-five on average. This over-representation is brought about by the fact that parents tend to send their children to the MCH clinic for vaccination, and after completing vaccination at the age of 9 months when they get the measles vaccination; the children are not sent to the clinic again as often. Moreover, parents sending their children to the MCH clinics tend to be better informed, better educated and would have children with a better nutritional status.

The compilation errors arise as a result of a faulty system in the generation of the data. Though all children are counted to get the denominator for the calculation of various rates; not all children are weighed. The result is that the calculation of malnutrition rates by the MCH staff uses denominators which are high and this biases downwards the estimates of child malnutrition rates. As a result, the rates of malnutrition derived from the MCH system systematically underestimates the malnutrition rates as derived from community based surveys by a factor of about three to five. This anomaly has already been brought to the attention of the Ministry of Health for correction.

One useful information derived from the data collected through the MCH system is the classification of the clinical types of malnutrition. An analysis of data from seven regions implementing the CSD programmes from 1985 to 1988 (table 6) show that marasmus is the predominant clinical form of PEM.

The prevalence of marasmus is about 1 percent which is roughly about twice the rate of kwashiorkor which is around 0.5 percent. While we can ignore the prevalence of underweight of about 8 percent as been unrepresentative of the community situation; the prevalence of the severe clinical forms (kwashiorkor and marasmus) seem to reflect the true community situation since they are perceived as diseases and are more likely to be reported.

Table 6: Prevalence of malnutrition for selected regions as reported in the Maternal and Child Health (MCH) growth monitoring system; 1985 – 1988

| Region | Year | Prevalence (%) among children attending | | |
|--------|------|---|-------------|----------|
| | | Underweight | Kwashiorkor | Marasmus |
| Iringa | 1985 | 10.3 | 0.6 | 1.1 |
| | 1986 | 9.4 | 0.3 | 0.9 |
| | 1987 | 9.5 | 0.4 | 0.7 |
| | 1988 | 11.6 | 0.3 | 0.6 |
| Kagera | 1985 | 13.1 | 1.1 | 1.7 |
| | 1986 | 8.7 | 0.6 | 1.3 |
| | 1987 | 12.6 | 0.8 | 1.6 |
| | 1988 | 10.5 | 0.7 | 1.7 |
| Mtwara | 1985 | 6.0 | 0.3 | 1.0 |
| | 1986 | 4.1 | 0.2 | 0.7 |
| | 1987 | 6.0 | 0.9 | 0.6 |
| | 1988 | 5.3 | 0.4 | 0.6 |
| Ruvuma | 1985 | 6.6 | 0.3 | 0.6 |
| | 1986 | 6.6 | 0.3 | 0.6 |
| | 1987 | 7.4 | 0.3 | 0.5 |
| | 1988 | 8.0 | 0.2 | 0.5 |

| | | | | |
|-------------|------|-----|-----|-----|
| Kilimanjaro | 1985 | 6.8 | 0.6 | 1.1 |
| | 1986 | 7.2 | 0.5 | 1.2 |
| | 1987 | 6.3 | 0.4 | 0.7 |
| | 1988 | 7.0 | 0.4 | 1.4 |
| Morogoro | 1985 | 6.4 | 0.5 | 0.7 |
| | 1986 | 5.5 | 0.3 | 0.7 |
| | 1987 | 6.0 | 0.2 | 0.6 |
| | 1988 | 8.0 | 1.3 | 1.3 |
| Shinyanga | 1985 | 6.9 | 0.3 | 0.6 |
| | 1986 | 6.1 | 0.5 | 0.8 |
| | 1987 | 5.3 | 0.4 | 0.6 |
| | 1988 | 6.9 | 0.4 | 0.6 |
| Average | 1985 | 8.0 | 0.5 | 1.0 |
| | 1986 | 6.9 | 0.4 | 0.9 |
| | 1987 | 7.0 | 0.5 | 0.8 |
| | 1988 | 8.4 | 0.5 | 1.0 |

Source: UNICEF/TFNC reports, quoted in TFNC report no. 1322

Anthropometric indicators and trends

Anthropometric indicators show that stunting (low height-for-age), the chronic form of under-nutrition is the commonest form of malnutrition in Tanzania (Table 7) and that at the national level, the prevalence of underweight (low weight-for-age), the commonest anthropometric measurement which has been used in Tanzania, shows a declining trend.

Table 7a: Indicators of under-nutrition in children under-five years of age (3 – 60 months) in Tanzania (1985 – 1992) using a cut-off level of –2 Standard Deviation

| Type of PEM | 1985 estimates | 1987 estimates | HBS (Dec 1991–April, 1992) | | DHS (October 1991–March, 1992) | |
|--------------------------|----------------|----------------|----------------------------|------------|--------------------------------|------------|
| | | | Below –3SD | Below –2SD | Below –3SD | Below –2SD |
| Stunting (H/A) (chronic) | n.a | n.a | 12.3 | 40.5 | 19.8 | 46.7 |
| Wasting (W/H) (Acute) | n.a | n.a | 1.2 | 8.5 | 1.2 | 5.6 |
| Underweight (W/A) | 40 – 60 | 52 | 5.3 | 25.2 | 7.1 | 28.8 |

Source: URT & DHS Macro International Inc. (Tanzania DHS 1991/92); URT/UNICEF, 1985; and TFNC 1993.

Both the DHS and HBS data were collected about the same period. For HBS it was the December 1991 – April 1992 and for the DHS it was October 1991 – March 1992. According to previous studies (FAO/TFNC 1992) this is the peak malnutrition period because it is associated with high disease rates and heavy workload for women as it is the rainy season. The same trained Bureau of Statistics enumerators were used. As expected the mean 1992 annual HBS data of the nutrition module gave even lower results than both the

Table 7b: Comparison of the nutritional status of children (3–60 months) between the HBS annual data for 1992 and DHS data

| Anthropometric indicator | HBS mean for 1992 | | | DHS | | |
|--------------------------|-------------------|------------|------------|-------|------------|------------|
| | No. | below –3SD | below –2SD | No. | below –3SD | below –2SD |
| Stunting (H/A) | 2,626 | 15.1 | 31.4 | 6,095 | 19.8 | 46.7 |
| Wasting (W/H) | 2,691 | 1.7 | 7.8 | 6,095 | 1.2 | 5.6 |
| Underweight (W/A) | 3,128 | 5.3 | 20.4 | 6,095 | 7.1 | 28.8 |

Source: TFNC data base, 1993 and URT/Bureau of Statistics, TDHS 1993

The similarity between the DHS and HBS data collected around the same period is striking. It is even more striking that ACC/SCN projections using social and economic indicators for Tanzania arrived at an underweight (below –2SD) prevalence rate of 24 percent which is very close to both the HBS and DHS data (Garcia, 1993 personal communication). Severe malnutrition (below –3SD) for both HBS and DHS falls within previous estimates. However, for underweight (W/A) the rates from both data sources show significantly lower rates than previous estimates which may be a reflection of an improving trend or previous overestimates. Both reasons seem plausible.

It might be argued that earlier estimates might have over-estimated the situation because of two reasons. The first is that nutrition surveys tended to concentrate in areas where the situation was bad so that action could be taken. The second reason may be the use of percentages of median cut-off point of below 80 percent of the Harvard Standard which the Road to Health Card of the MCH employs in defining underweight. The difference between using this criteria and the standard deviation criteria is not trivial. By using the standard deviation criteria, the prevalence rates may be reduced down to almost two thirds of the median percent criteria. Since the distribution of percentages of the reference values vary by age and sex, and as an age invariant probability statement can be made using the standard deviation, the latter criteria is preferred.

But even with such a reduction previous estimates and actual measurements in various areas show high prevalence rates of malnutrition above those of the DHS and HBS data which cannot be accounted for by the one third reduction implied in the differences in criteria selection. This indicates that the improvement is real. The improvement trends shown for regions implementing the Child–Survival and Development (CSD) programmes in tables 10 and 11 confirm this conclusion.

The levels of under-nutrition in children under-five years old in Tanzania compare well with those of other Sub-Saharan African countries with similar levels of socio-economic development. The levels are below the average for Sub-Saharan Africa; but unlike the rising trend of malnutrition in Sub-Saharan Africa, the trend for Tanzania is falling. Table 8 presents measures of some anthropometric indicators of under-nutrition in some neighbouring countries. Stunting, the chronic form of malnutrition is the most prevalent form of under-nutrition in all these countries.

If the means of the prevalence rates for the various types of under-nutrition for the nine countries in table 8 are taken as the reference points for comparison, it is only in wasting that Tanzania is better off than the average. Thus for wasting Tanzania is better off than Zambia, Zaire, Rwanda, Malawi, Kenya and Burundi.

It should be noted that for Kenya, wasting is probably only of the mild type, as severe PEM has a very low prevalence. For stunting Tanzania is better off than Zambia, Zaire, Malawi and Burundi. For weight-for-age which measures the combined effect of stunting and wasting, Tanzania is better off than only Zaire, Rwanda and Burundi. It should be noted that with the exception of Zimbabwe which has the best indicators in this comparison, the current levels of malnutrition in Tanzania and in the other countries are very high. Neighbouring countries with better nutrition indicators than Tanzania, like Zimbabwe and Kenya also have better economic indicators. The under-nutrition trends in Kenya, Tanzania and Zimbabwe are falling; those for Zambia are rising while for the other countries they seem to be stable.

Compared to Sub-Saharan Africa; Tanzania is just slightly better than the average of 30 percent for underweight. For developing countries, excluding China, Tanzania is worse off for stunting but better off in wasting and underweight.

Community-based data from selected areas for the 1980–1990 decade (table 9) show a mean underweight prevalence rate of 6.2 percent for severe under-nutrition and 48 percent for total underweight which is very close to earlier estimates of 5 percent and 47 percent respectively.

Table 8: Indicators of under-nutrition in countries neighbouring Tanzania and the developing countries as a group

| Country | Year | Stunting (H/A) (%) | Wasting (W/H) (%) | Underweight (W/A) (%) |
|---|----------------------|--------------------|-------------------|-----------------------|
| 1. Tanzania | 1991/92 (DHS) | 46.6 | 5.5 | 28.5 |
| 2. Zambia* | 1990 | 59.4 | 10.0 | 24.7 |
| 3. Zimbabwe** | 1988 | 29.0 | 0.8 | 11.5 |
| 4. Zaire*** | 1990 | 46.0 | 9.6 | 33.4 |
| 5. Rwanda | 1980–91 | 34.0 | 11.4 | 36.6 |
| 6. Malawi | 1980–91 | 61.0 | 8.0 | 24.0 |
| 7. Kenya**** | 1980–91 | 41.0 | 10.0 | 17.0 |
| 8. Burundi | 1980–91 | 60.0 | 10.0 | 38.0 |
| 9. Uganda | 1980–91 | 25.0 | 4.0 | 23.0 |
| Mean | 1980–92 | 44.1 | 7.7 | 26.3 |
| Sub-Saharan Africa | 1990 | – | – | 30.0 |
| Developing countries (excluding China)***** | 1987–1990 | 39.0 | 8.0 | 36.0 |

Sources: UNICEF, State of the World's Children 1992, and

* Government of the Republic of Zambia, Report of the pilot nutrition module (1990).

** Demographic Health Surveys (DHS), 1988

*** UNICEF, State of the World's Children, 1990.

**** Stunting and wasting figures from UNICEF, State of the World's Children, 1992 and underweight figure from the Rural Nutrition Survey 1987.

***** ACC/SCN Second Report on the World Nutrition Situation (1992) and Chen (1990)

Table 9: Underweight for age (W/A) in children under-five years old in community surveys in Tanzania (1980–1991) using the Harvard Standard of below 80 percent

| Source | Year | Season | District | N | Prevalence of PEM (W/A) | |
|-----------------|------------------|------------|-----------------|----------------|-------------------------|-------------|
| | | | | | <60% | <80% |
| As below | 1980–1990 | All | As below | 111,285 | 6.2 | 48.0 |
| TFNC | 1980 | December | Lindi | 528 | 11.0 | 41.0 |
| TFNC | 1981 | January | Mtwara | 579 | 9.0 | 50.0 |
| TFNC | 1982 | June | Iringa | 1,705 | 4.0 | 52.0 |

| | | | | | | |
|----------|------|-----------|--------------|--------|------|------|
| TFNC | 1983 | August | Iringa | 733 | 2.0 | 45.0 |
| JNSP | 1984 | Apr/June | Iringa | 30,000 | 5.9 | 62.0 |
| CSD | 1985 | July | Biharamulo | 5,536 | 10.0 | 58.0 |
| CSD | 1985 | August | Ngara | 5,731 | 7.0 | 57.0 |
| CSD | 1987 | May | Ruvuma | 10,979 | 7.5 | 57.0 |
| CSD | 1987 | October | Hai | 4,105 | 3.5 | 34.0 |
| CSD | 1987 | November | Mtwara | 8,182 | 8.0 | 55.0 |
| CSD | 1988 | Sept/Oct | Morogoro | 6,407 | 5.2 | 51.0 |
| CSD/JCGP | 1988 | Sept | Shinyanga | 10,966 | 3.4 | 42.0 |
| CSD/Surv | 1990 | June/July | Singida | 11,608 | 4.6 | 36.0 |
| CSD/Surv | 1990 | August | Tarime | 5,520 | 4.1 | 28.8 |
| CSD/Surv | 1990 | August | Serengeti | 6,287 | 10.5 | 46.3 |
| TFNC | 1991 | October | Nkasi | 915 | 6.0 | 51.5 |
| TFNC | 1991 | October | Sumbawanga R | 930 | 4.4 | 8.1 |
| TFNC | 1991 | October | Sumbawanga U | 574 | 5.2 | 49.3 |

Source: URT/UNICEF 1990 and TFNC (1990)

Moreover, in areas where specific nutrition programmes have been implemented, there is an improving trend in the nutrition situation (table 10).

Table 10: Trends in total underweight (W/A of below 80 percent Harvard Standard) in CSD areas, 1984–1991

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-------------|------|------|------|------|------|------|------|------|
| Iringa | 55.8 | 44.9 | 40.7 | 39.6 | 38.0 | 37.3 | 37.5 | 36.7 |
| Kagera | – | 56.9 | 50.0 | 36.2 | 41.0 | 33.7 | 29.2 | 38.9 |
| Kilimanjaro | – | – | – | 34.2 | 24.7 | 18.5 | 16.3 | 12.2 |
| Mara | – | – | – | – | – | – | 38.1 | 30.2 |
| Morogoro | – | – | – | – | 44.6 | 44.6 | 35.7 | 39.4 |
| Mtwara | – | – | – | 54.9 | 48.9 | 45.8 | 47.0 | 41.3 |
| Ruvuma | – | – | – | 54.6 | 50.7 | 47.9 | 42.2 | 38.2 |
| Shinyanga | – | – | – | – | 41.9 | 24.9 | 28.7 | 27.1 |
| Singida | – | – | – | – | – | – | 35.6 | 33.4 |

Source: TFNC and UNICEF nutrition data bases, 1992.

The decline for severe malnutrition is more pronounced (table 11) than for total and moderate under-nutrition.

Table 11: Trends in severe underweight (W/A of below 80 percent Harvard) in CSD areas, 1984–1991

| Region/year | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-------------|------|------|------|------|------|------|------|------|
|-------------|------|------|------|------|------|------|------|------|

| | | | | | | | | |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Iringa | 6.3 | 3.7 | 2.2 | 1.9 | 1.7 | 2.4 | 1.9 | 1.6 |
| Kagera | – | 7.9 | 6.5 | 3.9 | 3.8 | 1.9 | 1.4 | 2.0 |
| Kilimanjaro | – | – | – | 3.5 | 1.4 | 1.5 | 0.4 | 0.3 |
| Mara | – | – | – | – | – | – | 7.4 | 2.3 |
| Morogoro | – | – | – | – | 4.3 | 3.2 | 2.2 | 2.9 |
| Mtwara | – | – | – | 8.0 | 5.5 | 5.8 | 6.0 | 3.2 |
| Ruvuma | – | – | – | 4.9 | 5.8 | 4.4 | 3.5 | 4.3 |
| Shinyanga | – | – | – | – | 3.4 | 2.1 | 1.8 | 1.3 |
| Singida | – | – | – | – | – | – | 2.7 | 1.7 |

Source: TFNC and UNICEF nutrition data base, 1992

When the rates of reduction in malnutrition are considered on the basis of the severity and period elapsed (table 12), it becomes obvious that the highest reduction rates are achieved in the severe forms.

Excluding Singida which has only one year programme in the analysis and with the exception of Ruvuma where there is a two percent increase in the rate of severe malnutrition over a four year period, there is a substantial decrease in the severe forms of malnutrition in all other regions ranging from a reduction rate of 32.6 percent in Morogoro to 91.4 percent for Kilimanjaro. On average within a period of four years it was possible to reduce severe malnutrition by more than a half; moderate malnutrition by more than a quarter and total malnutrition by about a third.

While these reduction rates indicate that it is possible for Tanzania to achieve the nutrition goals of the 1990s as far as PEM is concerned; the apparent increase in severe malnutrition in Ruvuma shows at least two things. The first is that though food is a necessary condition for good nutrition, it is not a sufficient condition. Ruvuma is among the “big four” regions in maize production (the others being Iringa, Mbeya and Rukwa). This is an important point to stress as many national, regional and district level decision makers and people in non-CSD areas link nutrition with food self-sufficiency almost to the exclusion of the other factors of care and health. The second is that the CSD programme in Ruvuma was initially weak in the application of the triple A cycle approach as compared to the other regions.

Iringa, Kagera, Kilimanjaro and Shinyanga regions had reduction rates which were above the average calculated for the eight regions (excluding Singida). Taking into account that Iringa and Kagera have the longest integrated community-based nutrition programmes (seven and six years respectively), the reduction rates of less than 50 percent for moderate and total malnutrition after all those years may indicate to the casual observer that the euphoria which accompanied the early successes of the Iringa Nutrition Programme was not sustained. But a deeper analysis of tables 10 and 11 shows that the reasons may be more fundamental and could be applied to all the other regions. First, for all programme areas it appears that the highest reduction rates occur during the first two years of the programme and on average the levels of severe malnutrition seem to level off when a prevalence rate of about two percent is reached. Second, regions with higher reductions rates and, therefore, do not follow this trend are those with initial low rates of malnutrition. These regions are either those with a high socio-economic status (Kilimanjaro) or those which are predominantly pastoral (Shinyanga and Singida).

The implications of these observations are that while initial programme impact may be attributed to actions on the immediate and partly on the underlying causes of malnutrition, the programmes have not to any significant extent addressed the basic problems of poverty and socio-cultural factors militating against nutrition improvement including the issue of gender relations. In other words interventions have concentrated mainly on the delivery of services and to some extent on institutional capacity building and empowerment. Interventions at the level of underlying and basic causes calls for more fundamental institutional and grassroots socio-economic and political reforms. Though these reforms have started at the macro-level, it will take some time for them to significantly permeate to the rural areas.

The overall improvement in the nutritional status which occurred during the 1980s, a decade dubbed as the most hit by the economic crisis presents as a paradox at first sight. A closer scrutiny reveals that the Iringa

Joint Nutrition Support Programme (JNSP), the subsequent Child Survival and Development (CSD) programmes which are community-based and the micronutrient control programmes were initiated at about the same time as the Economic Recovery Programme during the second half of the 1980s.

It is of interest to note that “nutrition recovery” started to occur at about the same time as “economic recovery”. Thus while the nutrition situation was described by TFNC as “constant over time and place” during the first half of the 1980s when the economic crisis was most severe; it was described as “appearing to respond to specific interventions” during the second half of the 1980s when the economic growth as measured by GDP was growing at about 3.6 percent. We believe that the economic stimulating effect of both the recovery programme and the policy reforms created a conducive environment for the initiation, donor support and implementation of the community-based nutrition programmes. The economic aspects of nutrition recovery were mainly a reflection of social the supply of essential goods and commodities including drugs, farm inputs, oil (cooking, kerosene, vehicle oils), clothes etc which were unavailable during the severe crisis years of the early 1980s. It is not an exaggeration to say that it was also a reflection of the hopeful situation created by the availability of these essential goods. However, we would like to stress that the nutrition improvement was a direct result of the implementation of the nutrition programmes, as it has been observed that the improvement only occurred in areas where nutrition improvement was explicitly made a goal to be achieved.

Table 12: The rates of reduction of malnutrition in CSD regions (1984–1991)

| Region | Prevalence rate at baseline | Prevalence rate 1991 | Programme period (yrs) | Rate of reduction (%) |
|-------------|-----------------------------|----------------------|------------------------|-----------------------|
| Iringa: | (1984) | | | |
| Severe | 6.3 | 1.3 | | 79.4 |
| Moderate | 49.5 | 33.9 | 7 | 31.5 |
| Total | 55.8 | 35.2 | | 36.9 |
| Kagera | (1985) | | | |
| Severe | 7.9 | 2.2 | | 72.2 |
| Moderate | 49.0 | 33.7 | 6 | 31.2 |
| Total | 56.9 | 35.9 | | 36.9 |
| Kilimanjaro | (1987) | | | |
| Severe | 3.5 | 0.3 | | 91.4 |
| Moderate | 30.7 | 11.9 | 4 | 61.2 |
| Total | 34.2 | 12.2 | | 64.3 |
| Mara | (1990) | | | |
| Severe | 7.4 | 1.9 | | 74.3 |
| Moderate | 30.7 | 25.9 | 2 | 15.6 |
| Total | 38.1 | 27.9 | | 26.8 |
| Morogoro | (1988) | | | |
| Severe | 4.3 | 2.9 | | 32.6 |
| Moderate | 40.2 | 36.5 | 3 | 9.2 |
| Total | 44.6 | 39.4 | | 11.7 |
| Mtwara | (1987) | | | |
| Severe | 8.0 | 3.2 | | 60.0 |
| Moderate | 46.9 | 38.0 | 4 | 19.0 |

| | | | | |
|------------------------------------|--------|------|-----|--------|
| Total | 54.9 | 41.2 | | 25.0 |
| Ruvuma | (1987) | | | |
| Severe | 4.9 | 5.0 | | (-2.0) |
| Moderate | 49.7 | 33.2 | 4 | 33.2 |
| Total | 54.6 | 38.2 | | 30.0 |
| Singida | (1990) | | | |
| Severe | 2.7 | 1.7 | | 37.0 |
| Moderate | 32.9 | 31.7 | 1 | 3.6 |
| Total | 35.6 | 33.4 | | 6.2 |
| Shinyanga | (1988) | | | |
| Severe | 3.4 | 1.3 | | 61.8 |
| Moderate | 38.5 | 25.8 | 3 | 33.0 |
| Total | 41.9 | 27.1 | | 35.3 |
| All regions (except Singida) | | | | |
| Severe | 5.6 | 2.3 | | 58.9 |
| Moderate | 41.9 | 29.9 | 4.1 | 28.6 |
| Total | 47.5 | 32.2 | | 32.2 |

Source: Calculated from CSD Data base (1992)

Nutritional status of school age children

Information regarding the nutritional status of school children is very limited. The information available however, indicates that PEM also affects school age children, but to a lesser extent than the under-fives.

In a survey of primary school children aged 8–18 years in eight regions in mainland Tanzania (Kimati and Scrimshaw 1985), found a considerable prevalence of PEM but lower than for under-fives. The boys were slightly more affected than girls. Table 13 indicates the prevalence of malnutrition in children aged 7–13 years in Mbeya and Rukwa regions in 1987.

Table 13: The prevalence of under-nutrition in children aged 7–13 years in Rukwa and Mbeya regions in 1987

| Age (years) | Sample size | Percent below median -2SD | | |
|-------------|-------------|---------------------------|----------------|----------------|
| | | Weight-for-age | Height-for-age | Weight-for-age |
| 7 | 105 | 11 | 5 | 0 |
| 8 | 149 | 8 | 10 | 4 |
| 9 | 260 | 18 | 28 | 4 |
| 10 | 437 | 11 | 44 | 3 |
| 11 | 451 | 16 | 52 | 3 |

| | | | | |
|--------|-------|----|----|---|
| 12 | 449 | 30 | 62 | 1 |
| 13 | 263 | 37 | 71 | 1 |
| 7 – 13 | 2,114 | 19 | 39 | 2 |

Source: TFNC, 1987

An important observation from table 13 is that stunting progressively increases with age reaching its peak of about 70 percent around puberty when the adolescent growth spurt may probably slow down the trend. Since genetical differentiation starts after five years the high prevalence of stunting based on the NCHS reference values may in part be a reflection of genetical differences rather than chronic under-nutrition as such.

Nutritional status of adolescents

This is a grey area in Tanzania as there are only a few studies which have looked at the nutritional status of adolescents. These studies corroborate observations that though much less affected by the acute forms of malnutrition than children; the prevalence of stunting is very high reaching about 70 percent at 13 years (table 13 above).

Stunting in adolescent girls is of particular concern and constitutes a major impediment to safe motherhood. Stunting in girls is associated with a contracted pelvis which can lead to obstructive complications during delivery and may cause maternal or perinatal deaths. The problem of contracted pelvises is made worse by early pregnancies where teenage girls become pregnant even before they have attained full skeletal development. At menarche young women still have approximately 4 percent more height and 12–18 percent more pelvic growth ahead of them. Even after 2 years of menstruation an additional pelvic growth of 3–9 percent and height growth of 1 percent may be achieved. This indicates the possibility of improving the nutritional status of the adolescent girl by taking advantage of the growth spurt in order to improve maternal nutrition and mortality. It is an area where research could make great contribution.

Nutritional status of adults

In Tanzania, where the population is young and depends on a small adult population to sustain the economy and to provide the resources needed for adequate food, care and health; malnutrition in adults is of serious consequence. In such a situation, malnutrition becomes both a result and a cause of poverty. Malnourished adults cannot respond well to the challenges of economic and even political reforms which need both physical and mental energy. Maternal malnutrition is of even more severe consequence, as malnourished women produce malnourished children who will grow into malnourished adults creating a vicious cycle.

The nutritional status of adults is anthropometrically measured by using the Body Mass Index (BMI) which is a number derived from dividing the subject's weight in kilograms by the square of the height in metres (W/H^2). For purposes of this review the following cut-off points for BMI have been used for both men and women:– less than 20 is undesirable or undernourished; 20–24 is desirable or well nourished; 25–29 is overweight; and 30 or more is obesity. Under-nutrition with a BMI of less than 20 indicates chronic energy deficiency and could further be sub-divided as follows: (a) Mild deficiency (BMI of 18.5 – 19.9) (b) Moderate deficiency (BMI of 16 – 18.4) and (c) severe deficiency (BMI of less than 16). The minimum BMI below which death occurs is about 14. Pregnancy shifts the BMI to the next higher index and may rise up to 4 units if the required weight gain of 12 kg is achieved in a pregnancy.

The distribution of Body Mass Index (BMI) in a few regions surprisingly show that more than a third of adults have low BMIs with rural areas having higher prevalence rates of undesirable BMIs than urban areas table 14.

It can be observed from the table that males are lighter than females. Since theoretically the body size of females should usually be smaller than that of males, and the cut-off of undesirable BMI for females is recommended to be 18.5 it would be expected to see a higher prevalence of a BMI of less than 20 in females than in males. A possible explanation could be that the sample of females consisted mainly of women who had already borne children. It would be very useful if future studies would specifically look at the adolescent girl in both rural and urban settings to know better the nutrition state at which women start their reproductive

life. However it should be noted that the high prevalence of low BMI points out to the need to revisit the impression held by many people that malnutrition is not a problem in adults particularly male adults.

Maternal malnutrition

Maternal malnutrition presents a different spectrum of problems. Apart from limiting their productive capacity, maternal malnutrition also makes their reproductive role to be unsafe, sometimes leading to the death of the new born, the mother or both. In some cases complications in the birth canal in the form of fistulas may lead to permanent reproductive disability with all the attendant social stresses. The problem of maternal malnutrition may start in early childhood as shown by the pattern of child growth in Tanzania.

Available information shows that generally children grow normally up to the age of six months presumably due to the universal breast-feeding which is about 40 percent exclusive up to that age. Thereafter, growth retardation starts to appear, with subsequent increases in the rates of malnutrition. The commonest type of malnutrition during this early ages is wasting (low weight-for-height), an acute type of malnutrition whose prevalence increases to a peak during the second year when diarrhoea also peaks. This is related to the onset of diseases due to the waning of maternal passive immunisation and improper weaning. It seems that survival of the acute forms of malnutrition leads to adaptation in the form of stunting (low height-for-age) which is a chronic form of malnutrition. Stunting decreases the physiological nutrition requirements, so that in their stunted condition the children will seem to meet their nutritional requirements. Stunting increases with age as children accumulate height deficits due to repeated episodes of disease, accompanied by poor weaning practices making stunting the commonest form of malnutrition overall. This growth pattern is similar for boys and girls making the prevalence rates of malnutrition to be equal for the sexes. Apart from the physical and mental functional limitations brought about by malnutrition for girls it is a major cause for poor reproductive performance in adulthood leading to unsafe motherhood. The scientific explanation to this is related to the phenomenon of catch up growth.

Table 14: Percent (%) distribution of BMI by age in five regions in Tanzania.

| Sex/Region | No. | Mean age in years | Percent with BMI of:- | | | |
|-------------------|-------|-------------------|-----------------------|-------|-------|------|
| | | | < 20 | 20-24 | 25-30 | > 30 |
| <u>Males</u> | | | | | | |
| Dar-Es-Salaam | 627 | - | 34.6 | 50.8 | 12.6 | 2.1 |
| Kilimanjaro | 1,143 | - | 45.2 | 51.6 | 3.0 | 0.1 |
| Morogoro | 1,452 | - | 43.7 | 53.9 | 2.3 | 0.1 |
| Mara | 478 | - | 44.3 | 51.6 | 3.1 | 0.9 |
| Arusha | 25 | - | 32.0 | 44.0 | 24.0 | 0.0 |
| Mean | 3,725 | - | 40.0 | 50.4 | 9.0 | 0.6 |
| <u>Females</u> | | | | | | |
| Dar-Es-Salaam | 830 | - | 22.8 | 47.8 | 19.5 | 10.0 |
| Kilimanjaro | 1,865 | - | 36.3 | 53.5 | 8.8 | 1.4 |
| Morogoro | 1,224 | - | 37.6 | 54.0 | 7.3 | 1.1 |
| Mara | 584 | - | 36.2 | 55.9 | 7.1 | 0.8 |
| Arusha | 47 | - | 36.2 | 48.9 | 14.9 | 0.0 |
| Mean | 4,550 | - | 33.8 | 48.9 | 11.5 | 2.7 |
| <u>Both sexes</u> | | | | | | |
| Dar-Es-Salaam | 1,457 | 34 | 28.7 | 49.6 | 16.1 | 6.1 |

| | | | | | | |
|-------------|--------------|-----------|-------------|-------------|-------------|------------|
| Kilimanjaro | 3,008 | 38 | 40.7 | 52.6 | 5.9 | 0.8 |
| Morogoro | 3,089 | 35 | 40.6 | 53.9 | 4.8 | 0.6 |
| Mara | 1,062 | 34 | 40.2 | 53.7 | 5.1 | 0.8 |
| Arusha | 72 | – | 34.7 | 47.0 | 18.1 | 0.0 |
| Mean | 8,688 | 35 | 36.9 | 51.4 | 10.0 | 1.7 |

Source: Swai A.B et al, 1989 and Kisanga 1987

While catch growth in weight for height is attained; for the majority catch up growth in height is not attained due to the slowness with which catch up growth in height takes place. Coupled with the fact that in most cases adverse nutritional factors continue even after five years of age the result is that stunting continues well into adolescence and adulthood making people in Tanzania to be generally shorter than their genetical potential would allow. Stunting in women which leads to obstructive complications during delivery is the major reason for surgical intervention and is thus directly or indirectly related to wound infection which is one of the major causes of maternal deaths in Tanzania. The average height of women in Tanzania is 156 cm which is very close to the at risk cut-off level of 150 cm. The DHS data on women's stature covering 5,238 women showed a mean height of 155.9 cm similar to the 156 cm found in the Ilula study (URT/Bureau of Statistics, 1993; Moller et al 1988). In the DHS data, 3.7 percent of the women had a height below 145 cm, and for 16.7 percent it was below 150 cm.

Maternal malnutrition is also indicated by low maternal Body Mass Index (BMI), low weight gain during pregnancy, low nutrient intake and a high prevalence of low birth weight.

By using the cut-off point of a BMI of less than 20 as indicative of under-nutrition; some cross sectional studies conducted in Ilula village in Iringa region in 1985 showed that a third of non-pregnant and lactating mothers have undesirable BMI [Kavishe et al 1987] (table 15). The prevalence of an undesirable BMI of 33.3 percent compares well with the average of 33.8 percent found in the five regions presented earlier (table 14).

Table 15a: The nutritional status of women according to their reproductive stage in Ilula village Iringa region

| Reproductive stage | no. | Percent with a BMI of:- | | | | Total |
|--------------------|-----|-------------------------|-------|-------|-------------|-------|
| | | < 20 | 20-24 | 25-29 | 30 and more | |
| 1. Non-pregnant | 45 | 33.3 | 62.2 | 4.4 | 0.0 | 100 |
| 2. Pregnant | 77 | 13.0 | 62.3 | 20.8 | 3.9 | 100 |
| 3. Lactating | 294 | 33.2 | 60.7 | 5.4 | 0.7 | 100 |
| Total/Mean | 416 | 29.5 | 61.2 | 8.1 | 1.2 | 100 |

Source: Kavishe et al (1987)

The DHS data on the stature and BMI of women shows that while on average there is no difference in the stature of rural and urban women, urban women are heavier as indicated by a higher average BMI (table 15b). On average women in Zanzibar are shorter and lighter than women in Tanzania mainland. If mild under-nutrition (BMI 18.5-19.9) is included the DHS data shows a national prevalence of BMI of less than 20 to be 27.8 percent which is very close to the Ilula study (table 15a). Taking the rural prevalence of BMI of less than 20 alone it is clearly similar to the 29.5 percent found in non-pregnant women in Ilula.

Table 15b: The stature and BMI of women in Tanzania, 1991/92

| Area | Stature (cm) | | | Body Mass Index (BMI) | | |
|------|--------------|-----------|-----------------------|-----------------------|------|------------------------|
| | n | Mean (cm) | Percent less than 145 | n | Mean | Percent less than 18.5 |
| | | | | | | |

| | | | | | | |
|---------------|-------|-------|-----|-------|------|------|
| Mainland | 5,093 | 155.9 | 3.7 | 4,185 | 21.7 | 9.6 |
| Dar-Es-Salaam | 272 | 154.3 | 4.6 | 230 | 22.8 | 5.8 |
| Other urban | 899 | 155.2 | 4.5 | 765 | 22.4 | 6.3 |
| Rural | 3,921 | 156.2 | 3.4 | 3,189 | 21.5 | 10.7 |
| Zanzibar | 145 | 154.8 | 6.3 | 120 | 21.3 | 11.5 |
| Tanzania | 5,238 | 155.9 | 3.8 | 4,305 | 21.7 | 9.7 |

Source: URT/Bureau of statistics, TDHS 1993

Both maternal weight and weight gain during pregnancy is low. The mean maternal weight in rural areas as exemplified by one study of 331 women is about 53 kg (Moller et al 1988) as compared to a recommended weight of 55 kg. The average gain of weight during pregnancy is about 6 kg compared to a recommended gain of 12 kg. On average there is no net weight gain during pregnancy and up to 12 percent of women do not gain or even loose weight. The major reason for this is the low maternal intake and heavy workload (high energy expenditure) during pregnancy.

An examination of dietary intake and energy expenditure during pregnancy indicate that generally women eat to meet only two thirds of their energy needs, and their intake roughly matches their energy expenditure [Kavishe et al 1987]. Table 16 illustrates the mean maternal dietary adequacy during pregnancy in the Ilula study. While the average energy intake during the third trimester averaged 1,595 Kcal. per person per day; the energy expenditure in a sample of 18 women was as high as 1,500 Kcal. in 77 percent of them, indicating that the heavy workload of women continues well into the last days of pregnancy. This excludes the energy cost of the pregnancy itself.

Table 16: The mean maternal dietary adequacy during pregnancy in Ilula village, Tanzania, using weighing and record method

| Type of nutrient | Percent adequacy in various gestational periods | | | |
|----------------------|---|-----------------------|-----------------------|------------------------------|
| | 12–16 weeks (n=6) | 22–24 weeks (n=24) | 32–36 weeks (n=18) | Total: 12–36 weeks (n=48) |
| 1. Energy (RDA 2400) | 63.7 | 67.9 | 67.8 | 66.5 |
| 2. Protein (RDA 52g) | 90.0 | 100.0 | 110.0 | 100.0 |

Source: Kavishe F.P et al (1987)

Low birth weight

Low maternal weight gain during pregnancy, low dietary intake, and heavy workload conspire leading to the birth of low weight babies.

Table 17: Prevalence of hospital based Low birth Weight in Tanzania Mainland 1985–1991

| Year | Number of live births or sample size | Mean birth weight (gms) | Percent (%) weighing less than 2,500 g |
|-----------------------|--------------------------------------|-------------------------|--|
| 1985 (estimates) | n.a | 3,100 | 14.0 |
| 1986 (DHS of 1991/92) | 8,032 | 3,024 | 16.9 |
| 1986/87 (19 regions) | 3,350 | 2,900 | 10.0 |

| | | | |
|------|---------|---|-----|
| 1990 | 497,930 | – | 8.4 |
| 1991 | 549,771 | – | 8.7 |

Source: TFNC report no. 1322; TDHS, 1993 and MCH returns 1990–91

Thus **low birth weight (LBW)** defined as a birth weight of less than 2.5 kg is an important indicator of the wellbeing of neonates and women of reproductive age. In addition birth weight is an important indicator of the survival of the newborn.

The trend of LBW in Tanzania shows some improvement (table 17). There are wide regional differences in the prevalence rate of low birth weight which also implies regional differences in maternal nutrition and survival of the newborn (table 18). The range for 1991 varied from 4.0 percent in Dar–Es–Salaam region to 21.0 in the Pwani (Coast) region. The 1991–92 DHS gave national estimates of the mean birth weight and prevalence of low birth weight in the five years preceding the survey which meant 1986/87. It also showed that about 53 percent of deliveries in mainland Tanzania take place in a health facility, indicating that there is still a substantial number of women who deliver at home and whose newborns may not be reflected in the rates of LBW. The apparently declining trend of the prevalence of LBW means that Tanzania can achieve the World Summit goal of a LBW prevalence of less than 10% by the years 2,000.

Table 18: Regional prevalence of low birth weight (1990–91), Tanzania Mainland

| Region | 1990 | | 1991 | |
|---------------|--------|-------|--------|-------|
| | Sample | % LBW | Sample | % LBW |
| Arusha | 27,065 | 6.1 | 28,377 | 6.1 |
| Dar–Es–Salaam | 51,597 | 10.0 | 52,761 | 4.0 |
| Dodoma | 23,749 | 8.0 | 23,495 | 8.0 |
| Iringa | 25,709 | 12.3 | 29,639 | 11.0 |
| Kagera | 20,918 | 9.6 | 21,933 | 10.0 |
| Kigoma | 23,378 | 11.0 | 24,716 | 8.0 |
| Kilimanjaro | 23,521 | 7.8 | 16,304 | 12.1 |
| Lindi | 15,646 | 9.2 | 16,586 | 7.7 |
| Mara | 12,949 | 8.0 | 16,522 | 7.0 |
| Mbeya | 32,228 | 5.1 | 37,863 | 4.5 |
| Morogoro | 27,803 | 9.0 | 45,043 | 8.0 |
| Mtwara | 22,155 | 9.0 | 24,693 | 13.0 |
| Mwanza | 35,908 | 10.5 | 40,287 | 9.0 |
| Pwani | 14,393 | 9.0 | 17,687 | 21.0 |
| Rukwa | 13,871 | 6.2 | 15,082 | 6.7 |
| Ruvuma | 20,978 | 8.5 | 26,152 | 9.9 |
| Singida | 14,268 | 6.0 | 16,099 | 5.0 |
| Shinyanga | 35,599 | 8.0 | 34,728 | 10.0 |
| Tabora | 28,473 | 10.0 | 33,238 | 8.0 |
| Tanga | 27,722 | 5.5 | 28,566 | 5.7 |

| | | | | |
|---------|---------|-----|---------|-----|
| Average | 497,930 | 8.4 | 549,771 | 8.7 |
|---------|---------|-----|---------|-----|

Source: MCH returns 1990–91

Micronutrient Malnutrition

The micronutrient deficiencies of public health significance are iron/folate, leading to **nutritional anaemia**; iodine leading to **iodine deficiency disorders (IDD) and vitamin A** leading to xerophthalmia and nutritional blindness. Other micronutrient deficiencies like of vitamins C (causing scurvy) and B (causing pellagra) are known to occur but are of little public health significance. Deficiencies of zinc and selenium which have been found of public health significance in some areas of India and China have not been noted in Tanzania, but their presence may become apparent as the overriding problems of PEM and the major three micronutrients deficiencies are successfully addressed.

As for Protein Energy Deficiency (PED) micronutrient malnutrition affect mainly under-five year children and pregnant and lactating women. The large populations affected and the wide spread spatial distribution of the micronutrient deficiency problems is among the important factors responsible for the urgent development of national micronutrient deficiency control programmes.

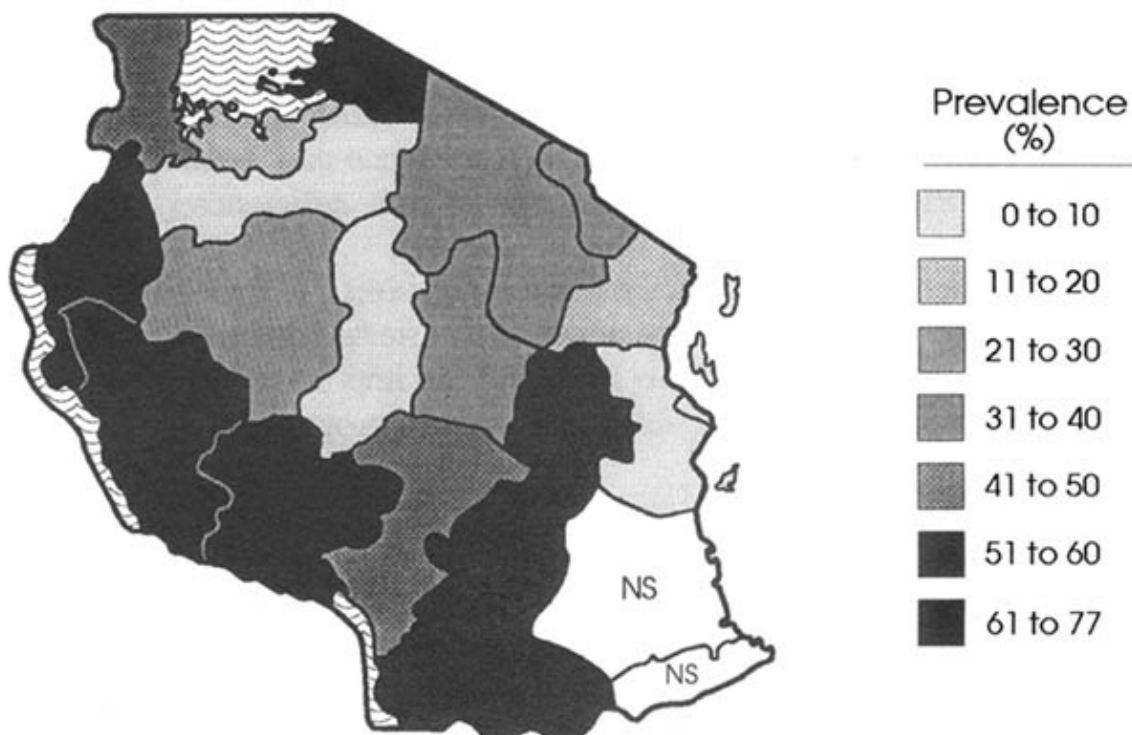
Iodine deficiency disorders (IDD)

Available data on IDD is based on an ongoing national survey started in 1980 and coordinated by TFNC where a random sample of 10 primary schools per district were surveyed as regards goitre prevalence.

On the basis of these goitre surveys TFNC estimates that nearly 40 percent of the Tanzanian population or 10 million people live in areas deficient of iodine and are, therefore, at risk of IDD. It is further estimated that out of those at risk, 5.0 million suffer from endemic goitre, 160,000 are cretins and probably 450,000 are cretinoids. This means that about 5.61 million people or nearly 25 percent of the total population suffer from IDD [van der Haar, Kavishe and Gebre–Mehdin 1988]. Furthermore it is estimated that about 30 percent of the perinatal mortality may be attributable to iodine deficiency. These estimations were done before the start of the capsule supplementation program in 1986, and evaluation results indicate that the problem of IDD may have substantially decreased over the past three to four years [Kavishe 1991].

Iodine deficiency disorders (IDD) show a true geographical pattern. Since the basic cause of IDD is iodine deficiency in the soil it is expected that crops grown or animals reared in such soils will also be iodine deficient. Thus IDD is expected to exhibit a geographical pattern on the basis of geophysical features favouring iodine loss from the soil like heavy rainfall highlands and low lands subjected to frequent floods. In fact this seems to be the case in Tanzania and worldwide; and IDD remain one of the most illustrative major public health problems in Geographical medicine. In Tanzania, the severity of IDD is highest in high altitude volcanic soils and a distinct pattern following the highlands and mountains of Western and Eastern arms of the Great Rift valley as it descends from the Kenya border to their confluence in lake Nyasa in the South can be discerned in the form of an “IDD belt”.

Unfortunately these are also the most fertile and climatically most favourable areas leading to a high concentration of the population. The severely IDD affected areas are also the most agriculturally productive and export food to the iodine sufficient areas. In such a situation, it cannot be expected for IDD to be controlled through trading of food. Map 2 indicates the severity and geographical distribution of the problem.



Map 2: Geographical distribution of goitre in Tanzania on basis of surveys, 1980 – 1990

Vitamin A deficiency (VAD)

The situation with regard to the problem of vitamin A deficiency in Tanzania is based on the results of a hospital based sentinel xerophthalmia surveillance system started in 1982 (Foster, Kavishe, and Sommer et al 1986) and various community based surveys [Pepping, Kavishe and Hacknetz et al, 1988].

The findings were suggestive of a problem of xerophthalmia of public health significance in the wider community at least in restricted areas and in at risk groups (table 19). Within areas, remarkable differences can be found between villages within an area. This clustering may be either in certain villages or parts of those villages and it is possible that it may extend to certain agro-climatic zones of the country.

Primary vitamin A deficiency and xerophthalmia though uncommon, mostly occurs in the drought prone semi-arid regions like Dodoma, Shinyanga and parts of Tabora and Mwanza. Since xerophthalmia is mainly associated with measles the geographical differentiation is expected to be more pronounced as the control of measles is been achieved. Because the major sources of vitamin A are the seasonal vegetables and yellow fruits; subclinical vitamin A deficiency is likely to follow the seasonal variations. Better methods for the drying of vitamin A rich vegetables for use during the dry season in the drought prone areas are needed as the present practice of sun drying destroys most of the vitamin A. As seen from table 19, the prevalence rates for serum retinol below 20 ug/dl are very closely correlated with that of abnormal conjunctival impression cytology (CIC). The rates of xerophthalmia, low serum retinol levels and abnormal CIC are typical of areas with a problem of vitamin A deficiency of public health significance.

On the basis of information available, TFNC has estimated that xerophthalmia leads to between two and four thousand new cases of blindness every year so that at any one time about 10,000 children are likely to be suffering from nutritional blindness at any one time [TFNC, 1990]. It is further estimated that vitamin A deficiency and xerophthalmia affects about 1.36 million people or 6 percent of the Tanzania population among whom 1.33 million or 98 percent of those affected are children under 6 years of age.

Table 19: Results of hospital surveillance (0–10 years) and community surveys on vitamin A deficiency in children under six years Tanzania (1982–1992)

| Type of survey | | Sample size | Prevalence criteria | Prevalence (%) |
|--------------------------|-----------|-------------|---------------------|----------------|
| 1. Hospital Surveillance | (1982–83) | 10,498 | Corneal scar | 1.4 |

| | | | | | |
|----|-------------------|-----------------|--------|----------------|------|
| | | (1983–84) | 10,363 | Corneal scar | 1.3 |
| 2. | Community surveys | | | | |
| | Various | (1983–1985) | 15,233 | Corneal scar | 0.3 |
| | Iringa | (1984, Mar–Jun) | 5,975 | Corneal scar | 0.4 |
| | | (1984, Nov) | 1,331 | Corneal scar | 2.7 |
| | Tabora | (1985, Mar) | 556 | Bitot's spot | 2.1 |
| | | (1986, Feb) | 3,177 | Bitot's spot | 6.0 |
| | Shinyanga | (1988, Sep–Oct) | 3,518 | Corneal scar | 0.2 |
| | | | | <u>Retinol</u> | |
| | Singida | (1991, Oct–Nov) | 226 | < 10 ug/dl | 14.6 |
| | | | | < 20 ug/dl | 60.2 |
| | | | 89 | Abnormal CIC | 52.8 |
| | | (1991, Nov–Dec) | | <u>Retinol</u> | |
| | | | 250 | < 10 ug/dl | 3.0 |
| | | | | < 20 ug/dl | 35.4 |
| | | | 275 | Abnormal CIC | 35.6 |
| | Kigoma | (1992, Feb–Mar) | 112 | <u>Retinol</u> | |
| | | | | < 10 ug/dl | 6.5 |
| | | | | < 20 ug/dl | 43.4 |
| | Singida | (1992) | 238 | <u>Retinol</u> | |
| | | | | < 10 ug/dl | 1.3 |
| | | | | > 20 ug/dl | 26.9 |
| | | | | Night blind | 0.4 |
| | | | | Xerophthalmia | 2.5 |
| | | | | Abnormal CIC | 32.9 |

Key: CIC = Conjunctival Impression Cytology

Source: Pepping et al, 1988 and TFNC, 1992

Nutritional Anaemia

Due to lack of wide spread objective diagnostic facilities, the epidemiological picture regarding the nature and extent of anaemia in Tanzania is incomplete. A recent study commissioned by TFNC [Mnyika 1991] reviewed all information related to anaemia and gathered data from 15 hospitals in 14 regions in mainland Tanzania based on the four geo-climatic zones (Coastal, Plateau, Lake, and Highland zones). The information collected indicated that among admitted under-five years, anaemia accounted for 20 to 80 percent of the admissions, while in pregnant women it accounted for 18 to 87 percent. Also anaemia was a direct cause of 5 percent of maternal mortality and an underlying cause in 63 – 73 percent of maternal deaths. These estimates are gross underestimates of the problem because the cut-off point for anaemia used in the rural hospitals and clinics is a haemoglobin (Hb) of < 8.5 g/dl which has been arbitrary chosen as the level at which a pharmaceutical approach is taken.

The WHO definition of anaemia at sea level [WHO, 1986] is a Hb of 11 g/dl for children aged 6 months to 6 years and pregnant female adults; 12 g/dl for older children up to 14 years and non-pregnant adult females; and 13 g/dl for adult males. The cut-off point used by TFNC is a Hb of 10 g/dl irrespective of sex and age [Kavishe, 1982] as this is the level at which there is no stainable iron in the bone marrow and symptoms and clinical pallor start to be noticed. The use of a haemoglobin cut-off level of less than 8.5 g/dl by the Ministry of Health for diagnosis of anaemia in the Ante-Natal Clinic was arbitrarily chosen as the trigger level for individual treatment and was based on the extensiveness of the problem and the scarce resources available for intervention. As a result a large section of the population who would be defined as anaemic according to WHO and TFNC reference values are left out of the anaemia equation.

An examination of available community based information collected by TFNC [Kavishe, 1991] shows that the prevalence of anaemia varies from 0 to 100 percent depending on population groups considered and the geographical location. Pregnant and lactating women and children under-five years constitute the most vulnerable groups. Multiparous women are more severely affected than primigravidae [Mnyika, 1991]. In areas where hookworm and schistosomiasis are highly prevalent, school children and even adult males are affected equally. A recent community-based study in four regions (Kilimanjaro, Dar-Es-Salaam, Morogoro and Mara) in a sex matched sample of 8616 subjects aged 15 years and over, revealed that the prevalence of anaemia was 21 percent without a gender difference [Kitange et al, 1991].

Where the anaemia has been typed it has been found that it is mainly of iron deficiency in nature with other factors usually worsen the situation. At Muhimbili Medical Centre during the late 1970's anaemia in pregnancy constituted about 50 percent of antenatal admissions in obstetrics and gynaecological wards and of these 83 percent were due to iron deficiency while 43 percent were due to folic acid deficiency [Mnyika, 1991]. At the same hospital in 1982 about 80 percent of paediatric anaemia were of nutritional origin, only 20 percent being due to other causes. In pregnancy and anaemia of malarial origin, mixed iron and folate deficiencies are also found. Even today nutritional anaemia remains the number one cause of obstetric admissions and maternal mortality in Tanzania. National estimates of the extent of the problem of anaemia indicate that on a general population basis nutritional anaemia is the most wide spread nutritional disorder in Tanzania, affecting 7.2 million people or 32 percent of the population with 45 percent of children under-five and 80 percent of pregnant and lactating women affected [Kavishe, 1987].

There is also a geographical distribution of **anaemia** which is determined by altitude and disease patterns. The problem is most serious in the coastal belt and other low altitude areas and decrease to negligible levels in altitudes above 3000 metres. This pattern mirrors that of malaria. The geographical pattern is associated with other factors such as sickle cell disease, the low bio-availability of iron from the mainly vegetable based sources; the effects of parasites especially malaria, intestinal parasites and bilharzia; and the widespread protein energy under-nutrition. Control of these diseases, and improved diet by use of more fruits and vegetables rich in iron and vitamin C would improve the problem. Germination and fermentation of foods using traditional methods also increases the bio-availability of iron. Additional iron and folate supplementation through the Maternal and Child Health (MCH) and Essential Drug Programme is needed to supplement pregnant women since diet alone cannot rectify deficiencies quickly enough. Regions with high fertility levels like Kilimanjaro, Kagera and Rukwa also seem to have higher prevalence rates of anaemia than would be expected. This is because of the frequent pregnancies which deplete the maternal iron reserves.

Fluorosis

Since fluorosis is due to an excess of fluoride in the soil and thus in the water and foods originating from such soils; a geophysical pattern is again evident with the northern and north western regions of Kilimanjaro, Arusha, Singida and Shinyanga being most affected. Most studies of fluorosis have been done in Arusha. The most severe focus with skeletal deformities is the Kitefu village in Arusha [Kisanga 1987]. At present the only approach taken to control the problem is to look for sources of water relatively low in fluoride when developing water systems in fluorosis affected areas.

Diet and nutrition related non-communicable diseases

Tanzania has started to enter the transition from the dominance of infectious diseases to that of non-infectious disease. This trend is particularly obvious in the urban areas where rapid urbanization has resulted in a shift away from the traditional cereal-based diet and home produced foods to the more high fat;

energy-rich; high salt and processed sugar-based foods.

Processed foods are now readily available following trade liberalization. Sugar based soft drinks; alcohol and ready to eat food items like fried chips, eggs, roasted meat, sweets, chocolates etc have sprung up in street kiosks in most towns in the country. In addition the more elite and business sections of urban communities have emulated sedentary unhealthy life styles which add to the risk of developing diet related non-communicable diseases.

This has resulted in three distinct population groups as far as nutrition is concerned. The first and major group is the rural population who have maintained their traditional diets which are often energy deficient and have continued to suffer from under-nutrition related problems. The second group is the urban middle and low income urban slum dwellers who despite their low purchasing power insist on consuming animal and refined foods rather than the more affordable staple cereals and tubers. This limits their access to food and often results in serious dietary and nutritional inadequacies. The third group is the urban elite and business group who have drastically altered their food habits and tend to consume high fat, high-salt, energy-rich and sugar based food items. They also lack physical exercises. This is the group which has been most affected by the transition and tend to suffer from diet related non-communicable diseases at rates similar to those in the industrialized countries.

Thus the urban population in Tanzania is confronted with the dual problems of under-nutrition and over-nutrition. While the former problem increases the risk of communicable diseases; the latter increases the risk of occurrence of chronic non-communicable diseases like coronary heart disease, hypertension, adult onset diabetes, dental carries etc.

Some observers have described three stages in the evolution of health care in the industrialized countries. Stage one was the time when communicable disease and malnutrition was common. As communicable disease diminished through improved nutrition, better health care, education, water and environmental sanitation, housing, and general social-economic development; stage two emerged as the stage of non-communicable diseases mainly of the cardiovascular and cerebrovascular systems. There is evidence that there is a decline in the stage two diseases in the industrialized countries and that a third stage of environmental and social pathology has started to emerge. The major threats in stage three are health problems from environmental exposure and changes in the social conditions in the family, community and work place. In Tanzania and other developing countries the present medical scene seem to consist of all three stages at varying degrees of severity. This presents a challenging dilemma for planners and decision makers.

At the present time nutritional programmes largely and rightly so focus on the problems of stage one in the most affected groups; children and women. At the same time Tanzania has taken up the challenge in addressing the problems of stage two and is participating in the WHO Inter-health Programme which seeks to prevent and control risk factors which are common to several of the major non-communicable diseases like smoking, excessive alcohol intake, obesity, lack of exercise etc. Apart from Mauritius, Tanzania is the only continental African country participating in this programme [Alberti, 1991].

An important question to ask at this stage is whether there is evidence for the existence of a problem of diet related no-communicable disease in Tanzania which merits some of the actions taken so far.

In answering this question some few facts have to be borne in mind. The first is that the causes of morbidity and mortality in adults who constitute the major population group affected with no-communicable diseases is not well known particularly at the community level. The second is that only very few studies have been done to look at the problem. Table 20 provide some insight into the causes of death in communities in Morogoro region.

Table 20: Causes of 97 adult deaths in Morogoro region (1990)

| | Cause of death | Percent |
|----|-----------------------|----------------|
| 1. | Infection | 40 |
| 2. | Nutritional Anaemia | 15 |
| 3. | Circulatory disorders | 11 |
| 5. | Accidents | 6 |

| | | |
|------------|----------------------|-----|
| 6. | Surgical emergencies | 6 |
| 7. | Miscellaneous | 6 |
| 8. | Pregnancy related | 4 |
| 9. | CNS disease/Epilepsy | 4 |
| 10. | Diabetes | 4 |
| 11. | Liver disease | 3 |
| 12. | Congenital problem | 2 |
| 13. | Asthma | 1 |
| 14. | Neoplasm | 1 |
| All Causes | | 100 |

Source: Non-Communicable disease project MMC (1990)

Some recent community studies have shown that the problem of diet related non-communicable disease and its associated factors is considerable as shown in table 21 below. The studies were conducted in Dar-Es-Salaam (n = 1457), Kilimanjaro (n= 3008), Morogoro (3089) and Mara (1062) regions.

Table 21: The prevalence of diet related non-communicable diseases in three regions of Tanzania

| Disease | Prevalence |
|-----------------------------|------------|
| 1. Hypertension | 3.0 – 12.8 |
| 2. Diabetes mellitus | 0.5 – 1.1 |
| 3. Obesity (BMI > 30) | 0.1 – 10.8 |
| 4. Smoking | 1.3 – 42.0 |
| 5. Alcohol consumption | 4.1 – 78.0 |
| 6. High blood cholesterol | 0.6 – 7.8 |
| 7. High blood triglycerides | 7.9 – 13.2 |

Source: Swai and McLarty et al 1990

A regional desegregation of the data shows that with the exception of cholesterol levels, Dar-es-Salaam has the highest prevalence of risk factors as shown in table 22. The high prevalence of high blood cholesterol levels in Kilimanjaro region may be a reflection of the custom of eating roasted meat.

Table 22: The prevalence (percent) of the major risk factors associated with diet related disease in three regions of Tanzania

| Region | n | BMI > 30 | Hypertension (more than 90/140 mmHg) | High Blood values of | |
|------------------|-------|----------|--------------------------------------|----------------------------|------------------------------|
| | | | | Cholesterol (> 6.5 mmol/l) | Triglycerides (> 1.7 mmol/l) |
| 1. Dar-Es-Salaam | 1,457 | 6.1 | 12.8 | 3.4 | 13.2 |
| 2. Kilimanjaro | 3,008 | 0.8 | 6.8 | 7.8 | 10.3 |
| 3. Morogoro | 3,089 | 0.6 | 4.0 | 0.6 | ? |
| 4. Mara | 1,062 | 0.9 | 3.0 | 0.7 | ? |

| | | | | | |
|---------|-------|-----|-----|-----|---|
| Average | 8,616 | 2.1 | 6.9 | 3.1 | ? |
|---------|-------|-----|-----|-----|---|

Source: Swai A.B and McLarty et al 1990

It has already been indicated in the section on adult malnutrition that the tendency to overweight and obesity is much higher in women than in men. However, men are affected by the risk factors at lower levels than women.

Apart from obesity the prevalence of cardiovascular risk factors is the same in the urban areas irrespective of occupation as shown in table 23.

The conclusion is that cardiovascular risk factors related to nutrition especially of serum cholesterol levels make it unlikely for diet related Cardiovascular Heart Disease (CHD) to emerge as a significant health problem among the rural population in the near future, but for the urban population the risk is real.

Table 23: The prevalence of risk factors according to employed occupation

| Risk Factor | Prevalence of risk factor (percent) | |
|---------------------|-------------------------------------|------------------------|
| | Executives (n= 138) | Non-executives (n= 77) |
| 1. Mean age (years) | 47 (SD 7.2) | 41 (SD 8.8) |
| 2. Diabetes | 9.7 | 2.6 |
| 3. IGT | 12.7 | 9.2 |
| 4. Hypertension | 30.4 | 39.0 |
| 5. Obesity | 29.0 | 11.7 |
| 6. Smoking | 13.0 | 19.0 |
| 7. Alcohol drinking | 45.0 | 68.0 |

Source: Lwakatare et al 1990

Most efforts should at the present time be concentrated on the prevention and control of hypertension and its complications and to emphasize a healthy lifestyle which should include a fair amount of exercise, healthy eating habits and the benefits of not smoking. For Tanzania to escape the problems of health care evolution described for the industrialized countries, a balanced approach to the problems of under-nutrition and over-nutrition will need to be pursued. Seychelles and Mauritius should serve as examples of the real risk of how the balance can be tipped to problems of over-nutrition.

Malnutrition and the Mortality pattern

The level of young child and maternal deaths and general malnutrition rates are usually regarded as the ultimate manifestation of the nutrition situation in a country. The nutrition situation directly affects the life expectancy of a community, and therefore, their quality of life. The pattern of young child and maternal mortality rates should, therefore, be considered in the discussion on malnutrition. Since data on mortality are not reliably nor comprehensively reported, the trends and patterns presented are based on data from health facilities and from a few community surveys.

Maternal mortality

Maternal mortality and morbidity constitute one of the major health problems in Tanzania. A maternal death is defined as the death of a woman while pregnant or within 42 days of the termination of pregnancy.

An examination of the institutional trend for maternal mortality in Tanzania indicate a rapid substantial decline, from about 450 per 100,000 live births in 1961 to about 200 in 1974, and since then it seems to have /stabilized around 200 maternal deaths per 100,000 live births with a tendency to fluctuate upwards. During the two years of 1990 and 1991, the fluctuations showed a definite increasing trend, reflecting a deterioration in the quality of health services which have been a major victim of both the economic crisis and structural adjustment. Maternal mortality is a measure of the quality of health services.

Table 24 shows the trend of maternal mortality from 1961 to 1991. It should be observed that although both the average national and regional figures (table 25) are below the 640/100,000 live births estimated for Africa, the deteriorating trend is a major reason for alarm. Moreover, the rate in Tanzania is over 60 times the rate in countries in the North. Compared to women in the North, Tanzanian women are 200 times more likely to die in childbirth because of the high risks during individual births combined with the higher number of children borne. This differential risk of death is greater than for any other population group. The risk is also greater for women in the southern and western regions of the country than elsewhere.

Table 24: The trend of maternal mortality in Tanzania Mainland 1961–1991

| Year | Maternal mortality per 100,000 births |
|------|---------------------------------------|
| 1961 | 453 |
| 1967 | 351 |
| 1972 | 252 |
| 1985 | 167 |
| 1986 | 197 |
| 1987 | 190 |
| 1990 | 190 |
| 1991 | 215 |

Source: Mandara and Kaisi (1991) and MOH, Family Planning Programme (1992)

A regional desegregation of the information shows wide regional variations and trends and alarmingly high levels of maternal mortality as shown in table 25.

The only region with an average maternal mortality rate below 100/100,000 live births is Kilimanjaro which also shows the best trend in reducing maternal mortality. Other regions where there is an overall reduction are Kagera, Lindi, Morogoro, Ruvuma and Tabora. The remaining regions show an overall increasing trend, the worst regions being Dar es salaam, Dodoma, Iringa, Mbeya, Mara, Singida and Tanga. In 1991 the maternal mortality ranged from a low 43/100,000 live births in Kilimanjaro region to a high 455/100,000 live births in Iringa.

Regions with rates above 400 are Iringa and Mbeya. Only Singida is between 300–400. Those between 200–300 are Tanga, Singida, Mwanza, Mara, Lindi, Kagera and Dodoma. The worsening situation in Iringa, Mara and Singida is paradoxical when considered in the context of the very successful Joint Nutrition Support Programme (JNSP) in Iringa and the subsequent Child Survival and Development (CSD) programmes in Iringa and the other regions. The explanation is that overall, the situation of women in the CSD programmes was not given adequate programmatic action to the extent given to child mortality and malnutrition. There is need to further analyze the alarming situation of maternal mortality taking into account the results of the recent Demographic and Health Survey (DHS) so that positive lessons can be drawn in reversing the situation.

The immediate causes of maternal deaths recorded in hospitals are haemorrhage, sepsis, obstructed labour, anaemia and malaria. Though the majority of the direct causes are due to direct obstetric causes (fig 4); most of the risk factors to those causes are related to nutrition. The high prevalence of chronic malnutrition in childhood (see section on children) leads to stunting, with the result that a large proportion of adult women are short (under 145 cm), with narrow pelvises which may obstruct labour. Maternal height is both a gauge of past nutritional state and present size, with all genetical provisos recognized. It correlates well with pelvic bony growth in earlier life and thus the possibility of obstructed labour in short women. Moreover over one-third of

women bear children at too early an age (less than 20 years) before they are physically mature increasing the risk of obstructed labour. The DHS data of 1991–92 show that teenage pregnancies are very common, 23.2 percent for Tanzanian Mainland and 23.9 percent for Zanzibar with the respective age at first birth being 18.8 and 18.4 years. The overall median age at first intercourse which is almost 100 percent unprotected, was found to be 16.6 years.

Table 25: Regional variations in maternal mortality in Tanzania 1985–1991

| Region | Maternal Mortality per 100,000 live births | | | | |
|-------------------|--|------|------|------|------|
| | 1985 | 1986 | 1987 | 1990 | 1991 |
| Arusha | 117 | 205 | 142 | 110 | 134 |
| Dar es salaam | 46 | 43 | 44 | 100 | 114 |
| Dodoma | 127 | 137 | 53 | 162 | 215 |
| Iringa | 192 | 147 | 258 | 306 | 455 |
| Kagera | 443 | 315 | 223 | 271 | 204 |
| Kigoma | 115 | 399 | 257 | 124 | 168 |
| Kilimanjaro | 68 | 51 | 105 | 57 | 43 |
| Lindi | 537 | 284 | 99 | 243 | 235 |
| Mara | 123 | 119 | 243 | 129 | 205 |
| Mbeya | 189 | 341 | 241 | 277 | 427 |
| Morogoro | 226 | 229 | 155 | 205 | 164 |
| Mtwara | 183 | 209 | 160 | 106 | 180 |
| Mwanza | 315 | 161 | 232 | 191 | 215 |
| Coast | 127 | 120 | 232 | 164 | 141 |
| Rukwa | 216 | 166 | 250 | 206 | 190 |
| Ruvuma | 636 | 341 | 331 | 201 | 198 |
| Singida | 68 | 159 | 104 | 329 | 353 |
| Shinyanga | 249 | 377 | 251 | 262 | 193 |
| Tabora | 160 | 154 | 126 | 149 | 132 |
| Tanga | 140 | 196 | 299 | 249 | 235 |
| Average, Mainland | 167 | 197 | 190 | 190 | 215 |

Source: Mandara and Kaisi (1991) and MOH, Family Planning Programme (1992)

Sepsis after surgery which contributes about 30 percent of maternal deaths and the major direct obstetric cause, is nutrition related in the sense that most surgical interventions are done due to obstructed labour caused by a narrow pelvis. Haemorrhage and rupture of the uterus, the second and third respective direct causes of maternal mortality are also related to maternal malnutrition caused by frequent pregnancies which weaken the uterus. According to the DHS data, the average birth interval for Tanzania Mainland and Zanzibar were 33.3 and 30.4 months respectively. Surprisingly, the DHS data show that on average women have the number of children they wish to have. The ideal wish was 6 and the total fertility rate was 6.2. Moreover, a large number of women in the rural areas have more than 8 pregnancies in their reproductive period. High fertility is associated with high rates of maternal mortality for two reasons: it increases the number of times a woman faces the risks of pregnancy and child birth and it increases the likelihood that the pregnancy will be

“high risk”. In addition, despite the availability of family planning services the rate of use of modern services of contraception is extremely low rising from as low as 5–7 percent during the late 1980’s to only about 10 percent during the early 1990s. The problem is compounded by the severe problems faced by the health delivery system due to lack of essential supplies and equipment, inadequate transport facilities including for referral, problems of staff shortage and lack of motivation.

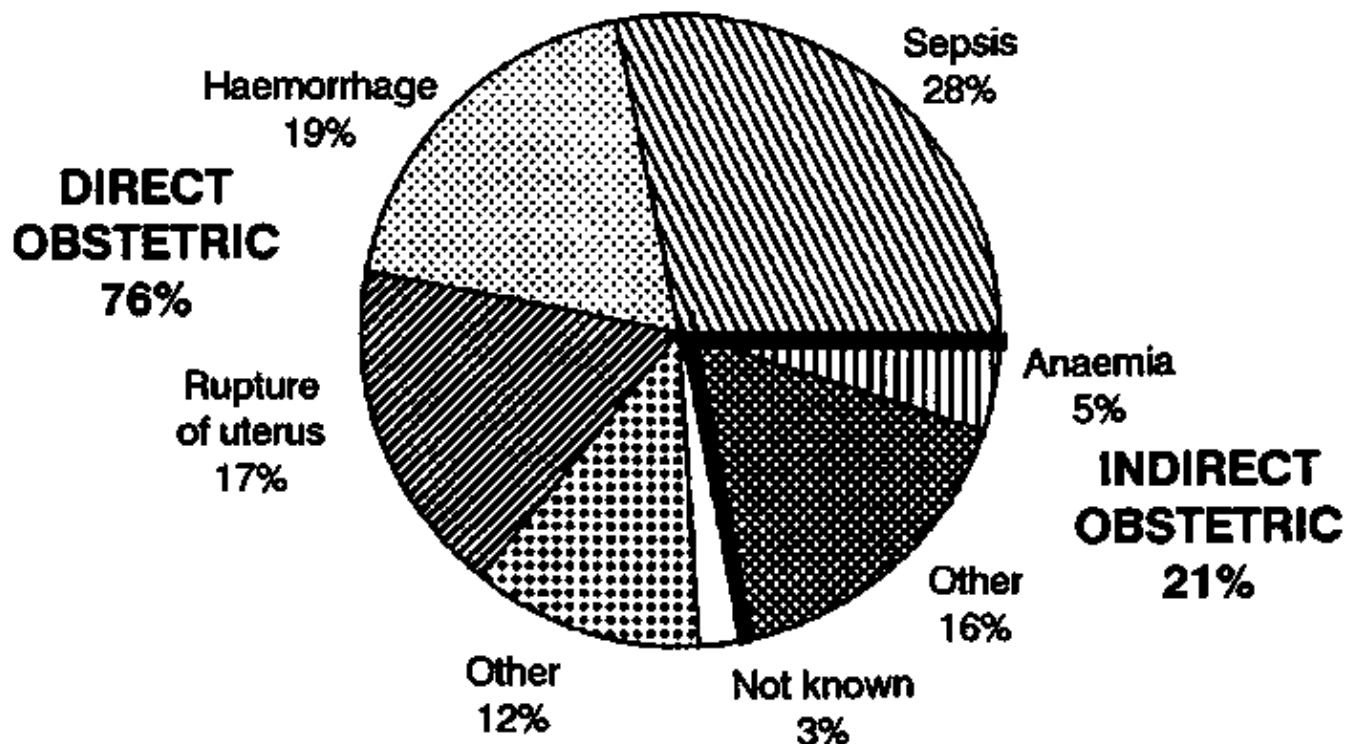


Figure 4: The main causes of maternal deaths in hospitals in mainland Tanzania, 1986

Source: M. Muru, “Maternal Mortality: How Much is Known about It?”.

Because of the generally low food intake and their heavy workload many women are left physically exhausted by the frequent pregnancies which do not give them enough time to build up their nutritional reserves and thus enter each next pregnancy in an unhealthier condition. This results in the phenomenon called the “maternal depletion syndrome” which makes them even more susceptible to disease. The very high rates of anaemia of pregnancy worsen the risks of childbirth. Even small loses of blood are dangerous for women with anaemia.

Perinatal mortality

An important outcome of pregnancy is the survival of the newborn. The concept of Safe Motherhood encompasses the safety of both the mother and the new born baby. The safety of the newborn can be gauged from its birth weight, which we have already discussed and its survival during the first week of life. The perinatal mortality rate is the number of deaths (including still births) within the first week of life per 1,000 live births.

Information on perinatal mortality in Tanzania is lacking. The few available information (Table 26) indicate that the rate is high and is associated with the birth weight of the baby which as we have seen is an indicator of maternal nutrition.

Table 26: Perinatal mortality rate (PNMR) per 1,000 live births according to birth state and birth weight, Ilula Village, Iringa

| Birth State | PNMR per 1,000 | PNMR according to birth weight in grams | | | |
|-------------|----------------|---|--|--|--|
| | | | | | |
| | | | | | |

| | | 1000–1999 (n=27) | 2000–2499 (n=48) | 2500–4500 (n=596) | Unknown (n=61) |
|-------------------------|-----|---------------------|---------------------|----------------------|-------------------|
| Singletons (n=682) | 67 | 667 | 111 | 24 | 333 |
| Twins (n=682) | 280 | 583 | 238 | 0 | 500 |
| Total births (n=732) | 82 | 630 | 170 | 24 | 344 |

Source: Moller et al (1988)

Infant and Under-five year child mortality

Studies done in Tanzania in children aged 6–30 months show that the relative risk of death is more than twice for moderate malnutrition and about eight times for severe malnutrition as compared to the well nourished group [Yambi, 1988]. The mortality rate of children under-five years of age (U5MR) can thus be used as a proxy of the gravity of the problem of malnutrition.

The national trends of both Infant Mortality Rate (IMR) and Under-five year Mortality Rate (U5MR) in Tanzania over the last four decades (table 27) shows that the mortality rates have been declining continuously between the 1950's and 1980's. The proportion of children dying between birth and their first year of life per 1,000 live births (IMR) declined from 19 percent in the early 1960s to 11.5 percent in the mid-eighties. Likewise the proportion of children who die between birth and their fifth birthday per 1,000 live births (U5MR) fell from over 30 percent in the 1950's to about 19 percent in the late 1980's. The 1985 IMR and U5MR are within the upper end of the range for Eastern African countries and in the middle range for the whole of Africa. But they are still very high by World standards and Tanzania remains among the countries in the world continuously classified as very high U5MR countries by UNICEF.

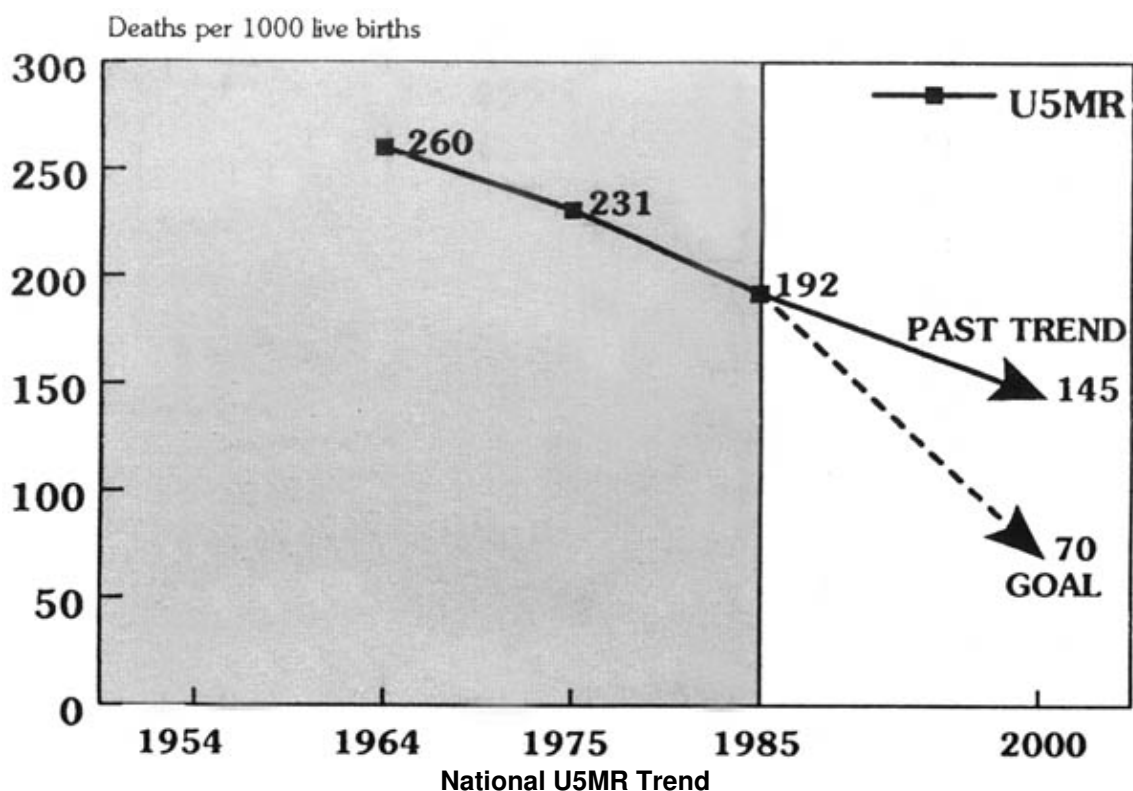
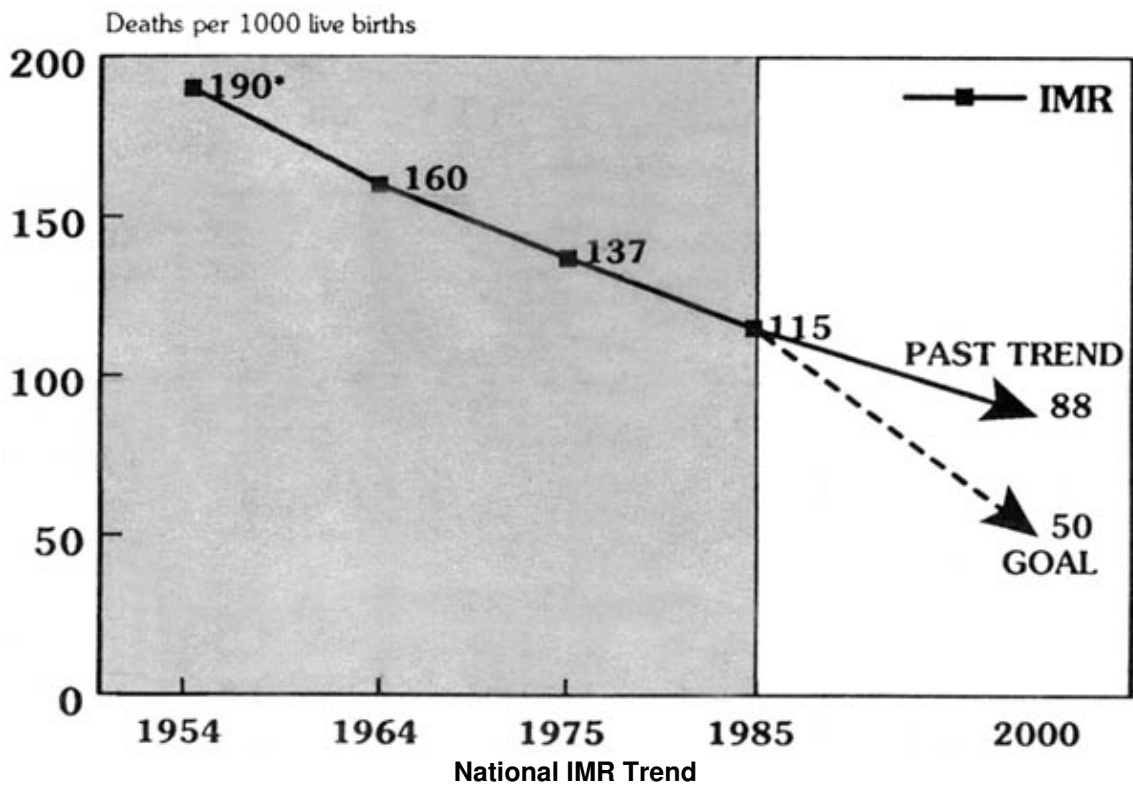
Table 27: The trends of life expectancy, IMR and U5MR in Tanzania (1957–1988)

| Year | Life expectancy at birth (years) | Infant Mortality Rate (IMR), (0/1,000) | Child Mortality rate (CMR), (1–4 yrs) 0/1,000 | Under-five Mortality Rate (U5MR) 0/1,000 |
|-------------|----------------------------------|--|---|--|
| 1957 Census | 35 | 190 | 110 | 300 |
| 1967 Census | 41 | 160 | 101 | 261 |
| 1978 Census | 51 | 137 | 100 | 231 |
| 1988 Census | 54 | 115 | 76 | 191 |

Source: URT, Bureau of Statistics (Population Census 1967–1988)

If the past trends of IMR and U5MR are projected to the year 2,000, an IMR of 88 will be achieved against a goal of 50; while an U5MR of 145 will be achieved against a goal of 70 (fig. 5). In order to achieve the national goals annual reduction rates of 5.7 for IMR and 6.9 for U5MR will be needed against a past trend of 1.8 percent and 1.9 percent respectively. The obvious implication for Tanzania is that more deliberate efforts need to be undertaken if the adopted goals are to be achieved.

Figure 5: National IMR and U5MR Trend for Tanzania (1961–2000)



Source: United Republic of Tanzania, Bureau of Statistics, 1978 and 1988 Population Census

* Represents only Tanzania Mainland

The trends of mortality and life expectancy shown in table 27 and figure 5 indicate that since independence in 1961 to 1985 there was a substantial improvement in the quality of life of the average Tanzanian. The substantial decrease in the Infant Mortality rate (IMR) of 39.5 percent and the rather slow decrease in the Child Mortality Rate (CMR) of 33.7 percent reflect that the improvements which took place were mainly the impact of improved health care rather than an improvement in the child's nutritional health and overall safety. This is also borne out by the nutritional status data which as we have already discussed showed a stable trend over time and place until 1985 onwards when specific large scale nutrition programmes were

undertaken.

As for maternal mortality an analysis of the IMR and U5MR for the 1988 census data estimates show wide regional variations (table 28).

Table 28: Regional Infant and Under-five Mortality Rates in Tanzania

| Region | Infant Mortality Rate (IMR, 0/1,000) | | Under Five Mortality Rate (U5MR), 0/1,000 | | Average annual reduction in U5MR | |
|-------------------|--------------------------------------|------|---|------|----------------------------------|-----------------------------------|
| | 1975 | 1985 | 1975 | 1985 | 1975-1985 | to reach 70/1000 by the year 2000 |
| Arusha | 108 | 75 | 179 | 119 | 4.2 | 3.6 |
| Coast | 121 | 113 | 204 | 189 | 0.8 | 6.9 |
| Dar es Salaam | 108 | 105 | 179 | 173 | 0.3 | 6.2 |
| Dodoma | 133 | 132 | 225 | 222 | 0.1 | 8.0 |
| Iringa | 152 | 130 | 257 | 220 | 1.6 | 7.9 |
| Kagera | 133 | 130 | 225 | 219 | 0.3 | 7.9 |
| Kigoma | 163 | 115 | 269 | 192 | 3.4 | 7.0 |
| Kilimanjaro | 76 | 67 | 119 | 104 | 1.4 | 2.3 |
| Lindi | 151 | 140 | 255 | 236 | 0.8 | 8.4 |
| Mara | 140 | 125 | 236 | 211 | 1.1 | 7.6 |
| Mbeya | 161 | 124 | 267 | 209 | 2.5 | 7.6 |
| Morogoro | 140 | 125 | 236 | 211 | 1.1 | 7.6 |
| Mtwara | 161 | 138 | 267 | 233 | 1.4 | 8.4 |
| Mwanza | 139 | 115 | 233 | 192 | 2.0 | 7.0 |
| Rukwa | 170 | 131 | 283 | 221 | 2.5 | 8.0 |
| Ruvuma | 145 | 113 | 245 | 188 | 2.7 | 6.8 |
| Shinyanga | 150 | 110 | 252 | 183 | 3.3 | 6.6 |
| Singida | 137 | 96 | 231 | 157 | 3.9 | 5.5 |
| Tabora | 140 | 101 | 236 | 166 | 3.6 | 5.9 |
| Tanga | 112 | 106 | 187 | 176 | 0.6 | 6.3 |
| Tanzania Mainland | 137 | 115 | 231 | 191 | 1.9 | 6.9 |

Source: United Republic of Tanzania, Bureau of Statistics, 1978 and 1988 population census

While the 1978 census data showed that the southern and western regions of the country had much higher rates of mortality than the northern and central regions; the 1988 data showed the southern, central and lake zone regions had higher rates than the other regions. The regions with the lowest mortality rates were Kilimanjaro, Arusha and Singida with U5MR of less than 160; those with relatively low levels of between 160 and 180 were Tabora, Dar es Salaam and Tanga. Twelve regions had an U5MR of between 180 and 215. The regions with the highest U5MR of above 215 were Lindi, Mtwara, Dodoma, Rukwa, Iringa and Kagera.

However, there has been a decline of IMR and U5MR in all regions. The rates of decline vary. Regions with

relatively rapid rates of decline (2.5 percent or more per annum) were Arusha, Singida, Tabora, Kigoma, Shinyanga, Mbeya and Rukwa. Regions with very little change (less than one percent per annum) include Dar-Es-Salaam, Kagera, Dodoma, Tanga, Lindi and Coast. Because of so little change some regions like Dodoma and Kagera which had been slightly better off than the national average in 1978, were much worse off in 1988. Conversely, regions like Singida, Tabora and Shinyanga which were worse off than the average in 1978, were better off than the national average in 1988.

A further desegregation of the 1988, IMR and U5MR data on a district level show even wider disparities than those observed at the regional level. While the regional variation for IMR and U5MR range from 67 and 104 (Kilimanjaro) to 140 and 236 (Lindi) respectively; the district variation ranges from 46 and 68 (Ngorongoro) to 167 and 281 (Mbeya Rural) respectively. Wide district variations occur even within the same region. There are also significant rural/urban variations for both mortality and malnutrition rates (table 29).

Table 29: Rates of infant and child mortality in rural and urban Tanzania

| Area | Infant Mortality Rate (IMR) 0/1,000 | Underfive mortality rate (U5MR) 0/1,000 | Malnutrition (W/A below -2SD) |
|-------|-------------------------------------|---|-------------------------------|
| Rural | 138 | 249 | 29.2 |
| Urban | 104 | 179 | 27.2 |

The likely explanation for these disparities are related to differences in income, education and the frequency of feeding young children rather than patterns of food availability, population growth or disease.

If the mortality reduction rates for 1975–85 are maintained, only Arusha region can achieve the IMR and U5MR goals of 50 and 70 respectively, by the year 2,000. Regions like Kilimanjaro and Singida could achieve the goals with a little more concerted effort. However, for the remaining 17 regions, dramatic efforts in according child survival priority will be needed. That infant and young child mortality rates declined during the economically crisis period of 1975–85 is another indication that the crisis did not significantly affect rural life.

CHAPTER 4: ANALYSIS OF THE DIFFERENT PROBLEMS AND CAUSES RELATED TO NUTRITIONAL STATUS

Introduction

By using the TFNC/UNICEF conceptual framework of the determinants of malnutrition, it is possible to distinguish three major levels of problems and causes related to malnutrition. These are:–

Level of problem

a) Immediate causes

General causes

i. Inadequate food intake

ii. Infectious Diseases

b) Underlying causes

i. Inadequate Household Food Security

ii. Inadequate Caring Capacity and women's control of resources

iii. Inadequate provision of essential services like health, education, water and sanitation and housing.

c) Basic causes

i. Economic

ii. Ecological

- iii. Political/Policies
- iv. Culture and beliefs
- v. Institutional

Both the level of the problem and the causes are interrelated. It is, therefore, important to stress especially at the level of **underlying causes of food, care and essential services that while all three are necessary conditions for good nutrition, none is sufficient on its own.**

The idea of putting a label on groups of issues as done in the model is only to facilitate communication and analysis. The model is neither predictive nor fixed; and issues can be transferred from one group to another without losing anything fundamental. The specific problems and causes related to nutrition will be discussed in further detail on the basis of the above model in the subsequent chapters. This chapter addresses the question of who are the malnourished?

Who are the malnourished?

The identification of the under-nourished or those at risk of being so is important not only for purposes of targeting interventions but also for purposes of taking preventive measures by providing adequate safety nets. Thus, the first question we need to ask when analysing the different problems and causes related to malnutrition is “who are the under-nourished?.” In answering this question, the concept of vulnerability will be used.

The vulnerable groups

Vulnerability refers both to biological and socioeconomic risks of becoming under-nourished. The biologically vulnerable groups are those groups who because of age (like children under-five years and the elderly) or physiological state (like pregnant and lactating women) are at a high risk of becoming under-nourished, because of their higher nutrient requirements for growth, or in relation to their physiological state. The socioeconomically vulnerable groups consist of the “poverty prone” groups who because of their low socioeconomic situation earn too little to get adequate socioeconomic access to proper nutrition. These consist of small farmers, the urban poor, and female-headed households. There are also the landless in areas where there is a shortage of land like in Kilimanjaro region. To this group must be added those without or with little education; and those living in geographically at risk areas like food growers in “drought/flood prone pockets” who face regular but transitory food insecurity. In addition there are those living in areas deficient of a specific nutrient, for example iodine. The HIV/AIDS pandemic has added another vulnerable group of households where one or both of the parents have died due to AIDS.

Since several of these groups overlap it is difficult to establish a global figure for the “nutritionally vulnerable population” of Tanzania. Moreover, since some of these “vulnerable groups” are delineated in terms of function (functional classification) they are mixed within our communities. We have already pointed out the institutional possibilities which exist for their identification in rural Tanzania. Their identification in the urban setting poses some problems and the British Overseas Development Agency (ODA) is funding a study to identify the malnourished in Mbeya Urban.

In the Report of the Task Force on Food Security in Africa (1988), the World Bank estimated that there were about 6.6 million people in Tanzania who were chronically food insecure in 1988. Thus, the most nutritionally vulnerable people are to be found in the groups shown in table 30. The figures given are gross estimates. Both the number and proportion of the poverty prone groups is increasing as a result of a low economic base, climatic shifts, high population growth, structural adjustment and the HIV/AIDS pandemic. The increase in poverty is typified by the increase in number of beggars especially in the urban areas; the new phenomenon of street children and a staggering youth unemployment who have emigrated from the rural areas to the urban areas in huge numbers. A visit to Kariakoo in Dar-Es-Salaam is an eye-sore to the problem of youth unemployment. Since for every one extra mouth to feed there are two hands to work, there is a need to create schemes to give them skills and employment.

Reductions in poverty lies in equitable economic growth and development. If the current 4 percent economic growth rate for Tanzania is stabilized across all sectors it seems that the fundamental economic reforms which have taken place during the last seven years have laid down a reasonable ground for further economic growth. It is hoped that in the process, the equity foundations laid down during the 1960s and 1970s will not

be thrown overboard. It is acknowledged that the safety nets incorporated in the economic restructuring may not capture all the poor. But the poor have demonstrated that what they need is not charity but rational policies to enable them produce or earn a decent living. It is encouraging that all the political parties seem to have alleviation of poverty as one of their agendas, but they have varying grasps of the problem and, therefore, its solution. While the poor provide the parties something to talk about, something to promise to correct and something that enables them make a show of their humanity, what is needed is not promises, but concrete policies and strategies for poverty reduction, alleviation and prevention. Unless adequate political, social and economic conditions for the prevention of poverty are laid down, the poor shall always be with us.

The pattern of vulnerability in Tanzania

Under-nutrition in Tanzania shows a distinctive pattern with respect to age, sex, socioeconomic status and geographical location. This pattern may be slightly modified depending on the specific type of malnutrition being considered. The pattern confirms the usefulness of the concept of vulnerable groups.

Age and sex pattern

We have already shown in chapter three that children under-five years of age, adolescent girls and pregnant and lactating women are not only the most nutritionally vulnerable, but their consequences in terms of survival, development and reproduction are most serious. Suffice it to add here that the biological vulnerability with regard to age and sex is usually superimposed on socioeconomic vulnerability which worsens the situation. For women, there is an added gender vulnerability that constraints their extrication from their socioeconomic and even environmental susceptibility. This will further be discussed in the section on women and control of resources.

Table 30: The magnitude of the nutritionally vulnerable groups in Tanzania

| Description of the vulnerable group | | Estimated number of people involved |
|-------------------------------------|---|-------------------------------------|
| A. | Poverty prone groups | |
| 1. | Rural households with holdings too small to provide sufficient subsistence | 700,000 |
| 2. | Rural households estimated to earn income below the absolute poverty line | 2,000,000 |
| 3. | Rural minimum wage earners working on the state farms and estates | 150,000 |
| 4. | Urban low-income workers, mostly engaged in informal sector activities | 600,000 |
| 5. | Food growers living in "drought/flood prone pockets" that face "transitory" food insecurity (40% of population) | 10,000,000 |
| B. | Biologically vulnerable groups | |
| 1. | Pregnant women | 1,500,000 |
| 2. | Toddlers from six months to three years who are passing through the weaning period | 4,000,000 |
| C. | Geographically vulnerable groups | |
| 1. | Every person living in iodine deficient areas (40 percent of the population) | 10,000,000 |

Source: World Bank (1988) and TFNC report no. 1322

Rural and urban variations

Because of the generally low socioeconomic development of the rural areas, all forms of malnutrition are consistently higher in the rural than in the urban areas. The 1991/92 DHS data confirm these earlier observations (table 31).

Table 31: Rural and urban variations in Nutrition indicators in wider-five children in Tanzania, DHS, 1991/92

| Area | N | Height-for-age (H/A) | | Weight-for-height (W/H) | | Weight-for-age (W/A) | |
|---------------|-------|----------------------|------|-------------------------|------|----------------------|------|
| | | -3SD | -2SD | -3SD | -2SD | -3SD | -2SD |
| Mainland | 5,943 | 19.7 | 46.6 | 1.2 | 5.5 | 7.0 | 28.5 |
| Dar-Es-Salaam | 277 | 11.3 | 28.5 | 1.3 | 6.8 | 4.0 | 19.9 |
| Other urban | 965 | 15.5 | 44.8 | 0.6 | 4.4 | 4.2 | 27.4 |
| Rural | 4,701 | 21.1 | 48.1 | 1.3 | 5.6 | 7.7 | 29.2 |
| Zanzibar | 152 | 25.7 | 47.9 | 1.5 | 11.0 | 12.3 | 39.9 |
| Tanzania | 6,095 | 19.8 | 46.7 | 1.2 | 5.6 | 7.1 | 28.8 |

Source: URT/Bureau of Statistics, 1993

The rural-urban differentiation of the rates of malnutrition hide the observation that in the peri-urban areas and urban slums, the rates are similar to those in the rural areas. It is of particular concern to point out that Zanzibar which is mostly urban has higher malnutrition rates than even rural Tanzania mainland. The DHS data confirm earlier observations that while there is a general trend of an improvement in the nutrition situation in the mainland, the general trend for Zanzibar is one of deterioration as can be seen in table 32. The trend for IMR and U5MR for Zanzibar is one of general decline, contrary to previous estimates which had indicated some increase. However, the inter-censal decline is very small; only of 0.3 per annum compared to 1.9 for mainland. To reach the goal of an U5MR of 70 by the year 2,000 an annual reduction rate of 7.3 will be required against one of 6.9 for the mainland.

The trend for Zanzibar can be explained by the fact that Zanzibar including the rural areas depend mainly on imported food which has been adversely affected by the economic crisis. An indication of the realization of this problem by the government of Zanzibar, is the initiation of a campaign to grow their own food called "Mtakula" (You shall eat).

There are also geographical differences in the rates of malnutrition. The geographical variation in the severe forms of malnutrition is more pronounced than for total malnutrition. For PEM, the South (Mtwara, Lindi and Ruvuma), South-Western (Iringa, Mbeya and Rukwa) and Western (Kigoma) regions of mainland Tanzania are more affected than the other regions. In the Islands, Pemba is more affected than Unguja; and the northern regions of both Unguja and Pemba are more affected than the northern regions.

Table 32: Rate of infant and child mortality and malnutrition in Zanzibar

| | Year | Unguja | | Pemba | Zanzibar |
|---|------|--------|---------|---------|----------|
| | | Urban | Rural | | |
| Infant Mortality | 1975 | 112 | 121-132 | 123-128 | 125 |
| | 1985 | 113 | 120-130 | 119-123 | 120 |
| Child Mortality | 1975 | 187 | 205-223 | 206-218 | 209 |
| | 1985 | 188 | 200-220 | 200-206 | 202 |
| Children underfive years (percent malnourished) | 1985 | 37 | ? | 38 | 37 |
| | 1990 | 48 | ? | 57 | 51 |
| Children under-five years (percent severely malnourished) | 1985 | 5 | ? | 7 | 5 |
| | 1986 | 6 | ? | 12 | 8 |

The differences in the rates of PEM seem to be related more to the level of socioeconomic development than climate or disease pattern. The agricultural systems which may be determined by climate have also been shown to affect the level of malnutrition. Generally speaking, agricultural systems dominated by livestock have lower rates of malnutrition than the other agricultural systems.

Socioeconomic vulnerability

The major socioeconomic factors which increase vulnerability to undernutrition are low education especially of the mother, low income and resource control by women and a large family size. Good parental education is usually a good proxy indicator for better access to services and good economic status. We shall discuss in more detail the situation with regard to these factors in subsequent relevant sections. Here we shall only indicate the major associations.

i) Education

Several studies which have looked at the influence of parental education particularly of the mother on the nutritional status of the children show that they positively affect nutritional status. In both the 1978 and 1988 censuses, infant and child mortality rates were lower in households with women possessing post-primary education than those with primary or no formal education. The 1991/92 DHS data give the most recent and most undisputed effect of education on several factors which affect nutritional status (table 33). In summary, those without formal education marry younger, have higher teenage pregnancies, are more polygamous, want more children and are less likely to use health facilities than those who have formal education. The higher the educational level the greater is the difference.

Though the relationship between education and survival is not always statistically demonstrated, education is normally the "key" to better opportunities for employment, accessibility to information and services and to independent and correct action with regard to survival and development. The instrumental role of education especially that of women in all nutrition related activities emphasizes education not only in relation to survival and development, but as a basic right.

Table 33: The effect of education on factors affecting nutritional status

| Factor | Mean | No education | Primary education | Secondary or more |
|------------------------------------|------|--------------|-------------------|-------------------|
| 1. Age at first pregnancy (years) | 18.8 | 18.3 | 19.1 | 23.4 |
| 2. Teenage pregnancy (percent) | 23.2 | 29.1 | 23.7 | 3.1 |
| 3. Polygamy (percent) | 27.5 | 35.4 | 22.2 | 14.2 |
| 4. Number of children wanted | 6.0 | 7.3 | 5.6 | 4.2 |
| 5. Delivery at health facility (%) | 53.2 | 38.3 | 59.4 | 81.4 |

Source: Family Planning Unit, MOH, 1992

ii) Vulnerability with regard to family size

The studies which have looked into the effect of family size on nutritional status, give variable results. Most studies however, have shown a worsening situation of the nutritional status with an increase in family size only in children under-five years while others have shown an increasing trend of higher malnutrition rates with increasing size of the household in general. The family composition is also an important factor, in that families with many members of relatively older ages could be contributing to the family resources than families with many younger members, who would mainly consume resources. Excluding the extended family system, birth spacing is a strong determining factor of child mortality which reflects the overall care. The higher the interval of birth spacing, and therefore smaller family size, the lower are the mortality rates and by implication lower malnutrition rates (table 34).

Table 34: Child spacing and mortality in Tanzania

| Birth interval (years) | Neonatal Mortality Rate | Infant Mortality Rate (IMR) | Underfive year Mortality Rate (U5MR) |
|------------------------|-------------------------|-----------------------------|--------------------------------------|
| < 2 | 69 | 160 | 230 |
| 2 – 3 | 27 | 80 | 134 |
| 4 or more | 25 | 65 | 93 |

Source: Family Planning Unit, MOH, 1922

iii) Economic vulnerability

At the household level, studies suggest that the smallholder sector could be divided into two distinct groups. The first is the resource weak families who comprise about 30–35 percent of total households. These are characterized by inadequate productive resources such as land, labour and cash, as well as entrepreneur skills and tend to be more malnourished with high mortalities and more vulnerable to seasonal adversity or adverse terms of trade. The second group are the relatively food secure majority, but who have to use a large proportion of their resources to achieve food security. Evidence suggest that both groups are at risk of food insecurity. Thus in the rural areas, food insecurity is widespread and chronic in the sense that there is always a certain degree of food deficit in the households during part of the year. It is not acute in the sense that no emergency action is required apart from disaster situations as those created by drought and floods.

Several studies in Tanzania have demonstrated the relationship between income classes and nutritional status of households. Using infant and child mortality rates as indicators of household nutritional status (table 35), it has been shown that (1) for all income classes (with the exception of the labourers and professional classes), infant and underfive child deaths are higher in the rural areas than urban areas; and (2) the higher the class or income, the lower the infant and underfive mortality rates in the household, with the highest income classes having two to three times less deaths.

Furthermore, analysis of the 1978 census data indicates that (1) life expectancy was higher among women with higher levels of education; (2) infant and child survival rates were also higher with higher levels of education among adults in their families, especially women; and (3) occupation and sources of livelihood (which are to a large degree determined by education) affected chances of survival. For example, women cultivators had lower survival rates than those with other occupations (made possible by education). On the education variable, rural people are likely to fair worse than urban ones. In this context, Tanzania's policy emphasis on education for all should be appreciated, for education empowers individuals and communities to manage their lives and environments.

Table 35: Infant and Underfive mortality rates (IMR and U5MR) per 1,000 live births by occupation of head of household: Rural and urban comparisons

| Area | Cultivators | | Labourers and other workers | | Craftsmen and operators | | Professional, managerial sales and clerical | |
|-------|-------------|------|-----------------------------|------|-------------------------|------|---|------|
| | IMR | U5MR | IMR | U5MR | IMR | U5MR | IMR | U5MR |
| Rural | 148 | 120 | 104 | 75 | 109 | 81 | 88 | 59 |
| Urban | 121 | 94 | 115 | 88 | 93 | 64 | 88 | 59 |

Source: Bureau of Statistics, 1978 Population Census, volume VIII, Dar es Salaam, Tanzania

In the rural areas, economic improvement does not automatically lead to improved nutritional status. For example in Njombe district in 1975 malnutrition levels in the purely subsistence section of the survey population were lower than in those areas where production for cash income was increasing [Jacobsen, 1975]. In the Iringa region nutrition survey of 1979/80 by TFNC [Ljungqvist, 1981] rates of malnutrition were found to be higher in villages with higher than with low crop production. In fact the village which had been chosen to be the best village because of its economic development had the highest rates of malnutrition. A study done in Kisarawe district Coast region in 1981 found no significant relationship between income, energy

intake per capita and nutritional status in a sample of 2155 underfives [Kavishe, 1981]. On the other hand a relationship between socioeconomic level and birth-weight was found in two studies [Bantje 1987 and 1988].

An examination of available data on birth-weight in a longitudinal perspective from the 1940 to 1980s by Bantje (1985) suggest that, on the whole, there has been a slow rise of birth-weight, from a gross average of 2940 g in the 1950s to about 2994 g in the late seventies. This can broadly be attributed to improved standards of living, especially better health care, in the course of time.

An exciting question is whether the economic crisis of the early 1980's would reflect itself in the nutritional status. Again Bantje (1985) finds no evidence of a decline in the remote rural stations where environmental conditions and the resulting food supply situation apparently were the decisive factors. In places closer to Dar es Salaam and the main road, therefore, presumably more closely linked to the national economy there was evidence of a rapid decline of birth-weight between 1979 and 1984 which are acknowledged as deep economic crisis years. In Ikwiriri (Coast region), Ilembula (Iringa region), Ifakara (Morogoro region) and Bagamoyo (Coast region), the subsequent improvement in the economy appears to have been reflected in a hesitant improvement of birth-weight. A similar trend was shown in Mbozi (Mbeya region) between 1983 and 1985 which may have been attributed to the expansion of the coffee industry and the fast increase of producer prices for coffee.

Seasonal vulnerability

Many studies have revealed the occurrence of seasonal variations in nutrition, health, vital events and economic social life, but the availability of such studies done in Tanzania is very limited. Seasonal variations found in one year sometimes do not recur in the next year, thus the length of the series needed to demonstrate such variations depend on the degree of internal variation in the ecosystem. A short series may be sufficient when the observed variations can be adequately explained from the available background information. We know for example that there is seasonal variation in food production and availability; heavy agricultural labour which affects caring capacity and the occurrence of diseases. To cope with the climatic uncertainties, the agricultural system in Tanzania displays a great deal of flexibility in terms of field sites, planting and replanting and the choice of crop varieties. All these variations must have an impact on the nutritional status of the population.

The FAO executed Women in Agriculture (WIA) project [FAO/TFNC, 1992] provide the most illustrative information with regard to the seasonal variation and causes of the nutritional status of under-fives and school children in Tanzania. For all types of malnutrition peak malnutrition rates were found during the rainy wet months of January to April and lowest rates were found after harvest during the months of September to November. According to the study the major determinants of the seasonality of malnutrition were the seasonal variations in food availability; disease rates and agricultural labour especially women labour which affect caring capacity.

This seasonal pattern also holds true for maternal nutrition as shown in a study by Bantje (1987 and 1988) using birth-weight as the indicator of maternal nutritional status. He attributed the seasonal differences to the different combinations of infection rates, dietary intake, reliability of food supply, food intake and the labour output of women which was reflected in a low mean maternal weight gain and variations in the mean birth-weight. The relatively high birth-weights he found during periods of food shortage without field labour suggested that heavy female labour had a decisive effect on birth-weight under conditions of inadequate food intake. Neuvians (1987), has also demonstrated a seasonal variation in the underfives year mortality rate (U5MR) and PEM related mortality in Bagamoyo district Coast region.

An examination of MCH data from selected districts [Bryccesson et al, 1986] also show a seasonal variation in the incidence of malnutrition with consistently high incidence rates between July and September which contrasts inversely with community surveys. The major reason for seeing high malnutrition rates in MCH clinics during July to September, which is indicated by community surveys as the lowest malnutrition period, is that in July-September, the harvest season is over and women have more time to send their children to the clinic [FAO/TFNC 1992]. Thus the MCH peaks do not indicate an increase of malnutrition in the community but the availability of time for women to take children to the clinics.

CHAPTER 5: FOOD SECURITY

Introduction

Food insecurity is one of the major problems related to nutritional status. Famine is the most severe and acute form of food insecurity and is a process often resulting from drought. This section discusses food security at both the national and household level emphasizing the latter. In analysing the problem area related to food security some difficulties arise. The first difficulty is the non-availability of an overall direct measure of the household food security situation. Even the indirect measures currently used are methodologically under-developed and not standardized and, therefore, various data cannot be directly compared.

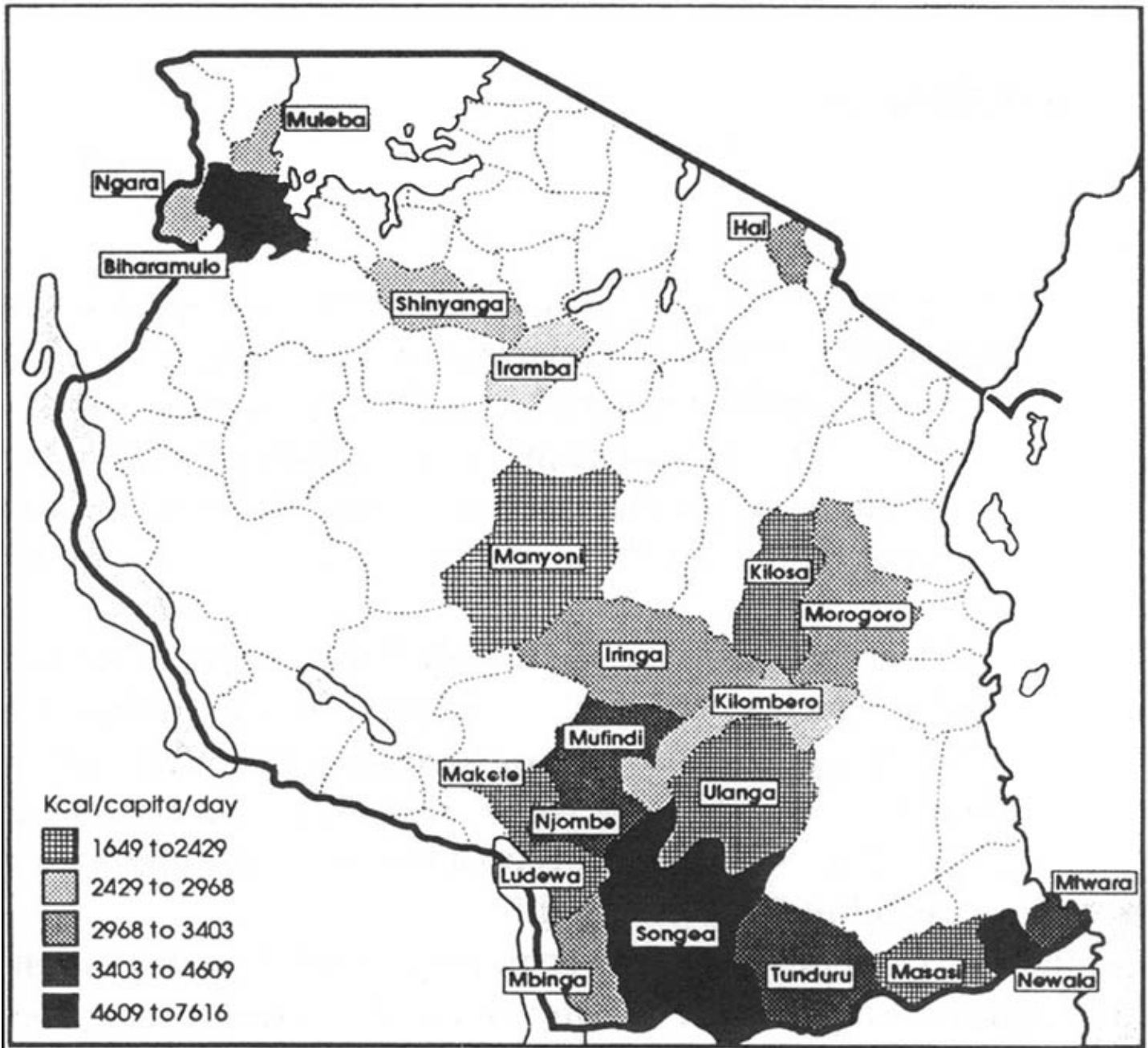
The second difficulty arises from the fact that food security has mainly been treated only as an issue of supply giving undue emphasis to food production and supply without adequate linkages to the nutrition situation. This is a reflection of the changing definitions of food security. What is food security and how can it be achieved still remain a subject of debate. In our discussion we shall adopt the World Bank and FAO definitions of food security which are to insure adequate food supply, year to year stability, and economic and social accessibility for a healthy life.

During the 1970's and for most of the 1980's emphasis was on achieving national food goals and food self-sufficiency. As discussed in the chapter on political economy and institutional context, food security planning was centrally run with fixed goals and many multi-sectoral initiatives with intense government involvement through production and marketing parastatals. In order to achieve the food security goals of the 1990s the food security policies need to adopt to the changing socioeconomic reforms and recognize the diversity and complexity of the problem of food security as experienced by the food insecure groups themselves. The primary focus need to be the food insecure individuals and households. Thus, emphasis need to be on household food security and not national food security. This chapter discusses the key issues affecting food security in Tanzania.

Food security and nutritional status

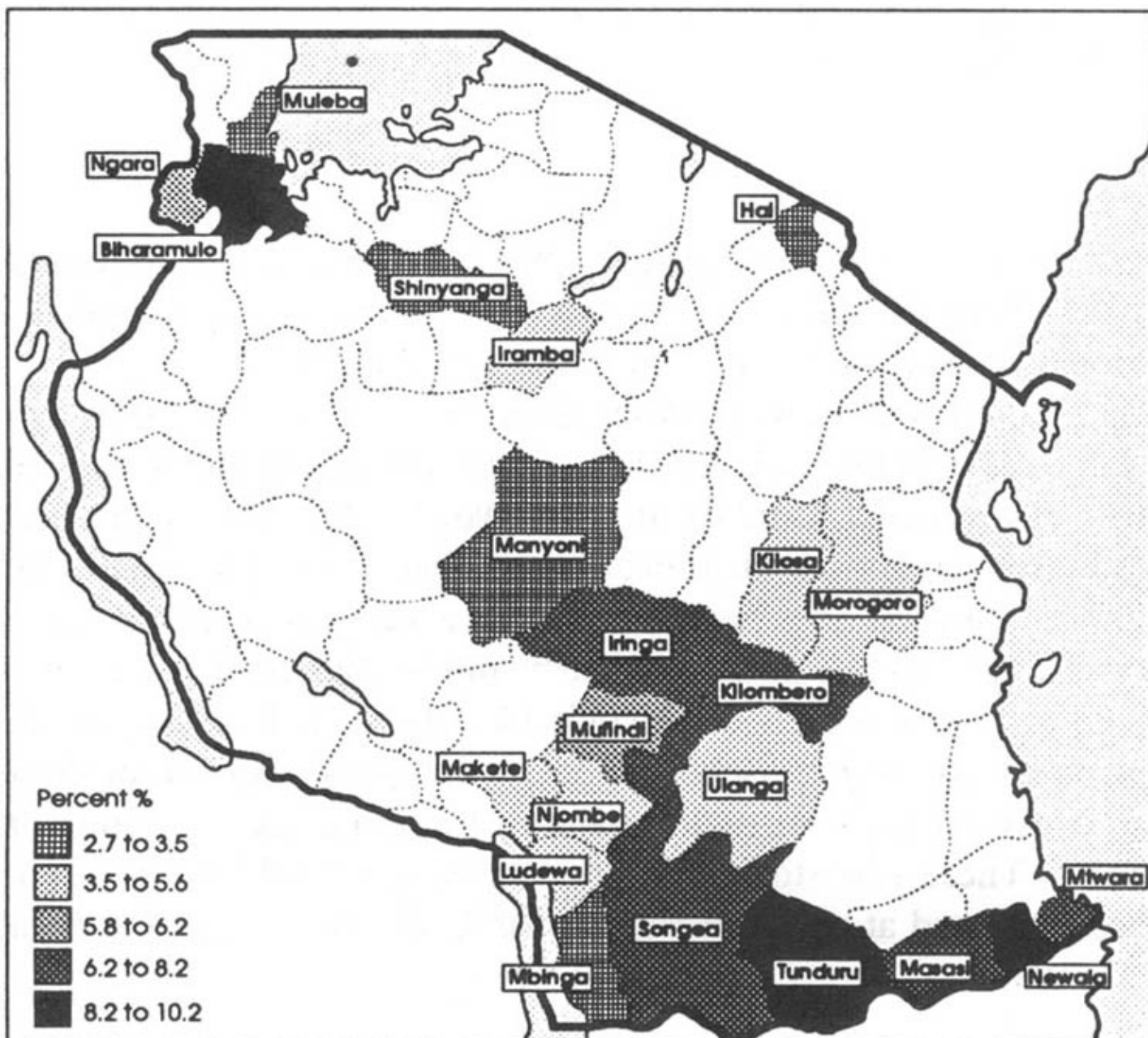
The problem of food insecurity at the national level is caused by a number of factors including serious disparities in consumption and production of cereals; lack of access to food grains; and logistical and financial constraints in the transportation and distribution of food grains to deficit areas.

When food production data is related to information regarding child malnutrition and mortality a paradoxical relationship is found. There is no clear relationship between child malnutrition and mortality at both the regional and district levels (maps 3 and 4). It is noteworthy that those areas with large volumes of food also suffer from high rates of malnutrition and child mortality. The reason for this discrepancy seems to be that availability of food does not guarantee its accessibility due to social and/or economic constraints. Thus household food security is clearly more than food production alone. For subsistence farmers, the need to satisfy non-food demands like clothing, housing, sugar, salt, farming tools, various fees etc; means balancing household food requirements against all these needs. For small holders this income pressure leads to their retaining for domestic consumption inadequate stocks to ensure food security. These low stocks may further be depleted by losses due to storage, spoilage and pests which are estimated at up to 40 percent for food grains and 75 percent for fruits and vegetables [Kavishe et al, 1990].



Map 3: Food balances in districts with CSD programmes

Sources: Ministry of Agriculture, Tanzania Food and Nutrition Centre



Map 4: Rates of severe malnutrition at start of CSD programmes

Source: Programmes for Women and Children

Factors determining household food security

The achievement of the goal of food security for all depends on three things, namely (1) food availability and stability of supply (2) economic and social accessibility to food and (3) food intake and utilization.

Food availability and stability

The first factor which affects food security is its availability and stability of supply. Food availability and stability depends on local production, ability to import and the efficiency of the distribution systems. Food production in Tanzania faces several problems. First, 98 percent of Tanzania's agriculture depends on rains and in every 3–5 years (on average) there has been crop failure (in some parts of the country) due to droughts floods or both. Severe droughts were experienced in 1961/62, 1970/71 and 1973–75, followed by floods in 1978/79 and poor rains in 1979/80 and 1980/81; then moderately satisfactory rains from 1981/82 to 1984/85, followed by floods in three 'grain basket' regions (Morogoro, Mbeya, Rukwa) in 1988/89 and in Kilimanjaro (Moshi and Rombo Districts) and Mtwara Regions during 1990/91. Droughts and floods affected large parts of the country

in 1992/93. Despite this apparent rhythm of drought and floods which result in food crisis nearing famine conditions, and despite the fact that no one has died from starvation in these situations, preparedness and response capacity for such disaster situations is low until a severe crisis is imminent.

Second, fanning technology is low: about 85 percent of cultivation is still done by hand hoe, and only 10 percent by oxen, and 5 percent by tractor. Farm inputs (fertilizers, hybrid seed, insecticides, herbicides, etc) are fast becoming inaccessible to the smallholder due to rising prices and removal of state subsidies. As shown in table 36, the supply of these inputs has not satisfied the existing demand.

Table 36: Selected Production Instruments and inputs: Requirements, Availability and Supply, 1990

| Instrument/inputs | Requirements (,000MT) | Percent availability | Percent supplied |
|-----------------------|-----------------------|----------------------|------------------|
| Improved seeds (tons) | 12.0 | 62.4 | 0.9 |
| Fertilizers (tons) | 175.0 | 93.8 | 53.3 |
| Tractors | 1.8 | 12.8 | 11.1 |
| Ox-ploughs | 40.0 | 27.4 | 27.3 |
| Chains | 300.0 | 13.3 | 3.8 |
| Hand hoes | 2,700.0 | 53.4 | 16.7 |
| Pangas | 1,200.0 | 13.7 | 10.7 |
| Axes | 350.0 | 45.5 | 8.8 |
| Ox-ridgers | 30.0 | 8.6 | – |
| Ox-cultivators | 21.0 | 12.4 | 0.1 |
| Bags | 30,000.0 | 17.8 | 7.0 |
| Jute twine (bales) | 4.0 | 50.0 | 2.5 |
| Insecticides (litres) | 3,269.5 | 38.8 | 29.8 |
| Herbicides (litres) | 953.6 | 41.7 | 17.7 |
| Fungicides (litres) | 1,830.3 | 0.7 | 6.8 |

Source: URT 1990, pp. 119–120 Note: The discrepancy between availability and supply results from non-purchase of the items concerned due to distribution problems and un-affordable prices.

The alarmingly wide discrepancy between the amount available and the amount supplied or purchased arises mainly from distribution problems and un-affordable prices.

Third, in general, cash crop production out-competes food production in terms of inputs, credit and extension services. For example, of the 55,200 tons of fertilizers sold by the TFC in 1972, only 19,200 tons (35 percent) was used on food crops; and of all the funds loaned by Tanzania Rural Development Bank (TRDB, now CRDB) in 1978/79, only about 19 percent was for food production (Woldermariam 1981:2).

Fourth, the pattern of resource allocation, as we saw earlier, has not favoured agriculture as the policy would suggest. Food industries (only 145 in 1989) are still very few relative to the potential that exists – e.g. canning of fish and fruits. This means that such nutritious foods as vegetables and fruits are available only seasonally to most people.

Finally, the general trend has been capital flight from the agricultural sector (and rural areas in general) to more profitable, urban based sectors – e.g. commerce and, recently, light industries. Thus though small scale rural agriculture is the major supporter of Tanzania's economy, poor infrastructure in the rural areas partly accounts for this trend. Moreover, due to high costs of production inputs and transport, marketed staples are

even more import-dependent than the traditional export crops (table 37).

Table 37: Import Needs to Produce US\$ 100 worth of Output: Food and Cash Crops Compared as per 1987/88

| Crop | Import requirements (US\$) | Type of major requirement |
|---------------------------------|----------------------------|---------------------------|
| Staple/Food | | |
| Maize (marketed) | 68 | Transport |
| Cassava (marketed) | 103 | Transport |
| Sugar | 103 | production inputs |
| Wheat (large-scale, mechanized) | 106 | production inputs |
| Rice (large scale, mechanized) | 52 | production inputs |
| Export Crops | | |
| Hard coffee | 8 | pesticides |
| Mild coffee | 10 | pesticides |
| Cashewnuts | 17 | pesticides |
| Pyrethrum | 28 | production inputs |
| Cotton | 27 | production inputs |
| Tobacco | 67 | production inputs |
| Tea | 21 | production inputs |
| Sisal | 67 | production inputs |

Source: MDB, 1988

Thus it is much cheaper to import wheat, rice and maize for the Dar es Salaam market than to have them produced in peripheral regions and transported there. This creates a problem for the policy of food self-sufficiency, as the government has recognized ".....it is not helpful to regard all types of food production as examples of self-sufficiency when the large-scale mechanized production of wheat and sugar requires over a dollar's worth of imported pesticides, machinery, management, etc, to produce one dollar's worth of output" (MDB 1987 and 1988:12).

Viewed nationally – i.e. discounting regional and district variations – land shortage has not been a major constraint on food production. The country has huge land resources, with average population density of 26 people per sq km, and about 60 percent of the land area is cultivable. Moreover, party and government policy permits, encourages and assists people in land-deficit areas to migrate to land-surplus areas. Aggregate data show that in 'normal' years adequate food is produced nationally, but availability is hampered by distribution problems. In bad years, however, huge deficits occur in the main staples, as shown in table 38.

Table 38: Production of Main Staples Versus Requirements, 1990

| Crop | Actual production ('000 metric tons) | Requirements ('000 metric tons) | Surplus + or deficit – |
|-------|--------------------------------------|---------------------------------|------------------------|
| Maize | 2,270.5 | 2,245.0 | +25.5 |
| Rice | 294.0 | 431.0 | -137.0 |
| Wheat | 75.7 | 143.0 | -67.3 |
| Beans | 369.1 | 323.0 | +46.1 |

| | | | |
|----------|---------|---------|--------|
| Millet | 745.4 | 834.0 | -88.6 |
| Cassava | 1,168.8 | 1,494.0 | -325.2 |
| Potatoes | 233.6 | 487.0 | -253.4 |
| Bananas | 633.9 | 517.0 | -116.9 |

Source: URT 1990, p.15

Tanzania's potential for food production

Tanzania has one of the largest agricultural potentials of all East and Southern African countries [Beir et al 1990]. Mainland Tanzania has a land area of 88.6 million hectares of which 39.5 million (44.6 percent) can be cultivated under rain fed conditions. Of this only 17.6 percent or 7.0 million hectares were cultivated in 1988/89 when the population was estimated at about 23.0 million. The area under irrigation is 144,000 ha of which 26,000 ha are "modern" and the remainder is traditional mainly for paddy production and some vegetables. Woods and forests cover about half the country. Much of these are infested with tse-tse flies making them inhospitable for the habitation of both humans and domestic animals.

Tanzania's agricultural potential is also reflected in the role of agriculture as the single most important sector in the economy. In 1989 the agricultural sector contributed on average 51 percent of the GDP; and accounted for over 72 percent of export earnings. For the majority of Tanzanians, agriculture is the main source of livelihood: some 85-90 percent of the labour force is engaged in agricultural activities including about 20 percent of the urban population [Beir et al 1990]. Most of the agricultural production is done on small scale, labour intensive farms, with archaic low productivity technology. Subsistence farming comprises of about 70-75 percent of total food production. Agriculture provides raw materials for over 85 percent of the country's industrial production. Nearly 80 percent of the sector's output is generated by these smallholder, with an average farm size of 2.0 ha. The majority of the remaining 20 percent is derived from large scale, until recently, public commercial "estates" which are mainly confined to the production of sisal, sugar, tea, wheat, irrigated paddy, with some dairy, poultry and beef enterprises. A third important segment of the agricultural sector is dominated by extensive beef cattle production mostly as an integral component of mixed crop and livestock farms or as a single pastoral activity in the semi-arid range-lands.

There are enormous land resources and small scale irrigation potentials to sustain a much higher level of crop production and diversification than exists at present. The population arable land ratio in Tanzania is still so favourable that principally Tanzania is said to be able to potentially provide all the food its neighbours may need [Beir et al, 1990].

However, there is a large discrepancy between Tanzania's agricultural potential and its realisation and for many years Tanzania has been importing huge amounts of grain every year sometimes from its less potentially endowed neighbours.

This discrepancy is reflected in the low growth of the agricultural sector over a number of years (figure 6). For the past decade although there were significant annual fluctuations; the long term trend has been a downward one: a low 1.4 percent annual growth over the period 1978-88 [URT/Planning Commission 1991].

While a variety of factors are to blame, at the heart of the problem is low agricultural production and productivity coupled with an imbalance between agricultural growth and population growth [URT/Planning Commission, 1991]. When growth in food crop production falls below the rate of population growth as has been happening in Tanzania the imbalance in the food-population relationship created results in the need to import food from outside the country to check this imbalance or alternatively a decline in the nutritional status of the population.

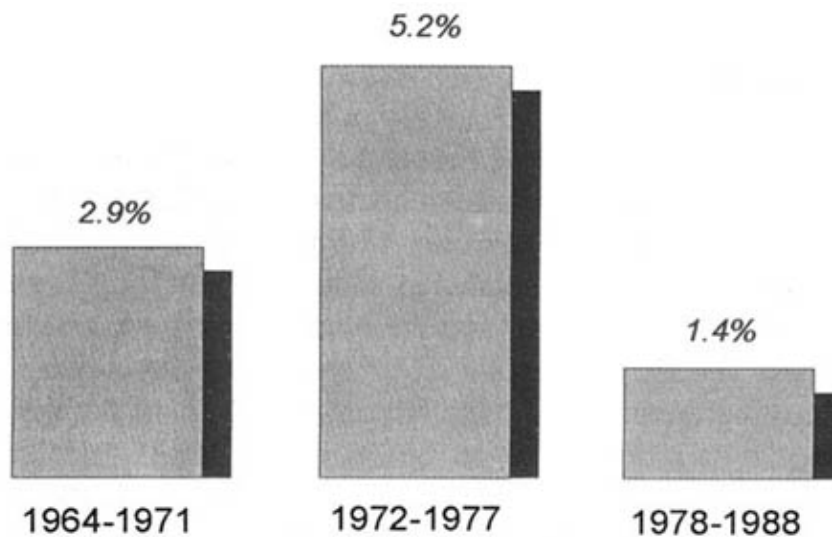


Figure 6: Average annual growth in Agriculture 1964–1988

An examination of the pattern of food production in Tanzania shows some two distinct peculiarities. The first is that food production is mainly spread around the borders of the country. This means that food must move from the “wet” border regions to the “dry” central regions and particularly the populous urban centres. The food production pattern is a reflection of the rainfall pattern, which averages around 2,000 mm at the periphery to less than 600 mm at Dodoma, in the dry central zone. The rainfall annual distribution is bi-modal in the higher rainfall areas, with “short” rains in October–November followed by more reliable “long” rains in March–May. In the rest of the country, the pattern is mono-modal with a wet season from November to April. The peripheral zones are also endowed with fertile soils and good topography which favour intensive farming. As a result most agro-economic activities and populations are also concentrated in the peripheral zones.

Second the most important food producing regions of Mbeya, Ruvuma, Rukwa and Iringa are extremely far from the major urban population, Dar–Es–Salaam which is the largest food deficit region. This continues to stress the importance of transportation links and infrastructural facilities such as marketing and communication for national food security. Thus, the viability of depending on the Southern highland regions as an approach to national food security needs to be revisited. For example, Morogoro region which is very close to Dar–Es–Salaam could be developed to feed this fast growing city and the production from the southern highlands could be exported to the neighbouring countries through cross-border trade. The foreign money realized could be re-invested in the modernization of the agriculture sector in those regions.

The problem of urban food security is compounded by the growing urban population resulting from high birth rates and migration from the countryside. The average annual growth for all urban districts combined was 4.1 percent between 1978 and 1988 well above the 2.8 percent for the country as a whole [URT/Planning Commission 1991]. Dar–Es–Salaam with an annual growth rate of about eight percent is the fastest growing urban centre. Rapid growth will continue to place additional demands on the social and physical infrastructure in the urban areas which are already in dire need of repair. Unemployment is rampant, housing is un-affordable if not impossible to find and water and environmental sanitation are grossly inadequate. This results in an increasing number of food insecure households especially in the peri-urban areas.

Food crop versus cash crops

In order to address this issue in perspective, there are two observations which need to be made. The first is that the rates of malnutrition in areas with both a cash crop and a staple food crop are generally lower, and more responsive to intervention than in other areas. The major example is the coffee–banana crop systems of Kilimanjaro, Kagera and Mbeya. In these areas, the staple food crop which is mainly bananas is almost entirely produced and its use controlled by women. Men control the cash crop income mainly from coffee, although women labour is crucial to its production. Men tend to use most of this income on non-nutrition related expenditures, but with social mobilization for nutrition improvement as done by the CSD programmes, cash crop income can be successfully tapped to achieve food security.

The second observation is that in areas where the food crop is also the cash crop, like in Ruvuma, parts of Iringa, Mbeya and Rukwa (where the staple and cash crop is maize), malnutrition rates tend to be higher. This

is contrary to the outcome of research by IFPRI in other countries which show that commercialization of agriculture has great nutritional impact if a cash crop is also a food crop. The explanation is found in the observation that men tend to take most of the income and divert it to luxury consumption which do not lead to nutrition improvement, leaving the women without any other income option. There is also the risk that most of the food will be sold without leaving enough stocks to last until the next harvest. The TFNC food security card for grains was developed to address such situations. It appears that this observation on the negative aspects of a dual food–cash crop is transitory, and can in fact act as an incentive to increased production provided that productivity and marketing constraints can be overcome. Presently, there are farmers who are increasingly abandoning cash crop only approach to a dual cash–food crop approach.

Normally in Tanzania, the cash crop land productivity is several times higher than for food crops because of the attention and crop husbandry including extension services given to cash crop as compared to the food crops.

Since agriculture in Tanzania is labour intensive the size of holdings and area planted by crops increases with the number of people in the household [URT, 1989]. Thus with the low levels of technology available and the competition offered by cash crops labour becomes a critical factor in any efforts aimed at increasing productivity in food crop cultivation. Labour constraints are often the explanation for the declining yields per hectare observed when the size of holdings is increased. This is made worse by an increasing trend towards female headed households who have to share their time with other household competing priorities leading to smaller holdings, area planted and thus total production. In the majority of cases food crops cultivation seem to have been relegated to women while cash crop production is the domain of men. All these factors eventually impact on the level of self–food sufficiency attained and thus nutritional status.

However, it should be stressed that cash crops have a definite role to play in improving food security provided a balanced approach is taken. This is because cash crops like coffee or tea have a value per hectare several times higher than that of basic staples like maize and can therefore generate higher incomes, especially where land is scarce as it has been noted for Kilimanjaro and Kagera. Thus cash crops can benefit food security in Tanzania if policies which maximize the benefit of cash crops to the poor and the food insecure are pursued by continued support to the small farmer; reinvestment of agricultural profits to the rural areas; avoiding profit diversion to luxury consumption; maximizing production linkages and creating more efficient food systems. In order to avoid the price insecurity of few cash crops the present stress on commodity diversification need to continue.

Food aid and food security

Until the early 1980s food aid mainly from America and Europe principally in the form of milk and yellow maize was available in both food crisis and non–crisis years. The potential use of food aid as a political weapon and the dependency effect of food aid in situations of endemic malnutrition created a strong debate whose outcome was to convert the use of food aid for developmental purposes rather than for charity distribution. A better integration and monetization of food aid and financial aid and a more flexible and better management of the counterpart funds could provide stronger basis for food aid in the achievement of food security. However, in crisis situations like in severe drought, floods and other natural and man made calamities direct food aid and medical supplies is essential to sustain life.

National self food–sufficiency

Until the mid–1970s, excepting during drought years, Tanzania was largely self–sufficient in food production. During the 1961–66 period; food self sufficiency was taken for granted and at that time; Tanzania was the only independent African country achieving a growth trend in food production greater than that of its population [Amani et al, 1988]. The situation started to change during the two drought years 1973–75; when food grain imports especially maize were necessary for relief during the crisis years. A campaign dubbed “Kilimo cha Kufa na Kuona” (Agriculture as a matter of life and death) was then started and coupled with the World Bank financed national maize programme, Tanzania was once again able to produce enough food and exported maize in 1978 [Kavishe 1982].

But the economic crisis of the 1970s and early 1980s immediately reversed the situation. Coupled with structural rigidity and drought an unprecedented food crisis ensued from 1981 to 1984 when food rationing

was characterized by long queues and issuing of “vibalis” (permits for purchase of essential items).

Good rains since 1984–85 and price incentives resulting from long delayed structural policy reforms resulted in a significant increase in food production.

An analysis of national level food balance data for the past half decade show that on aggregate terms Tanzania produces enough food to satisfy domestic food requirements [Kavishe et al 1990]. Thus it seems that at the aggregate level food security is not in jeopardy because of insufficient food production.

Table 39: Annual aggregate food balance, Tanzania Mainland, 1984/85 – 1989/90

| Years | Total Production | | Total requirements ¹ | | Available ² balance (% of requirements) | |
|---------|------------------|-----------------|---------------------------------|-----------------|--|--------|
| | Food (,000 mt) | Energy (m.kcal) | Food (,000 mt) | Energy (m.kcal) | Food | Energy |
| 1984/85 | 7,026 | 24,261 | 4,543 | 21,047 | 131 | 98 |
| 1985/86 | 6,972 | 24,100 | 4,670 | 21,637 | 127 | 95 |
| 1986/87 | 7,048 | 24,499 | 4,801 | 22,243 | 125 | 94 |
| 1987/88 | 6,780 | 23,598 | 4,935 | 22,865 | 117 | 88 |
| 1988/89 | 7,919 | 27,355 | 5,073 | 23,506 | 133 | 99 |
| 1989/90 | 7,819 | 27,010 | 5,073 | 23,506 | 131 | 98 |

¹ Based on TFNC calculations. 1989/90 figures based on 1989 population estimates

² Excludes seed and post-harvest losses of 15 percent.

Source: MOA and TFNC, 1991

But it should also be noted that despite the good weather and the economic recovery during the last half of the 1980s aggregate national food availability has not been that of plenty, but of a flimsy balance between production and needs (table 39).

The computations arriving at table 39 do not take into account energy intake from animal products like livestock and fish. The Livestock Development Programme in the Ministry of Agriculture Livestock Development and Cooperatives estimated the following volume of products for 1988: 457 million litre of milk; 184,000 tonnes of beef; 28,000 tonnes of sheep and goat meat; 290 million units of eggs; 15,000 tonnes of poultry and 8,000 tonnes of pig meat. In 1987 it was estimated that 303,000 tonnes of fresh water fish were caught, 53 percent from lake Victoria [Kavishe 1991]. Though no figures for sea fish have been given it can be imagined that the more than 900 km coastline is a fish-gold-mine.

In 1991 Tanzania was described as **marginally self-sufficient with maize and rice surpluses in some years; with severe internal food distribution problems** [SADCC, 1991]. The level of cereal sufficiency was estimated to be at 91 percent; national cereal food security at 94 percent and national food aid dependency at 3 percent. This was a fairly better situation than a number of countries in the SADCC countries (SADCC, 1991). The situation was dramatically changed by the severe drought of 1992 which affected the Eastern and Southern African region from Ethiopia including South Africa causing severe food security problems. Observers have termed the drought as the worst in living memory. Unlike Zambia and Zimbabwe which were severely affected, Tanzania experienced only pockets of severe food insecurity which was cushioned by internal redistribution of food and modest food aid and imports.

Although the overall food security situation appeared to be satisfactory, 14 out of 20 (70 percent) of the mainland regions faced varying degrees of food deficits in 1991/92. The major reason for this situation was low food production due to poor rains. The 1993 rains resulted in floods in some areas adding salt to injury. Drought and flood stricken rural populations are especially vulnerable.

Logistical and financial constraints have continued to seriously hamper efforts to access food surpluses for the urban population. The strategic grain reserve in Dar-Es-Salaam stocks only maize. The emphasis on maize

stems from the fact that maize is the most important staple crop in Tanzania, grown by more than 50 percent of the farmers for both subsistence and commercial purposes. It is also the dominant source of calorie intake – over 60 percent.

Regional food sufficiency

Desegregation of food production data at regional level show that a number of regions are food deficient (table 40). The least food sufficient but not necessarily the most food insecure region is Dar–Es–Salaam which produces only about 5 percent of its food requirements.

There are also large regional variations in production and although 1988–89 was acknowledged as a bumper harvest year at the national level; about 40 percent of the population lived in food deficit regions; another 20 percent just reached a tight balance; leaving only 40 percent who could be described as self sufficient from own production. This means that production was concentrated in a few regions and because of severe problems of transportation and communication internal distribution systems are severely constrained, putting the food deficit regions at great risk of food insecurity. The problem is compounded by the geographical distribution of production areas which are remote from the main consumer markets; particularly Dar–Es–Salaam the most food deficit region. It should be noted that even in some of the food sufficient regions pockets of food deficits sometimes occur in certain districts or parts of those districts because of drought or floods.

A most striking feature about available information relating per capita food production, regional wealth and malnutrition rates is that the latter does not directly correlate with the former. All the food (mainly maize) surplus areas have higher malnutrition rates than the food deficit areas. Maps 3 and 4 illustrate this in the CSD areas. Several studies suggest that about a third of the rural population would have to rely on cash income to purchase their food needs either entirely or to supplement their agricultural output.

Post harvest food management (Industrial and Household level)

Post harvest management at industrial and community level is inadequate due to poor handling and limited facilities. Food storage at both levels results into losses reported to be around 30 percent in cereals and as high as 50 percent in fruits and vegetables during the glut harvest seasons in some communities. These losses are mainly caused by insects, rodents, biochemical and physical losses due to poor handling.

Food Processing Capabilities

The food processing capabilities in Tanzania is inadequate compared to requirements and potential which is essential in enhancing food security at national and household levels. Food processing activities are done at the industrial level by both public and private sectors. At community level home scale food processing is traditional and provides essential food products.

The food industry is estimated to contribute about 40 percent of total value added and has a direct bearing on food quality and safety. In 1988 there were 140 Cereal milling establishments dealing with food out of a national of 700 industries accounted for 24 percent of total output in the food processing industry. The meat industry was second with 14 percent, vegetable oils, 13 percent breweries, 12 percent and sugar processing contributed 10 percent.

Table 40: Regional Food Balance 1988/89

| Region | Population ('000) 1989 estimates | Percent adequacy of food | | |
|---------------|----------------------------------|--------------------------|------|--------|
| | | Production | Food | Energy |
| Arusha | 1,390 | 537 | 150 | 112 |
| Coast | 656 | 135 | 80 | 57 |
| Dar es Salaam | 1,399 | 24 | 7 | 5 |

| | | | | |
|-------------|--------|-------|-----|-----|
| Dodoma | 1,272 | 235 | 72 | 53 |
| Iringa | 1,243 | 527 | 165 | 124 |
| Kagera | 1,363 | 782 | 223 | 172 |
| Kigoma | 879 | 155 | 69 | 51 |
| Kilimanjaro | 1,140 | 283 | 96 | 76 |
| Lindi | 665 | 147 | 86 | 61 |
| Mara | 998 | 200 | 78 | 58 |
| Mbeya | 1,518 | 510 | 130 | 100 |
| Morogoro | 1,257 | 386 | 119 | 88 |
| Mtwara | 914 | 393 | 167 | 118 |
| Mwanza | 1,931 | 666 | 134 | 100 |
| Rukwa | 714 | 391 | 212 | 156 |
| Ruvuma | 805 | 450 | 217 | 159 |
| Shinyanga | 1,822 | 980 | 209 | 158 |
| Tabora | 1,065 | 439 | 160 | 120 |
| Tanga | 1,320 | 293 | 86 | 64 |
| Total | 23,165 | 7,819 | 131 | 98 |

N.B. Food production includes rice equivalent of paddy production (0.60 processing coefficient)

Source: MOA, National Bureau of Statistics and TFNC, 1991

The major problems were under capacity utilization varying from 20–50 percent in the past decade in the food industry mainly due to limited raw materials, foreign exchange and inadequate management.

Preservation of perishable foods such as livestock products fruit and vegetables has to some extent enabled food availability through out the year especially in urban areas. However, access to food by low income earners has been diminished by the high costs of the processed products.

The processing of cereals such as maize, rice and wheat cause food related losses such as minerals, vitamin B group and fibre which are essential for adequate nutrition and health. On the other hand processing reduces anti-nutritional factors such as cyanogens in cassava and tannin in brown sorghum and legumes. This enhances nutrient bio-availability.

Food fortification

Food fortification is limited in the country. Margarine is enriched with vitamin A and D on a voluntary basis by manufacturers.

Micronutrient deficiency disorders are now being tackled industrially by salt iodation. Currently two factories are now iodating marketed salt which should in the long run eliminate the problem of iodine deficiency. There is scope for fortifying widely used food products with say iron and Vitamin A to combat anaemia and xerophthalmia, respectively and feasibility studies have been planned in this direction.

Economic and social accessibility to food

The second factor which determines food security is its economic and social accessibility. Among the low income groups, food access (apart from the problem of distribution) is dependent mainly on the ability to buy or produce own food. We have already noted the emerging income differentials within the urban areas under the current liberalization/privatization policies, as well as the growing army of urban unemployed, and the precarious position of the smallholder peasants. These groups face major problems of food access and remain the most vulnerable to malnutrition. As the economy becomes more market-oriented, some ways of targeting assistance to such groups will have to be found.

In most households food security is achieved through great expense. Most households use a large proportion of their resources in order to achieve food security. A household that uses almost all of its human or economic resources to achieve its food security is highly vulnerable or at risk of becoming food insecure compared to a household that uses a smaller proportion of its resources to achieve the same goal. In times of scarcity people tend to make more efficient decisions on food purchases. Poor households who depend on food crops for their income are at greater risk of food insecurity than those who have alternative sources of income. These food insecure at risk households seem also to be the same ones at greater risk of experiencing higher mortality and malnutrition rates than richer households.

The effect of income on nutritional status

Though there are longer term nutritional benefits in the introduction of additional sources of income high levels of malnutrition have been observed where cash cropping has been suddenly introduced. The reason for this seems to be the pressure for the use of limited time generated by cash incentives at the expense of time spent on food crop production and for care and feeding of the child.

Thus although increased income has a positive effect on household food intake, it does not always result in improved nutritional status (Marek T, 1992). Account has to be taken of the factors that mitigate the expected effect of increased income on access to food and on any subsequent nutritional benefits if food security projects will have the intended effects. Income generating food security programmes must also pay attention to nutrition education, targeting women, provide seasonal buffer mechanisms like seasonal credit or saving schemes, and also deal with the most prevalent health problems if they are to have the intended effect of improving nutritional status.

Household incomes in rural and urban areas

The agricultural survey done by the Bureau of Statistics in 1986/87 found that as high as 41 percent of rural households had their main source of income from sale of crops while only 31 percent of the income was from non-agricultural source [URT, 1989]. Thus it may not be coincidental that the prevalence of malnutrition in the rural areas (40 percent) is about the same as the prevalence of households generating their income from the sale of food crops (41 percent) and about the same proportion of the food deficit population (40 percent).

In urban households and an increasing number of households in the rural areas, cash income is necessary to ensure access to food. The proportion of the family income allocated to various basic necessities – food, housing, clothing, etc – in rural and urban households is determined by, among other factors, size of the income, prevailing prices of these necessities, social status, and cultural norms. Table 41 gives expenditure patterns of different income groups on food, housing, clothing and other necessities for Mainland Tanzania, with a rural-urban breakdown. For Mainland Tanzania, on average households spend 65 percent of their incomes on food, 6 percent on housing, 12 percent on clothing and 17 percent on other necessities. Rural-urban differences on the proportion of incomes committed to these necessities are very wide. Thus rural households spend a higher proportion on food (70 percent) and clothing (13 percent) than urban ones (50 percent and 9 percent, respectively), but spend less on housing (5 percent) and other necessities (13 percent) than urban ones (9 percent and 32 percent, respectively). In a general way, bearing in mind possible data inaccuracies, this expenditure pattern seems to obey Engels' Law on food demand structure relative to demand for other consumer items (Kapunda 1989).

Table 41: Percent Demand Structure for Food and Other Necessities on Mainland Tanzania according to expenditure: Rural-Urban Comparisons

| Item | Percent demand structure according to expenditure group |
|------|---|
|------|---|

| | 0–3,999 | 2,000–7,999 | 6,000–24,999 | 10,000 and above | 40,000 average | Total |
|----------------------|---------|-------------|--------------|------------------|----------------|-------|
| FOOD | | | | | | |
| Mainland | 86.9 | 70.1 | 58.7 | 45.6 | 24.8 | 65.0 |
| Urban | 94.8 | 70.3 | 59.7 | 45.4 | 22.8 | 50.0 |
| Rural | 87.1 | 70.8 | 59.3 | 46.2 | 47.8 | 69.9 |
| HOUSING | | | | | | |
| Mainland | 4.2 | 5.2 | 7.0 | 7.3 | 10.1 | 6.0 |
| Urban | 6.3 | 7.4 | 9.7 | 9.1 | 10.4 | 9.4 |
| Rural | 4.1 | 5.0 | 5.8 | 5.4 | 5.0 | 5.1 |
| CLOTHING | | | | | | |
| Mainland | 5.7 | 13.0 | 15.3 | 14.3 | 4.8 | 12.1 |
| Urban | 7.7 | 11.4 | 9.9 | 7.9 | 4.8 | 9.0 |
| Rural | 5.6 | 13.2 | 17.6 | 20.5 | 5.0 | 13.1 |
| MISCELLANEOUS | | | | | | |
| Mainland | 3.2 | 11.7 | 19.0 | 32.8 | 60.3 | 16.9 |
| Urban | 8.7 | 10.9 | 21.2 | 36.6 | 61.9 | 31.6 |
| Rural | 3.7 | 11.8 | 18.1 | 28.4 | 41.7 | 12.7 |

Source: Kapunda (1989), table 2, p.70

Thus the price of food relative to earnings will determine the level of economic accessibility to food in the household. But the real value of earnings from the formal sector has fallen so much over the last decade that the average earnings in 1993 are worth only about 20 percent of their value in 1980. At the same time the price of food has been escalating, further adversely affecting the purchasing power of the worker. Whereas in 1980 a day's minimum wage could buy 12.8 kg of maize flour, the basic staple food in the urban areas, in 1990 the purchasing power of the minimum salary had fallen down to less than 2.0 kg. of maize of a day's wage. In 1993, a day's minimum wage can buy only 1.8 kg. of maize flour (sembe).

The situation was made worse by the scarcity of commodities including food stuffs during the first half of the 1980s. Although during salary reviews the Government has always sought views from TFNC on the minimum wage to ensure minimum dietary requirements, the actual salaries set have always been far less than what has been recommended because of economic constraints. Each wage increase is accompanied by increases in commodity prices including food.

Though difficult to obtain income data; several surveys conducted in urban areas conclude that household expenditures are far above official incomes. In one study in Dar–Es–Salaam, the median monthly expenditure in low income households in 1987/88 was 7,500 Tshs. (mean was 12,090 Tshs.) when the reported income was between 1,260 and 3,000 Tshs. [Amani et al 1988]. This expenditure pattern was confirmed by another survey in the same area where it was found to be at the minimum Tshs. 7,482. [Amani et al 1988]. In another study on Food Security and Consumption Patterns in Dar–Es–Salaam done in 1990 by the department of Economics of the University of Dar–Es–Salaam for the Food Strategy Unit, FAO/Ministry of Agriculture, Livestock Development and Cooperatives [FAO/MOA 1991], while the minimum wage was Tshs. 2,500 per month, average expenditures for a seven–person household was about Tshs. 15,000 on average. This was about 2,200 Tshs. per person per month. The estimated food security poverty line at that time was 16,000 Tshs. per month for a seven–person household or 2,300 Tshs. per month and 67 percent of the households fell in the defined low income group based on expenditure. Informal and non–official income generating activities were found to be important in explaining the divergence between official (wages and salaries) and non–official incomes. Thus in order to survive it is acknowledged that wage earners must have other sources of income to bridge the gap.

This situation explains the development of the “informal” sector as small business enterprises (miradi). It seems that it is the income generated from this sector which critically determines the food security situation in urban households. Though real take home pay in the public sector has increased since the mid–1990s and the rate of increase for the staple foods has slowed down it has not been possible to compensate for more than a decade of deterioration. Thus the public sector employees must continue to depend on additional sources of income in order to even barely survive.

Measures taken to liberalise internal and foreign trade since 1985 resulted in increased availability of commodities including basic food stuffs in both urban and rural areas. But infrastructural and institutional problems related to transportation due to poor roads and high credit requirement of the crop marketing institutions constrained the marketing of food stuffs. As a result the price of food prices rose by 25 to 30 percent per annum up to 1989 [TFNC 1990]. This led to a rise of the national urban consumer index (NUCI) by 25 to 35 percent per year since food items constitute over 60 percent of this index [Doriye 1990]. This negated increases in producer prices, wages and salaries. Until 1990, when a decline started to be noted the food price index was fluctuating at a higher level than the general national consumer price index (NCPI). The NCPI measures the cost of living for dwellers in 18 mainland urban centres and is a widely used measure of inflation [Doriye, 1990]. The other measures of inflation consist of three Dar–Es–Salaam based cost of living indices corresponding to the minimum wage earners, middle grade civil servants and upper income groups. Thus the NCPI is urban based and may, therefore, not adequately capture changes in the cost of living in rural areas. For example casual observations indicated that during the severe economic crisis of the early 1980s, farmers largely withdrew from the cash economy and hibernated in subsistence living. In fact the crisis was mainly of the public and urban sector. Since the basket from which the NCPI is derived is heavily weighted in favour of food items; changes in the NCPI also reflect economic accessibility to food. Thus as shown in table 42 the sources of changes in the Consumer Price Index (CPI) is accounted for largely by changes in the price of food. This is to say that in general the driving force behind changes in the consumer price index (CPI) is changes in food prices. The weight of food items in the CPI increased from 47 percent in the 1970s to 64.2 percent in the 1980s [Doriye, 1990] probably an impact of the economic crisis.

But Government efforts to address these problems through price reforms, derestriction of crop marketing and rehabilitation of transportation systems led to the annual rise of the index by only 17 percent from mid–1989 to mid–1990.

Together with the above reforms, the Government has also officially encouraged public servants to engage themselves in other income generating activities. Senior staff may be engaged in consulting work and together with middle and low cadre staff may take out loans for other household members to engage themselves in small business. Small scale projects “miradi” by women during the very difficult early and mid–1980s are generally acknowledged as the major source of household income responsible for running most urban households. But this was an added workload on women, as they had to work long hours for relatively small returns. In the absence of easy access to credit they developed a credit system among themselves called “upatu” where each member of a group contributes a small sum each month and each takes turn in collecting the total contributions.

Table 42: Sources of Changes in the National Consumer Price Index (NCPI) in Tanzania, 1972 – 1989

| Item | Percent average change | |
|---------------------------|------------------------|-------------|
| | 1972 – 1979 | 1980 – 1989 |
| 1. Food | 45.4 | 65.8 |
| 2. Clothing and footwear | 16.3 | 9.5 |
| 3. Transport | 9.3 | 3.9 |
| 4. Fuel, light and water | 8.4 | 9.1 |
| 5. Beverages and tobacco | 7.6 | 3.2 |
| 6. Furniture and utensils | 5.0 | 2.3 |
| Total for the six items | 92.0 | 93.5 |

Source: Doriye J, 1990

The above liberalisation measures no doubt led to increased food access in urban households. But the ability to cope with the competitive climate created by these measures is obviously different in different groups with the chance that poor households would be worse off in terms of food insecurity.

Social access to food

That some members of a household suffer from malnutrition while others do not under the same conditions of physical and economic food accessibility is indicative of differential cultural access to food within households. A variety of ethnic social systems in Tanzania tend to favour men to have the choicest access to food. Moreover men control most of the household resources especially income which they may use for their own consumption. There is also the tendency of all members of a household to eat from the same plate making it difficult for the smaller ones to compete adequately for food with the older children especially when meal frequencies are only twice a day. In some situations pregnant women are customarily denied nutritious food for fear of bearing too big a baby which may lead to obstructed labour in situations where skilled medical intervention cannot be obtained. The result is usually low birth weight babies with the consequent negative effects. Since such details are not available from the normal household budget surveys, there is no adequate data to indicate that social inaccessibility to food constitutes a significant barrier towards food security.

When food is available and affordable, the utilization pattern is determined by consumer preferences some of which may be embedded in cultural norms and taboos. What may be called 'traditionist' and 'modernist' consumer tendencies do cause artificial food shortages. In many rural areas, women and children are discouraged from eating certain locally available foods. A good example is the belief that chicken and eggs are harmful to pregnant or lactating mothers. As a result of the work of community Development field staff, and campaigns of UNICEF-sponsored nutrition and child survival programmes, these taboos have been gradually changing and consumer preferences reoriented (Mushi 1988).

Other programmes have also restructured consumption patterns in the rural areas. For example, the 1970's saw a big shift towards maize production and consumption, especially after the introduction of the World Bank sponsored nine-region maize programme in 1976. This led to the neglect of the drought-resistant crops, increasing the chance of crop failure in areas that are marginal for maize cultivation. A policy of regional specialization on the basis of comparative advantage did not work because of the weaknesses in marketing infrastructure which made interregional food transfers inefficient. The changing consumption pattern of the urban 'modernists' now leans towards maize, rice and wheat. This exacerbates the problem for the government which has to import such cereals to appease them, even when the less preferred staples are available.

The influence of cultural and consumer preference factors is seen in the ironic fact that some of the food-surplus regions happen also to have the high rates of child malnutrition in Tanzania. In the case of Kilimanjaro, it may be a result of the 'modernist' competitive response which encourages both parents to be away from home the whole day on economic activities (miradi), leaving the children unattended and unfed. A disproportionate part of the earnings may also be used in acquiring 'modern' things, leaving an inadequate amount for a decent family diet. Researches in Iringa Region revealed paradoxical situations where the nutritional status of children had worsened when the village was exposed to new economic opportunities. These opportunities were an additional burden on overburdened mothers who had less time to care for their children and pregnancies (Ljungqvist, 1981). In other regions – as was the case in Rukwa – increasing commercialization of the major staples (e.g. maize and millet) led to a decline in the production of traditional drought resistant and nutritionally superior millet-staples and food reserves.

Adequacy of food intake

This is the third factor which determines food security at the level of the household. Five factors determine the adequacy of food intake. These are:–(1) breast feeding in young children;(2) the number of meals per day; (3) the amount of food per meal; (4) the energy and nutrient density of the food consumed and (5) food safety and the utilization by the body of the energy and other nutrients.

Breast feeding

Breast feeding in the rural areas still remains the traditional form of infant feeding in Tanzania. Even after the introduction of complementary foods (weaning foods) breast milk continues to play an important role in the child's nutrition. The DHS data show that nearly 20 percent of mothers exclusively breast-feed until about four

months. From the sixth to the twelfth month breast feeding can provide up to three quarters of a child's energy and protein needs and a significant portion of these nutrients for some months beyond. Children breast-feeding up to 18 months of age are better nourished than those not breast-feeding (FAO/TFNC, 1992). During the first year of life breast-feeding remains the most secure food security bank, where withdrawals can safely be made on demand.

An analysis of available information for the 1980s show that a large proportion of women continue to breast feed beyond one year [TFNC, 1989]. The major reasons for stopping breast feeding in the rural areas are another pregnancy, the child is old enough, the child has refused, the milk is insufficient for the child or the milk has gone bad [TFNC, 1989].

In the urban areas, breast feeding is stopped mainly because the mother has got to go to work after the three month paid maternity leave. Though a statutory one hour period for breast feeding is allowable for working mothers; the lack of creches in working places, the long distances between the home and the working place and the very poor transportation facilities militate against women using that one hour. Thus it is not surprising that as more women join the formal employment sector or start income generating activities the duration of breast feeding is bound to decline. A study in Morogoro urban on the effects of selected breast feeding practices on child nutritional status indicated unusually short breast feeding periods [Karegero, 1989]. As a result, short breast feeding was negatively associated with poor nutrition and susceptibility to diseases particularly diarrhoea and measles.

Meal frequencies and the amount of food per meal

Eating frequencies in Tanzania are low, on average twice or three times per day. In urban families, snacks may be consumed, but this is rare in rural families. Feeding frequencies of less than four times a day in children under-five years is significantly associated with poor nutrition as compared to higher feeding frequencies [Kavishe et al, 1985]. Because of their small stomachs, children unlike adults need to eat more frequently in order to meet their daily energy needs. The feeding frequencies for children in Tanzania is low averaging about only twice per day. Also the amount of food per meal in relation to what the child can eat is low.

Energy density of weaning foods

In children, the situation of low feeding frequency is made worse by the **low energy density of the typical diets**. Normally cereals and other starchy foods provide about 75 of the energy consumed; there is little fat in the diet and pulses provide some substantial part of the energy and protein intake. Very young children are fed on "uji" a thin porridge made from the staple cereal base in the particular area. For older children and adults, the "uji" is thickened into "ugali" by the addition of more flour of the cereal which is too thick for young children to eat enough especially when they have to compete with much older children and adults from the same dish.

Food safety and utilization by the body

Food contamination due to microorganisms is implicated in causing diarrhoea which leads to direct loss of nutrients already taken. The actual and potential existence of various toxins, microbial and chemical contamination requires adequate measures for food quality control and safety standards. Apart from a study on the control of mycotoxins in Tanzania for the period 1987 to 1990, and another study on the role of cassava toxicity in the causation of the paralytic disease called "Konzo" both coordinated by TFNC no information is available on the extent of food quality and toxicity.

The contributory factors to microbiological contamination include poor state of hygiene caused by inadequate water supplies, insufficient water treatment and poor storage facilities. Furthermore, poor processing facilities, improper packaging material, lack of trained manpower, inadequate/or absence of quality control services in processing plants aggravate the contamination problem. Although the National Food Control Commission (NFCC) and the Tanzania Bureau of Standards (TBS) cooperate very closely for monitoring for food quality compliance insufficient microbiological analytical facilities, human, financial and organizational resources and insufficient surveillance systems make the job difficult.

Widespread use of pesticides, fertilizers, veterinary drugs, food additive and other chemicals give room for possible abuse, misuse or over application. In all cases residual chemicals in foodstuffs above the maximum limits specified by the Codex Alimentarius standards or those of the Tanzania Bureau of Standards cannot be ruled out.

Current efforts to contain the problems of food safety are centred on the enforcement of the Food (Control of Quality) Act of 1978 and the Regulations established under it. Workshops and seminars on food safety are conducted regularly to authorized officers. Current projects which will supplement these efforts include the strengthening of the analytical capability of the Government Chemical Laboratory, improvement of communication systems, rehabilitation of the National Cold Chain Operations (NCCO) and construction of modern fish processing plants in Mwanza and Musoma.

Urbanization coupled with low wages offered to employees has led to proliferation of street food vendors who offer economical meals but of high loads of microbial and chemical contaminants due to poor hygiene, poor preparation and handling methods. All the same street foods are important because they are available at all places of work where they are required, such as factories, offices, schools, transit points and markets. They are the most accessible to those working away from home and provide variety. Street food vending can be started with minimum capital expenditure and government is sympathetic to this practice.

Food consumption patterns

There is little information on the food consumption pattern of adults with the exception of the 1976/77 Household Budget Survey (HBS) which gave the source of energy (calories) for urban and rural populations. Since staple foods are considered in terms of their ability to provide a large portion of the energy requirements food sufficiency at the level of the household is an expression of energy sufficiency from the major staples. Both the HBS and the Rapid Rural Survey (RRS) undertaken in the elaboration of the comprehensive food security programme found significant differences in the household consumption patterns related to farming systems. In general the major sources of energy in Tanzania are derived from the consumption of:-

- maize, contributing on average more than 60 percent of the energy from the staple foods;
- cassava, rice and sorghum/millet contending for second place in energy supply with variations from year to year, with rice of greater importance in urban than in rural areas;
- wheat, the least important of the preferred staples;
- potatoes (sweet and round), yams and bananas are much lower in food energy per kilogram as compared to the other staples but are consumed in large quantities;
- legumes, especially beans which are becoming increasingly important in many regions.
- there is a declining trend in the consumption of animal and poultry products since 1969 probably due to their high prices.
- fish consumption is mainly concentrated along the coast and the lake-shore regions.

The consumption pattern described above is confirmed by an Agricultural survey done by the Bureau of Statistics in 1986/87 which showed a similar cultivation pattern [URT, 1989]. In the same survey it was found that the median size of holdings among all rural agricultural households was 0.7 hectares as compared to 1.8 ha of available arable land per population at that time assuming a population of 22 million. About 38 percent of the holdings were even smaller than 0.5 hectare.

An important observation in the Agriculture sample survey was that almost all rural households grow food crops and that food crop production accounts for the bulk of the cultivated area. For example maize, the predominant crop was grown on almost 40 percent of all area planted during the main rainy season (masika) of the 1986/87 season. Together, cassava, paddy, sorghum and millet were grown on 35 percent of the planted area. The major problem which seems to account for the discrepancy between food crop cultivation and food supply is the extremely low yields per area cultivated. Regional food crop productivity varies widely. For example farmers in Kilimanjaro who have only 0.3 ha available per head produce on it more than three times the product value per head of the lowest productive region, Dodoma.

The determining factors for these differences seem to be related to the variations in rainfall and its probability, irrigation possibilities, soil fertility and also the amount of household labour available, level of technology including farming technology, use of fertilizers, extension services and pesticide use. As already noted, it is also acknowledged that Government policies and structures do not lay as much emphasis on food crops as

compared to cash crops.

The environment and food security

The environment can be viewed as an interlinked network of systems with very complex relationships. For example increased use of wood fuel or the expansion of land area for cultivation or for grazing often times results in deforestation and land degradation. The climatic shifts and possible desertification which may result adversely impacts on food security. Thus in order for the environment to be sustained, the systems of which it is comprised must be in balance with one another, otherwise serious consequences for survival of the entire networks may be jeopardized.

Most of the major factors affecting food production and thus availability like land use, soil fertility and climate form part of the environmental systems which affect food security. They determine the agricultural production and consumption systems and often times disease patterns.

Environmentally determined agricultural/consumption systems

It is possible to classify Tanzania into seven agricultural production/consumption systems (table 43) [Bryceson et al, 1986] which further assists in differentiating between the problems and causes of household food insecurity. These systems are described in table 43. The areas which seem to have the greatest food deficit problems are the pastoralist and the millet/sorghum/ livestock production systems with the latter having the most severe problems. When the system was designed in 1986 the food deficit areas accounted for about 47 percent of the mainland population. The paradox, however, is that many of these food deficit areas have lower malnutrition rates than the food surplus areas.

The food deficit areas coincide with the drought/flood prone areas. While in Tanzania drought is a fact of life in some areas; in the past 30 years serious droughts have occurred in 1961/62, 1974/75 and 1984/85. Some areas in eleven out of the 20 regions of mainland are generally considered drought prone and, therefore, at greatest risk of food insecurity. These regions are:– Mara, Mwanza, Shinyanga, Kigoma, Tabora, Singida, Arusha, Kilimanjaro, Tanga, Dodoma and Mtwara. Dodoma is the traditional famine prone region. However, these drought prone regions also nearly always include highly productive areas where crop failure never occurs. This is to be expected, when the vastness and physical diversity of Tanzania is considered. This makes it highly unlikely for the country as a whole to experience total crop failure. It seems that if intra– and inter–regional food commodity transfers were properly managed and a proper infrastructure laid down, the country on its own could manage very well to alleviate the worst effects of drought in all but the most unusual years. As a drought measure the Government has proposed a pattern of regional specialization of food crop production to match with the agro–climatic zones.

Table 43: Classification of Agricultural Production/Consumption Systems in Tanzania (Adopted from Bryceson et al 1986)

| Type of system | Locations | Characteristics |
|-----------------------------|--|---|
| 1. Coffee/Banana | Moshi, Hai, Rombo districts in Kilimanjaro region, Bukoba, Karagwe and Biharamulo districts in Kagera region; Parts of Arumeru district (Arusha region) and Rungwe district, Mbeya region. | High average cash incomes from coffee with high disparity; land shortage, self-sufficient in food production, but mainly bananas, rainfall is high (over 1000 mm per annum) |
| 2. Pastoralists | Kiteto, Monduli and Ngorongoro districts, scattered areas in Hanang and Mbulu districts, and parts of Singida, Dodoma and Tanga regions. | High milk consumption as staple, grain production and consumption rising as pastoralists settle; deficient/importation of grains as staple with high protein availability. |
| 3. Sorghum/Millet Livestock | Dodoma region, Shinyanga Rural, Bariadi, Maswa, Bunda, Musoma and half of Tarime | Low rainfall, semi arid and drought prone, low average |

| | | |
|------------------|--|---|
| | districts low lands of Mara region. | incomes food deficit, desertification due to over grazing. |
| 4. Cassava | Mtwara, Lindi and Mwanza parts of Coast, Tanga, Rukwa and Ruvuma. | Drought and floods, common in Mtwara and Lindi also physically isolated with transport and communication problems; other areas cassava grown as food security crop, maize being the staple. |
| 5. Maize surplus | Njombe, Makete, Iringa districts, Iringa region. Chunya Mbozi, Ileje, Kyela (Mbeya region), Rukwa and Ruvuma regions; and Mbulu Hanang district in Arusha. | Reliable rainfall (over 1000 mm per annum) low population density, maize both food and cash crop (dubbed the bid fall) transport is a problem. |
| 6. Urban areas | Dar es Salaam and other towns. | Food deficit, particularly Dar es Salaam. high population density; major customer of food crops for National Milling Corporation and Cooperatives. |
| 7. Mixed farming | Coast, Tanga and Morogoro regions | Farming and consumption patterns so mixed that they do not fit in any of the above classification. Grow a great deal of fruits vegetables and rice. |

For purposes of further analysis the agricultural production consumption typology described earlier could be somewhat simplified into three categories:- primarily pastoral, mixed farming and primarily agricultural.

(i) *Primarily Pastoral Areas*

Pastoral areas are characterized by scattered, very low density population [2 – 4 persons per square km in the three pastoral districts in Arusha region]; a cattle person ratio of approximately five to one and very poor roads which become impassable during the rains. Their livestock consist of cattle, goats, sheep and donkeys. Almost none keep poultry. They do not cultivate although they consume increasing amounts of grain which they purchase from the sale of livestock.

In normal years the system of selling livestock to buy grain works well but in times of drought they come under heavy stress. In such times, cattle prices tend to fall while grain prices rise. During normal times, in 1986 the value of a mature cow was about equal to that of six bags of 90 kg bags of grain. At the height of the 1984/85 drought, one cow could purchase only one bag of grain. Besides stock reductions due to sales, animals died. In that drought year, some families lost about 50 percent of their herds. Particularly hit were the lactating females and calves. In addition to these problems, livestock diseases may further deplete the remaining stock. Whereas many agriculturalists and mixed farmers can recover fairly fast from the effects of drought after a year if the rains are sufficient, pastoralists require several years to rebuild their stock.

It should be remembered however, that under normal conditions, livestock is a good method for storing food to ensure food security, and malnutrition rates are generally lower among pastoralists than agriculturalists. This is based on actual surveys done in Arusha region comparing the Livestock rearing districts and the grain producing districts.

(ii) *Mixed farming*

Mixed farming is practised in all drought prone areas. An important factor determining the nutritional status of mixed farming households is the number and distribution of livestock particularly cattle among the households.

The manner in which the mixed farming system functions under normal years is that households cultivate grain or root crops as a subsistence crop, in some areas like in Shinyanga cotton is grown as a cash crop,

and livestock are used as an additional income resource. Traditionally in some areas cattle are taken as a method for storing resources between seasons rather like a savings bank. When crops partially or totally fail in time of drought, families cultivating cash crops sell their livestock to buy grain, leading to a rise in the prices of grains and a decrease in the price of livestock as it was noted for the pastoral areas. Since in the mixed farming system oxen are used for ploughing, in time of drought the oxen are weakened and cannot be used for extensive field preparations immediately after the drought, thus reducing the amount of land area cultivated.

In a mixed farming system, the net result of a drought is that those at the top of the economic spectrum are likely to lead to a better food security situation, while those at the bottom are marginalized and sustain extreme nutritional stress.

(iii) Primarily Agricultural systems

These are characterized by a predominantly agricultural system where food crops are used both for consumption and for cash income. With the exception of large scale cash crop farmers, medium and small scale agriculturalists are the hardest hit in times of drought as they have few income resources to convert into food. This is made worse by the fact that food prices rise dramatically during drought. The short term impact of the frequent droughts in Mtwara and other predominantly agricultural areas is, therefore, greater than in pastoral or mixed farming areas.

(iv) Flood prone/food deficit areas

Although not very frequent some areas in the country are more prone to floods than other areas. It seems that the drought prone areas are with a few exceptions also the flood prone areas. Low lying areas near rivers and lakes especially in Mbeya and Morogoro regions have been particularly prone to floods. Recent large scale floods occurred in 1990 (Mtwara and Lindi) and 1992–93 (Kilimanjaro and Morogoro). The immediate problems created by floods are shelter, food shortages and water contamination in the affected areas necessitating emergency support for medical and food supplies and seed for the next crop season. Unfortunately the effects of floods and drought on the nutrition situation have not been monitored in all areas, but the floods in Mtwara and Lindi showed that there was initially a dramatic rise in the rates of malnutrition which subsequently declined as a result of short term and long term measures taken [Mtwara CSD, 1991].

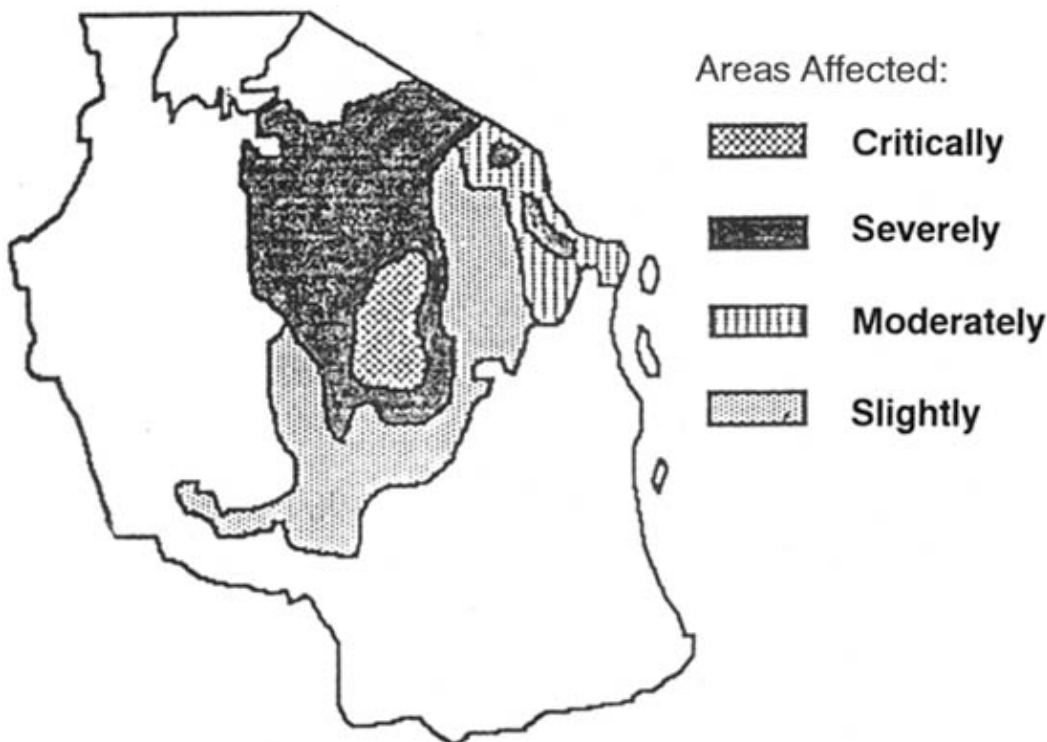
Environmental problems affecting food security

These are related to land use, deforestation and the increasing demand for wood fuel. The Ministry of Lands, Natural Resources and Tourism has identified the following problem areas with regard to land use [URT, 1991]:–

- In East and west Usambara, the Kilimanjaro and Meru slopes, Vui, Rungwe, Ukerewe, Tarime and Mbulu districts there is a high population pressure on the land for farming and on wood–fuel with subsequent deforestation. There is also a high risk for soil erosion due to the sloppy terrain and high precipitation.
- the areas in Mwanza, Mara and some parts of Shinyanga are characterized by pressure from rapidly growing population with extensive farming in cotton, accompanied by overgrazing
- Tabora region, Chunya and Northern districts of Iringa are farmed extensively for tobacco production,
- the area of the Maasai steppe, parts of Dodoma and Singida regions suffers from overgrazing by migratory pastoralists
- Iringa, Mbeya, Southern Rukwa, North and Western Ruvuma regions are the grain basket of Tanzania growing maize for commercial purposes.
- the areas of Kigoma–Mpanda and Northern Rukwa region are under high population pressure due to immigrants and refugees from Burundi and Rwanda with their subsequent land requirements for farming.
- the lands of Dodoma under HADO and parts of Shinyanga under HASHI are already seriously degraded and thus the reason for starting those programmes

- in the coastal belt and Mafia island salt production and fish smoking are causes of forest degradation, the most serious threat to the mangrove forests
- in the Eastern Morogoro, the Coast region except Rufiji, West of Tanga and Southeastern Dodoma region forests are severely degraded from increasing demand for fuel-wood for charcoal and firewood from within and outside this area
- Lindi, Mtwara, Eastern Ruvuma, Southern Morogoro and south of the Coast region where the population density is low, forests still flourish and there is an abundant wood supply. But even this is threatened unless immediate preventive action is taken to preserve these forests they too will disappear.

The scale of deforestation is alarming. It is estimated to be advancing at an annual rate of 300,000 to 400,000 ha and the rate is rapidly accelerating [URT, 1991]. Much of the deforestation is due to clearing for unsustainable crop production, overgrazing and fuel wood. Wood is by far the most important source of energy in Tanzania and is estimated to contribute more than 90 percent of the total national energy supply. Tanzania is estimated to consume annually about 27 million cubic metres of solid wood of which about 22 million cubic meters are consumed by households and the remainder by agriculture, rural industries and the service sector. However, the estimated sustainable annual yield of wood-fuel from natural forests and public woodlands is 18 million cubic metres which means there is already a deficit of 9 million cubic metres. As a result, degradation and even desertification are taking place rapidly. Map 5 shows the areas in greatest danger. The UN has estimated that the degraded area is between 33 percent and 45 percent of the total land area. This massive environmental degradation is detrimental to the country's future development; the land resource base is dwindling, while the growing population needs more food, fuel and other basic commodities.



Map 5: Land degradation in Tanzania

Conclusion

Admittedly, many factors will determine Tanzania's ability to feed her people now and in the future. There is plenty of land available. Though not all of it is appropriate for cultivation only a small fraction of that which is arable is under cultivation. Because of low agricultural productivity for both food and cash crops and population pressure in a few areas; farmers are now moving onto more marginal lands to increase the area under cultivation, and in the process are clearing forests and sometimes threatening wildlife. Thus there is an urgent need to improve agricultural productivity if sustained productive agriculture and food security is to be developed and sustained. Improved agriculture will also strengthen the economic base and thus improve

economic accessibility to food. Until this is achieved, even in the presence of enough arable land to go around, the rapidly growing population will continue to place added pressure on the ability of Tanzanians to stay well fed.

CHAPTER 6: NUTRITION AND THE CONTROL OF DISEASES

Introduction

According to the 1990 health institutional based records diseases of high endemicity related to undernutrition in Tanzania include malaria, respiratory infections, diarrhoea and recently AIDS.

Table 44: Frequent causes of attendance to health facilities and leading causes of deaths in hospitals in Tanzania in 1990

| Diseases | Frequency of death | Relative frequency of attendance |
|--------------------------------|--------------------|----------------------------------|
| 1. Malaria | 14 | 23 |
| 2. Pneumonia | 11 | 10 |
| 3. Diarrhoea/vomiting | 10 | 10 |
| 4. Nutritional disorders | 7 | 9 |
| 5. Conditions of early infancy | 5 | 9 |
| 6. Measles | 4 | 9 |
| 7. Anaemia | 4 | 9 |
| 8. Tuberculosis | 3 | 9 |
| 9. Cardiac diseases | 3 | 9 |
| 10. Tetanus all forms | 2 | 9 |
| 11. Upper resp infection | 9 | 20 |
| 12. Skin conditions | 9 | 6 |
| 13. Accidents | 9 | 4 |
| 14. Eye diseases | 9 | 4 |
| 15. STDs (excluding AIDS) | 9 | 3 |
| 16. Intestinal worms | 9 | 2 |
| 17. Pregnancy complications | 9 | 2 |

Source: Ministry of Health 1991

As can be seen from table 44 the first seven commonest causes of death are the diseases which affect children most commonly. In 1987/88, malaria, diarrhoea, anaemia and severe undernutrition were the most frequent reasons for admission and the most common causes of deaths in young children (table 45).

Malaria

Malaria is the leading cause of out-patient attendance; often the leading cause of hospital admissions and among the commonest cause of death. Attacks of malaria are more serious in children than in adults and very

often growth faltering in children is due to repeated attacks of malaria. The disease is endemic in most of the country with areas above 3000 metres fairly free from the anopheles mosquito, its principal vector. The pattern of malaria mirrors that of anaemia thus stressing the importance of malaria in the causation of anaemia. On the other hand anaemia which is an important cause of maternal mortality where haemorrhage occurs in already anaemic mothers is a major complication of malaria.

Table 45: The commonest causes of admission and death in children underfive years

| Disease | Admission (percent) | Death (percent) |
|---|---------------------|-----------------|
| 1. Malaria | 40.8 | 23.0 |
| 2. Diarrhoea and vomiting | 23.4 | 16.0 |
| 3. Malnutrition: severe protein energy undernutrition and anaemia | 14.1 | 24.6 |
| 4. Respiratory tract infections | 7.7 | 16.4 |
| 5. Immunisable diseases (mainly measles, TB and tetanus) | 3.1 | 6.6 |
| 6. Others | 10.9 | 13.4 |
| Total | 100.0 | 100.0 |
| Number of cases | 6,925 | 888 |

Source: Kimati V.P, 1989

The problem of malaria is worsening at present because of the growing resistance to chloroquine and its spread to none immune populations. Between the late 1960s and early 1980s the effective dose of chloroquine rose from a single dose of 10 mg/kg of body weight to 25 mg/kg body weight spread over three days. In Zanzibar and in some urban areas of the main land like in Dar es Salaam and Tanga chloroquine resistance is extremely high and even the latter dose can no longer be relied upon. As a result the relative frequency of malaria during the last five years has risen from 25 percent in 1984 to 32 percent in 1988 [TFNC 1990b].

In Tanzania malaria transmission and case fatality have reached alarming proportions. Because control and treatment have become increasingly difficult due to both parasite and vector resistance to the most cost-effective drugs (chloroquine) and insecticides; malaria prophylaxis in children and pregnant women is becoming more expensive as alternative drugs to chloroquine have to be used.

Lessons learned from the national malaria control programme and control of malaria in the JNSP/CSD programme areas indicate the necessity to establish a first line and second line treatment system, where the cheapest and reasonably cost effective drug (still chloroquine in many parts of Tanzania) will be used to treat most cases. Recurrent malaria would then need second line more expensive drugs. For those not responding to second line drug treatment and for emergency cases a referral hospital system or to a Rural Health Centre with diagnostic facilities to confirm malaria appears to be the feasible option of keeping costs down and to limit accelerating resistance to second line drugs. However, this system may pose risks to individuals and to pregnancy outcomes.

For this system to function properly, parents, village health workers, and other "health animators" have to make sure that prompt and correct dose treatment using chloroquine is done in all suspected cases of malaria. Chloroquine is already available in village health posts, dispensaries, and is sold on the counter in most village shops. Second line drugs and diagnostic facilities have to be made available at RHC and hospitals for treating referred cases. In order to have referral points as close to the community as possible it may be advisable to equip some few dispensaries with referral facilities and comprehensively equip the district hospital to function as the final referral point.

This system has to be combined with efforts to reduce malaria transmission. Households and communities have to take measures to reduce or treat vector breeding sites, screening of houses and application of insecticides. Information for families about how to improve their health through advocacy like the UNICEF booklets on "Facts for Life" translated into Kiswahili as "Ukweli Kuhusu Maisha" need to be emphasized.

The use of permethrin impregnated bed-nets has been shown to be effective in the pilot tests in Iringa, Mtwara, Morogoro and Zanzibar. The use of these nets for children under five and for pregnant women have shown reductions of malaria morbidity rates by 35–46 percent in underfives and by 36–41 percent in adults in the trial areas [URT/UNICEF, 1990]. The annualized cost of the permethrin impregnated bed nets is 260 Tshs. which is less than \$1.50. In comparison the not so successful vector control programmes in Zanzibar, Dar-Es-Salaam and Tanga was estimated to cost \$2 per person for imported materials alone in 1982.

Acute respiratory infections (ARI)

Upper respiratory infections like colds combined with pneumonia make up the second commonest cause of out-patient consultations. In most community surveys, common colds are the most prevalent signs of disease in children. Inadequate care of these mild cases of ARI plus poor nutritional status are probably the main reasons for the high number of deaths and complicated cases of ARI. According to the Tanzania Health Profile 1991 issued by the Ministry of Health, in 1990 ARI accounted for 30 percent of the attendances in health facilities and pneumonia was the second leading cause of death [URT/MOH, 1991]. In the 1984–85 survey of MCH clinics in five regions, 10.5 percent of outpatients aged under five years were diagnosed as suffering from acute respiratory infections; pneumonia accounted for 37 percent of these and was associated with measles in half the cases [URT/UNICEF, 1990]. According to survey records of MCH clinics in 1981 measles was commonly associated with deaths from pneumonia. The rate of severe undernutrition was three times higher among children who died than among those who survived. Measles is also known to be associated with xerophthalmia due to vitamin A deficiency in about two thirds of the cases [Foster et al 1986 and Pepping et al 1988].

An effective way to reduce the severity of acute respiratory infections is, therefore, to improve the nutritional status of the underfive year children and immunization against measles, tuberculosis and whooping cough.

A number of ARI control activities supported by UNICEF are already underway in Kilimanjaro, Mtwara and Iringa as part of an integrated primary health care effort including control of diarrhoea diseases (CDD), malaria, water and sanitation [UNICEF, DAR, 1991]. Activities include development of information, education and communication and training materials for use in villages and in health facilities, training of health staff and Village Health Workers (VHWs), provision of antibiotics and baseline surveys. The ARI control programme in Bagamoyo supported by GTZ has been shown to lead to nutrition improvement as well [Neuvians, 1987]. The success of ARI control in Bagamoyo has led to the development of a national policy and treatment guidelines for village health workers and first and second level referral facilities by the Ministry of Health.

Diarrhoea and vomiting

The third most common cause for outpatient attendance in Tanzania is diarrhoea. Children aged under five years are estimated to have three to five episodes of diarrhoea per year. The specific cause cannot be identified in most cases, but the majority are probably caused by the wide variety of viruses and rotaviruses. Typhoid, amoebiasis, cholera and bacillary dysentery are the causative agents in a minority of cases. The case-fatality ratio is about ten percent, usually from dehydration. The use of oral rehydration therapy has been shown to be an effective treatment for such dehydration. Eight million sachets of oral rehydration salts (ORS) are distributed annually to rural dispensaries and health centres through the Essential Drugs Programme. There is inadequate knowledge of the proper use of ORS however. A communication programme is being implemented by the Diarrhoeal Disease Control Programme of the Ministry of Health to improve knowledge about proper use of ORS and use of home made fluids, thin porridge, "uji", in preventing dehydration.

Measles

Until very recently, measles was one of the three major killers of children in Tanzania, estimated to account, with its complications of diarrhoea, pneumonia, and malnutrition, for about ten percent of child deaths. However, the reported cases of measles have gone down in the share of morbidity from 0.8 percent to 0.2 percent between 1984 and 1988 [TFNC 1990b]. The absolute number of measles cases reported were over 11,000 annually for the three year period 1985–88 and were down to 4405 cases in 1989. The decline of

measles cases coincided with the increase in measles immunisation coverage for one year olds which went up from 76 percent in 1986 to 83 percent in 1988. Data from 42 sample health units show a dramatic decrease in reported case numbers from 700 new cases per month in 1981 to 220 in 1986 [URT/UNICEF 1990]. As already noted the universal child immunization (UCI) programme initiated in 1986 significantly decreased the magnitude of measles as a cause of malnutrition. For example: In 1984 a survey in Iringa reported 20 percent of deaths of children under five to be due to measles [Msamanga 1990]. By 1987 after immunization rates had been increased, under 7 percent of children were reported to be due to measles according to the study conducted in Iringa over a period of 16 months starting from April 1986. Measles immunization was found to reduce clinical cases by 70 percent.

In an outbreak of measles in Korogwe District in 1990 about 90 percent of the reported cases were among children who had not been vaccinated [URT/UNICEF 1990]. The challenge now is to maintain the high rates of measles vaccination achieved.

HIV and AIDS

Sexually transmitted diseases are among the commonest causes of outpatient attendance in Tanzania. In 1986 gonorrhoea alone ranked third in the Rukwa region after malaria and diarrhoea [World Bank, 1989]. Before the AIDS outbreak STDs ranked second in Kagera region. Thus the current outbreak of AIDS must be seen against this background of pervasive STD infection.

Figures from various sources all indicate that the HIV/AIDS epidemic continue to increase at alarming rates throughout Tanzania since the first three cases were diagnosed in Kagera region in 1983 [National AIDS control Programme, 1991]. Since then the cumulative number of cases notified in Tanzania mainland have increased from 3 to 27,396 as of June 1991 (table 46). The most severely affected regions are Dar-Es-Salaam, Kagera, Mbeya and Coast.

Table 46: Cumulative number of notified cases of AIDS in Tanzania mainland by region (1983* – June 1991)

| Region | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | Population ('000) | Rate** | Rank |
|-------------|------|------|------|------|------|------|-------------------|--------|------|
| Arusha | 10 | 47 | 217 | 429 | 579 | 703 | 1352 | 52 | 15 |
| Coast | 4 | 79 | 224 | 413 | 705 | 910 | 638 | 143 | 4 |
| DSM | 471 | 1470 | 3093 | 5203 | 7195 | 8474 | 1361 | 623 | 1 |
| Dodoma | 7 | 47 | 105 | 247 | 211 | 278 | 1238 | 23 | 20 |
| Iringa | 3 | 68 | 305 | 374 | 612 | 1109 | 1209 | 92 | 6 |
| Kagera | 847 | 1665 | 2142 | 2543 | 3164 | 3479 | 1326 | 262 | 2 |
| Kigoma | 3 | 50 | 109 | 243 | 434 | 529 | 855 | 62 | 13 |
| Kilimanjaro | 36 | 207 | 455 | 570 | 854 | 1023 | 1109 | 92 | 5 |
| Lindi | 1 | 9 | 45 | 111 | 394 | 472 | 647 | 73 | 9 |
| Mara | 3 | 30 | 99 | 139 | 326 | 326 | 971 | 34 | 18 |
| Mbeya | 16 | 208 | 747 | 1042 | 3764 | 3764 | 1476 | 255 | 3 |
| Morogoro | 11 | 88 | 247 | 339 | 819 | 819 | 1223 | 67 | 10 |
| Mtwara | 5 | 23 | 95 | 173 | 557 | 557 | 889 | 63 | 12 |
| Mwanza | 54 | 171 | 448 | 644 | 1590 | 1590 | 1878 | 85 | 7 |
| Rukwa | 1 | 5 | 90 | 94 | 164 | 164 | 695 | 24 | 19 |
| Ruvuma | 20 | 45 | 76 | 187 | 394 | 394 | 783 | 50 | 16 |

| | | | | | | | | | |
|-----------|------|------|------|-------|-------|-------|-------|----|----|
| Shinyanga | 8 | 31 | 144 | 227 | 667 | 667 | 1773 | 38 | 17 |
| Singida | 6 | 74 | 197 | 284 | 445 | 445 | 792 | 56 | 14 |
| Tabora | 6 | 59 | 232 | 510 | 877 | 877 | 1036 | 85 | 8 |
| Tanga | 13 | 80 | 210 | 335 | 816 | 816 | 1284 | 64 | 11 |
| Tanzania | 1525 | 4456 | 9280 | 14107 | 22055 | 27396 | 22534 | 98 | – |

Source: NACP, Surveillance Report No. 5, August 1991

* In 1983, there were only 3 cases in Kagera region, in 1984 there were 109 cases nationally, 106 being in Kagera, 2 in Tabora and one in Kilimanjaro. In 1985 there were 404 cases, 322 being in Kagera, 51 in Dar–Es–Salaam, 15 in Mwanza, 8 in Kilimanjaro and one each for Iringa and Mtwara.

** Rate per 100,000

Comparing the 1990 figure with those released by the WHO for the same period this constitutes 29.5 percent of all cases reported in Africa and 7.5 percent of all cases reported globally [NACP, 1991]. The projected cumulative total for 1991 was 34,000. The doubling time is presently 19.2 months.

The reported figures are biased by many factors including double reporting, under-reporting, under-diagnosis as well as delays of reporting to the Ministry of Health. The reported figures would reflect the real trend if the following assumptions were met:– a) all AIDS cases report to health facilities b) all AIDS cases are correctly diagnosed c) a functional reporting system from the regions to the Ministry of Health is in place in all the regions.

Since the interpretation of AIDS case trends must be done in the light of HIV sero-prevalence data, a large pool of HIV infection already exist in the population. Based on age adjusted blood donor sero-prevalence the estimated number of HIV infected persons as of June 1991 was 673,330 of whom 304,019 (45.2 percent) were males and 369,311 (54.8 percent) were females [NACP 1991, Swai and Asten 1991]. Taking into account future infections that might occur in the years to come an increasing number of AIDS cases will likely continue to be documented up to and beyond the year 2000.

Two groups are of a particular importance as far as HIV/AIDS is concerned: antenatal clinic attenders and adolescents. Data from the National AIDS Control Programme's surveillance system show that among pregnant women attending antenatal clinics the HIV sero-prevalence is increasing. In a period of little over a year from 1990 to 1991 the prevalence increased from 10 percent to 16 percent in Mbeya; from 8 percent to 14 percent in Mwanza and from 20.8 percent to 23.3 percent in Bukoba. The effect on the infant mortality rate will be considerable as 30 percent of children born to these women will die from AIDS within the first few years of their lives. Children escaping infection with HIV (up to 11 percent) are unlikely to have a mother (or any parent) still alive by the end of the century. Data from blood transfusion services throughout the country suggest that the problem is virtually nationwide [NACP 1991].

Increasingly AIDS is manifesting in children as severe malnutrition. A study [Mgone et al 1991] done in Dar es Salaam in 200 children with severe malnutrition and a similar number of controls matched for age, sex, and area of residence showed a prevalence of HIV–1 antibodies of 25.5 percent in the malnourished group as compared to only 1.5 percent in the controls. The sero prevalence rate was equally high in malnourished children above the age of 18 months as in those below this age (25.5 percent). The prevalence rate was higher in children with marasmus (38.2 percent) as compared to children with marasmic–kwashiorkor (12.3 percent) or kwashiorkor (12.2 percent). The prevalence of clinical features known to be associated with AIDS was higher in the HIV sero-positive malnourished children as compared to the sero-negative children. Thus it is important to rule out HIV infection in malnourished children especially those with marasmus.

The second group of great concern are adolescents 15–19 year olds and the 20 – 24 year age group. Among 15 – 19 year olds, the percentage seropositive was 0.0 percent in 1987, increased rapidly thereafter, and reached 5.4 percent by 1990 [NACP 1991]. Among the 20 – 24 year group, prevalence increased fourfold from 1.6 percent to 6.4 percent between 1987 and 1990. Further analysis revealed that the situation among adolescents was more serious for girls than boys.

Based on the number of AIDS cases reported during the 1990's and even assuming that further transmission of HIV would cease as from now, out of the estimated present number of approximately 700,000 HIV infected persons, 450,000 will develop AIDS during the remainder of this decade. If transmission continues up to 1995 at a rate of 1 percent new HIV infections per year, 750,000 will have developed AIDS by the year 2,000 [NACP 1991 and Swai and Asten 1991].

The rapid spread of AIDS will have far-reaching implications in Tanzania over the next decade. Most HIV infected individuals will die in the prime of their life or before. This will directly or indirectly affect a larger number of people who as relatives or friends will incur various costs on account of the AIDS victims themselves; or as survivors may be left in greater poverty or as earners, employers or self-employed may experience productivity losses. In addition there is the problem of the likelihood of the resurgence of AIDS induced diseases like tuberculosis which has already started to be felt [Pallangyo 1991].

The overall effect is probably demographic changes in the composition of the population and work force. Rising mortality in the adult population will leave behind a younger, inexperienced and less educated and trained population which may affect the economy in the medium and long term. Health services will come under increasing pressure as AIDS victims and AIDS induced disease victims compete for the limited resources. All these will negate progress made on the reduction of child mortality and malnutrition rates.

As a response to the AIDS epidemic the government of Tanzania in collaboration with the World Health Organisation planned a five year mid-term plan of action in 1988 and formed the National Aids Control programme (NACP) in the same year to implement the plan [Nyamuryekung'e 1991]. Considerable progress has been achieved since then. Facilities for screening of blood donors have been established in all referral and regional hospitals and most district hospitals. A sentinel surveillance system has been established and a national information, education and communication campaign reinforced by a massive distribution of condoms is being conducted. The objective is to raise public awareness about the disease, its transmission and self-protection measures. The need to change sexual behaviour has also been strongly emphasized. By 1990 awareness studies conducted showed an awareness level of more than 90 percent irrespective of sex, adult age group, education, religion and geographical location [Swai and Asten 1991]. But this encouraging level of public awareness and knowledge has not been followed by changes in sexual behaviour.

In the light of the above facts, there remains an urgent need to review programme strategies, in order to come up with interventions which will bring rising trends to a halt. AIDS has no cure, and it is unlikely that any vaccines or "delaying" treatments that can be applied on a large scale in Tanzania will be available soon.

Thus in this situation two major approaches need to be pursued. The first is to strengthen measures to decrease the spread of HIV infection. The second is to strengthen and develop measures to reduce the effects of illness and deaths on survivors in the family and in the community.

A revised strategy is now being developed by the NACP which involves a number of strategic actions. Efforts in the control of other sexually transmitted diseases (STDs) are being strengthened since their presence significantly increases the likelihood of HIV transmission. Continuation of IEC efforts, but with greater emphasis on initiating and pursuing constructive dialogue at family and community level as well as among certain key groups such as women's groups, bar/hotel owners and staff, parents, national service and military staff, transport companies and long distance drivers is being strengthened. There are also efforts aimed at reducing the need for blood transfusion by improving the prevention of anaemia [TFNC 1991] and other diseases like malaria. It will also be important to identify groups and communities which have been successful in controlling the spread of HIV/AIDS and to ensure that their experience is shared with others.

The strain on the traditional care systems for AIDS orphans by relatives or neighbours imposed by the AIDS pandemic is becoming severe. Women have been particularly strained as care for severely ill husbands or relatives and additional children of relatives of AIDS victims add to their already heavy workload and resource deficiencies. Thus an important strategy in the control of AIDS in the 1990's will have to put increasing emphasis on social and economic factors in addition to medical factors. Direct external support will be needed to ensure that orphaned children receive education and that their rights e.g. for inheritance are respected.

The Health Services

A well functioning system for the delivery of health services is important for the control and prevention of diseases which as we have already noted are an immediate cause of malnutrition. Most of the health actions

related to nutrition are implemented through the Primary Health Care (PHC) strategy.

Health education which is an important means of providing people with access to knowledge and information to help improve their nutritional status and overall health is also part of the strategy.

Systems for health care delivery

Health services in Tanzania are provided through four systems:– the traditional healers; the Government's modern system; the Non–Governmental Organizations (NGOs) and the private modern health service providers. The Government provides for 70 percent of the modern health service free from direct user charge while the rest is provided by voluntary agencies at modest fees and a few private individuals at cost–benefit rates.

The traditional system seems to be the most extensive in the rural areas and is comprised of traditional “doctors”, traditional birth attendants (TBA), Herbalists, Sorcerers etc. The estimated number of traditional healers is about 40,000 or one traditional healer for every 650 people [MOH 1991]. Traditional Birth Attendants (TBAs) number about 32,000 or 4 TBAs in each of the 8,000 registered villages of whom 3,000 were trained in 1990. The persistence of the traditional system related to witchcraft is among the major impediments to the development of a health culture, behaviour and even general development.

Traditional health providers charge directly for their services in cash or in kind. Many people in both the urban and rural areas consult the traditional doctor before they go to the modern health sector. In some instances this health seeking behaviour results into unnecessary conflicts, suffering and sometimes deaths. In other instances traditional health systems are very useful. The Government has recognized the importance of the traditional system in overall health care and has incorporated some of the service providers like TBAs in some of the training programmes. A traditional Medicine Research Institute has been formed and the Government supports a Traditional Healers Association and a Traditional Medicine Policy has already been drafted.

Traditional healers are known to handle many nutrition related diseases. For example a study in Mbozi district, Mbeya region showed that traditional healers were very useful in the community–based follow up of children being discharged from nutrition rehabilitation units and thus reduced the default rate [Van Roosmanlen–Wiebenga, 1988]. We also have some information regarding the use of high energy density foods by traditional healers who try to treat AIDS victims.

With the exception of grade one services in a few regional and consultant hospitals, the Government delivers all types of health services free from direct user charge. This policy emanated from the Arusha declaration of 1967 which proclaimed “Ujamaa” and Self reliance as the national ideology directed the provision of free health services to all Tanzanians and as close as possible to their homes with a shifting emphasis from curative to preventive care.

Much of the widespread health care services infrastructure that is evident in the rural areas today is a result of a 1971 re–emphasis of the policy and was built between 1972 and 1982 [SIDA 1987]. It is impressive to put on record that the basic philosophy and strategy underlying this policy is consistent with the Primary Health Care (PHC) approach to achieve health for all by the year 2000 which was recommended by member states of the World Health Organization (WHO) ten years later at the World Health Assembly in 1977 and unanimously adopted as the Alma–Ata declaration in 1978.

Health care facilities

The delivery system is among the most extensive in Africa and is done through a network of facilities at the central, regional, district, divisional, ward and village levels. These facilities are designed for both primary contact between the user and the provider and for referral of patients to the appropriate next level of care should the initial contact not be equipped to deal with the health problem under consideration.

- a) At the lowest level the village health worker (VHW) trained in basic first aid, sanitation and nutrition education make referral to

- b) the dispensary, which is staffed by at least one rural Medical Aid (RMA) and capable of providing basic curative and preventive care, who in turn make referral to
- c) the Rural Health Centre (RHC) staffed by a Medical Assistant (MA), who is better trained than the RMA but offering basically similar services and assisted by about eight trained health workers with some bed capacity of about 15; who would make referral to
- d) the district hospital which is usually staffed by at least one graduate Medical Officer (MO) with assistance from several categories of trained health personnel, offering both primary and more sophisticated outpatient and inpatient and preventive care; who would make referral to
- e) the regional hospitals offering similar services to those of the district hospital but with more sophistication in diagnosis and treatment and qualified health personnel and lastly would make referral to f) the Zonal Consultant hospitals offering the same services to those of the regional hospital but with more sophistication in diagnosis, specialized treatment and equipment.

The District, Regional and Zonal Consultant hospitals also serve as first level health care contact with the immediate neighbourhood, a training and supervision centre for lower level health workers, and as a referral centre from the next lower level for the provision of curative services.

The number of health facilities has been gradually increasing as shown in fig 7. Government-owned dispensaries increased from 875 in 1961 to 1,425 by 1971, 2,600 by 1980 and 2,644 by 1984 – an increase of 200 percent. The ratio of population to dispensary fell from 1:11,700 in 1961 to 1:6,800 in 1981, and then increased to 1:8,100 by 1989 due to higher population growth rates than the rate of construction of new health facilities. By 1984 each dispensary served about 2–4 villages, and 70 percent of the population being within 5 km walking distance. Population per medical assistant or RMA was reduced from 17,703 persons in 1961 to 5,205 in 1984.

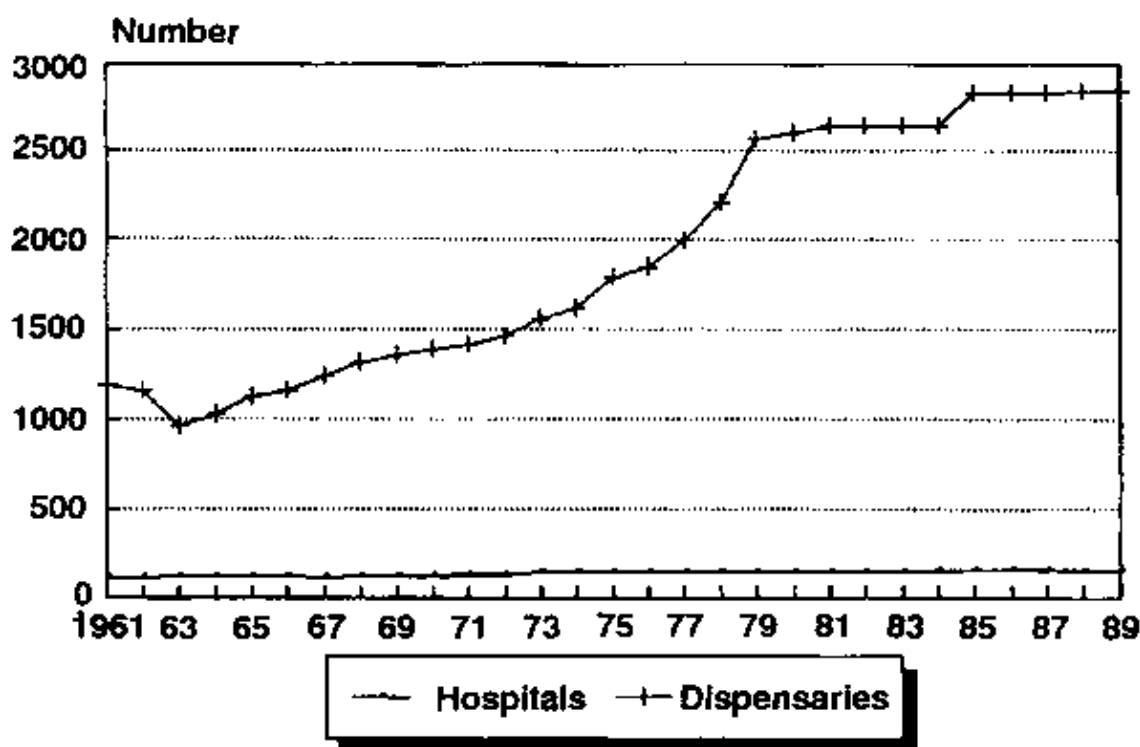
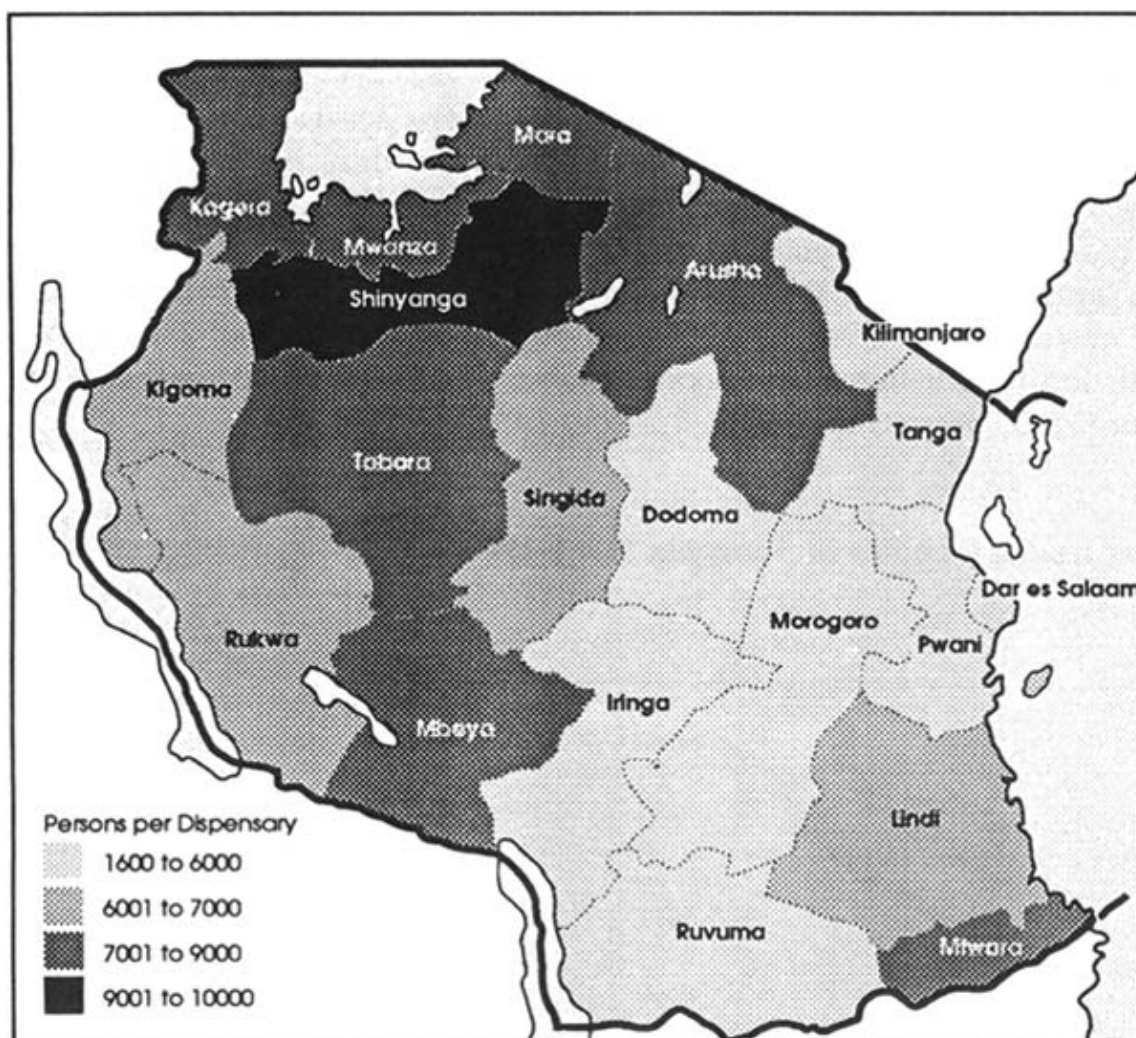


Figure 7: The growth of health facilities in Tanzania (1961–1989)

Source: Planning Commission, "Economic Survey", various issues

By 1988 a total of 152 hospitals with a total of more than 26,000 beds had been established of which 129 are district hospitals [URT, 1991]. There are now 277 rural health centres with over 5,900 beds; and 2,851 dispensaries which also provide some resident care through a total of 4,100 beds. Thus the total number of beds available in all health care facilities in 1988 was 36,000 or approximately one bed for every 640 persons in the population. In addition there are more than 1,800 village health posts.

The rural population per dispensary to indicate physical accessibility is shown in map 6.



Map 6: Rural population per dispensary in Tanzania, 1989

Source: United Republic of Tanzania, Bureau of Statistics, "National Socio-Economic Profile of Tanzania, 1989" Dar es Salaam, 1989

Health care personnel

In 1987, there were about 900 medical officers and 517 assistant medical officers trained and practising in Tanzania or one for every 16,000 population [URT, 1991]. Significant progress has been made in the training of mid-level personnel where emphasis has been placed. Over 3,000 medical assistants and 5,000 rural medical aides have been trained, or one for every 2,800 population. Tanzania has now over 4,000 nurses and over 3,000 Maternal and Child Health Aides (MCHA) or one for every 3,200 population; and 436 health officers and over 1,200 health assistants or one for every 13,800 population. Unlike in other African countries most of the health personnel are concentrated in the rural areas.

Accessibility to health care

The level of health care accessibility throughout the country is rare in a country as poor as Tanzania [MOH, 1989]. An evaluation of health services conducted at the time of the population census in 1978 showed that 72 percent of the rural population lived within five km of a health facility and 93 percent within 10 km [MOH, 1989]. In the PHC review of 1984; the situation was found to be the same: 73 percent of the rural population in the six represented regions surveyed lived within 5 km of a health facility as were 95 percent of all urban households [MOH/WHO, 1984].

There is also evidence to indicate that the health facilities particularly at the primary level are actually been utilized as shown by high attendance rates and coverage by specific programmes [Kavishe, 1990]. For example, the average per capita utilization of outpatient care in 1972 was 4.3 and remained the same during a health inventory in 1978 [MOH, 1989]. During both years, more than two thirds of the outpatient visits were made to the lowest level facility (the dispensary) increasing from 72 percent in 1972 to 84 percent in 1978.

Specific programme coverage statistics are also impressively high. The evaluation of the MCH of 1981 [MOH, 1982] estimated that 85 percent of all pregnant women received antenatal care and more than 55 percent of all deliveries took place at a health institution. The PHC review of 1984 indicated that these figures had increased to 95 percent for antenatal coverage and to 60 percent respectively for institutional deliveries for the six regions surveyed (Iringa, Morogoro, Arusha, Lindi, Rukwa and Shinyanga). For Dar–Es–Salaam 80 percent of the deliveries had been attended by a trained health worker. The 1991/92 DHS showed that 53 percent of deliveries took place in a health facility. In the 1984 review, an average of 90 percent of the rural children had been seen twice or more by a qualified trained worker (93 percent in Dar–Es–Salaam); 75 percent had a growth chart in rural areas (85 percent in Dar–Es–Salaam) and almost all children who had seen a health worker had been weighed at least twice.

The most remarkable public health achievement in Tanzania during the last half of the 1980s was **universal child immunisation** (UCI). Under the UCI programme, children were immunized against six major diseases – measles, tuberculosis, tetanus, poliomyelitis, diphtheria and whooping cough. When a national programme for immunisation was established in 1981; the vaccination coverage for measles was a mere 31 percent and only 22 percent for a complete course of three vaccinations against polio [URT/UNICEF, 1990]. A national infrastructure of trained staff and cold chain operations was established and in 1986 President Ali Hassan Mwinyi personally endorsed an accelerated programme to achieve universal child immunization by 1988. From a coverage survey conducted in early 1989, the immunisation coverage rate against each of the six major childhood diseases for children aged 1 to 2 years rose from 53 percent in 1986 to 83 percent by the end of 1988 thus surpassing the global goal of 80 percent by 1990 two years before the target date.

Tanzania was the first large sub-Saharan African country to reach this goal. This achievement was possible through the development of a clearly defined objective and well developed plan of operations which made it possible to mobilize external funding for the programme. At the same time a strong social mobilization of parents to bring their children for vaccination; of communities to organize vaccination days in their villages; and health staff to perform outreach services so that every child could be reached empowered households and communities to assess, analyze and take appropriate action.

A major hindrance in sustaining these achievements is the present cost of the immunization programme which stands at \$7 per child [URT/UNICEF 1991 and Davis 1990]. Already efforts have started to reduce this cost largely through reducing the wastage rate of vaccines by having well announced special vaccination days in clinics and outreach services rather than opening new vials on demand as it is currently practised.

Health care quality

Though according to estimates health workers spend on average about three minutes for patient consultation; and despite the limited training and almost lack of continuing education of primary health staff patient management has been noted as satisfactory. Medical supplies in the rural areas has been enhanced by the development of a national list of essential drugs, consisting of 192 items and their regular provision through the essential drug programme (EDP) since 1984 [MOH/WHO/DANIDA, 1985]. By prepacking and delivering the drugs directly to the health facility using a kit system, and by bulk purchasing and use of an international tender system the cost of providing these drugs has been at about US \$ 0.5 per person per annum [URT/UNICEF, 1990].

However, the quality of medical care over the last decade has deteriorated sharply. This is reflected in an increasing maternal mortality and a perceived general increase in hospital mortality. Moreover, the unprecedented strikes by health personnel during 1992, is a reflection of the low morale which has permeated the health system. It is not uncommon to find health personnel charging for otherwise user free service. The deterioration is also reflected in peoples readiness to go to private health services even where government services are available. The deterioration is a result of government inability to meet on a user free basis, the increasing medical services of the growing population in an environment of severe economic deterioration.

Health financing

The financing of the health sector in Tanzania is complex due to the policy of decentralization of 1972 which was further strengthened for the health sector in 1984/85. As a result Government funding for health is channelled through four main sources:– (i) the Ministry of Health (MOH) budget (ii) the Ministry of Regional Administration and Local Government (MORALG) which was incorporated into the Prime Minister's Office in 1991 (iii) revenues of the District and Urban Councils from development levy and other revenues and (iv) the Prime Minister's Office budget. Although some small charge may be levied for higher quality rooms in a few hospitals, Government health care is provided free from user charge. Users of Voluntary Agency facilities pay some fees on a cost sharing basis. A considerable amount of money may be spent on the traditional private sector but estimates on such expenditures are difficult to obtain. Communities are known to contribute in health care through the construction of dispensaries and health posts and the payment of Village Health Workers (VHW) in cash or in kind. Greater community participation and contribution for health care is a culturally acceptable form of resource mobilization.

Thus the very impressive developments in the health care system over the past two decades described earlier have been possible due to a number of factors which include an equitable rural based national health policy; government commitment for its implementation; donor support; contributions of the community in cash and in kind; and contributions of voluntary agencies.

Multilateral and bilateral donors have also contributed large amounts of resources to health care in Tanzania over the past decade. Together with private church and lay NGOs based mainly in Europe and North America they provide substantial recurrent and development assistance in the form of finance, manpower and material supplies to the health sector. The health sector is only second to the agricultural sector as a recipient of foreign aid, sometimes taking nearly 15 percent of bilateral technical assistance which sometimes accounts for between two thirds and three quarters of development health spending.

DANIDA through UNICEF has been the most important contributor to the medical supplies in Tanzania since 1983 [URT/UNICEF, 1990]. Between 1983 and 1987 DANIDA gave nearly US \$ 30 million in drugs and medical supplies. From 1989 the annual inflow for pharmaceutical supplies from DANIDA has been estimated at about \$11 million.

Thus, whatever reservations may be harboured by some quarters the achievements in the health sector signify a cost-effective use of resources amidst an appalling economic situation and show that we do not have to wait for social economic development before setting up effective health delivery systems.

Health care in need of treatment

From the mid-1980s delivery of health services has faced two major problems. First, the increase in uncoordinated vertical programmes managed by external assistance teams (e.g. EPI, EDP diarrhoea programme, etc) has led to duplication of effort, intra-bureaucratic conflicts and, in some cases at least, weakening of the goal of community empowerment. Second, it has become increasingly difficult to sustain the level of delivery of health services attained in the seventies due to dwindling state funds and changing policy emphasis enforced by the World Bank/IMF conditionalities. Thus during the ERP period (1986–92) the policy of “free Medicare for all” was abandoned with the introduction of user charges.

The health budget of 1990/91 illustrates the sustainability problem. Out of the shs. 13,649 million allocated to health, some shs. 5,440 million or about 40 percent was consumed by importation of drugs. This would suggest that at the present level of budgetary allocations, health programmes are virtually un-affordable, unless drugs are produced locally and cheaply or there is heavy reduction of administrative costs in the delivery of health services. High price of drugs in private dealers' shops (due to shortages in government health facilities) is currently forcing a significant section of the poor to relapse back to the traditional medicine-men who have also become commercialized.

In addition to a decline in public spending on health, a number of donors have shifted their support to the productive sectors in support of the economic recovery programme. As a result, the health system that has been put in place is deteriorating due to lack of resources for maintenance of physical structures, procurement of essential equipment and supplies, and low morale of personnel. With the possible exception of immunisation there is evidence to indicate that this has resulted into both quantitative and qualitative deterioration of the health services.

Furthermore, the rapid population growth has continued to stretch available resources. While the current provision of medical facilities and trained and skilled medical personnel in most categories meets the targeted goals of the Ministry of Health at the national level despite regional variations; the demands on these services in order to provide the current level of services will continue to rise with the population growth. Despite the priority given to the social services (health included) in the second Economic Recovery Programme (ERP2) through the Priority Social Action Programme (PSAP); the rapid population growth and the rising costs with a deterioration of real income are unlikely to favour a significant increase in public real per capita levels of health expenditure in the near future.

Thus the increasing cost of meeting the health needs of the population through a user free system is among the most immediate concern of national leaders [Kavishe 1990 and Wagao 1990]. Unless alternative health financing is forthcoming, a further decline is to be expected. The Government is already looking into the possibility of establishing user cost-sharing systems but this has to be done with utmost care. Using direct cost recovery user charges is a regressive alternative because many patients will not be able to pay. This may also have an effect on the most vulnerable groups by discouraging the utilization of preventive services whose relevance may not be immediately seen. The cost sharing systems used by voluntary agencies may provide a starting point but the quality of care should be drastically elevated to that offered by these agencies for the system to work. Insurance systems for workers and farmers may be started through their employers or co-operative unions and there are indications that this may be a better system than the direct user charge whether for purposes of cost-sharing or cost-recovery. Already Rombo district in Kilimanjaro region is experimenting with a health insurance system of an annual contribution of 200 Tshs. under the leadership of the current member of Parliament, Mr. Basil Mramba. Under the present conditions the question is not whether to find alternative sources, but how. The decision for cost-sharing has already been made, what is being awaited is its implementation.

CHAPTER 7: WOMEN'S CONTROL OF RESOURCES AND CARING CAPACITY

Introduction

Women's control of resources and caring capacity is one of the three necessary but not sufficient conditions for good nutrition. The other two conditions are adequate household food security and essential services (health, education, water and sanitation). The ACC/SCN defines "care" to refer "to the provision in the household and the community, of time, attention and support to meet the physical, mental and social needs of the growing child and other family members [Gillispie and Mason 1991]. Adequate care leads to the optimal use of human, economic and organizational resources. At an extreme, lack of "care is neglect." In Tanzania and most of Sub-Saharan Africa women play the triple role of producers, reproducers and major offers of "care." The caring capacity of the mother, therefore, depends on how she allocates her time between productive (income-earning) and reproductive (domestic) work as well as her access to essential services and supplies like health, water, fuel etc. In addition her capacity to care for the children will also depend on her economic and social status within the household as this will determine her ability to effect decisions which will ensure the health and well-being of the family. Caring capacity, however, goes beyond physical care. It also involves mental care related to love, respect, psycho-social development including confidence building which all have an effect on physical health. Mental and physical care go together and cannot be separated.

Decision making and women's control of resources

Women's work patterns, economic and social activities are all influenced by family structures, traditions, environmental and technological conditions and above all by the decision making process and the control of resources. Control of essential resources is necessary not only for effective action in nutrition related activities but for all other economic and social activities. Many important nutrition related decisions made by women cannot be implemented because they do not control the resources necessary to implement those decisions. Even their own time which is an important resource is controlled by the forces of production, reproduction and care of the household.

In Tanzania women's participation in decision making at both the household and community level is minimal as shown by a study in Iringa and Kagera regions [Nkhoma-Wamunza et al 1989]. In the seven villages

surveyed men dominated in decision making. They were the ones who decided on how much land should be allocated to the growing of different crops; how much money should be spent on the purchase of tools of production and farm inputs; and how much labour should be invested in the different crops grown. Decisions on the application of fertilizer, insecticides; sale of farm produce acquisition of loans, and issues related to money were made by men. On the other hand decisions on farm activities like planting, weeding, harvesting and food preservation was shared by both. Decisions related to food and the kitchen like what and how much to cook; the frequency of cooking etc could be made by women as long as they did not ask the husband money for buying the staple or other ingredients.

In most of the households studied, husbands did not trust their wives when it came to the spending of money. Almost all use of household income had to be approved by the husband. A wife had very little freedom to decide even on slaughtering of a chicken for the family meat. In many households, even chicken may be a source of quarrels. Even sending a sick child to a paying health unit had to get the approval of the husband who may not be around at the time the child is sick. This tight control of money by husbands is not surprising because all major means of production including land and livestock from which cash can be generated were owned by men.

However, women were increasingly adopting strategies to earn independent incomes which they at least control although husbands could be consulted or informed where large sums of money were involved. The major strategy women adopted was to engage in economic group activities or in horticultural activities.

Women's reproductive burden

In reproduction traditional attitudes dictate that the woman bears the number of children the man wants often times without regard to the effect on the woman's health. Traditionally, polygamy is supposed to spread the reproductive burden among the women. Although polygamy is thought to be among the Moslems and Pagans only, the DHS of 1991/92 showed that polygamy is widespread in Tanzania (table 47). The regions with both the highest (Mara) and the lowest (Kilimanjaro) polygamy rates are predominantly Christian.

Table 47: Polygamy in Tanzania (1991/92)

| Area | Rate of Polygamy (percent) |
|--|----------------------------|
| Mainland Tanzania | 27.5 |
| Dar-Es-Salaam | 12.4 |
| Other urban areas | 24.1 |
| Rural areas | 29.4 |
| Highest polygamous region (Mara) | 48.9 |
| Lowest polygamous region (Kilimanjaro) | 12.2 |
| Zanzibar | 25.2 |

Source: Family Planning Programme, MOH, 1992

The major factor which seems to influence polygamy in Tanzania is education rather religion. Low educational status is associated with high rates of polygamy. Only 14.2 percent of women with secondary education were in polygamous marriages compared with 35.4 percent of those without any education.

The reproductive burden of women is also reflected in the number of children they bear. It is not uncommon to find women with more than a dozen short spaced children. The author can remember a 32 year old woman who came to the ward with her 18th pregnancy. Since this woman was born, she had not seen her menses including menarche (first menses). She had been bearing a child every year since she was 14 years old. In general the average fertility rate of more than 6 for Tanzania means that most women are grand-multipara, a recognized maternal risk factor which is included in the Ante-natal card. In short the reproductive history of the average Tanzanian woman can be described as that of bearing children "too early, too often, and for too long." It is only after the start of the National Family Planning programme during the last five years that the

contraceptive rate was raised from an average of seven percent to an estimated 11 percent at the end of 1991. The objective is to raise it to 25 percent by 1995 which is still very low. In fact the major constraint in the acceptance of family planning is the resistance offered by men on various grounds ranging from religious morality, high child mortality to fears of unfaithfulness.

Female literacy, decision making and child care

The most important decisions which immediately affect the nutritional status of individuals are made at the household level. Care of children and support for meeting the basic needs of women and children require general understanding of what these needs are. The responsibility for making sure that these needs are met is that of women sometimes shared with other women usually relatives for short or long periods of time. But while women usually have information about these needs they do not control essential resources which are needed for effective action. These are usually controlled by men who are not very much involved in the day-to-day activities which affect the nutrition situation. Men have little information about what actions may be taken and have little understanding of the direct consequences of some of their actions to their wives and children. Thus while women receive information they are constrained in taking action; men can take action but have limited information.

This basic contradiction in gender relations and decision making is a major constraint in improving nutrition at the household level. Men must have some more information about nutrition and the consequences of their actions in improving the nutrition situation. Women must be empowered to have more control over resources and the decisions about allocation of these resources to improve the household nutrition situation. In the JNSP and CSD programmes the most successful areas with regard to nutrition improvement are characterised by improved information through child growth monitoring using children's growth cards and understanding by both men and women which facilitated joint parental support.

Apart from increasing nutrition related information and therefore, a more efficient management of limited household resources for nutrition improvement; female literacy and education has a multiplier effect on development and income and thus contributes to nutrition improvement. An examination of education levels and trends in Tanzania shows a near equal female:male enrolment in primary schools which heavily shifts in favour of males as higher levels are reached as shown in table 48.

Table 48: Women enrolment as percentage of total enrolment in schools in Tanzania

| Educational Level | 1987 | 1988 | 1989 |
|------------------------------------|-------------|-------------|-------------|
| 1. Primary Education (Std I-IV) | 49.8 | 49.7 | 49.6 |
| 2. Secondary Education (Form I-IV) | | | |
| Public | 34.4 | 36.3 | 38.5 |
| Private | 43.7 | 44.6 | 45.7 |
| Total | 39.6 | 41.1 | 42.6 |
| 3. Teacher Education | 40.9 | 41.6 | 40.8 |
| 4. Technical Education | 7.5 | 5.1 | 6.9 |
| 5. University (Undergraduate) | 15.2 | 16.9 | 17.1 |

Source: Ministry of Education, 1989

These educational trends have been achieved through positive Government efforts of promoting schooling of girls and positive discrimination in favour of girls in the admission system to the higher levels of education. For example girls were exempted from the compulsory two years of work before joining the University after form six which was imposed from 1973. There have also been efforts aimed at reducing adult illiteracy in Tanzania and by 1988 an adult literacy rate of more than 90 percent had been achieved [URT/MOE, 1989]. With a female literacy rate of about 88 percent, Tanzania remains the only example of a country with such a high female adult literacy rate in Sub-Saharan Africa. The trend of illiteracy in Tanzania on the basis of gender is shown in table 49.

Table 49: The trend in the rate of illiteracy in Tanzania, 1967–1986

| Year | Illiteracy rate in percent | | |
|------|----------------------------|-------|-------|
| | Men | Women | Total |
| 1967 | 54 | 80 | 69 |
| 1975 | 34 | 44 | 39 |
| 1977 | 21 | 33 | 27 |
| 1981 | 15 | 27 | 21 |
| 1983 | 10 | 21 | 15 |
| 1986 | 7 | 12 | 10 |

Source: Ministry of Education Tanzania, 1989 [165]

Due to the general deterioration of the quality of the social services including education, caused by the economic crisis of the 1980s, an expected reversal of this positive trend has started to be observed. Considering the importance of female literacy in child survival protection and development as a crucial empowering tool, more deliberate efforts by the government and all those concerned with development issues are needed to maintain and strengthen efforts toward the eradication of female illiteracy.

The empowerment of women

There have been deliberate and affirmative actions by the Government and the ruling Party to promote women's participation in decision making though, their effect has been limited by entrenched social ideologies and customs. Between 1985–90 out of 248 members of parliament only 27 (11 percent) of them were women and largely because of being nominated [URT/UNICEF, 1990]. Only five (19 percent) of the 27 women were elected by constituencies. Fifteen were reserved seats for the women's wing of the Party and seven were appointed by the President. The women's organization "Umoja wa Wanawake Tanzania (UWT)" was specifically formed by the ruling Party to enable the active involvement of women in the political arena.

In villages women still constitute a minority in the village leadership. Only about 10 percent of village council membership are women and they tend to work in those committees which are perceived as dealing with "women issues" like social services and culture. There is very low participation of women in the planning and policy making committees. At higher levels there are even fewer women District or Commissioners; or Planning Officers. The first woman Regional Development Director (RDD) was appointed in 1993 for Kigoma region. Although a recent law (1992) allowed 25 percent of the elected Local Councilors to be women starting at the October 1993 multiparty elections for Local Councilors, a strong social mobilization is needed to entice enough women to feel confident enough to participate in the elections. Clearly there is need to more actively promote the active participation of women in the decision making bodies.

There have also been various efforts by the Government and donor organizations to support income generating activities for women. For example the National Bank of Commerce (NBC) in 1991 set aside a credit fund of Tshs. 350 million for women which was quickly exhausted by applications of more than Tshs. 5.2 billion.

The re-establishment of cooperatives in 1982 restricted the formation of primary societies in rural areas to the village level. An amendment of the law in 1989 permitted the formation of cooperatives of smaller groups of people as it is the case in urban areas. This created the possibility of forming organised cooperative groups of few mutually trusting members with less risk of expropriation of proceeds by leaders of primary societies. It is not known how much advantage has been taken by villagers especially women in improving their chances of generating additional income through such cooperatives but there are indications that it has helped women to generate income which they can control themselves [Nkoma–Wamuza A et al 1989].

Locally based groups and organisations offer good possibilities of institutional support for women for improved nutrition. In some areas locally based non-governmental organizations have established day secondary schools in which over 40 percent of their form one enrollees are girls a good investment for future improved household care [URT/UNICEF 1990].

In urban areas these formally organized structures are not strong. During the severe economic crisis of the early 1980's most urban women started backyard chicken or cattle rearing or small scale selling of "street foods" which were an important source of household income and survival. In some cases a few women started informal savings "clubs" called "upatu" and may share utensils for income generating selling of food popularly known as "Mama Ntilie." This increases the women's income which they tend to use on buying food for the household. But on the whole in urban areas people tend to work more individually than in rural areas.

The social position of women

There are also cultural inhibitions which affect the legal position of women with regard to decision making and property ownership despite having equal legal status. Customary laws do not give the right to land ownership to women. Traditionally women are not given inheritance rights. Thus, a woman who does not bear a son may be divorced on the grounds that the man would like a woman who can bear him a son to bequeath him his property. Bride price which may sometimes be very high prejudices husband and wife relationships from the word go. Initiations during puberty are meant to psychologically subjugate women to the level of sex objects for men. This is born out by the fact that the traditional circumcision of women just before marriage persist in some communities even today. There is also the question of the inferior roles played by girls as compared to boys in the upbringing of children. This role play emphasizes that girls should concentrate in learning matters pertaining to the kitchen, and to accept without question that men are superior in all respects. Thus in adulthood women have been psychologically prepared to accept an inferior social position because of the elaborate traditional systems which make women the enforcers of their own subjugation practices. The perpetuation of these practices maintains the customary inferior position of women with regard to decision making, control of resources and their general social position.

A number of women associations or organizations have been formed to promote the equality of women and fight against the traditional systems of subjugation. Apart from the political women's organization UWT, there are women doctor's association; women media's association (TAMWA) and women executives group. There are also groups promoting the legal rights of women. These groups need to be supported.

Caring capacity for women

Because of their special needs, women and children are nutritionally vulnerable. With regard to care, adult women as a group are not normally vulnerable in the same sense as children since as adults they can take care of themselves. However, as in many other countries there are social and cultural aspects of women's lives in Tanzania which put an unproportional strain on them as compared to men.

As a result of the work burden they carry and the children they frequently bear breast feed and care for; most rural women are physically worn out by the age of 35 years. The physical strain is compounded by the psychological and mental strain of bearing all their responsibilities.

During pregnancy women need additional attention. But traditionally most societies in Tanzania expect women to undertake their normal workload up to the end of pregnancy. There are instance where women have delivered in the fields, farming. In some places like in Rombo, the district's member of Parliament has advocated resting for pregnant women to the extent of convincing the district authorities to offer facilities for early pre-natal admission to give women rest during the last weeks of pregnancy.

However, some societies do allow some rest during pregnancy especially in the last stages. Although in periods of heavy agricultural labour women may feel obliged to continue working to ensure adequate harvests; in these societies men take over the tasks of agricultural production. Relatives especially mothers or mother's in law assist in domestic chores. In urban areas house girls may be employed by the working women as "Ayas". Alternatively an extended family girl may be available for child care during office hours for working mothers. This tends to reduce the length of the period of breastfeeding and has been shown to affect nutritional status negatively [Karegero 1989].

Depending on the society, after child birth rural women rest at home for periods varying from one week to six months in order to recuperate. As for during pregnancy domestic chores may be assisted by relatives or neighbours, while agricultural work will be done by the husband. Women in formal employment are allowed a legal maternity leave of 84 days which can start before the birth of the child. Although they can take their entitled 28 days annual leave before the baby is born they forfeit it if it comes after the baby is born. The Government has recently announced on the prompting of TFNC that it is considering to allow husbands to take their annual leave at the time of delivery of their wives in the hope that they will assist their wives during this critical time. This will be some form of a "paternity leave."

There is also the formal Ante-Natal clinics which have high attendance rates of up to 95 percent. But the medical screening and care given is constrained by the inadequacy of supplies and more importantly by lack of a transport system for referral when high risk pregnancies are detected and especially during delivery should a problem arise. As a result only about 53 percent of women deliver in the health facilities, the rest preferring to be delivered by the Traditional Birth Attendants (TBAs) who are more experienced in giving individual care and assurance.

The available systems of maternal care are under strain not only because of the rapid social changes taking place; but also because of the economic pressures which need everyone to work harder and for longer hours in order to earn a living. Frequent diseases and particularly the problem of AIDS has resulted into an added strain on women who have to care for orphaned children, sick relatives, husbands or even themselves. In such a situation easier access to social services become very important as a formal care support system. Provision of water supplies close to home may be more important than pure drinking water far away. Availability of Village Health Workers and trained birth attendants with the essential supplies and equipment save the time women would walk to get those facilities. Afforestation programmes and village tree planting campaigns can facilitate the development of domestic fuel-wood so that fuel is close to their homes. Accessible appropriate village technologies like milling machines would ease time and energy consuming chores.

When taken as a community concern traditional social support systems can be mobilized through community organizations so that people are organized to help each other. Community monitoring of pregnancies as done in the JNSP and CSD programme areas by trained community health workers offers close support.

Caring capacity for children

Unlike adults, children cannot fend for themselves. Their health, nutritional needs and environmental protection have to be supported by adults usually their mothers. Thus the caring capacity for children is influenced by the time available to the mother for child care. The nutritional status of children correlates positively with the maternal time available for domestic work [FAO/TFNC, 1992].

Institutionalized systems of care especially in the form of day care is very rudimentary and can cater for only about three percent of all children aged 3-6 years. The HIV/AIDS epidemic has posed a severe strain on the available institutional caring systems. Apart from using more time by women to care for the sick the care of orphans pose a difficult problem. For example by September of 1990, there were 10,000 registered orphans in Kagera who are being cared for by grandparents and some NGOs.

There is also another group of children called "street children" which is rapidly increasing due to the AIDS epidemic and the structural adjustment changes of the 1980s. These children seen mainly in urban areas give an added strain on the few caring facilities available. Though the Ministry of Community Development, Women Affairs and Children and some NGOs have tried to give support, a more systematic and sustained approach to the problem needs to be worked out.

There are other less formerly organised extended family structures, kinship groups and various celebrations with regard to birth, puberty, marriages and mourning which can be supportive to the caring capacity of both women and children.

Caring capacity for the elderly

The population of Tanzania is generally young with only a small proportion being above 65 years of age. Traditionally, the responsibility of caring for elderly people has been their "adult children"; and thus the question of getting children during adulthood is seen an important security during old age. In rural areas the problem of the elderly is not significant as many families are still tied by traditional norms. However, the problem of the young people migrating into towns looking for work has started posing problems for the elderly both in terms of lacking young labour for production and for their care.

In the urban areas some retired people are increasingly finding themselves with no place in society. This is because they spend most of their lifetime in towns and after retirement they find they cannot fit in rural areas as well as in urban areas as they are not working and cannot get support from children due to economic difficulties. At the same time apart from Zanzibar where some form of state support is available; the community and the government have not yet prepared enough to accommodate these people. As a result the elderly of today deteriorate drastically and most die a short time after retirement due to inadequate care and frustration.

In the absence of any other form of support, it is high time that the community and government, recognise the problem of the elderly and accept them and plan for their smooth retirement as well as care for them and utilize their talents. Some retired elders live quite a long time with ability and energy before they die.

Caring capacity in difficult circumstances

In this context difficult circumstance include natural and man made disasters like drought, floods, political strife etc.

Records indicate that floods have been the major type of disaster in Tanzania, followed by drought [Sarakiya 1990].

Areas with potentials for irrigation are unfortunately also prone to floods. These include the Rufiji River Basin especially Usangu plains, the Kilombero Valley and the Lower Rufiji Valley. There has been almost annual recurrent floods in these areas during the rainy season, with varying seriousness. In some instances, the effects were mild to the extent that they could be contained through local efforts. However during the 1990 and 1993 flood crisis, national and international assistance was necessary.

Flood disasters result from heavy rainfall accompanied by incorrect land use practices coupled with lack, or limited flood forecasting knowledge and facilities in the country.

Droughts occur in the drier geographical areas with low rainfall (Between 200 – 600 mm annually) and cover parts of Shinyanga, Dodoma, Singida, Mwanza, Arusha and Iringa. Food shortages associated with droughts are usually of cereal staples and occur just before the harvest period. The seriousness of these shortages varies from three to six months. During these periods, people depend mainly on root crops such as cassava, yams and sweet potatoes. In some areas like in Mtwara and Same, wild and forest food crops play an important role in the diet of the people.

Areas prone to famine include parts of Dodoma, Singida, Shinyanga, Mwanza, Mara, Lindi, Tabora and Kigoma regions. These areas experience drought and famine from time to time, but Dodoma, Singida and Shinyanga seem to lead in both frequency and severity. Generally severe droughts occur every five years.

Other natural disasters threatening Tanzania include frequent occurrences of epidemics such as cholera, meningitis, typhoid and plague. Infestations (insect swarms, such as locusts and mealy bugs), rodents and vermin are of concern when it comes to food security.

While war and civil strife is presently not a problem in Tanzania, the country has remained a host to a number of refugees. The major influx of refugees into Tanzania occurred in the mid sixties following the political and ethnic strife in Rwanda when about 36,000 refugees were received and led to the establishment of the first rural refugee settlement in western Tanzania [URT/MOH, 1989]. Another major influx began in the early seventies as a result of events in Burundi. During this time, also Refugees from Uganda, South Africa, Zimbabwe and Mozambique were hosted by Tanzania.

The increase in the refugee population had a number of effects on the host communities. These included high demand on food and shelter. Health hazards included the introduction of epidemic diseases such as cholera thus changing the incidence and severity pattern of diseases among the host community.

Socio-economic effects, included increase of unemployment through reduced job opportunities for surrounding communities and disruption of existing social networks. Accompanying rising food prices limited access to food to all. The physical environment was also affected given the increased demand for shelter, fuel, water and sanitation.

Such effects imply a need for preparedness in order to counteract the negative impact of hosting displaced populations. Disaster management planning, implementation, monitoring and evaluation is an important aspect in the provision of timely care. The Government has formed a disaster unit in the Prime Minister's Office and enacted a law to establish coordinating mechanisms at the regional and district levels. TFNC has formulated a project on nutrition in times of emergencies. Generally however, the preparedness and response capacity and capabilities are low.

CHAPTER 8: NUTRITION RELEVANT POLICIES AND PROGRAMMES IN TANZANIA

Introduction

Tanzania has been concerned with the welfare and nutritional status of its people since independence (1961) but more so after the Arusha Declaration which contained a policy of "Ujamaa" and self-reliance, with a heavy accent on development of people who would in turn develop things (TANU, 1967). Although no explicit nutrition policy emerged till the eighties, the following three policies had a direct bearing on nutrition: (1) reduction of inequalities (2) food security for all and (3) provision of free social services. We shall review each policy briefly, noting its nutrition related sectoral programmes which eventually led to the formulation of an explicit nutrition policy after the mid-eighties.

General policies to reduce economic inequalities

Equity was one of the key words in Tanzania's post-Arusha policy of "Ujamaa" and self-reliance. Four policy instruments were applied in an effort to create an egalitarian society, namely (1) fixing and regular revision of minimum wages; (2) a progressive tax system; (3) subsidization of production inputs and maize flour; (4) policies to effect redistribution of incomes in rural and urban areas.

Each of these policy instruments underwent significant changes in the course of time, partly due to limitations in the "carrying capacity" of Tanzania's economy and institutions, and partly because of pressures from external benefactors such as the IMF and the World Bank.

Regulating Wages

Minimum wages were first introduced in 1963 and were calculated to cover the basic need of an average household. They have increased (nominally) many times ever since 1969, 1972, 1974, 1975, 1980, 1984 and each year during 1987-92. The policy was that minimum wages would rise faster than those in the middle and higher salary brackets. For example, when public sector wages and salaries fell sharply in real terms after the mid-seventies, salaries of middle and top officials fell at a faster rate than those of the lower level. Whereas in 1979 the minimum wage was 58 percent of its 1969 value, top salaries were down to 11 percent of their 1969 value while middle wages were 16 percent. The policy on narrowing the gap in official earning was closely observed until mid-eighties, and the ratio between top salaries and the minimum wage which had been 69:1

in 1961, 30:1 in 1069, had been reduced to about 7:1 by 1984.

Despite the relatively big increases in nominal wages, real wages had declined all the time from 1963 to 1985, and continued the downward trend thereafter. Thus, as already discussed the purchasing power of the major staples had decreased several fold, badly affecting economic accessibility to food. High nominal wages had been awarded at the cost of inflationary budgets which were accompanied by rocketing consumer prices for the staples. In terms of maize flour equivalence, for example, minimum wages declined by 14.7 percent at official prices, or by 90.5 percent at open market prices, or by a weighted average of 2.2 percent (with weights of 0.9 and 0.1 for open and official markets, respectively) during the 1984–88 period (Amani et, 1989:34). The ERP policies were accompanied by a rapid overall rise in consumer prices: by over 30 percent during 1986–88 and 26 percent in 1989, affecting workers in all categories. This is what led to the 'struggle' for a general revision of wages and salaries during the 1980s.

On recommendations of a Presidential Commission, conditions of service were restructured in 1989, providing for greater salary differentials for senior officials and those with special skills. Parastatal bodies were also encouraged to formulate their own incentives and pay their staff whatever they could afford. Further wage increases and reduction of taxes in July 1990 improved situation somewhat, but the government admitted that nobody could live on official wages and salaries. For example, by 1990 minimum wage earners would spend about 55 percent of their pay on a diet of maize and beans only, for an average family of five person (URT UNICEF 1990:12) Clearly the remaining 45 percent could not cover other needs, including contributions to the essential services demanded by the cost-sharing policy.

The government found a solution in permitting all employees to engage in extra economic and professional activities after office hours. The implications of this policy await assessment, but one the negative effects has been the growing use of official time and premises to do private business, especially by professionals such as teachers and doctors. This makes essential services more expensive and less accessible to the poorer members of the community.

At present the data on income distribution based on official wages and salaries do not reveal the real situation. First, higher officials have other sources of income, legal and not-so-legal. Second, non-salary benefits extended to higher officials e.g. housing, transportation, travel and many other allowances – are usually undervalued (if not discounted) in official presentation of relative wage distribution. If to these benefits we add the many non-salary allowances extended to senior officials, it will be clear that the trend is towards bigger income differentials between the workers and higher officials. A rough estimate would put the ratio between 20:1 and 30:1 or, at any rate, very close to the 1967–69 situation. Moreover, the policy to permit workers to supplement their wages through non-salary activities can only benefit the few with capital or security to be credit worthy. The trend would suggest that the ujamaa policies of the earlier phase are being erode or abandoned.

Progressive Taxation System

Tanzania also uses a progressive taxation system as an instrument of reducing inequalities. However, as we saw in an earlier section, in practice taxation has not been as progressive as intended. We noted that dependence on indirect taxes (on consumption goods) rather than direct taxes (on income and property) tended to protect the rich while penalizing the poor.

Taxation has in practice been progressive only in official wages and salaries where evasion is not easy. Thus higher earners have paid a higher rate than lower earners, and from 1974 to 1984 minimum wage earners were exempted from taxes. Following the reintroduction of Local Authorities in 1984, however, minimum wagers had to pay the Development Levy stipulated by the authority in their areas. Paid by all workers, peasants, public officials and traders, the Development Levy initially introduced a regressive element in the taxation system, but was later made progressive. However, the tax further reduces the ever declining real income of the minimum earners and smallholder peasants, particularly because it applies to the employed and unemployed, rich and poor, men and women, married and unmarried. Struggles by women from poorer families led to a decision by government in 1991 to allow local authorities to determine whether or not to exempt women from paying the Levy, and some have already extended the exemption to specified categories of women.

Under the current reward structures in the public services, progressive taxation has become obsolete as an instrument of reducing income distribution. A great proportion of the earnings of higher officials is now given in the form of non-taxable allowances which are, in some cases, five times the size of the taxable income. Many public firms give non-taxable bonuses to all workers at the end of the year. Although this may have a

motivational effect and increases worker's disposable income, it does not reduce income differentials, for in most cases the higher the salary, the higher the bonus awarded.

Subsidies to Producers and Consumers

After the food crisis of the mid-seventies, the government decided to increase production by providing good producer prices and subsidizing inputs such as improved seed, fertilizers, insecticides and herbicides. The rise of the so-called "Big Four" grain basket regions – Iringa, Ruvuma, Mbeya and Rukwa has often been quoted as evidence that the subsidization policy worked. However, the policy achieved only partial effectiveness because of three main problems. First, cheap fertilizers were misused in some areas. Second, demand greatly outstripped supply, with the result that recommended quantities were not applied, partly also because there was competition for fertilizers between cash and food crops. Third, input subsidies became a big burden on the government budget. Subsidies for fertilizers rose from shs.49.6 million in 1976/77 to shs.215 million in 1983/84 when they were abolished (table 51).

The drastic decline in the real value of minimum wages discussed earlier made the government to respond by subsidizing maize flour so as to maintain a stable relationship between the price of this staple food and the minimum wage. The subsidy was, however, removed in 1984 on three main arguments. First, in the absence of an effective system of enforcing official subsidized prices, only traders in the parallel market benefitted from the subsidy. Second, the subsidy was not targeted to disadvantaged groups, and therefore, could not achieve the equity concerns of the Party and Government. Third, maize flour subsidy had become a big burden on inflationary government budgets, having grown from shs.49.3 million in 1976/77 to shs.245.6 million in 1983/84 when it was abolished (table 50).

Table 50: Government subsidies for Fertilizer and Maize Flour, 1976/77 – 1983/84 (in Tshs. million)

| | Fertilizers | Maize Flour |
|---------|--------------------|--------------------|
| 1976/77 | 49,693 | 49,349 |
| 1977/78 | 100,000 | 84,263 |
| 1978/79 | 135,400 | 562,350 |
| 1979/80 | 134,692 | 419,080 |
| 1980/81 | 136,450 | 125,151 |
| 1981/82 | 202,800 | 405,290 |
| 1982/83 | 195,970 | 216,550 |
| 1983/84 | 215,000 | 245,630 |

Source: Ministry of Finance and Economic Planning, 1986, Government Report (mimeo), Dar es Salaam

Reducing Rural-Urban and Other Inequalities

Various Tanzanian social policies have addressed problems of rural-urban imbalances and other forms of socioeconomic inequalities. They have undoubtedly made an impact on income distribution and nutrition within and between rural and urban areas.

Available evidence shows that the rural-urban income gap has continued to be reduced since independence. Whereas the ratio of the income of urban wage earners over that of the rural peasant smallholder increased from 2.24 to 2.94 between 1969 and 1973/75, it decreased thereafter to 1.56 in 1978 and 1.39 in the early eighties. The decrease was largely due to the increased in producer prices after 1974/75 following the food crisis (ILO/JASPA 1982; URT-UNICEF 1985:448-449). The decrease accelerated in the 1984-86 period and even reversed the situation. Thus whereas real incomes of agricultural producers rose by three percent those of non-agriculturalists declined by 2-6 percent during the period. This was a result of higher producer prices (Amani et al, 1987: 97-98).

The apparent closure of the gap, however, has not reversed the relative attractiveness of the town over the

country. Rural–urban migration has continued to increase at a rapid rate, and the number of the unemployed and underemployed is currently very high in the urban areas – especially in the city of Dar es Salaam. Families of the unemployed and underemployed are the most vulnerable to malnutrition, child abuse and various social vices. Government's (political) solution to this problem has been to allow the urban unemployed to engage in petty trade (mainly selling food, fruits, etc) along the streets at the expense of hygiene and environmental sanitation.

The household surveys carried out by the Bureau of Statistics in 1969 and 1976/77, as well as studies of ILO/JASPA (1982), revealed that income equality increased among both rural and urban households, at least until the early eighties. Such equality, however, was achieved at a very low level of existence. According to ILO/JASPA's definition of "poverty line" – i.e. the minimum income essential to meet the basic needs of food, clothing, shelter and household goods – about 25 percent of the population was considered to be living in poverty in 1981. This proportion may have increased substantially by 1993 as a result of the souring prices under the ERP policies. While poverty in the rural areas is difficult to measure, poverty in the urban areas is mainly a function of low cash incomes, as a Dar es Salaam survey has shown (Sembajwe 1980).

Household food security related policies and programmes

The Party and the Government have made several policy declarations and carried out a number of campaigns, programmes and reforms with the objective of attaining food security. Table 51 lists the major ones.

Table 51: List of the major food security campaigns, policies and programmes

| Year | Campaign, policy or programme |
|---------|---|
| 1972 | Siasa ni Kilimo (Politics is Agriculture) |
| 1974–75 | Kilimo cha Kufa na Kupona (Agriculture as a matter of life and death) |
| 1975 | The National Maize Programme |
| 1978 | Public Works for food security |
| 1983 | Nguvu Kazi (Human Resource Deployment) |
| 1983 | The National Agricultural Policy |
| 1984 | The National Food Strategy |
| 1991 | The National Food and Nutrition Policy |
| 1991 | The National Food Security Programme |

Most of the food security related policies and programmes have been done through the Ministry of Agriculture and Livestock Development (MALD). A few of these are discussed below.

The National Agricultural Policy was prepared in 1982 and adopted in 1983 [URT, 1983] as a major response to the proposed Food and Nutrition Policy which had been prepared in 1980 [TFNC, 1981]. The Agricultural policy is geared towards an agriculturally led economic growth with the objective of achieving self food sufficiency and improving the nutrition situation through increased investment in agriculture, and improved efficiency in agricultural production, marketing and processing. The policy was strengthened by a National Food Strategy which was adopted in 1984 [URT/FAO, 1984].

Institutional changes within the Ministry responsible for Agriculture were carried out in order to be able to monitor and give policy guidelines for implementation. These changes included the formation of a Food Strategy Unit (FSU), an Early Warning System, a Food Security Unit (FSU) and the Marketing Development Bureau (MDB). The Ministry also reorganized its food and nutrition extension system so that it operates directly under the Ministry at district and regional levels. Regional Food and Nutrition Coordinators were appointed and the Nutrition Unit was transferred from the Research and Training Division to the Agricultural Division, Extension Services. The nutrition unit made an inventory of existing field staff training in food and nutrition and reoriented their activities towards nutrition in line with the new Agricultural Policy. Also, a task force headed by the Chief Agricultural Extension Officer was appointed to review/reorient diploma level

training in food and nutrition of agricultural field staff.

Improvements in family food storage also need special attention to enhance family food security. Improper management of storage facilities and the continued existence of rodents, insects and fungi, continue to cause high post-harvest losses of food. The magnitude of loss has not been established. While estimates of these losses for grains are as high as 30 to 40 percent per annum, documented storage losses in the regions are typically in the 5–20 percent range. Reducing such losses can make a substantial input on aggregate household food supply. TFNC has developed a simple method to help families to plan how much cereal they will need to store until the next harvest – a simple food security card for cereals based on a “bag model”.

The implementation of the Agricultural policy and the strategy adopted have not made any significant impact on the food security situation. Pockets of food deficits continue to exist and some areas have been added due to environmental degradation, population pressure or both. Though monitoring mechanisms have been put in place the extent to which the information generated is analyzed and utilized by decision makers seems to be low. For example it is not clear what happens to the information collected by the Marketing Development Bureau (MDB) daily on the prices of the major food crops from sentinel markets country wide; the Food Security Unit (FSU) “Food Security Bulletin” issued regularly and the Early Warning System which gives warning against impending food shortages. A major problem appears to be the dissemination of the information generated to relevant institutions and the slow speed with which decision makers react to the signals coming out of these monitoring system. Food crisis situations are often first be reported in the lay press instead of the warnings coming from the monitoring mechanisms.

Since 1991 FAO has been supporting the development of a comprehensive food security programme. The preceding review identified eight major problems related to Agriculture around which the programme was developed. These were:- (1) food insecurity among the vulnerable and low income groups (2) inefficient marketing systems (3) poor transportation and communication network (4) high post-harvest losses (5) demand outstripping supply (6) inefficient food crisis management (7) lack of credit and (8) resource degradation. The programme envisaged three scenarios for action. The first is a comprehensive food security programme comprising of 47 specific interlinked and interdependent sub-projects, each related to a particular technical discipline or area of activity was recommended. The second scenario is the implementation of 18 core areas for action and the third is an enhanced programme consisting of 27 specific activities including the 18 core activities. It is hoped that adequate national and international resources will be mobilized for the implementation of even the core activity scenario programme.

Public works for food security

There have also been labour-intensive public works for food security in Tanzania [Von Braun et al 1991]. These are the Rural Roads Rehabilitation and Maintenance Program (RRRMP) and the Labour Intensive Public Works Program (UNDP/ILO/GOT). The RRRMP was formulated to improve roads connecting high production areas. Phase one of the programme was aimed at maintaining 6,000 km of essential roads in seven regions and to rehabilitate 1,400 km of priority agricultural roads to be followed by phase two covering up to 5,000 km. of maintenance in other regions and a further 2,000 km of rehabilitation. A key policy component of the programme is the promotion of labour intensive construction and rehabilitation, and maintenance.

The Labour Intensive Public Works Programme was launched in 1979 and was aimed at creating social and economic infrastructure, building of technical and institutional capacity, as well as employment and income for the rural people. The labour-intensive projects do not explicitly target the poor, but there are efforts to facilitate employment for women. The programme covers 10 irrigation, road and housing projects in five regions. Funding for these projects was provided by the Netherlands Government, UNDP and DANIDA. The World Food Programme (WFP) has been funding similar projects in the sisal estates in Tanga and dairy farms in Zanzibar.

Due to domestic fiscal constraints, Tanzania's public works projects have been largely donor driven. For example out of US\$ 12.0 million expended by the largest project, the UNDP/URT/ILO project in the 1979–91 period only US\$ 2.4 million (20 percent) was government contribution.

The impact of these public works projects on nutrition and poverty alleviation has not been evaluated. The projects suffer from lack of documentation and most of the available information from them is mainly descriptive without analysis as to progress, which would be useful in drawing lessons of experience. However,

since the projects are generally regarded as transitory sources of income which is spent on food and basic consumer goods (Teklu and Maro 1993), they are expected to have some positive impact on household security. They can substantially stabilize intra-year employment fluctuations and increase economic access to food as long as they do not compete for labour during the peak food production period.

Given the low and variable incomes in rural Tanzania, and the severe underdevelopment of rural infrastructure, rising unemployment and falling of living standards in both the urban and rural poor, there is need for the labour intensive public works programme to deliberately focus on the poor, develop clearer goals which should include improvement of food security and develop policy and programmatic frameworks to integrate local and national issues. For example the projects could be concentrated in food insecure regions, those prone to periodic flood and drought or even in the urban areas as a means of providing short-term employment to unemployed people. It will also act as a temporary safety net of the negative effects of structural adjustment.

Provision of Basic Social Services for All

During the early 1970's Tanzania adopted an ambitious policy of providing the basic social services to all her people (TANU, 1973). By the end of the seventies, an impressive infrastructure was in place and service delivery (virtually free for all) was relatively smooth. For a long time, the ruling Party and Government resisted pressures for introduction of user-charges, but following a series of economic crises, IMF conditionalities, etc, user-charges were accepted reluctantly, and these were increased gradually during the early eighties, and substantially during the ERP years. Table 52 shows the tremendous growth in the capacity building of the three services – education, health and water from 1961 to 1987. As already noted service delivery is an intervention directed against the immediate causes, while capacity building is directed against the underlying causes of malnutrition. We shall provide a brief review of the policies and programmes in these three services which are very crucial in promoting nutrition.

Table 52: Expansion in Government Services, 1961–87 (Service level in 1961 = 100)

| Service | 1961 | 1971 | 1976 | 1981 | 1987 |
|-----------------------------|------|------|------|------|------|
| Water supply ¹ | 100 | 200 | 400 | 620 | 900 |
| Primary school ² | 100 | n.a | 440 | 700 | 640 |
| Health service ³ | 100 | 125 | n.a | 167 | n.a |

Source: Semboja and Therkildsen (1991), p.7

Notes:

1. Based on percentage of rural population served
2. Based on total enrolment, millions
3. Based on total population/primary health units

Nutritional Interventions Through the Water and Sanitation Sector

The provision of clean water and hygienic sanitation can be equivalent to a significant increase of food supply and essential nutrients through two mechanisms:

- a) reduction of the waste of food and nutrients consumed which occurs during diarrhoeal and other water-related diseases, by lowering their incidence; and
- b) reduction of time and energy spent by women in fetching water, hence increasing time available for child care and more frequent child feeding.

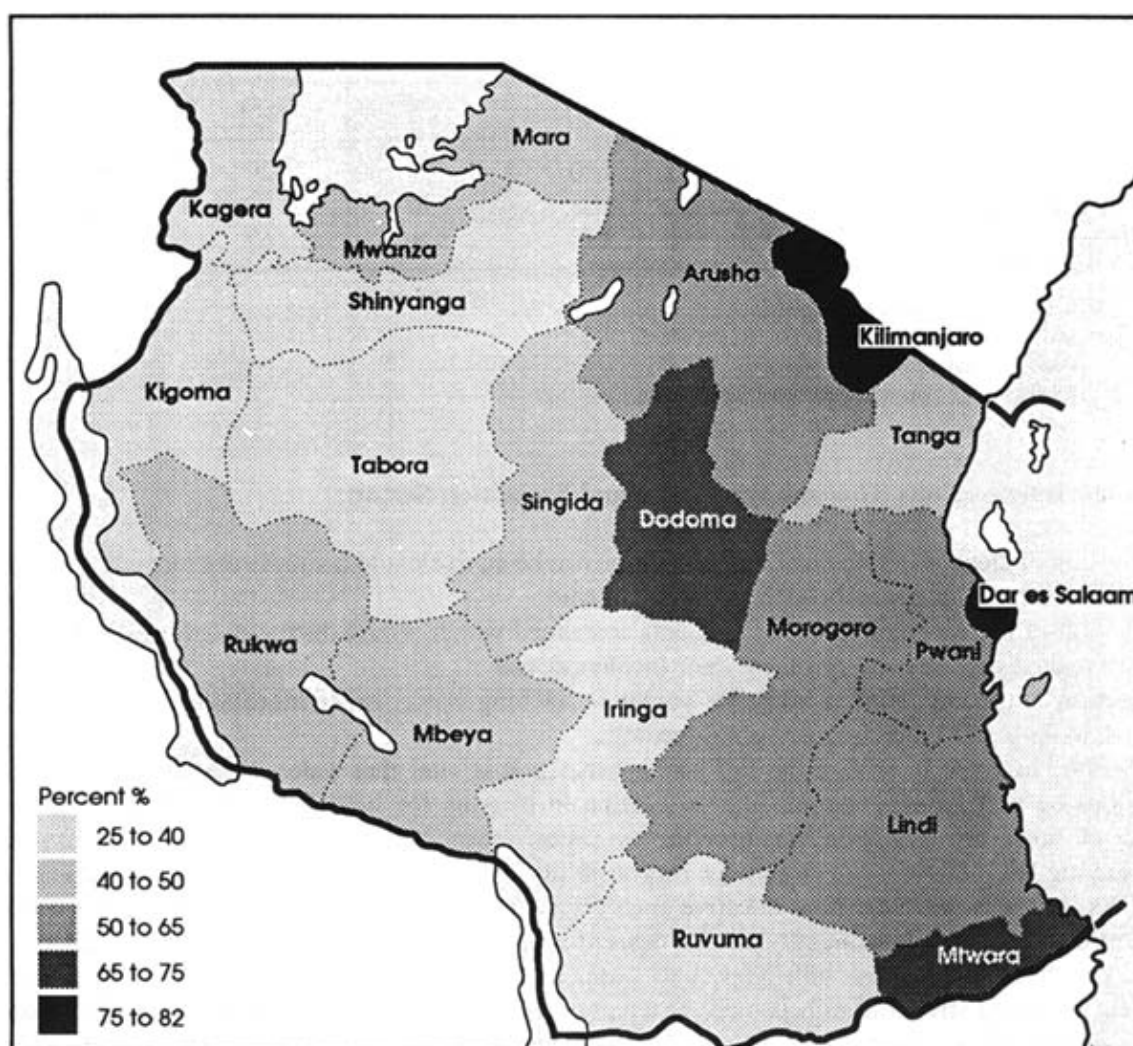
However, in order to realize the full health benefits it is vital that water and sanitation system installations be accompanied by adequate education in hygiene for households, and that sufficient supplies of soap are

available for families to follow correct hygiene practices. In Tanzania accompanying IEC activities are largely the responsibility of lower-level health workers, in particular the VHWs, but it is not clear how effective such efforts are at present. Until the time of the trade liberalization there were general, chronic shortages of soap, related to low production of oils and fats.

The situation in Tanzania with respect to water and sanitation is better than in most African countries, following strenuous efforts made as a part of the 1970s villagization programmes. In urban centres, around 50 to 70 percent of the population is served by improved water supplies, and in the rural areas around 45 percent (map 7); however in both cases problems of inadequate maintenance and rehabilitation reduce the percentage actually using the supplies by about a quarter.

The importance of sanitation has been emphasized in Tanzania since colonial times; urban centres are covered by sewerage systems (10–15 percent of the centre's population) or septic tanks, cess pits or pit latrines. About 80 percent of rural households have latrines of which about 60 percent are classified as suitable by the MOH. Actual utilization of latrine, is undoubtedly at lower levels, particularly by children.

Following the 1973 Party directive on rural water, health and education, considerable attention was paid to water and sanitation by government and the donor community. Water programmes went hand-in-hand with educational campaigns to change the peoples' attitudes towards water and sanitation. Water is valued for health, nutrition and development reasons. Studies have shown that in some parts of Tanzania water-related diseases constitute about 46 percent of all diseases recorded there (Stahl et al, 1978). Others have demonstrated that improved water and sanitation reduces diarrhoea morbidity and mortality in children (URT-UNICEF 1985). Availability of safe water within reasonable distances will also give the women more time to concentrate on child care and production of food.



Map 7: Rural population served with improved water supply, 1988

Source: United Republic of Tanzania, Ministry of Water, "Evaluation of IWSSD in Tanzania", 1989

In 1971 a twenty-year water development programme was approved by the Parliament with the aim of providing piped water supply to the rural areas so that by 1991 all Tanzanians would have access to a public domestic water project. Owing to high costs, however, the 'piped' water emphasis was revised in 1978 in favour of cheaper but sanitary sources, and a distance of 400 metres from water source was considered reasonable. Shallow wells were considered cheaper to establish, operate and maintain at the community level. But when it came to implementation, community participation depended on the technology mix used, and choice of technology depended on donor interests.

Initially, Regional Master Plans and village water schemes were developed without adequate involvement of the people at the community level; and water schemes depended on external financing at a level of about 60–70 percent with choice of technology done mainly by external experts (Therkildsen 1988; URT–UNICEF 1990:70–71). This approach led to several problems: villagers did not identify with the water schemes and would or could not maintain them; fuel supplies to diesel – driven pumps were irregular and expensive; pumps broke down and were left unrepaired. Thus about 30–50 percent of the water schemes were out of operation at any time (Mushi 1988), and studies have shown cases where improved water supply had been installed without improving health or nutritional status of the targeted people (Ingvar Anderson, et al, 1984; Carolyn Hannan–Anderson, 1983). The situation did not improve in the eighties because expansion lagged behind population growth in both rural and urban areas; and the user charges may have forced some people to return to their traditional dirty ponds.

As we saw earlier government budgetary allocations to water during the ERP years has been less than two percent – too little to maintain existing schemes. Thus from the mid-eighties the Ministry sought to avert the danger of losing the water infrastructure already established by introducing a new strategy. This had five elements: (1) community participation in construction and contribution for maintenance and operation; (2) use of low-cost appropriate technology, with special emphasis on shallow wells and hand pumps wherever possible; (3) training of village water technicians (including women); (4) protection of water sources through appropriate water committees at village and higher levels; and (5) cost recovery from users through contributions to a village water fund or other methods.

Sanitation lacked a clear policy statement, but was guided by two instruments. First, there was a law controlling water pollution (URT, 1974). Second, there was a target that every household in rural Tanzania should have a hygienic latrine by 1991 (URT, 1982). Going by official statistics, reasonable progress has been achieved in the field of sanitation. Between 1968 and 1977, households with a private pit latrine increased from 33 to 56 percent and the Ministry of Health estimated 70 percent by 1989. The successes in adult education and UPE undoubtedly contributed to successes in sanitation. The use of the ventilated improved pit-latrines (VIP's) increased in CSD programme areas; but rising costs of cement slabs make them un-affordable to the poor.

Thus the policies and water development plans which were drawn up have been constrained by financing particularly of investment costs in the current bad economic environment, even if partial costs recovery could be instituted and successfully implemented. It was because of such constraints that the Government decided to postpone the target of water for all in the rural population from 1991 to 2000.

The Health through Sanitation and Water (HESAWA) Project

This is a programme run jointly by the Government of Tanzania and the Swedish International Development Authority (SIDA) for the purpose of supporting water and environmental sanitation in the three lake Victoria regions of Mara, Mwanza and Kagera. The programme was launched in 1984 with the objective of improving the health of the people through improved health education, environmental sanitation and water supply in the three regions. In order to ensure affordability, sustainability and credibility the programme involved the people in the formulation and planning of the water and sanitation schemes.

In seminar to discuss the impact of the programme held in December 1991 there were indications that the programme has succeeded in decreasing water borne diseases like bilharzia and diarrhoea and has also improved the nutritional status of children in the pilot regions. In addition it was also reported that the programme contributed to the improvement of social services in the programme villages through the reduction of women's workload by bringing water supply within easy reach. An editorial in the Daily News in 1992 noted that the approach is appropriate for Tanzania's efforts to solve the problem of water and sanitation in the rural areas and called for the approach to be extended to the rest of the country.

Nutrition Education and Interventions Through the Educational System

Nutrition education activities in Tanzania can be traced back into the early 1920s when campaigns in increased cash and food crop production included the establishment of gardens at government schools and lessons in child feeding practices for the mothers. Since then the development of nutrition education has grown over the years, but has always been treated separately in different sectors. In addition the persistence of the concept of the “four food groups” in nutrition education in some sectors (especially Agriculture) has resulted into some inconsistencies about the messages delivered. The main target of nutrition education has been women and the assumption has been that people are uninformed about what to eat and conservative in their dietary practices. This assumption overlooked the fact that nutrition education alone without other basic necessities such as availability of food, purchasing power, water, medical services, sanitary facilities, produce extremely limited results. This approach has been substantially changed following the establishment of TFNC and the development of the TFNC/UNICEF conceptual model. Thus, nutrition education is meant not only to change behaviour, through influencing knowledge and perceptions but as an empowering tool for sustained nutrition intervention.

Nutrition education has an important role to play in improving nutrition and more education efforts need to be directed to two groups – children (as future parents) and men. The effectiveness of IEC in changing attitudes has been poor world-wide, Tanzania being no marked exception. However, new techniques of IEC development have been unfolding in other parts of the world which appear to be more successful at identifying resistances to change and focusing on them for nutrition education. These new approaches to IEC have considerable potential for use in Tanzania.

The school network in Tanzania is very widespread, far more so than the health services network; there is at least one school in every village, with a total of more than 10,000 schools in the country. The school system, together with adult literacy programs, has great potential for education on food and nutrition, which is now beginning to be exploited. Pilot programs of school feeding have also been undertaken in Dodoma and Singida. A five year health and nutrition programme in primary schools has jointly been prepared by the Ministry of Education, Ministry of Health and TFNC and support for implementation is being sought by the Ministry of Education.

In Tanzania formal educational policy focuses mainly on community empowerment rather than elite creation, preferring the “mass approach” to the “elite approach”. As Nyerere (1984) put it: “We cannot protect the excellence of education for the few by neglecting education for the majority; in Tanzania it is a sin to do so”. According to the Constitution of the United Republic of Tanzania (1984), “every person has the right to education”. This mass approach targeted universal adult literacy for 1975 and universal primary education (UPE) for 1977. The education Act of 1978 stipulated compulsory primary education for all young people 7–14 years of age, and crash programmes of UPE teacher training were put into gear in all regions. The approach relied on active participation by the communities which built schools, teachers' houses, latrines and provided desks and other contributions on self-help basis.

The results are impressive for a poor country. Within two decades (1967–87) illiteracy had been reduced from 67 percent to less than 10 percent. Sexual inequality in literacy was also reduced: whereas in 1969 illiteracy was 55 percent among men and 81 percent among women, by 1988 it was 7 percent for men and 12 percent for women. Enrolment rate in primary school standard 1 increased from 54 percent in 1975 to 90 percent in 1984, then declined to 66 percent by 1990s, with both sexes represented equally. This was made possible by the fact that primary education claimed more than 50 percent of the total educational recurrent budget during the 1970/71 – 1983/84 period. The wide literacy base achieved is an important factor in the fight against malnutrition through the printed word.

Disadvantaged children – blind, mentally retarded, physically disabled – also benefitted from this policy of empowerment through education. Schools for the blind increased from one (established in 1950) to 19 by 1983, situated in 16 regions. Three to five blind students have been graduating at the University of Dar es Salaam each year during the past decade, with the first blind M.A. holder graduating in August 1989. Other handicapped children have received support through government, private and NGO institutions many of which receive state grants-in-aid.

The mass approach meant that the government could not expand secondary and tertiary education facilities to meet the growing demand. Thus private people and NGO's were permitted and encouraged to run secondary schools which, by mid eighties, admitted more students than government ones.

Provision of educational services now faces many problems, including (1) unsatisfactory pay and housing for teachers which have led to low morale; (2) shortage of teaching materials; (3) limited secondary school places relative to the huge number of primary school leaver; (4) failure by schools to instil skills for self-reliance as stipulated in official policy since 1967; (5) high dropout rates in recent times, especially among girls, due to decline in enforcement of attendance (legally and politically), and also a growing perception that education does not necessarily lead to higher incomes than, for example, engaging in petty business; and (6) inability by individual parents and communities to shoulder the burden of cost-sharing in education, a problem currently being addressed by the Government.

Social mobilization and Advocacy

Advocacy plays an important role in promoting nutritional and related social welfare programmes. It is the driving force or the heart of the triple A cycle. Programmes may be championed by private individuals, institutions or the people themselves. Working within the Party and State institutions, such key personalities like Nyerere, Mwinyi and others have been able to push through very successful programmes – e.g. the Universal Child Immunization (UCI) programme – and their role in the nutrition field has recently been publicly acknowledged and rewarded by UNICEF.

The effectiveness of the UNICEF-supported CSD programmes has depended a great deal on the advocacy of Regional and District Commissioners, key leaders in the District Councils, and the district party organization. These 'advocates' have to be "won over" (through seminars, posters, malnutrition films, etc) before programmes were 'sold' to the people. The "Mtwara Initiative" for CSPD launched by the regional administration is an excellent example of empowering advocacy. Campaigns by these dignitaries have, for example, been an important factor in launching District CSD programmes and Village Health Days. One observer has described the launching of a Village Health day as follows:

"It is a concentrated event: colourful, packed with virtually all top district and regional leaders and functionaries, some visiting the village or being seen by the villagers for the first time – indeed, a mixture of serious business with pleasure (lectures, immunization and child-feeding on the one hand, and poetry, "ngonjera" and songs on the other). The presence of so many important people in the village shows the importance attached to the activity by the leaders and this, if reinforced, will have a long-lasting impact on the villages and their nutrition programmes" (Mushi, 1988:25).

Private and NGO institutions have also played a useful role in nutrition-related advocacy work. Just to take one recent example, the Industrial Products Promotion (IPP) Company, under the influence of its 'populist' chairman, Reginald Mengi, has championed a tree-planting programme in Kilimanjaro Region; made financial contributions to the Family Life Education Programme (POFEP) which promotes self-help projects in the villages; and established a fund from which the urban poor can borrow to finance small projects. Unfortunately not many other businessmen have followed this example. Church-based NGO's have promoted social welfare programmes since the colonial days, and their advocacy role is still important and valuable in those rural areas where they have a strong presence. In Tanzania, the ruling Party has historically led all other institutions in advocating nutrition-related programmes, especially in mobilizing advocacy of the beneficiaries themselves. Health and Nutrition advocacy offer great opportunity for practising multi-party democracy as the need for their improvement offers a common platform for discussion. The improvement of the health and nutritional status of children and women can be made good politics and any honourable party should feel ashamed if they do not include these concerns in their political agenda.

Community mobilization and participation have been directed at three levels: families, groups, and village authorities (councils and their committees). All these levels have to fulfil their roles if nutrition programmes have to succeed. The family is the basic unit because it makes critical decisions on what to produce and how much; the amount of grain to be used for beer, to be sold for cash, and to be reserved for food; the allocation of the family earnings to various activities; whether to send a sick child or expectant mother to the dispensary or the witch doctor, etc. In most rural families this decision-making process is men-dominated, and therefore one aim of the social mobilization effort has been to enable the women to participate more in family and community decisions. A specific government action in this regard has been to decree that women should be represented equally in such bodies as the village health committee (VHC) which has a female and male village health worker (VHW); the social services committee of the village council; the village water committee, etc. On the production side, the Government – UNICEF CSD programme, and similar programmes supported by other donors, have a large component reserved for women groups engaged in income-generating activities (URT-UNICEF 1985 and 1991). It is believed—rightly or wrongly – that a large part of women-controlled earnings goes to the welfare of the family, especially the children (Mascarenhas, 1983).

By its very nature, nutrition must depend heavily on the involvement and contributions of the people themselves – as individuals, families and communities. It is one of those fields which cannot succeed with a non-participant community. A survey carried out in CSD areas (Mushi, 1988; Mbilinyi et al 1992) showed high levels of programme social mobilization by the people, and preparedness to make a contribution to the programme. Distribution of responses to the question what the villages were expected to do for themselves to improve the welfare of children and mothers (Mushi 1988) was as follows: 41 percent (N = 810) advocated solving problems on self-reliance basis; 33 percent emphasized measures to improve the village economy so as to ensure growing incomes and food security; and 17 percent found solution in educating the people on health, nutrition and family obligations. Similarly, responses to the question what the regions and districts were doing to ensure that the villages are able to sustain the CSD programme in the long run clustered around mass education, campaigns, mobilization and measures to promote the spirit of community self-reliance. Mass education in its various forms has been the main tool in tackling the problem of nutrition in Tanzania.

Indicators of the people's advocacy are the actions taken or contributions made towards various social programmes. We shall give a few examples. In most areas with CSPD programmes, child feeding posts have been organized by the communities themselves to provide additional feeding to young children, especially the severely malnourished ones. Villages have devised models which suit their particular circumstances. In some cases food for feeding children is contributed by households, in others special farms have been set aside for this purpose. In some cases child care takers are paid compensation in cash or in kind, in others women take turns to do the work, etc. Most villages have also accepted the burden of paying their two health workers, now ranging from Tshs. 500 to Tshs. 2,000 per month. In the education field, villagers have made contributions in both cash and labour to have schools, teachers houses and latrines built, and desks repaired or made. The same self-help spirit is shown in water schemes to which villagers contribute labour in digging trenches for pipes and money for operation and maintenance costs. The level of voluntary contributions differs from place to place, and the poorer villages are finding the burden too heavy (Mushi and Baregu 1991).

Prevention and control of diseases, in particular, demand high levels of peoples knowledge and advocacy. Malaria control, for example, would require a strategy that ensures various actions-by individuals, families and communities. Actions include clearing potential mosquito breeding sites and using bed-nets impregnated with permethrin to kill mosquitoes on contact. Experience with malaria control programmes in Dar es Salaam and Tanga has shown limitations of the bureaucratic approach which failed to mobilize advocacy of the people at all levels. Similarly, family planning or control of the HIV virus can only succeed by changing individual's, family's and community's behaviour through mass education programmes. The social mobilization animation of the CSPD programmes offers a fertile ground for learning from its success.

The Role of Information, Education and Communication (IEC)

IEC play an important role in promoting nutrition and related programmes. The main tools used in mass education in Tanzania include newspapers, the radio, posters, films, traditional theatres, non-formal media, people-generated information and institutionally-generated information (reports and research findings). We shall have a brief word on these.

The mass media in Tanzania is reasonably well developed. There are four government and party newspapers. In the past five years or so, over a dozen private papers, bulletins and pamphlets have emerged, published on a weekly, biweekly, monthly or quarterly basis. The official newspapers have been very effective in social mobilization work and in sensitizing public officials to various social problems. For example, they have regularly carried news and feature articles on women and children, and on development projects in the rural areas. The private newspapers have also begun to participate in this mass mobilization effort. For example, some private papers have sought to sensitize the public on the central role of women in family welfare and national development. These include "Sauti ya Siti", published by the Tanzania Media Women Association (TAMWA), and the Newsletter published by the Women Research and Documentation Project (WRDP) at the University of Dar es Salaam; it summarizes women-related research.

Furthermore, all regions with CSD programmes have established newsletters with village correspondents. These have made it possible for villages to share experiences – thanks to the high levels of literacy. Every now and then 'sensitizing' seminars or workshops have been organized by TFNC for journalists to keep their advocacy high.

However, the full impact of the national news papers (all based in Dar es Salaam) is mainly felt in the urban and peri-urban areas. High cost of printing materials and distribution and transport problems have reduced their impact in the remote rural villages. This gap is filled by Radio Tanzania which has established a long

tradition of mass communication and mobilization. Access to radio sets and listening habits have been judged good, with an estimated listenership of two million people at any time during the day, reaching five to seven million listeners at peak times (i.e. about 30–50 percent of the population 15 years and above).

Radio Tanzania has a Public Education Committee whose membership includes representatives from the Tanzania Food and Nutrition Centre (TFNC), Education Unit of the Ministry of Agriculture, Health Education Unit of the Ministry of Health, and the Ministry of Education's Department of Adult Education. A special committee on women and children issues was established in mid-1990. These committees – along with the staff of Radio Tanzania – have formulated and broadcast useful nutrition-relevant programmes. Some of them seek to promote health, for example, *Mtu ni Afya* (Health makes Man); food production, for example, *Chakula ni Uhai* (Food is Life), and *Kilimo cha Kufa na Kuona* (Life or Death Farming); afforestation, for example, *Misitu ni Mali* (Forests are Wealth); welfare of mothers and children, for example, *Mama na Mtoro* (Mother and Child), etc. These have been judged reasonably effective (Wakati, 1990). There are also specific food and nutrition programmes prepared by TFNC and the Ministry of Agriculture.

The use of non-formal and traditional media has also gained in importance. Changes in nutrition patterns depend on significant changes in behaviour at the individual and community level where normative reinforcements occur. Thus the use of non-formal and traditional media of communication may turn out to be effective. A conclusion from experiences with the CSD programmes in Tanzania during the 1985–90 period reads as follows:–

“In the same way that education systems have community roots, so too there are strong informal systems of information within communities. People provide each other daily information about the health of their families, the state of affairs at home, problems, hospital visits, and so on. Greetings in Tanzania and especially in rural communities, are elaborate exchanges of information which can be helpful in planning access to neighbours if needed in emergencies, as well as building up social groups to provide mutually beneficial services, child care, for example “(URT–UNICEF 1990:92)”.

Specific actions have been the use of traditional and popular theatres, choir groups, dance groups, poetry and “ngonjera” groups in addressing specific social problems using locally understood idioms and expressions. Themes have included proper child-feeding, care for pregnant mothers, family planning, preservation of water sources, proper sanitary habits, environmental protection, land allocation, etc. In fact the signature tune of the TFNC radio programme is a recording of a song in one of the villages in Iringa during the launching of the Iringa Nutrition Programme. Research on the use of popular theatre to promote women participation and communication in these fields suggests positive results (Mlama 1989); and other findings have attributed success of such nutrition programmes as the Iringa JNSP to the mobilizational power of the various information networks used, both modern and traditional (Mngodo et al, 1987). The use of cultural events and ceremonies for this purpose has also proved useful in some areas. For example, in Mbinga District (Ruvuma Region) CSD promoters have introduced nutrition-related songs to such cultural events as “Mganda and Chioda” (for women), and district leaders have claimed that this has had some impact (Mushi, 1988:12–14).

People-generated information is judged the most effective at the community level. Up until recently, information for programme implementation was the sole responsibility of the experts, namely the extension staff who went to the villages to gather data on various socioeconomic issues. Lessons from the JNSP and CSD programmes (which operate under a different model) showed that advocacy by the people themselves was at its highest where nutrition information was gathered at the community level by the themselves. In this approach, the primary role of the extension staff is to train and sensitize such community-level functionaries as the health workers and committees, teachers, leaders of the village government, and other community actors. These then take up the challenge to mobilize and sensitize the rest of the community, and to ensure that nutrition-relevant information is gathered on a systematic basis. The community-generated information (e.g. on child growth, births and deaths) enabled the village to assess the situation and to take action where it could or request assistance from the higher levels where necessary (URT–WHO–UNICEF, 1988). This approach has been credited with the achievements of the Iringa JNSP: “The generation of information within the community and its use there had been one of the most important mobilizing forces of the programme and one of the most important reasons for its success” (URT–UNICEF 1990:92).

Institutional sources of information have also been tapped. Ministries have participated in public communication through the printed word, taking advantage of the high literacy achieved in the country. For example, the Ministry of Education's Department of Adult Education has established seven zonal newsletters on Mainland Tanzania, with each zone targeting 50,000 to 100,000 copies. Like the other newspapers, these, too, have faced problems in meeting costs of printing materials and distribution. The Ministry of Health and its

technical arm TFNC, have also taken initiative in the same direction. TFNC has distributed over 21,000 easy to read booklets (readers) on the major nutrition problems and their solutions. In June 1990 President Mwinyi launched the Health Education Initiative in Tanzania, with the aim of making important life saving messages available to as many people as possible. In this connection, the Ministry of Health made a wide distribution of a Swahili version of the "Facts for Life" booklet ("Ukweli Kuhusu Maisha") and embarked on a training programme for primary health care workers at all levels, including members of the village health committees. Supported by UNICEF, UNESCO and WHO, the programme had by November 1991 held health education meetings in seven regions, trained 1,981 ward primary health care committees, and covered 7,464 villages. Three other institutional actors have been the source of planning and implementation information, namely the extension service, the Bureau of Statistics, and institutions of higher learning.

Extension staff of different sectors are expected to collect data on a routine basis, mainly relating to implementation of their sectoral projects and programmes. This information is communicated to the higher authorities in the form of quarterly and annual reports in a format prescribed by each sector. In most cases this information has been inadequate for planning purposes, partly because it is inaccurate and partly because historically such information has been intended for control rather than for planning purposes. Moreover, this information is transmitted 'raw' to the district or higher levels, and most districts lack the capacity to process, store and retrieve information. Hence many districts plan with inaccurate information, and continue to perpetuate this inaccuracy from year to year in the absence of rigorous evaluation of performance. Moreover, the annual planning cycle gives the planners inadequate time to do meaningful evaluation of results. This is a major weakness which requires early attention to improve planning, monitoring, evaluation and intervention.

The Bureau of Statistics has been an important source of nutrition-relevant information. It has conducted two household surveys in 1969 and 1976/77, and another one was planned for 1991/92. It is collaborating with the Tanzania Food and Nutrition Centre (TFNC) to develop nutrition surveillance systems, and with the Economic Research Bureau of the University of Dar es Salaam to monitor the social dimensions of economic adjustment. Its Social Statistics Section compiled a National Socioeconomic Profile in 1989 which provide some social indicators for monitoring non-economic aspects of development. The section also compiled a gender pocket book called "women and men in Tanzania" in 1992 which gives the gender situation with regard to a number of social and economic sectors. Academic researchers in Tanzania escaped the attention of policy makers in the past, but now they are beginning to have an impact, as more and more are being called upon to undertake policy-oriented assignments and to participate in sectoral policy seminars and workshops. Research revelations from academic institutions have made a significant contribution to the evolution of a nutrition policy in Tanzania.

Nutritional Interventions Through the Health Sector

The role of the health services in nutrition is essential to the fight against malnutrition, particularly for mothers and children, through:-

- a) prenatal care of pregnant women, to protect both maternal and infant health;
- b) promotion and support of breast-feeding and good weaning and child feeding practices;
- c) surveillance of child growth through periodic weighing and recordings on the growth chart, to alert health workers and mothers to nutrition problems as they develop;
- d) immunization of children against infectious diseases such as measles that can interrupt good feeding and growth;
- e) oral rehydration therapy, to minimize nutritional losses from diarrhoeal diseases;
- f) nutritional rehabilitation, of severely malnourished children; and
- g) family planning, to ensure adequate spacing of children and reduction of high-risk pregnancies which could result in the death or debility of a mother.

A "medical-curative" model of health delivery was inherited and typified the 1961-66 phase. Under this model, urban hospitals and curative services were emphasized. Rural health remained the responsibility of

local authorities and church-based NGO's. After the Arusha Declaration the Party preferred a "community-preventive" approach. So while expanding curative services in the rural areas, emphasis shifted to preventive actions to be taken by the communities with the assistance of the government. Thus a number of community-oriented health programmes were initiated, and between mid-seventies and mid-eighties an elaborate health infrastructure was created extending from the ministerial level to the village level. We can only outline the leading features of the policies and programmes which have some bearing on nutrition.

In 1974 a **Maternal and Child Health Programme (MCH)** was launched with the aim of providing mothers and young children with immunization, nutrition education, antenatal and postnatal care, treatment of minor health problems and growth monitoring – all during one and the same visit to the MCH clinic. During the same year the Ministry of Health launched the first village Health Worker (VHW) programme – a community-based programme, with VHW recruited from the village he/she serves under guidance of a Village Health Committee (VHC), and technical supervision from the Rural Medical Aid (RMA) and Maternal and Child Health Assistant (MCHA) based at a dispensary or rural health centre (RHC).

These grassroots institutions expanded country-wide in the course of the seventies and eighties, making community – level preventive interventions possible. Preventive services were particularly emphasized during the Third Five Year Plan period (1976–81), with their shares in the health development expenditure rising from two percent in 1970/71 to nine percent in 1975/76 and 17 percent in 1980/81. The figures for recurrent expenditure were five, ten and 11 percent, respectively. The Plan had a target of one dispensary per village, with a rural health centre supervising six dispensaries. An expanded **Programme of Immunization (EPI)** framed in 1976 took off in 1981 with DANIDA, UNICEF and WHO assistance which led to the UCI programme described earlier. **Primary Health Care (PHC)** was strengthened during the 1980s, with emphasis on health education; promotion of food supply and basic sanitation; MCH services, including **family planning**, immunization, prevention and control of locally endemic diseases. An **Essential Drug Programme (EDP)** was also started. In addition to the VHW training programme, traditional birth attendants (TBA's) were also trained. During the last half of the 1980s, programmes against diarrhoea, malaria, and a health information system were started or strengthened. The Ministry of Health through TFNC has also successfully launched the Baby Friendly Hospital Initiative (BHFI) and advocacy for breastfeeding.

During the late seventies a twenty year (1981–2000) health plan was launched, emphasizing empowerment of the communities to handle their own health problems with the assistance of ministerial staff. The targets for the year 2000 were (1) to raise average life expectancy at birth from 45 to 60 years; (2) to reduce infant mortality from 137 per 1,000 births by then to 50/1000 (same target as that adopted by the World Summit for Children ten years latter); (3) to have a village health post in every village without a dispensary or a health centre, and (4) to involve all the people in implementation and management of community based health programmes. The outcomes of the health policy were until mid-eighties, better than those of most other comparable developing countries.

The urban bias of the health services had been corrected to some extent by the end of the seventies. Thus the rural population which represented 86 percent of the total accounted for 70 percent of all in-patient days, for 75 percent of all out-patient visits, benefitted from 65 percent of all health expenditure; 70 percent of the rural population lived less than five kilometres from nearest health institution, and 50 percent of all health workers served in the rural areas (URT, 1979; URT-UNICEF 1985:189). By the end of 1988 Tanzania become one of the leading countries in achieving the Universal Child Immunization (UCI) target of 80 percent by 1990 – i.e. two years ahead of the deadline. The figure had risen to 86 percent by October 1991.

Since 1989, the various policy statements and strategies and plans on Health started being compiled into a comprehensive **National Health Policy for Tanzania** which is yet to be declared. The policy consists of a number of sub-policies which have the objective of improving the physical, mental and environmental health of all people through reductions in morbidity and mortality with a special focus on those most at risk. It also has the objective of improving the quality of life and increasing life expectancy.

The policy is based on the **Primary Health Care (PHC)** approach as originally embodied in the Arusha Declaration of 1967 and by the 1978 Alma-Aba Declaration. The strategy emphasizes the active participation of people in their own health and multi-sectoral involvement through a decentralized management system. The **PHC strategy** gives emphasis to the following elements:–nutrition; health education; water and environmental sanitation; maternal and child health services including family planning; immunization; control and proper treatment of endemic and epidemic diseases; the provision of essential drugs; and the provision of mental, dental and ophthalmic services. Active and successful programmes have been started for all the elements. Individual policies for nutrition, drugs and acute respiratory tract infections (ARI) have already been prepared.

In the new PHC Strategy; community involvement is seen as a process by which partnership between the government and local communities is established in the planning, implementation, utilization and financing of health service together with mobilization for a national health culture. Other requirements are seen as intra–and inter–sectoral collaboration; strengthening of district health services; promotion of community based health care and the development and utilization of appropriate technology. Major support and strengthening is also indicated in the following areas:–leadership for PHC through development of group dynamics and team work; women and health through improving MCH/FP services and empowerment of women in decision making; improvement of the capacity for health planning and budgeting; development of a responsive basic and continuing education including for health staff development; improving capacity for supervision, resource mobilization, and research for health.

Policies and programmes related to caring capacity

A number of the health programmes like Maternal and Child Health (MCH) and Family Planning are related to improvements in the caring capacity. Improved education for girls also leads to improvements in the caring capacity. The government has already formulated policies with regard to “women development” and “youth upbringing”. Presently the Ministry of Community Development, Women Affairs and Children is formulating a comprehensive policy on children. In addition the Ministry of Health has formulated a multi–sectoral Safe Motherhood Strategy for Tanzania as part of the global UNICEF coordinated Safe Motherhood Initiative. It remains to be seen how these policies some aspects of which will require fundamental changes in attitudes and entrenched traditions will be positively effected.

The Food and Nutrition Policy

Given the array of sectors, institutions and agencies both governmental and non–governmental involved in nutrition work the need for some guidelines to harmonize their activities becomes important. In addition, the many policies and programmes which directly or indirectly affect nutrition, need to be made and implemented in a direction that should improve the nutritional status of the people. A Food and Nutrition Policy is thus an important tool for bringing this harmony, both conceptually and practically.

What is a nutrition policy?

A Food and Nutrition Policy (FNP) is a guideline aimed at giving the general conceptual and practical directions of nutrition policies and programmes with the ultimate goal of eliminating malnutrition. The guideline addresses the immediate, underlying and basic causes of the malnutrition problem. The guideline should also address cross–cutting issues like inter–sectoral collaboration, community participation, including nutrition in developmental planning and the issue of resource allocation to nutrition related activities. Thus a FNP may be an explicitly elaborate document giving directions in dealing with the food and nutrition systems. It requires a systematic analysis of the current food and nutrition situation in terms of the immediate, underlying and basic determinants. Since the analytical process is dynamic requiring constant review in assessment, analysis and action to cope with changing conditions; a FNP cannot be a precise listing of projects and programmes in itself. However, it may provide a framework from which programmes and projects can be drawn up. Essentially, a FNP would provide a guide to the entire community on how to deal with food and nutrition problems whenever they arise. It should also be possible to provide early warning for an impending food insecurity and deteriorating nutritional status to enable those responsible to take early corrective action.

The formulation of the National Food and Nutrition Policy for Tanzania clearly shows the complexities of formulating such a policy. It took four years (1976–1980) to formulate a draft policy under the coordination of the Tanzania Food and Nutrition Centre and another eleven years (1980–1991) for the policy to be amended and declared. The process for the formulation of the policy is described in more detail below.

The process of policy formulation

The process of formulating and implementing a food and nutrition policy is complex and long as testified by an analysis of the Tanzania Food and Nutrition Policy [Jonsson, 1979; Maletnlema 1976, 1979; TFNC 1980a–b, 1981; URT 1991]. The process as it was done in Tanzania could be conceptually summarized as follows:–

- i) political motivation
- ii) defining the problem
- iii) laying out alternatives
- iv) designing a draft policy
- v) discussing the policy
- vi) Reviewing the policy
- vii) Formulating a plan of action
- viii) Making the choice (i.e. a decision)

Political motivation

The process was politically initiated, when in 1976 the Secretary General of the ruling Party, the Tanganyika African National Union (TANU) requested the Tanzania Food and Nutrition Centre (TFNC) to formulate a Food and Nutrition Policy for Tanzania. The political impetus for this seems to have stemmed from the same reasons that led to the formation of the TFNC by an act of Parliament in 1973 [URT, 1973] namely:–

- a) as a strategy to implement the 1967 Arusha Declaration which recognized peoples development as the centre of all development and diseases including malnutrition as one of the big three enemies of the people (the other enemies were poverty and ignorance)
- b) as a response to the high priority given to the social services sector by the 1973 TANU biennial conference to enable meeting the targets for raising life expectancy and improving the general health of the people
- c) as a response to the food crisis brought by the drought of 1974–75.

Defining the nutrition problem

From 1976 until 1980, TFNC was building up its institutional capacity in defining the nutrition problem in order to formulate appropriate policy. At the same time discussions on the need for a nutrition policy were started by TFNC in order to mobilize the support of decision makers [Jonsson 1979; Maletnlema 1976 and 1979]. Various nutrition surveys were done and planning visits to the regions were made by TFNC staff. In addition zonal nutrition planning courses were carried out for all regional and some district planners [Jonsson 1978a].

The Iringa Nutrition Surveillance project [Jonsson 1978c] which was initiated by TFNC under WHO support in 1979–1982; the extensive nutrition surveys done by TFNC in all the districts in Iringa region [Ljungqvist 1977–79 and 1981] and the national goitre survey [Kavishe 1986b; Ljungqvist et al 1979] done by TFNC in 1979–81; apart from contributing greatly to the understanding of the problem and causes of malnutrition were also important inputs in the preparation of the Food and Nutrition Policy. These surveys also laid down a strong basis and were an important consideration in choosing Iringa as the site for the WHO/UNICEF JNSP [URT/UNICEF/WHO 1983]. It was during this time that the “food cycle model” school of thought in approaching the problem of malnutrition started to be questioned and the integrated explicit framework model gradually developed. In fact the very first significant field test of the integrated conceptual framework and triple A cycle was through the Iringa Nutrition Surveillance project; with the Iringa WHO/UNICEF JNSP being its first large scale extension. As for the Iringa JNSP, TFNC stationed a staff in Iringa during the implementation of the surveillance project and also during the whole period of the implementation of the JNSP.

Laying out alternatives

Towards the end of 1980 it was felt that there was enough information and expertise to discuss the variable strategies for a nutrition policy. Thus from 3–5th September 1980, the first multisectoral national conference on food and nutrition for decision makers was convened by TFNC. The site was Moshi a town at the foot of mount Kilimanjaro; Africa’s highest peak, where at independence a torch was lit “to shine beyond our borders, to bring light where there was darkness; peace where there was war and hope where there was despair,” in the words of the father of the nation and first President of Tanzania “Mwalimu” Julius Kambarage Nyerere the architect of the Arusha declaration. The meeting which brought together high level decision makers from the sectoral ministries and regions was opened by the Prime Minister at that time the late Edward Moringe Sokoine.

At this meeting various alternatives proposed by TFNC were extensively discussed and an expert committee was nominated to draft a policy [TFNC 1980a&b and 1981].

Designing a draft Policy

The multisectoral national expert committee was convened by TFNC in Morogoro region in December 1980 under the chairmanship of the Ministry of Agriculture and secretariat of TFNC and designed a draft policy [TFNC 1980b & 1981]. The Board of TFNC in 1975 had approved a system whereby expert committees would be nominated to give technical advice to the Managing Director on specific issues on basis of individual expertise rather than institutional representation. The draft policy was later polished by TFNC and submitted to the Government through the Ministry of Health and to the Party as a proposed food and nutrition policy for Tanzania [TFNC 1981].

Discussing the draft policy

The proposed food and nutrition policy document was submitted to both the Government and the Party (CCM) in 1981. Between 1981 – 83, there were discussions on making adjustments before presentation to the Cabinet, and also during this time a new procedure for the development and declaration of specific national policies was adapted. The new procedure required that the relevant sectoral Ministry of Government submits proposed policies to the relevant secretariat of the ruling Party (CCM) which would give its views and comments to the sectoral Ministry before the policy is submitted to the cabinet. In case of the National Food and Nutrition Policy, the Ministry of Health sent the proposal to the secretariat of the social services of CCM and comments were sent back to the Ministry of Health. There is evidence that the policy was widely discussed in both the Government and CCM secretariat.

In 1983, three important events took place. The first was the adoption of an agricultural and Livestock Policy [URT 1982b]; followed a year later (1984) by the National Food Strategy [URT, 1984b]. The Second was the initiation of the Iringa Nutrition programme [URT/UNICEF/WHO 1983]. The third was the development of the Primary Health Care guidelines followed by a Primary Health Care Review in 1984. The developments were important as they were partly implementation of the policy both from a sectoral and multi-sectoral perspective and in addition provided further information and experience with regard to the extent and causes of the malnutrition problem. There was also a lesson: that the policy document development in 1980, needed to be revised.

Reviewing the draft Policy

In November 1983, TFNC requested a review to be undertaken, but was advised not to withdraw the document for review, but review it as part of the discussion process.

In 1985, the social services sector of CCM gave its comments to the Ministry and in anticipation of a declaration, TFNC prepared a National Conference in 1986. But the process was not yet completed and the conference was not held. In 1987, the policy was discussed by the Inter-Ministerial Technical Committee comprising of all Principal Secretaries. Many useful comments were given especially with regard to the more precise definition of the problem and the need to take into account the changes which had occurred since 1980. A national food and nutrition situational analysis which better quantified the problem had been done in 1985 [URT/UNICEF 1985] and 1987 [Kavishe, 1987]. The evaluation of the Iringa Nutrition Programme provided an extremely important experience [URT/WHO/UNICEF 1988]. With such an experience at hand the Ministry of Health/TFNC made the necessary changes and in 1988, the policy was discussed by the Cabinet. The Cabinet approved the policy and gave very useful comments which were incorporated into the document sent to the Party. The comments included the need to incorporate more explicitly the role of culture and beliefs, the Policy on Women in Development; the need to develop an implementation plan of action and the mobilizational role of the Party.

In the same year (1988), the TFNC called a multisectoral workshop which involved all relevant sectors including a representative from CCM. Opportunity was taken to include experiences from the Iringa JNSP and CSD programmes which had expanded from the JNSP in 1985 and the micronutrient malnutrition control programmes which had started to be formulated and implemented. The document was also reoriented from the food cycle model approach of 1980, to the integrated approach conceptual framework and the triple A cycle tested in the JNSP Iringa Nutrition programme. Eventually the fifth revised document was sent to the Party in 1989 by the Prime Minister.

Making the Choice

While the Party (CCM) was scrutinizing the policy document, TFNC called a multisectoral workshop in July–August, 1990; to review the country's food and nutrition situation and programmes and recommended

the formulation of a Medium–Term Plan of Action (MTPA) for the implementation of the food and nutrition policy. The workshop was opened by the Minister of State in the President's Office and Vice–chairman of the Planning Commission. The MTPA was formulated by a multisectoral expert committee under the chairmanship of the Economic Research Bureau of the University of Dar–Es–Salaam and secretariat of TFNC in August 1990. The objectives for developing the MTPA were:–

- i) to indicate possible programmatic direction for critical intervention areas in solving the problem of food and nutrition
- ii) to articulate possible strategies for achieving sustained intervention
- iii) to stress and indicate multisectoral collaboration and dialogue with emphasis on community participation and mobilization and
- iv) to stress the need to incorporate actions into sectoral plans and providing the means for monitoring and evaluation of the implementation of the policy.

The outcome of the workshop and expert committee provided further experience in reviewing the policy document. After submission to the Party (CCM) the document was reviewed three times more jointly between the Party and TFNC. The eight revised document was distributed to all members of Parliament in June 1991 and was incorporated into the Minister for Health's Budget speech in the same month. At the ninth revision, it was possible to articulate the nutrition goals adopted by the World Summit for Children of 1990 with the National Plan of Action (NPA) being interpreted as an implementation of the policy. The ninth and final version was passed by the Central Committee (CC) of CCM on 18th December 1991. The CC comprises of 18 high level decision makers including the President of the United Republic who is also the Chairman of CCM; the Prime Minister and first Vice–President; the President of Zanzibar and Second Vice–President; the Vice–Chairman of the Party and the Secretary General of the Party. The choice was thus finally made.

Implementation

The division between the process and implementation is an arbitrary one. As already indicated, implementation of the policy was going hand in glove with the development of the policy itself. The process of assessment, analysis and action on the main areas of food security; caring capacity and essential services continued even in the absence of formal declaration of the policy. This stresses the fact that the elaboration of the document was not the main aim. The mobilizational effect of the process was perhaps more important. In retrospect, the delay in the declaration of the policy was a blessing in disguise. In the absence of a blue print for the formulation of such a policy the delay kept the policy on the agenda of many high level organs until a critical mass of awareness and opinion was mobilized.

What were the reasons for the delay in declaring the policy?

If there was political commitment, technical competence in developing the policy and that decision makers were supposed to have their values and priorities right with regard to nutrition relevant policies why then was its declaration delayed for so long?

We have had occasion to discuss this issue with a number of Government and Party officials. The conclusions which we can draw from these discussions are two. First is that the policy touched areas for example food security which required their own specific policies. A delay was required to give time to the sectoral Ministry to develop a policy in those areas. The Agriculture and Livestock policy was declared in 1983 followed by a Food Strategy in 1984. In other words sectoral priorities and values overrode the multisectoral approach of the policy. Secondly, there were initial fears that the aim of the policy was to create a super–structure to coordinate and oversee food and nutrition activities with too wide a definition of nutrition as interpreted by the TFNC/UNICEF integrated conceptual framework. It was feared that this super–structure would have been TFNC. These fears took some time to subside. Thirdly the policy was widely discussed by policy making forums and several revisions were required with a long time lag between the time of those forums and information to the technical implementors. The policy document declared in 1991 was the ninth revision. Perhaps there is no other policy which has been discussed for so long by decision makers as the food and nutrition policy. It is pertinent to add that all nutrition–relevant evaluations, appraisals, reviews recommended the “immediate” declaration of the policy.

There were also two other important reasons for the delay in declaration. The first was a low capacity in the Ministry of Health to process the declaration of the policy. Ministries of Health are generally known not to be

efficient in policy matters. This was the first policy to be developed under the auspices of this ministry. A health policy is still under preparation [URT/MOH 1989]. The second reason was that the policy was being proposed at a time when the government was giving highest priority to economic policies related to structural adjustment and political pluralism. As it were, there was not “enough time” for the government and the ruling party to put the food and nutrition policy in their consultative competing agendas. It is significant to note that the policy was declared at a time when the social dimensions of adjustment were being formulated. In fact the coverage of the policy declaration in the government owned “Daily News” was written side-by-side with information on food crisis in one of the regions. Thus, while the proposal to have a national food and nutrition policy in 1976 was a response to the food crisis of 1973–75, its declaration was a response to the negative social effects of structural adjustment. Thus both the initiation of its development and its declaration were “crisis” responses.

Specific nutrition programmes of the eighties

During the eighties there were three major types of specific nutrition programmes whose objective was to reduce the high rates of malnutrition and mortality. These programmes are the Iringa Joint Nutrition Support Programme (JNSP); the Child Survival and Development (CSD) Programmes, Nutrition Surveillance and the national micronutrient malnutrition control programmes (MMCP). In this section we shall briefly describe these programmes.

The Iringa Joint WHO/UNICEF Nutrition Support Programme (JNSP)

Background

The Iringa Joint WHO/UNICEF Nutrition Support Programme (JNSP) began in October 1982 with funds provided by the Government of Italy [URT/WHO/UNICEF, 1983]. Tanzania, one of the first countries considered for inclusion in the JNSP was informed of the plans and invited to prepare a country proposal in March 1982. The planning process was started in April 1982 through the formation of a National Ad Hoc Planning Group comprising of representatives from the Prime Minister's Office (Chair), the Ministries of Health, Education and Agriculture and the Tanzania Food and Nutrition Centre.

Iringa region was proposed to be the location of the proposed area-based community nutrition programme for three reasons:— First it was the only region where comprehensive nutrition surveys had been done and the prevalence of malnutrition had been found to be very high. Second the region has diverse agro-ecological zones to enable the region to develop a broad base of experience in different settings to facilitate replicability in other areas. Thirdly, the strong institutional infrastructure found in the region was deemed essential since the project was viewed as an experiment with a new approach to nutrition intervention and thus would give the experiment a fair trial.

The National Ad Hoc Planning Group prepared a proposal and submitted it to the WHO/UNICEF Global Steering Committee in October 1982 shortly after the official commencement of the programme. According to the procedures defined by the Global JNSP each country project was given a life of five years from the date on which funds were first received from the Government of Italy.

The proposal was approved and funds were allocated for five years. Funds were made available to Tanzania in March 1983. However, because adequate funds were available beyond the official termination date of April 1988, the Global JNSP granted a one year time extension in July 1987 to 1989. A mid-term review of the programme was conducted in 1986 and a final evaluation was done in 1988 [URT/WHO/UNICEF, 1988] as it was planned under the initial grant. Because of the success of the Iringa Nutrition Programme (INP) as it became known in Tanzania; the programme was slowly expanded to other regions as the UNICEF supported **Child Survival and Development (CSD) programmes** starting 1985 and to Zanzibar as the original Joint WHO/UNICEF Support Programme (JNSP) under funding from the Italian Government in 1989.

The objectives

The objective of the JNSP was the development of community based improvements in nutrition and health including amelioration of the situation of women through a **fundamental change in process**. This was in the recognition that the nutritional status of an individual is the outcome of a complicated biological and social

process in the fabric of society, and therefore, sustained change in the nutritional status of a population can be brought about only by changing that process.

The design

The Iringa JNSP was the first large scale application of the TFNC/UNICEF conceptual framework described earlier. As already discussed, the framework provides the context within which a continuous search for ways to attack the causes of malnutrition is made through repeated cycles of Assessment, Analysis and Action; the so called **Triple-A Cycle**. Thus the evolution of the programme was shaped by lessons learned through the application of the Triple-A Cycle at all levels of the administrative and social hierarchy, starting from the household and village and reaching all the way to the central Government. Each level assessed and analyzed those problems which can be addressed at its own level and tackled with the resources available at that level.

Coverage and activities

The programme covered 168 villages in seven divisions. Since it was started as a pilot programme the initial plan included all conceived activities for experimentation. Thus the programme started with 14 projects divided into 42 sub-projects. The projects were 1) Health sector support (8 sub-projects); 2) Environmental Health Hazard Control (3 sub-projects); 3) Education and training (2 sub-projects); 4) Child care and development (3 sub-projects); 5) Technology Development Support (8 sub-projects); 6) Household Food Security (5 sub-projects); 7) Food preparation (3 sub-projects); 8) Programme Support Communication (3 sub-projects); 9) Monitoring and Evaluation (3 sub-projects); 10) Support to Regional and District Infrastructure (1 sub-project); 11) Additional Research Support (1 sub-project); 12) Soliwayo Base Camp (1 sub-project); 13) Programme Staff and Management (1 sub-project); and 14) Contingency (1 sub-project). With the exception of a sub-project on Biogas which was dropped at an early stage after having been seen to be inappropriate technology for communities in Iringa the rest of the projects were wholly or partially implemented during the period 1984–86.

However at mid-term review in 1986 it was apparent that the number of projects were too many to be effectively managed. So the mid-term evaluation recommended reorganization into 8 programmes and 31 projects as follows:– Programme 1: Systems Development and Support (4 sub-projects); Programme 2: Maternal and Child Health (11 sub-projects); Programme 3: Water and Environmental Sanitation (1 sub-project); Programme 4: Household Food Security (7 sub-projects); Programme 5: Child Care and Development (4 sub-projects); Programme 6: Income Generating Actions (1 sub-project); Programme 7: Research (1 sub-project) and Programme 8: Management and Staff (1 sub-project). Eight Task Forces were formed and charged with the responsibility for each of the respective substantive areas of the programme.

Management and Implementation

The launching of the JNSP was lengthy, intensive and complex due to the need to develop methods and materials from scratch. A unique and important feature of the programme's organizational structure, made possible by Tanzania's extensive local government and political systems, is that no special organizational structure was created to promote community responsibility. Apart from the formation of a National Steering Committee, and a small Regional Management Team no new posts were created. However, six people including two expatriates, worked in the region for 4 years (1983–1986) to help with the promotion of surveys, discussions, orientation and training at all levels and on the launching of the activities. The deep knowledge of the region by one of the expatriates who had organized the initial nutrition surveys done by TFNC in 1979/80; his wide knowledge about nutrition issues and genuine concern for improving the nutrition situation coupled with his ability to creatively catalyse and mobilize flexibly a broad range of sectors was very important during the launching of the programme.

Management and implementation of the programme was done in such a way as to enable the expansion and strengthening of national capacity to address issues bearing on nutritional improvement at central, intermediate and local levels. This was explicitly expressed as an objective using the Triple-A Cycle approach. This approach gave way to programme **flexibility**. The 1988 Evaluation found that the JNSP enhanced national capacity in many ways [URT/WHO/UNICEF, 1988].

Research was one of the important activities which enhanced national capacity. The programme called upon a number of institutions to do needed research in the region. Similarly, a number of institutions were given the opportunity to capitalise on the infrastructure support afforded by the project to choose their research. The process of identifying research was done in two ways. One way was for the programme implementers to identify research needs which were then sold to potential researchers. The second way was for the

researchers themselves to come up with the research proposals which were then scrutinized by a research coordinating committee (RCC) to see if they matched with the programme priorities. Through research seminars a number of research priorities for the programme were identified, funded by the programme and taken up by the researchers.

An important feature of research in the programme is that it was different from the traditional role given to research. Participation in research was seen as part of the social mobilization process as well as a key to the successful application of the Triple-A-Cycle. Thus all research was done in the name of learning more about operational issues rather than for the sake of research alone. As a result studies cut across all administrative levels from the central, regional, district and local levels often involving non-academic individuals in practical operational research. This strengthened the ability of field workers to pose questions and seek answers and change the way research was viewed in the region. Research was no longer just a matter for universities and higher institutions of learning but a tool which led to better design and implementation of field activities. As a result, preliminary findings were utilized in the implementation process so that by the time the final results were out most of the findings had already been applied. A number of National Institutions also took advantage of the studies conducted to develop and improve on the curricula for their fields of specialization, keeping students and graduates up to date with field experiences.

Though the Iringa programme was area based the National Steering Committee convened quarterly meetings to assure that the project evolved in a way consistent with national policies and programmes. These meetings were held in villages in the project area so that participants could interact with villagers and get first hand opportunity to see the project. Apart from improving the guidance offered by the committee, the meetings in the villages assured that National Institutions remained in touch with the programme. An important outcome of this approach was the vigorous involvement of the CCM the Political Party in Tanzania, for social mobilization, which was not originally foreseen as a part of the implementation strategy. The strategy for Party social services involvement in Iringa was eventually adapted by the Party at national level.

At the regional level a Regional Support Team (early on Management Team) opened up new possibilities for coordinated social services planning. This was reinforced by a Regional Implementation Committee which created a forum in which the nutrition related activities of each sector was reviewed by representatives of other sectors. This enhanced the capability and willingness of many sectoral workers to address issues outside their original field of competence and to support the work of their colleagues whenever opportunity presented itself.

Since the Iringa Nutrition Programme was initially conceived as a regional programme, management and implementation of the programme was transferred to the district level half way through the programme. This necessitated the development of integrated support and implementation mechanisms similar to that at the regional level. Though district level officials had been involved in the programme from the outset; TFNC conducted integrated training for the district officials and extension workers in order to enhance district capacity in planning and implementation. Training was also conducted for Village Health Workers and Traditional Birth Attendants (TBA). District capacity was further enhanced by periodic meetings of the district and regional implementation committees which greatly contributed to the exchange of experiences and ideas among sectors as well as districts. The result was a sustained involvement of many individuals at many levels of administration which was a unique feature of the programme.

At the local levels Village Health Committees were strengthened, and the concept of management resource by the objective of nutrition improvement was introduced. Villages organized and managed by themselves such schemes as day care centres and feeding seriously malnourished children using locally available resource. Perhaps the most important outcome of this approach was the ability of the programme to mobilize villagers around nutrition as a major social concern.

Management Information Systems (MIS)

A key element of the programme approach was the provision of information about children's nutritional status to critical decision makers at all levels through a system of community growth monitoring system by quarterly weighing. Child growth cards and village registers permitted the follow up of individual children who were severely malnourished in a community based nutrition rehabilitation approach developed by TFNC, for the first time in Tanzania. Parents were given advice on information regarding increasing the frequency of feeding and the use of germinated flour (power flour) and other child-feeding practices. They were also provided with information with regard to increasing household food security or referred to other service which they needed. The TFNC Household Food Security Card based on the number of bags (bag model) a household would need to last it until the next harvest season was developed and tested.

An important feature of the MIS was its use at all levels for decision making [Pelletier, 1991]. It permitted Village Committees to identify and target actions to at risk house holds. Likewise district staff used the information generated to target extension services in villages with poor nutrition or those who do not report regularly, an indication that the village committee may not be functioning well. District and Regional Development Committees were provided with summary reports for discussion in their meetings so that all senior officials in the districts and regions could advice on further actions to improve the situation. This led to the incorporation of nutrition objectives in district and regional development plans.

Although the information system in the Iringa Nutrition Programme (INP) was designated primarily as a management and motivational tool to catalyse the triple-A-cycle at household, village, and higher levels it was also used to a limited level to assist in the evaluation of the impact of the programme on nutritional status. The technical limitations and threats to plausibility of the information system has been attributed to the constraints in quality control of the collected data due to problems of staff capacity and skills [Pelletier, 1991]. In order not to compromise the motivational and management uses of the information, it was suggested that users of the impact information should be made aware of its limitations [Pelletier, 1991].

Programme Impact and Outcomes

Programme impact was indicated by mainly the community based ongoing nutritional status monitoring systems; and the results of various studies done as part of the programme activities or for the purposes of evaluation. The results showed that the programme was highly successful.

At the time of evaluation in 1988 [URT/WHO/UNICEF, 1988] a marked decrease in both the severe and moderate rates of underweight were observed. Severe malnutrition was reduced by 71.4 percent from a high 6.3 to 1.8 percent and total underweight was reduced by 32.0 percent from 55.9 to 38.0 percent in a period of five years. The drop occurred progressively over a period of three years and in recent years the low levels have been maintained. The reductions in the malnutrition rates were attributed to the programme, as marked differentials in the rates of severe underweight existed between the original 168 project villages as compared to 442 villages in the Iringa non-JNSP areas when the project was expanded to these villages in August–October 1987; after three years of the programme.

A comparison of the prevalence of severe malnutrition in the Iringa JNSP at the beginning of the programme in 1984 and at the time of evaluation in 1988 showed that the impact was due to the programme as the rates of malnutrition in the non-programme areas remained high (fig 8).

Improvements in the nutritional situation occurred before other elements of the programme for example rehabilitation of the health services or water facilities had been put in place. In great part, the initial success in the reduction of malnutrition could be attributed to increased feeding frequency for children, partly as the result of extra attention paid to feeding; the establishment of child feeding posts for the severely underweight and partly to improved health care in families and communities. There is evidence to indicate that improved information and use of the information system itself was an important factor in leading to improvements in the areas related to success and thus the initial reduction in the rates of malnutrition.

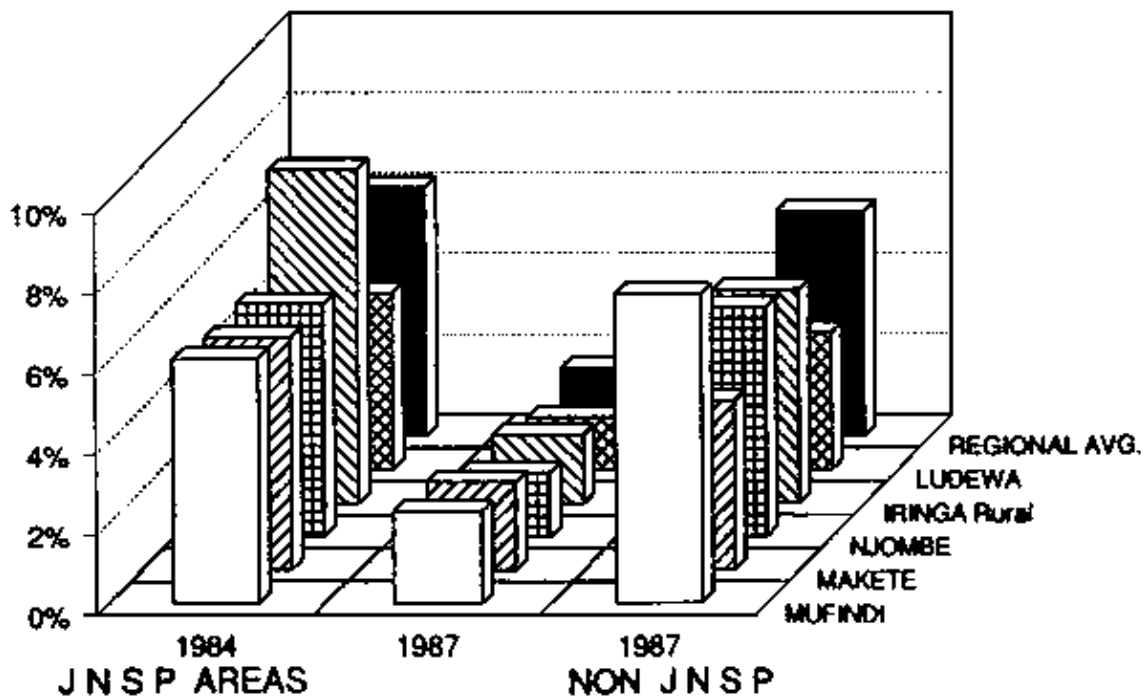


Figure 8: Prevalence of severe malnutrition in JNSP and non-JNSP areas (1984-1988)

Another important outcome of the programme was an increase in the rates of immunization from a low 35 percent in 1984 to 93 percent in 1988. The experience of the Iringa immunization campaign was in fact used in the accelerated programme for immunization started in 1986 country wide and is widely acknowledged as one of the reasons which made Tanzania reach the target of immunization two years before the target period.

An analysis of other key outcome indicators like the possession of an MCH card; mother's knowledge about the growth chart; ability to recognize malnourished children; knowledge about "kimea" (power flour); personal knowledge about the Village Health Worker (VHW) indicated that the programme reached nearly 85 percent of the mother/child pairs in a positive way. Relating these outcomes to nutritional status as a measure of the intensity of participation in the programme showed that generally the programme had a positive impact on the nutritional status.

Costs and affordability.

A cost analysis of the Iringa JNSP [URT/WHO/UNICEF, 1988] showed that about \$19 per child per year was spent as follows: – \$10 for ongoing costs of which \$8 were from external resources and \$2 from all national resources; and \$9 for start up and expansion activities in the programme area. The start up costs amounted to 18 percent of total spending while "expansion" and "ongoing" activities were each about 40 percent of the total costs. The greatest expenditure on programme activities was on programme management which was over 20 percent of the total. Infrastructure support and community-based health services and dispensary construction each received about 10 percent of expenditures. Over half (57 percent) of the external JNSP inputs were provided as foreign exchange in the form of dollars. About 25 percent of these were in the form of vehicles; 20 percent for expatriate personnel and about 15 percent each was for buildings and purchased services.

The costs for the programme are clearly higher than those normally spent on services for children. On face value these costs may not seem "affordable" economically. But it is important to note a number of points.

First is that the annual cost per child were based on the estimated 46,000 children in the 168 villages in the programme area. But it should be realized that many of the benefits of the JNSP-supported activities like health services, food security, income generating activities extended beyond the child to their mothers, and other family and community members. Thus the start up costs helped initiate national, regional, district and community level processes for a far broader base of activities to improve nutrition and health of children and women than was the case previously in Tanzania.

Secondly these costs were drastically reduced in the expansion of the programme. This was because of the experience gained which was used to refine programme approach to concentrate on those elements which are the most cost effective. As it has already been noted the original nutrition programme in Iringa contained projects and funding for activities which proved not to be very effective in reducing child malnutrition rates.

These were dropped or modified as the programme evolved. Experience in the expansion areas of Iringa which took place in 1987 point to the continued success of the programme approach with significantly reduced cost. The rate of reduction in severe child malnutrition in the expansion programme (CSD) has been even sharper than in the original programme (JNSP).

Sustainability and replicability

Since its inception the JNSP in Iringa continuously grew changed, and modified itself in response to the application of the Triple–A–Cycle. Lessons learnt regarding the process of the intervention and infrastructure development were transferred to other geographical areas as Child Survival and Development (CSD) programmes. However, the process of implementation took into account the social economic, technical, physical and resource availability in those areas.

There is evidence which strongly indicates that the Iringa “model” of the process approach has been sustainable in the local contexts of the CSD areas as indicated by the sustained reductions in the rates of severe malnutrition. Though economic considerations are important they are not primary in the process of replication. Affordability is demonstrated first in the degree of participation that is seen in a broad spectrum of CSD activities. This participation is indicated by the level of financial human and material contributions which have been made to the JNSP and CSD programmes which considerably extended beyond the originally defined scope of the programmes. Most striking is the support given to the villagers workers day–care attendants by community which sometime average more than 20 percent of the village budgets.

The essential elements which were responsible for the replication of JNSP were the following [URT/WHO/UNICEF, 1988; Pelletier, 1991; UNICEF, 1989]:–

- 1) The use of the **explicit integrated conceptual framework** which helped to seek solutions in a multi–disciplinary way within the comprehensive approach provided by the framework. An important strength of the framework is its lack of clearly defined boundaries which leave room to develop different causal models of the problem of malnutrition in different circumstances. Thus though the framework is not predictive it allows its application in a variety of situations.
- 2) The **Triple–A–Cycle approach of Assessment – Analysis – Action** led to the improvement of the capabilities at many levels to assess and analyze nutrition problems and to design appropriate actions. It also led to a fundamental change in process as well as a development of support systems for advocacy, training and monitoring. This is important for empowerment and sustainability.
- 3) **Social mobilisation** led to a high degree of active popular involvement in the programme with a consequent allocation of resources by communities for the improvement of nutrition within households. It is likely that much of the additional time and care of parents for their children was provided by women but with an increase in the participation of men. Social mobilization elevated malnutrition from the level of an individual problem to that of a community social concern.
- 4) The **permissive social and political context** in Tanzania was an important condition for programme sustainability and replicability. Political commitment is essential for the success of nutrition intervention programmes. As often stated by the regional and district officials the programmes's emphasis on a process approach of social mobilization and the resulting inter–sectoral action, made the effects of the programme go beyond the scope of “nutrition” programmes per se, to contribute to the effectiveness of all other development activities which were aimed at improving the people's well–being.

The Child Survival and Development (CSD) Programmes

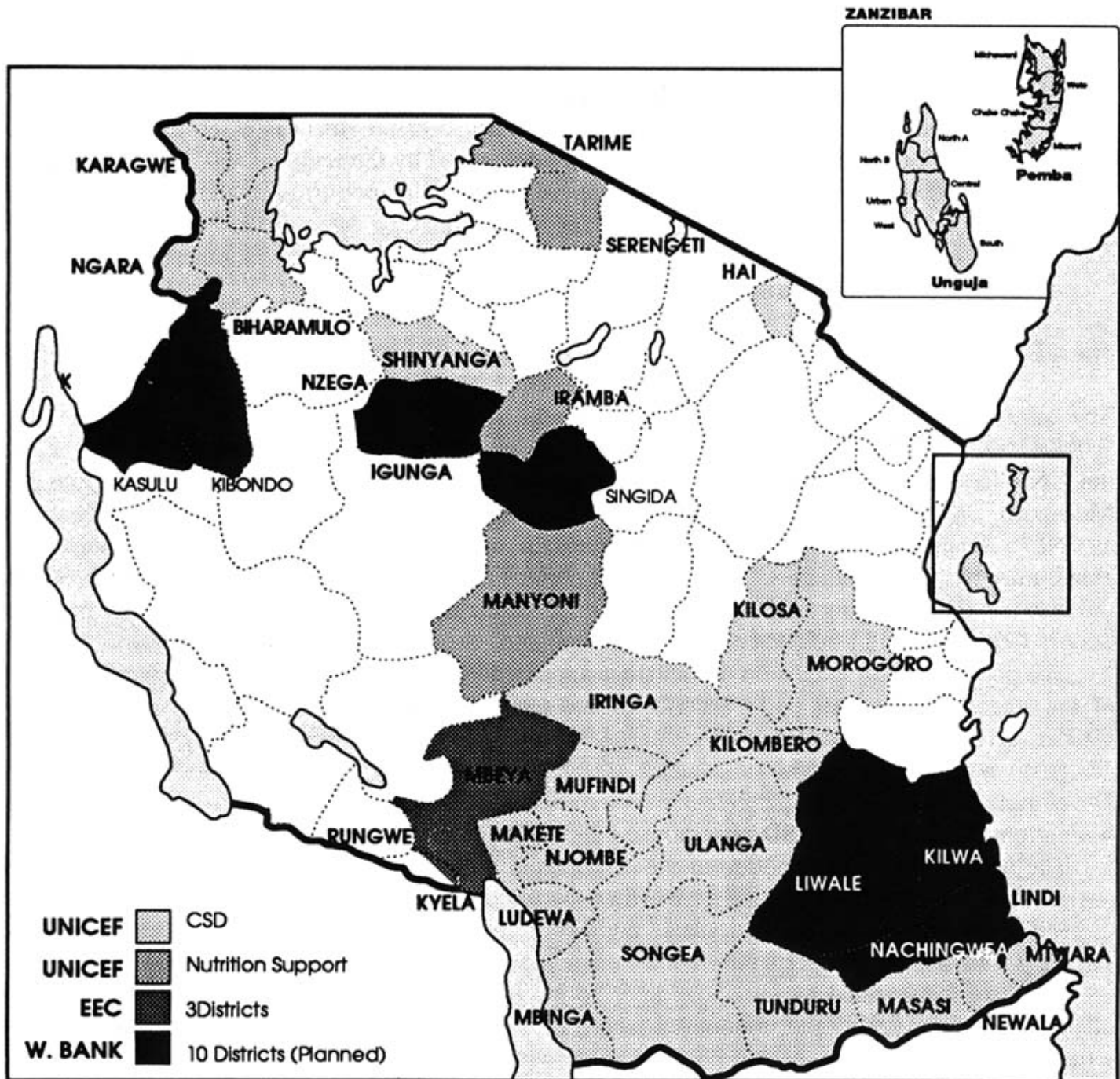
The approach embodied in the Iringa JNSP was first extended to all 600 villages in Iringa [URT/UNICEF/WHO/UNFPA, 1989] and secondly to a selection of villages in six other regions as the UNICEF supported Child Survival and Development (CSD) programmes. These regions were Morogoro, Shinyanga, Kagera, Ruvuma, and Kilimanjaro. It was also extended to Zanzibar in 1989 as JNSP. By 1991 nine out of twenty regions in mainland Tanzania were implementing CSD community based programmes. The additional regions are Mtwara, Singida and Mara. Map 8 shows the districts implementing CSD programmes in Tanzania

by 1991. As can be seen in the map other donors like the World Bank and the EEC have adopted the UNICEF supported CSD approach.

The procedures for extension of the Iringa approach begins with an orientation in working groups of the administrative staff party secretaries and technical staff at each successive level of region district, division and ward [UNICEF, 1991]. At the regional and district levels, the chief administrator designate a coordinator who is usually the Planning Officer or occasionally the Community Development Officer. An implementation committee is then formed and visits are made to the regions with a long experience of CSD programmes taking Iringa the model.

The next step is the promotion of the activities in the villages by district and ward staff through social mobilization and discussion of whether the village wishes to participate followed by election of health committee including a stipulated number of female members; selection of a male and female village health worker and preparation of a village register; if the village decides to join. The practical activities are inaugurated by the showing of an information film and a campaign day during which all children are weighed and immunised where necessary. Subsequently, there is a health day once a month or once a quarter for child weighing, immunizations etc. Other activities may be added over time such as feeding posts, informal day care for children for mothers working in the fields, vegetable gardens, introduction of grain mills and other labour saving technology as more fuel efficient stoves.

In order to assist the regions and district in training of community implementors, a "CSD Training Package" was developed and trainers from all the CSD areas were taught how to use the package. The package has been extensively used in all ongoing CSD programmes both for consolidation of programme activities as well as expansion to other areas. Advocacy and social mobilization approaches involving community, Government and Party Leaders have influenced communities to accept more responsibilities for mobilization of local resources for nutrition improvement. Districts now have integrated most of the support to CSD actions into regular planning and monitoring systems. Communities in 1200 villages in 31 districts of mainland Tanzania have improved their own capacity to assess and analyze problems affecting children and women and have taken actions to improve their nutritional status. In 1990 over 250,000 children under-five were weighed on average during each quarter. In many places severe malnutrition is decreasing and has dropped to below two percent.



Map 8: Tanzania districts implementing CSD programmes, 1991

Source: Programmes for Women and Children

An interesting observation in the rates of reduction of severe malnutrition is that there is a tendency for the rates to level off more or less when a rate of about two percent is reached. It seems that more fundamental changes in the basic causes of malnutrition is needed if further decreases are to be made.

Phase II of the Iringa CSD programme contributed to the establishment of three major national trials. These were the Safe Motherhood Initiative, community financing for primary health care, and the control of critical common disease factors: malaria and respiratory infections. The safe motherhood initiative in Mufindi district has provided consolidated information and training materials for use both in Iringa and nationally. Advocacy and promotion efforts for the Safe Motherhood Initiative are now integrated into most district and regional development activities.

There is a growing interest in the JNSP/CSD programme approach due to the success which has been shown to be cost effective. The annual cost per child to finance such community based programmes has been now

reduced to the equivalent of \$ 2–3 in 1987 prices three quarters of the costs are for imported items like drugs for village health workers and transportation [URT/UNICEF, 1990]. An estimate for programme costs in 1990 for the whole country at about 3 US\$ per child would be about US\$ 15 million for all children in mainland Tanzania with \$11 million for imports requiring foreign exchange.

Thus with financing of three dollars per year per child and additional contributions in terms of time of extension staff and support and supervision from district and regional level and particularly time of parents and members of the village health committee and community contributions for the compensation of village health workers and child-feeding post attendants it is possible to reduce significantly the rate of severe malnutrition.

Since many other regions have been seeking an extension of the CSD approach in their areas if external support for launching the project system can be found; UNICEF will extend its support to the core elements of the CSD approach to all the 20 regions of the Tanzanian mainland for the five year programme support 1992–1997. In 12 regions UNICEF will support improved management of social mobilization for nutrition at community level, ward and district levels as well as some crucial inputs for specific social services: health, water and sanitation, education and child development, and nutrition/household food security. Support will also be provided to disadvantaged women to undertake economic activities. The core elements which have been identified for support are i) community mobilization, participation and management ii) adequacy of food intake including micronutrients, for women and children iii) child development and education iv) health and water v) income generation in poor households and vi) district management systems.

For the remaining eight regions UNICEF's support will be confined to the community based management training package including the establishment of a nutrition information system. The World Bank, NORAD and SIDA are joining in these CSD approach efforts in a number of districts as already shown in map 10. Other agencies like the EEC, IFAD and UNFPA are exploring their roles in this process so that by 1997 it is expected that all regions of mainland Tanzania will be pursuing effective community based actions for the improvement of nutrition.

Coordination of the CSD programmes is done by the Planning Commission in the President's Office under the National Coordinating Committee for Child Survival and Development (NCC/CSD). This committee replaced the National Steering Committee for the Iringa JNSP. The NCC/CSD coordinates the planning and monitoring of CSD and CSD related programmes through regular meetings and biannual meetings. Programme implementors, national technical staff and relevant donors participate in the meetings.

Nutrition surveillance and the development of Nutrition Information Systems (NIS)

Efforts to develop a nutrition surveillance system in Tanzania started as far back as the early 1970s. During that period a number of institutions started nutrition related data collection systems in order to meet specific sectoral data needs. For example the Ministry of Agriculture started an Early Warning System (EWS) for crop production and the Marketing Development Bureau (MDB) monitors closely the daily food prices in selected local markets. The Ministry of Health has a component of growth monitoring both during pregnancy and for all under-fives through the Maternal and Child Health (MCH) system; and collects information on diseases through the Health Information System (HIS). The Bureau of Statistics also collect vital statistics and morbidity and mortality data through censuses, demographic surveys and birth and death registration systems. In addition the monitoring systems of the JNSP and CSD programmes has collected serial nutrition specific data since 1984. What has been missing is a coordinative mechanism to ensure inter-sectoral analysis and utility of the collected information outside the specific sectors and a common interpretive framework.

It was because of this that since 1989 TFNC [TFNC, 1991] under the support of UNICEF through funding from the Netherlands Government and the Global Inter-agency Food and Nutrition Surveillance is implementing a three level nutrition surveillance systems (NSS) programme: – national, district and community based.

i) National nutrition surveillance

The **national component** is intended to systematize and communicate nutrition related data for use by national leaders for planning and decision making. Data on selected variables are organized at TFNC to form the National Nutrition Surveillance Database. The data systems from which information is collected come from the CSD programmes districts; the Marketing Development Bureau; the Bureau of Statistics; the Health information System (HIS) and the Ministry of Education. It has been difficult to obtain data from the Early Warning System because the data is perceived as confidential. The variables are analyzed to give indicators

on child nutritional status; birth weight; health; food production and availability; changes in food prices; female education and various social and economic indicators that influence nutritional status.

As part of the national component of the nutrition surveillance programme, TFNC in collaboration with the Bureau of Statistics' house hold survey (HBS), has included a nutrition module into the programme which is based on a statistically obtained national master sample survey (NMSS) to be administered on a regular basis [Nyang'ali and Kaganda, 1991]. A module of questions was pilot tested and then included in the HBS. Assessment of nutritional status was done through anthropometric measurements of weight and length/height and questions about critical indicators and immediate determinants of nutritional status like feeding frequency, weaning practices and morbidity data (fever, diarrhoea, ARI and measles) were also included. The first round of survey was planned to have been conducted in December 1990 along with the Labour Force Survey conducted by the Bureau of Statistics but it was postponed and Started to be conducted in October–November 1991 because the nutrition module had not been institutionalized by then. The anthropometric results for the October 1991 to April 1992 has already been presented. Since it is planned to continue data collection throughout the year annual nationally representative indicators of the nutrition situation can now be available. The major problem facing the availability of this information is low capacity for analysis at TFNC due to shortage of staff.

ii) District nutrition surveillance

The **district surveillance systems** are based on the fact that Tanzania's Local Government system give a considerable amount of autonomy over resources and development decisions to districts. This makes districts a strong resource base for nutrition related actions and thus a good information system at this level will facilitate the tapping of the district resources for the improvement in nutrition. Since most of the nutrition related information is handled sectorally at the district level, the objective of the district surveillance project is to improve the district capability to organize, analyze and communicate nutrition data generated from the community based information systems. Five districts namely Kilosa (Morogoro region); Makete and Njombe (Iringa region); Hai (Kilimanjaro region) and Masasi (Mtwara region) all implementing CSD activities are participating on a pilot basis.

District staff responsible for information collection and use in planning and decision makers were trained in 1990 [TFNC, 1991]. However, until February 1992 only Hai and Njombe districts had established computer based data–banks. In addition to computer training of a staff from each of these two districts support with communication supplies like typewriters, filing cabinets, stationery and overhead projectors has also been given. As a result Njombe district has started compiling important data into a booklet called “Njombe District Statistical Abstract” which is updated annually. The booklet is distributed to the district decision makers like the District Commissioner (DC), the District Executive Director (DED) and to the various departments. Kilosa, Makete and Masasi districts have also started to systemize information from the various sectors in the districts.

iii) Community based nutrition surveillance

The **community based surveillance systems** (CBSS) presently cover about 42,000 children under–fives in 14 villages in Serengeti and Tarime districts (Mara region) and several villages in Iramba and Manyoni districts (Singida regions). In addition nutrition surveillance through child growth monitoring community based systems is currently operating in 31 districts of the UNICEF supported JNSP and CSD programmes in both mainland and Zanzibar. The provision of transport facilities (bicycles) to village health workers (VHW), ward level coordinators and district coordinating teams have greatly improved communication between the community and support groups.

Already a considerable amount of nutrition data has been generated through the three level nutrition surveillance systems (NSS) and computerized data bases established at TFNC and two districts. At TFNC Programme staff have been recruited and trained in database management and covered Harvard graphics, Atlas Graphics, Lotus 1–2–3, Informix and Word Perfect 5 packages. Even with limited data base management capabilities at both the level of districts and TFNC itself, the first national nutrition surveillance report was produced by TFNC in late 1990. The second report was produced in 1992.

All these developments have resulted into the development of a national data base since 1992 when the first national representative nutrition data became available. As already discussed the data from the nutrition module of the Household budget survey (HBS) is similar to that obtained from the Demographic and Health survey (DHS).

Two problems face the nutrition surveillance programme, the first is human resource capacity at both TFNC and in the respective districts. This problem has been addressed through training but more people need to be trained. The problem has resulted into delays in the compilation of reports and thus untimely availability and use of the information generated. The second is that even if the information is available there is still a tendency for decision makers in government to rely on their experience in taking decisions rather than using objective data. Thus there is need for the surveillance information to be summarized in an easier form to be readily understood by busy decision makers.

Programmes for the Control of Micronutrient Malnutrition

The development and implementation of national micronutrient deficiency control programs has been under the coordination of TFNC. The programmes are based on the causes of the problem as analyzed using the TFNC/UNICEF conceptual framework and the technical methods available.

The initial efforts were mainly limited to patchy surveys, but it was the Iringa regional nutrition surveys of 1979/80 [Ljungqvist, 1981]; the national endemic goitre surveys started in 1980 [Kavishe et al, 1983]; and the xerophthalmia surveillance system started in 1982 [Foster et al 1986] and the vitamin A community based surveys [Pepping et al, 1988] which made an **assessment and analysis** of the situation and provided community based data on prevalence, severity and causes of the problem of micronutrient malnutrition.

Under the coordination of TFNC various high level multi–sectoral and multidisciplinary workshops and expert committee meetings on the various micronutrients were convened to discuss the results of these and any other assessments done and proposed relevant actions.

In all cases both national and international experts and potential supporters participated. It was on the basis of the recommendations from these workshops and their vigorous media coverage that the need for urgent action was crystallized and five year national control programmes separately for IDD, vitamin A deficiency and nutritional anaemia were formulated and funded. Details about the micronutrient malnutrition control programmes are discussed elsewhere [Kavishe, 1991]. Here we shall only give a summary for each of them. A summary of the programme situation for each of the micronutrients is given in table 53.

i) Programme for the control of IDD

The national IDD control programme for IDD in Tanzania consists of the targeted distribution of iodinated oil capsules on a short term stop–gap measure and the universal iodation of salt (fortification of salt with iodine) meant for human and animal consumption as the long term sustainable measure. Tanzania chose to use iodinated oil in areas of severe IDD because the salt iodation programme has taken a long time to implement. The objective of the IDD control programme is to eliminate severe IDD areas by 1993 and eliminate IDD as a public health problem by the year 2,000. The Swedish International Development Authority (SIDA) has been funding the iodinated oil capsule distribution; while the Royal Netherlands Government has funded the salt iodation component through UNICEF.

Table 53: A summary of the micronutrient malnutrition programmes in Tanzania

| | IDD | VITAMIN A | NUTRITIONAL ANAEMIA |
|------------------------|--|---|---|
| Year programme started | 1979: initial development 1985: comprehensive partly funded national programme in place | 1981: initial development 1985: comprehensive partly funded programme in place | 1982: initial development 1991: comprehensive funded national programme in place |
| Goal by 2,000 | eliminate | eliminate | reduce by one third in women of reproductive age |
| % population affected | 25 | 6 | 32 |

| | | | |
|--|---|---|--|
| % children under five affected | 13 | 30 | 45 |
| % pregnant and lactating women affected | 52 | 0.7 | 80 |
| Programme components:- 1) Dietary diversification | advocacy for sea fish and weeds. Not much emphasis has been put on this option. | Horticulture, Red palm oil, yellow fruits e.g. papaya, mangoes, guava; dark green leafy vegetables. Animal products whenever possible | Dark green leafy vegetables; vitamin C containing fruits; avoiding tea and coffee immediately after meals; animal products whenever feasible |
| 2) Supplementation | Iodinated oil capsules distributed in severely endemic areas to all people 1–45 years of age. Already covered more than 5.0 million people. Cost estimated at 0.30 US \$ per person for two years | Targeted capsule distribution through EDP to those with clinical signs, measles, severely malnourished, diarrhoea lasting for more than seven days, PTB, bronchiolitis ARI. | Targeted iron and folate to pregnant women attending ante-natal clinic. Cost is 1.54 US\$ for a full course in pregnancy starting at 20 weeks. |
| 3) Fortification | Universal iodation of salt meant for human consumption. About 40% of salt now being iodated. | Feasibility studies for suitable vehicle under way. | Feasibility studies for suitable vehicle underway. |
| 4) Public Health measures. | Legal regulation for iodation of imported and produced salt being finalized | Control of relevant diseases e.g. measles, ARI, diarrhoea, PEM, being undertaken | Control of relevant diseases e.g. malaria, intestinal worms, bilharzia being accelerated |
| Management Structure | NCCIDD Chair: Health Secretariat: TFNC Membership: Multisectoral | NVACG Chair: Agriculture Secretariat: TFNC Membership: Multisectoral | NNACG Chair: Health Secretariat: TFNC Members: Multisectoral |
| Training | TFNC, PEG (Brussels), IAC (Wageningen), PAMM (Emory University), Lubeck (Germany) | TFNC, IAC, PAMM, | TFNC, PAMM |
| Source of funds | Government, SIDA, Netherlands Government, UNICEF, WHO, ICCIDD. | Government, World Bank, SIDA, UNICEF, WHO, FAO, DANIDA, IAC Netherlands | Government, World Bank, UNICEF, WHO, DANIDA, SIDA, IPICS, SAREC. |
| Monitoring and evaluation | Severely affected areas almost being eliminated. Impact data show substantial improvement in indicators. | Process and impact evaluations show considerable improvement in the situation. | Process monitoring indicate good progress in programme development. |

Salt iodation

The main stay strategy for the elimination of IDD is salt iodation. After years of effort three salt iodation machinery imported from India were installed at three different sites in May of 1991; two in Bagamoyo in the

Coast region and one at Uvinza, in Kigoma region. Capacity of the three machinery is estimated at about 37,000 metric tones of iodated salt per annum, which is only about 40 percent of the requirements. Due to various operational problems only about 14–20% of the salt is being iodated at the present time. Five more machinery have been ordered for phase two of the project, but it may be difficult to achieve universal iodation in the short run since there are numerous small salt works along the 900 km coast line. The important thing, however, is that the major salt production works which produce more than 90 percent of the salt will be covered, and legislation enacted for salt iodation whether imported or produced in the country.

An iodated salt marketing network comprising of 196 wholesalers was established in all 20 regions of the Mainland in 1992 and all known salt producers were made aware of the IDD problem through workshops.

A study on salt production, importation, distribution pattern and marketing in Tanzania was done in 1992 by the Tanzania Industrial Studies and Consulting Organization (TISCO) for NCCIDD. The major problems identified were:–

a) Under–capacity utilization of production potential – the total installed capacity was 266,924 MT, per annum out of which 45,784 was thermal salt, 161,140 was solar and 60,000 was PVD salt. The installed capacity for iodated salt was 189,000 MT per annum of which 60,000 MT was PVD salt from Nyanza Salt Mines at Uvinza Kigoma, and the three iodation plants with a combined installed capacity of 129,000 MT per annum assuming 300 working days. However, the actual production at the time of the study was 87,567 MT per annum out of which 13,682 (12 percent) was iodated. The iodated salt represented 18.6 percent of the demand of 73,500 MT for edible salt. In order to solve the problem of under–capacity utilization there is need to assist the producers to alleviate their problems related to purchase of chemicals, spare parts, packaging materials, mechanization of their production facilities etc. There is also the need to ensure continuous operation of the iodation plants.

b) Marked price differentials and poor distribution systems – Consonant with the liberalization policy salt is marketed freely at competitive prices with imported ones. While Tanzania exported to Burundi, Malawi, Rwanda, Uganda and Zaire 9,997 MT mostly iodated from Nyanza Salt Mines in 1991; it imported about 10,000 tons in the same year. The countries from which Tanzania imports significant amounts of salt include India, U.K., United Arab Emirates, Kenya, Italy, Yemen, Aden, Ethiopia, U.S.A., Canada, Belgium, Sweden, China, and Bulgaria. Some of the imported salt is iodated while some is not. For locally produced salt, the ex–factory price of salt ranges between Tshs. 16,000–30,000/MT for solar salt, 20,000–50,000/MT for thermal salt and for iodate salt the price is Tshs. 55,000/MT. Iodated salt from Kenya is sold at Tshs. 100,000–160,000/MT which is roughly two to three times the price of the locally iodated. Generally, the price of the imported salt is higher than that locally produced but due to the aggressive marketing done by the importers the local salt becomes less competitive. The generally higher price of iodated salt is not because of increased production costs, but due to demand which outstrips supply. The salt iodation regulation drafted in 1992 is expected to control the production and importation of un–iodated salt meant for human and animal consumption.

c) Long transit period due to the slow sea and surface (road and rail) distribution systems which may take up to a month to reach the lake Victoria regions indicating the potential long period for iodine loss during transportation. This loss can be substantially reduced if priority given to the development of infrastructure including transport facilities in the Economic Recovery Programme (ERP) is satisfactorily implemented.

A quality control and monitoring mechanism is being set up and a series of training workshops of health workers, salt traders and government officials on IDD and Quality Control and monitoring of iodated salt were started since May of 1992. The targeted workers are expected to be involved in the monitoring of iodine in salt at field level and salt traders at district and regional levels. So far 450 out of an expected 600 trainees were trained from Mbeya, Iringa, Kilimanjaro and Arusha regions in three courses. These comprised of 300 health workers, 100 salt traders and 50 government key officials. There were also two Health Inspectors from Zimbabwe who participated. At the end of the training each participant was provided with a test kit. The kits available in Tanzania are the MBI Field Test kit and Iodine Detection Paper. Participants felt that the training was very good as indicated by a post training follow up. During the workshops it was felt that a training manual on monitoring was desirable and the draft of such a manual has already been developed. This is important as monitoring is the weakest component of the IDD programme in Tanzania. In 1992 collaboration with ICH (Uppsala) started in the areas of the development of epidemiological samples and indicators for

monitoring the elimination of IDD which is important for the verification of IDD elimination.

In order to establish the level of iodation, TFNC in 1992 carried out a study on Human Salt Consumption in Tanzania. The objective of the study was to find the average per capita salt consumption of salt and the factors influencing the distribution and consumption of salt at individual house holds and the local level in order to determine the appropriate level of salt iodation. The study revealed that salt consumption ranged from 6.6 to 9.4 g with an average of 8.1 g per person per day which is above the WHO recommendation of 5–7 g per person per day. Based on the average daily salt consumption and assuming a 50 percent loss of iodine from production to retail and a further 50 percent loss from retail to household a level of 75 to 100 ppm were recommended at the production level. The study also gave information on the importance of the radio as a communication media for salt iodation; salt preference by consumers at household; pricing and packaging, salt acquisition, utilization, storage etc. The study areas included high (Mbeya, Ulanga); moderate (Mpwapwa) and non– (Dar–Es–Salaam) IDD endemic areas. The salt consumption in the urban areas of 9 g/person/day was higher than that of the rural areas of 7.0 g/person/day.

Iodinated oil capsules

Although iodinated oil injections were given in some areas during the early 1980's, the iodinated oil program in Tanzania has been based on the distribution of iodinated oil capsules. The major difference between the injectable and oral iodinated oil is the duration of action. While because of its depot intramuscular storage and slow release the injectable form acts for 3 – 5 years; the oral form acts for a shorter duration of one to two years which is roughly half the duration of the injectable form. The advantage with the oral preparation is that it can be delivered by even non–medical personnel and avoids the use of needles which have a potential and real risk in spreading diseases like AIDS and Hepatitis B.

The **target group** for the iodinated oil capsule distribution is everybody aged 1–45 years in districts severely affected by IDD. The younger age group was excluded hoping that since there is near universal breast–feeding for children under one year of age they will get their iodine from breast milk. For the older age group above 45 years their requirements for iodine are low and are more prone than the younger age groups to the effects of excessive iodine which the program wanted to avoid. The dose given is about 400 mg of iodine (two capsules) for the target population once every two years.

The criteria for choosing the severely affected districts was initially based on a visible goitre rate of 10 percent or more but due to political and public pressure, this was lowered to a prevalence of combined grade 1b and visible goitre rate of 10 percent or more. The last criteria categorized 30 districts as having severe IDD. On average the 30 districts have a visible goitre rate (VGR) of 11.0 percent; a VGR + 1b of 31.3 percent and a total goitre rate (TGR) of 57.1 percent. The population involved is about 5.0 million.

The iodinated oil capsules are distributed through the Primary Health Care (PHC) system or in a campaign form using the Primary schools and the Government and CCM Party infrastructure for mobilization and compliance. By the end of 1991 about 5.0 million people were covered in both round one and two.

An evaluation of the impact of the iodinated oil capsule distribution in three districts [UNICEF/WHO/ICCIDD/TFNC, 1991 and Bunga, 1991] using goitre rates has shown significant decreases in both the visible goitre rates (VGR) and total goitre rates (TGR). Table 54 below gives a summary of impact evaluation studies using goitre rate as the criterion in primary school children aged 7–18 years. In a period of at least two years after capsule distribution overall the visible goitre rates were decreased by over a half, while the total goitre rates were decreased by over a quarter. Repeat distribution of the capsules in these areas is likely to eliminate all areas of severe IDD endemicity provided as planned iodated salt is phased in a sustainable manner.

Table 54: The impact of iodinated oil capsules on goitre rates in primary school children aged 7–18 years in some districts in Tanzania before and after capsules

| District | Goitre prevalence rates (percent) | | Percent reduction of goitre rates |
|----------|-----------------------------------|-----------------------------------|-----------------------------------|
| | Before capsules | After two capsules, 400 mg iodine | |
| | | | |

| | n | VGR | TGR | n | VGR | TGR | VGR | TGR |
|------------|-------|------|------|-------|------|------|------|------|
| Mahenge | 904 | 26.9 | 74.9 | 1,334 | 7.6 | 51.9 | 71.7 | 30.7 |
| Sumbawanga | 2,717 | 44.1 | 78.7 | 1,064 | 26.5 | 56.3 | 39.9 | 28.5 |
| Rungwe | 2,603 | 38.6 | 61.7 | 1,141 | 14.9 | 46.4 | 61.4 | 24.8 |
| Average | 6,224 | 36.5 | 71.8 | 3,535 | 16.3 | 51.5 | 57.7 | 28.0 |

Source: TFNC reports nos. 818; 1370; and 1429

Specific studies have also shown a normalization of urinary iodine excretion and thyroid hormone levels in those given the capsule within a period of 56 days sustained over a period of one year and also confirmed that the reduction in the rates of the visible goitres is greater than that for total goitres (Jeeninga et al, in press). One explanation is that the visible goitres do not completely disappear, but become non-visible. The other is the subjectivity in the classification of the non-visible goitres especially palpable grade 1A. To improve on this kind of evaluation a thyroid ultrasound capable of measuring the actual volume of the thyroid gland has been procured and a trainer of trainers trained under UNICEF/ICCIDD support.

Apart from iodinated oil and salt iodation the only other effort to address the problem is the provision of Lugol's iodine by individual medical practitioners, though this does not form part of the national program. The iodinated oil capsule and salt iodation strategies are backed up by social mobilization, technical training and development of monitoring and evaluation capacity.

ii) Program for the control of vitamin A deficiency (VAD)

The programme has a national coverage, and consists of:-

- a) the targeted supplementation of vitamin A capsules through the Essential Drug Program (EDP) as the short term intervention,
- b) the stimulation of demand for foods containing vitamin A especially the less expensive dark green leafy vegetables (DGLV) and fruits and red palm oil as a long term measure,
- c) supportive activities including the promotion of agricultural and horticultural practices and extension; nutrition education through the various media and curriculum change and advocacy for the overall improvement in the quantity and quality of the diet as a component of community based strategies for achieving household food security.
- d) additional activities include public health measures leading to the immediate and prolonged breastfeeding and to ensure the conservation of vitamin A through the control of diseases like measles, diarrhoea, ARI etc. Presently margarine is fortified with vitamin A, but due to being expensive does not reach the at risk population.

The target group for the vitamin A capsule distribution is estimated to be 1.04 million children 6 months to six years of age who have either developed signs of deficiency or are at risk of doing so. The at risk group has been defined as those children with measles, severe PEM, diarrhoea lasting more than seven days and those with acute or chronic respiratory infections presenting to a health unit. In a national workshop held in December, 1990 mothers who have just delivered have been added as another target group. Universal distribution to all children in the at risk age bracket has been done only in those areas where community vitamin A surveys have been conducted like in Wanging'ombe division (Iringa), Kishapu and Negezi divisions (Shinyanga), and in Nzega and Lusso wards (in Tabora).

The vitamin A capsules (VAC) being used in Tanzania contain 50,000 IU of vitamin A per capsule rather than the normal high potency 200,000 IU capsules. The low dose capsules were introduced instead of the normal high potency capsules because when the VAC were added to the EDP, there was concern on the part of some physicians that toxicity might result if the 200,000 IU capsules were prescribed incorrectly. Thus a compromise was reached in which only the 50,000 IU capsules are included in the EDP, though four capsules at a time are used to achieve the WHO recommended dosages. The fear was based on the fact that in most of the health units vitamin tablets may be prescribed as a placebo to patients usually at a dose of one tablet three times a day for five days. If this were to be the 50,000 IU VAC, this would mean 150,000 IU per day or

750,000 IU per five days which would be within very safe limits. If this were to be the 200,000 IU the daily dose would be 600,000 IU a day or 3,000,000 IU for a five day course which would still be within safe limits. With continued training of health personnel and the exclusion of pregnant women in the target group; the worry about toxicity is unwarranted and it has been recommended by the 1991 TFNC evaluation that the present stand on the capsules be revised [Latham et al 1991].

The doses given are a slight modification of the WHO/UNICEF/IVACG 1988 recommendations and were agreed in a TFNC training workshop on "Vitamin A deficiency, vitamin A capsule distribution and xerophthalmia surveillance" held in December 1990 for regional level ophthalmologists who would in turn train district level health workers. The modifications were made to define more precisely terms like "chronic diarrhoea" since it was felt that diarrhoea lasting for more than 14 days was infrequent and if it occurred it was likely to be food intolerance or to some other condition for which vitamin A may not be important. Also instead of the term "acute lower respiratory infections" the actual names of the common diseases are mentioned to make it easier to understand. The "universal distribution prevention schedule" with the exception for lactating women has been omitted since it was felt that it cannot be affordable nor sustainable in Tanzania.

There have been discussions on the possibility of distributing the capsules through the Expanded Program for Immunization (EPI) but this would mean covering children who are mainly under nine months, who do not seem to be at great risk, because of the high rate of breast-feeding in this age group. The present policy still remains to target distribution at the risk groups mentioned above through the EDP and avoid universal distribution, but strengthen the more sustainable dietary and public health approaches. If a decision to use the EPI for vitamin A capsules distribution will be made in the near future, it will probably be at the time of measles vaccination which is nine months.

More than 25.0 million capsules have been distributed through the EDP system since February 1987. Because of pile up of the capsules due to the lack of knowledge by health workers about their use, TFNC under World Bank support funds conducted training workshops for Rural Medical Aids (RMAs), Medical Assistants (MAs) and Paediatrician at regional, district, health centre and dispensary levels in all twenty regions of mainland Tanzania in order to increase their knowledge on the use of those capsules. Reports indicate that there is no more pile up, and the capsules in the EDP kit are no longer adequate to meet the needs.

Long term measures are also being undertaken. The **dietary approach** being implemented include an information, education, and communication component aimed at creating public awareness of the problem and stimulating the production and consumption of affordable vitamin A rich foods. The mass media particularly the radio and the news papers have been used and journalist have been sensitized through seminars aimed at them. TFNC has got a 15 minute radio air time allocated twice a week for food and nutrition broadcasting since 1983 and a considerable number of these have discussed the problem of micronutrient malnutrition.

There have been particular efforts aimed at promoting the production of red palm oil particularly in Kigoma and Mbeya regions and improving horticulture practices. Feasibility studies on the production and marketing of red palm oil from the southern region of Mbeya has been done and indicate good prospects. There has also been training of relevant staff through national and district workshops. Formal training for clinical and laboratory assessment of vitamin A deficiency including the setting up of the needed equipment and methods has also been done. Review of the curricula for primary health workers (Maternal and child Health Aids, Medical Assistants, and Rural Medical Aids) with a view to incorporating nutrition including the micronutrient deficiencies has been done. To improve the human resource development with regard to vitamin A control in the regions, the Ministry of Health has given priority to posting eye personnel in areas where there were few or did not exist.

Another important approach which has been used is a public health one which has emphasized on measles immunization as one important component of the vitamin A control program. This has led to a very substantial increase in the vaccination coverage which now stands at 83 percent, and has already drastically reduced the number of measles cases seen. The challenge facing the programme is whether or not this high rate of vaccination coverage can be maintained. Emphasis has also been placed on early breast-feeding particularly on the use of colostrum which is thrown away by some ethnic groups believing that it is bad for the child. This is also been done through the national child feeding program whose evaluation in one hospital, the Muhimbili Medical Centre, has shown that there has been an improvement in the use of colostrum.

An analysis of impact using the xerophthalmia surveillance sentinel system from hospitals which have been reporting since the system was started in 1982 show that the prevalence of active xerophthalmia has declined

very slightly as shown in table 55.

Table 55: Prevalence of active xerophthalmia in reporting hospitals (1982–1989)

| Reporting Hospitals | Reductions (Percent) of active xerophthalmia (XB+X2+X3) over time. | | | | | | |
|---------------------|--|-----|-----------------------|-----|-----------|-----|------------------------------|
| | August 1982–July 1983 | | August 1983–July 1984 | | 1985–1989 | | Percent reduction, 1982–1989 |
| | n | % | n | % | n | % | |
| Arusha | 1,425 | 2.0 | 1,163 | 1.9 | 1,626 | 1.2 | 40.0 |
| Bariadi | 833 | 1.8 | 1,112 | 1.2 | 323 | 2.5 | –38.8 |
| Iringa | 407 | 4.7 | 148 | 5.4 | 111 | 2.7 | 42.6 |
| Average | 2,665 | 2.8 | 2,423 | 2.8 | 2,060 | 2.1 | 25.0 |

Source: Kisanga; Wagara; Jeje et al [1991] TFNC report no 1378

It should be noted, however, that the population from which the xerophthalmia data comes from is a highly selective one, consisting of children 0 – 10 years reporting to the eye clinics in the respective hospitals for various reasons. In using the xerophthalmia system as an evaluation tool the assumption was that a successful vitamin A deficiency control program should lead to fewer children with the problem reporting to eye clinics.

It should be noted that overall there was a reduction in the proportion of children with active xerophthalmia reporting in the sentinel clinics in the three districts. The apparent increase after an initial decline in Bariadi needs to be followed up.

A follow up study of the universal distribution of vitamin A capsules in Shinyanga, Negezi and Kishapu divisions, where more than 207,000 children under six years were covered, showed an improvement in the serum levels of vitamin A as shown in table 56. The important thing to note is the dramatic decrease in the prevalence rates of deficient serum levels in both divisions; and a general shift towards more adequate levels.

Table 56: Prevalence percent of various serum retinol levels before (1988) and after (1990) vitamin A capsule distribution in Negezi and Kishapu divisions, Shinyanga region.

| Serum Retinol levels (?g/dl) | Negezi | | | Kishapu | | | Average for Negezi and Kishapu | | |
|------------------------------|--------|------|-----------|---------|------|-----------|--------------------------------|------|-----------|
| | 1988 | 1990 | Reduction | 1988 | 1990 | Reduction | 1988 | 1990 | Reduction |
| Number | 142 | 209 | – | 158 | 150 | – | 301 | 359 | – |
| <10 | 25.2 | 2.3 | 90.9 | 17.6 | 1.3 | 92.6 | 21.4 | 1.8 | 91.6 |
| 10–20 | 20.7 | 28.7 | –38.6 | 21.5 | 22.0 | –2.3 | 21.1 | 25.4 | –20.4 |
| >20 | 54.0 | 68.8 | –27.4 | 60.9 | 76.0 | –25.0 | 57.5 | 72.4 | –25.9 |

Source: TFNC report no. 1402 [107]

iii) Program for the control on nutritional anaemia

The program for the prevention and control of nutritional anaemia in Tanzania has a national coverage but targeted mainly to pregnant women and children under–five years of age. The program aims at addressing the major causes of anaemia in a fashion which ensures sustainability. The dietary approach against iron and folic acid deficiency anaemia (IFADA) consists of the promotion of the production and consumption of iron and folic acid rich foods particularly green leafy vegetables and vitamin C rich foods like fruits which enhance iron absorption. Animal and dairy products are also encouraged whenever possible. A pharmaceutical approach through the supplementation of iron–folate tablets targeted to the most vulnerable group, pregnant women

through the Essential Drug program (EDP) and the Maternal and Child Health (MCH) system has also been implemented for a number of years.

General public health measures aimed at the strengthening of control measures against malaria, schistosomiasis, and intestinal parasites like hookworm forms an important component of the program. The integration of these measures with the vitamin A program and in particular with other existing and health and nutrition programs coupled with adequate research, information, communication and education and management information systems ensures community participation and program sustainability.

The target group for supplementation has been pregnant women attending antenatal clinics country wide, who have been given both preventive and prophylactic supplementation. Children under five years and other adults who have been found with anaemia have also been given treatment. As will be indicated later the target group has been proposed to be expanded to include children under-fives and school children.

Monitoring of the program was incorporated into the MCH reporting system but the data has not been analyzed on a monitoring basis. It is planned to analyze this data and disseminate it through a planned micronutrient deficiency newsletter. Although the supplementation program has been going on for more than a decade now a glance at the information from the MCH and hospital reporting systems does not indicate any significant improvement in the problem of anaemia.

In fact there is a general feeling that the problem seems to be increasing rather than decreasing. The reasons for this vary. Low compliance by women due to the side effects of nausea and constipation caused by ferrous sulphate is one reason. Another is that even when there is no problem of compliance the supplies are inadequate. Perhaps a bigger reason is the increasing role of malaria in causing anaemia and the effect of intestinal parasites especially hookworm which has not been effectively controlled. Although no figures for coverage are available mothers book late and attend irregularly in–spite of a quite high (95 percent) service utilization. In Dar–Es–Salaam where mothers are known to report earliest to the antenatal clinic, only 35 – 63 percent booked before 20 weeks in 1990.

The problem of malaria which seems to be increasing is another major hindrance and AIDS is slowly getting into the picture. In order to rectify these problems, it is planned to make a follow up of the route of supply and delivery of the haematinics in order to lay open any inadequacies and take appropriate corrective measures. Also a national surveillance system will be started and studies on compliance and alternative drugs and vitamin C supplementation would be conducted.

Promotion of horticulture to increase the production and consumption of iron, folic acid and vitamin C containing vegetables and fruits has been included in the five year program. Other efforts include strengthening of public health measures against anaemia related disease like malaria, hookworm and bilharzia.

iv) Management of the micronutrient malnutrition programmes

At the national level the management of the micronutrient malnutrition control programs is vested in TFNC through national multisectoral coordinating committees which are responsible for policy steering and implementation. **The national committees have been structured as national units of the corresponding international bodies.** The respective committees are the National Council for the Control of Iodine Deficiency Disorders (NCCIDD) as a national unit of the International Council for the Control of Iodine Deficiency Disorders (ICCIDD); the National vitamin A Consultative Group (NVACG) as a national unit of the International Vitamin A Consultative Group (IVACG) and the National Nutritional Anaemia Consultative Group (NNACG) as a national unit of the International Nutritional Anaemia Consultative Group (INACG). The national coordinating bodies have formed technical committees through which technical matters are discussed more in detail before they are discussed in the main committees.

At the sub–national level the programs are managed under the primary health care (PHC) committees which are supposed to be at the regional, district, and village levels. The PHC committees are multisectoral and discuss and allocate responsibilities for implementation to the relevant sector for any health problem under discussion. They are chaired by the chief executive of the region, district or village and the secretary is the functional health manager at the particular level of operation. The success of these committees is mainly seen in the universal immunisation campaign and the control of cholera. The introduction of nutrition in the agendas of these committees has only been successful in areas implementing the CSPD programmes.

Some lessons can be drawn from the micronutrient malnutrition control programmes. One regards management. Management means to get things done. A good manager would do this mainly through other people. At the same time a good manager should provide leadership. It is possible to manage very well the wrong kind of things. Leadership provides direction so that management manages the right kind of things. This is particularly important for the micronutrient malnutrition control programs, because low professional and public understanding of the problems is common even where advocacy has been done. Moreover, there would also be professional colleagues who might view specific action on micronutrient malnutrition as too narrow an approach to nutritional intervention and a management capability of program integration may be needed. The TFNC/UNICEF conceptual approach which explicitly analyses the causes of mortality and malnutrition has been found to be very useful in facilitating dialogue, multisectoral and integrated approach to these issues. In other words it has been used as a management tool as well.

The critical management issues for program managers, therefore, is to have a fairly good **assessment and analysis** of the problem based on an explicit framework and be able to mobilize human, organizational and financial support for **action**. In doing this it is important to recruit strategic allies and win the support of political and decision makers through a vigorous process of information dissemination and advocacy. It is imperative that managers should exercise patience in judging the response received and should not be easily discouraged by what may appear as a negative response. That is the reason for doing advocacy in the first place.

It is also important for managers to build a management and technical capacity which should be spread so that the program should not depend upon a only a few individuals, but upon a permanent structure with a wide technical and managerial base. Human resource development should, therefore, be of particular concern to program managers. In addition an institutional base is critical.

There is great similarity in the process of the development of the micronutrient malnutrition programmes. The process goals could be summarized as: – (a) defining the problem (b) building consensus across sectors and (c) support in the development of a plan for intervention; monitoring and evaluation and operational research.

In defining the problem direct and indirect indicators should be looked for from both high and low yield data sources. The process of building a consensus consists of essentially five steps:—identification of a lead agency (TFNC in our case); an initial planning meeting; collection of “focused” data; the convening of “an inter–sectoral situational assessment workshop” where a plan for a broad based data collection may be hatched in the form of small research projects; and finally a broad based data collection inter–sectoral plan where other nutrition problems may be included, focusing on the vulnerable groups with geographical representation. Information on the feasibility of various strategies could also be collected.

At this point the lead agency could convene another inter–sectoral workshop where a plan is developed. The plan should contain intervention, monitoring and applied research plans.

During the implementation phase, broad and specific policies should be developed; mechanisms for inter–sectoral/inter–programme coordination should be developed preferably using existing institutional framework. The intervention strategies should take into account various factors like historical precedence; targeting; supplementation; fortification; dietary diversification; IEC/Advocacy; affordability and sustainability.

Monitoring and evaluation should be incorporated in the programme from the start; goals should be established; so should procedures and routine and specific indicators. Although realism should prevail everything monitored should be seen as leading to an increase in the intake of the particular micronutrient under consideration.

It should, however, be observed that the interventions required for vitamin A and anaemia programs are more complex than the IDD program. In countries where all three problems exist it would be probably advisable to start and learn from an IDD program first before starting the other two programs. The convenient order may be IDD – Vitamin A – Anaemia in order to gain experience and build confidence when moving from a less complicated to a more complicated problem.

A question which may be asked is **how much prepared should one be before a program is started?** Our experience is that there is always a trade off between wanting to be completely prepared and getting things done. Often you learn about certain problems or successes by doing the programme than to try and study every possible aspect first as some things may not be generalizable. The bottom line is that the program should be needed and is technically sound. In fact the start of a program may have a very large advocacy effect especially in countries which do not have TV transmission like in mainland Tanzania.

There is also the question of targeting. The question is how much **targeting should be done?** It is important to understand the kind of pressures that program managers face sometimes because of too strict a targeting. For example in the IDD program we had to expand the target areas for capsule distribution to include goitre grade Ib due to political pressure. Targeting is more cost-effective but the more the targeting the more probability there is to get less community acceptance. It is therefore, important to try to achieve a good balance when deciding on the level of targeting that should be done.

A major lesson to learn in communication is the identification of the target group. It is all too common to concentrate efforts at advocating programs to the already converted because there is no dissenting voice. Communication should be directed more at those who have not been reached yet and those showing resistance to the programs than those already on your side. As the word stands, communication should be a two way process and should be repetitive if it will have the effect desired.

Factors associated with success in the various programmes

There are various dimensions of success in a nutrition related programme. It may be success in getting a programme started; success in sustaining interventions cost-effectively; or success in alleviating malnutrition. A programme that is effective in getting services out to the community is more likely to have an impact on the nutritional status than one which does not involve the community. Unless people participate regularly and frequently delivery of nutrition related services alone will not automatically reduce malnutrition.

The JNSP/CSD and micronutrient programmes have been successful on all dimensions. Programmes were started and a replicable process of starting nutrition programmes was established; programmes have been cost-effectively sustained; and the very high rates of malnutrition especially of the severe forms have been substantially reduced. This success has been recognized widely. For example in recognition of people's own efforts to contain malnutrition and hunger, the Regional Medical Officers Conference in Tanzania of 1990 commended the people of Iringa for their exemplary work in alleviating malnutrition and Brown University's World Hunger Programme gave the 1991 World Hunger Award to the people of Iringa. It is of interest and importance to policy and decision makers to sieve out specific factors which have contributed to this success.

The factors which have been responsible for replication and sustainability of the Iringa JNSP have already been mentioned. Experience from all the areas which have implemented JNSP/CSD programmes and from the micronutrient programmes show the following major factors to be associated with success:-

a) **a favourable socio-political context** with a people centred developmental goal, which resulted in Government commitment strongly advocating social action with a community orientation and backed up by a decentralized administrative structure conducive to social mobilization from both a bottom-up and top-down system; a result of the 1967 Arusha Declaration. Since the 1960s Tanzania had already focused on the nutrition problem through an aggressive community based approach. The use of existing structures was possible because adequate structures had already been put in place. In fact one of the reasons advanced for the choice of Iringa for the JNSP was based on the existence of a well developed infrastructure. The favourable socio-economic context may have also been responsible for the favourable and flexible donor response;

b) **the use of a flexible and contextual conceptual framework approach** which facilitated dialogue among and between sectors and sharply focused the problem of malnutrition to that of society and not of a few individuals or sectors. As a result it was possible to enlist **multi-level participation** from various Government sectors, NGOs and the Private sector;

c) **the emphasis given to the process of programme development where an advocacy social cyclic process of problem assessment, analysis and action (Triple-A-Cycle)** was used at all levels (community, ward, district, regional and national) to raise nutrition-related awareness of the people, politicians and decision makers at the various levels; and build confidence in programme implementors; which led to the development of a "nutrition movement".

d) **a strong active community participation** orientation of the programmes led to a significant allocation and reallocation of community resources towards the alleviation of malnutrition, and to local nutrition intervention initiatives. For example many Village Health

Workers (VHWs) and Day Care Attendants (DCAs) are paid in kind or in cash from village budgets. At the time of the 1988 evaluation of the Iringa JNSP 80 percent of villages paid their VHWs while 70 percent paid their DCAs. The "Mtwara Initiative" which spread to Zanzibar and other regions like Kagera, Morogoro and Shinyanga served as a very important trial local initiative in strengthening programme approach through mobilization, training and participation. Community participation here does not mean active participation of the local community only but goes beyond the village to embrace awareness and commitment of the leadership at higher levels of Government, Donor Organizations or NGOs who support the programme in one way or another. Active community participation led to a feeling of owning the programme an important empowerment motive;

e) **the strengthening and modification of existing multisectoral management and supervisory mechanisms** based on the experience of the Primary Health Care (PHC) committees which had been established by regulation throughout Tanzania in the 1970s;

f) **field oriented continuous training** of all categories of programme staff at all levels mainly through improved supervision, seminars, workshops, involvement in operational research, study tours to other areas, or through formal training packages. Training was done to improve skills, widen scope in the multifaceted nature and intervention of the nutrition problem and was mostly concentrated on staff functions e.g. TBA, VHW, or programme managers. Curricula were developed from experience gained in implementing the programme and was thus very much field oriented.

g) **the presence of a strong institutional base** in nutrition related activities like TFNC which has a wide multidisciplinary and multisectoral community based experience in nutrition intervention was an important factor in success;

h) **the use of a combination of strategies** which reflected the multiple causes of the nutrition problems addressing at various intensities the immediate, underlying and basic causes of malnutrition. For example simultaneous actions were taken to address the causes related to food intake, diseases, food security, caring capacity, health education, water and sanitation, income and cultural habits and believes;

i) **the presence of technically competent and interested nationals and expatriates** with planning managerial and communication skills who were able to mobilise national and international expertise and finance for the development and implementation of the programmes. In many cases there were a few enthusiastic people who were able to cross bureaucratic lines and made many things work. These were among the good managers who with appropriate supportive services carried out the programme operations. Discussions with people in the field indicate the flexible approach and field competence of UNICEF as one of the major reasons for success especially in the stages of process development and implementation;

j) **the establishment of a monitoring and information system** using nutritional status as an indicator through growth monitoring. This was backed up by frequent internal and sometimes external process and impact evaluations by technical missions which was important in reviewing and guiding the course of action.

Tanzania's Nutrition Goals for the 1990s

An important element of a nutrition programme, and in fact of any successful undertaking is goal setting. In the past most nutrition programmes lacked the incorporation of clear and explicit goals and therefore what needed to be done became rather diffuse. The development of the Joint Nutrition Programmes with clear and explicit goals, led to the setting of global nutrition goals for the 1990s firstly by the World Summit for Children and later adopted by the International Conference on Nutrition. The adaptation and adoption of these goals by Tanzania and other countries and their inclusion in the National Plans of Action has for the first time focused and obtained consensus of what need to be achieved in nutrition.

The summary of the specific goals as adapted in the National Plan for Action (NPA) for Tanzania is shown in table 57. There are indications that these goals can be substantially attained if the scope of the commitment is

appreciated by a larger section of policy and decision makers than at present in order to ensure increased political commitment which should be matched by increased resource allocation.

Table 57: Summary of Nutritional Goals for Tanzania (1992–2002)

| Type of Malnutrition | | Situation in 1990 | Goal for the year 2,000 | Annual reductions required to achieve goal |
|--|----------------------------------|-------------------|-------------------------|--|
| Protein Energy Malnutrition: | | | | |
| | Severe (< -3SD) | 5 | 2 | 0.3 |
| | Moderate (between -3SD and -2SD) | 47 | 23 | 2.3 |
| | Total (below -2SD) | 52 | 25 | 2.7 |
| Low birth weight (LBW). Birth weight less than 2,500 grams | | 14 | less than 10 | 0.4 |
| Anaemia | Pregnant/lactating women | 80 | 50 | 3.0 |
| | Children underfive years | 45 | 30 | 1.5 |
| Iodine Deficiency Disorders (IDD): in general population | | 25 | eliminate | 2.5 |
| Vitamin A deficiency: in children underfive years | | 30 | eliminate | 3.0 |

The specific nutrition goals for Tanzania shown in table 57 are based on the experiences learnt from the nutrition related policies and programmes during the 1980s. The nutrition goals adopted by the World Summit for Children (WSC, 1990) and the International Conference on Nutrition (ICN, 1992) include:-

- a) Reduction in the prevalence of severe as well as moderate malnutrition among underfive children by half of 1990 levels;
- b) Reduction of the prevalence of low birth weight (LBW) (2.5 kg or less) to less than 10%;
- c) Reduction of the prevalence of iron deficiency anaemia in women by one third of the 1990 levels;
- d) Virtual elimination of iodine deficiency disorders;
- e) Virtual elimination of vitamin A deficiency and its consequences including blindness;
- f) Growth promotion and monitoring to be action oriented in all MCH clinics;
- g) Dissemination of knowledge and supporting services to increase food production to ensure household food security.

The conclusions and recommendations from this review discussed in chapter nine indicate that Tanzania's vast experience in nutrition related policies and programmes have generated a swell ground work on which further actions can be based to increase the scope and depth of actions in order to achieve the above goals.

CHAPTER 9: GENERAL CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This review reveals that the major nutrition problems in Tanzania are manifested by decreasing trends of high rates of malnutrition and mortality among children under five years and women particularly those pregnant. The major nutrition problems are protein energy deficiency (PED), and the micronutrient deficiencies of iron leading to iron deficiency anaemia (IDA); iodine leading to iodine deficiency disorders (IDD); and vitamin A leading to vitamin A deficiency (VAD) and xerophthalmia. While on average the proportion of these nutritional problems are increasing in Sub-Saharan Africa, the trends for Tanzania show a declining trend. Other nutrition problems affecting smaller and more defined sections of the community are fluorosis overweight and obesity and diet related cardiovascular disease in the elite and business sections of urban communities emulating harmful food habits and life styles.

Service delivery and the immediate causes of malnutrition

The **immediate causes** and problems are related to low frequency of feeding; low energy density of consumed food staples; and diseases particularly malaria, diarrhoea, intestinal worms and respiratory infections. In recent years, AIDS is becoming an increasingly important cause of both child and adult mortality and malnutrition. Intervention measures are constrained by low capacity in service delivery.

Capacity building and the underlying causes of malnutrition

But service delivery in nutrition is dependent on institutional capacity related to household food security; caring capacity of the vulnerable groups; and in the quality and quantity of the provision of essential services like health, education, housing and water and sanitation. Inadequacies in the three clusters of food security, care and essential services are a reflection of low institutional capacities related to social and economic infrastructure, organization and efficient and effective human resource development and deployment.

Empowerment and the basic causes of malnutrition

Poverty is the main **basic cause** of malnutrition worsened in some instances by negative cultural practices despite a favourable political commitment. Thus poor economic situation combined with climatic (floods, drought); environmental problems like deforestation and low production technology all conspire to cause poor food production. Unfavourable terms of external trade and the debt burden are added basic economic problems. The erosion of traditional support mechanisms for care without the development of alternative care mechanism is a major constraint. This is made worse by persistent bottle-necks in improving the economic and decision making role of women. These problems have been made worse by a high population growth outpacing the growth of essential services and the rate at which potential and actual resources are exploited and mobilized toward the amelioration of malnutrition.

Improvement in the nutrition situation

Also the review reveals a significant improvement in both general and specific micronutrient nutritional status during the 1980s despite a severe economic crisis. This is particularly significant because the nutrition situation even during the good economic times of the 1960s and early 1970s was described as constant over time and geographical location.

Life expectancy increased from about 40 years in the 1960s to about 55 years in the 1980s. The infant mortality rate decreased from about 190 per 1,000 live births in the 1960s to 115/1,000 in the 1980s. There has also been a substantial decrease in the rates of under-five child mortality from a very high 300/1,000 live births in the 1960s to 191/1,000 live births in the 1980s. Substantial decreases in the rates of maternal mortality from more than 450/100,000 births during the 1960s to about 200/100,000 births in the 1980s have also been achieved. The present levels of mortality are still very high by world standards and there is a major concern about an increasing trend in maternal mortality during the first two years of 1990s an indication of the deterioration of the quality of health services. Initially these improvements in the manifestations of the problem of malnutrition were mainly related to improvements of health care rather than improvements in the nutritional status.

However, the last decade has seen substantial improvements in the nutrition status of children under-five years of age especially in areas implementing integrated nutrition programmes like the Joint Nutrition Support Programme (JNSP) and the Child Survival and Development (CSD) programmes. In eight regions implementing these programmes total malnutrition as measured by weight-for-age below 80 percent (minus 2 SD) of the NCHS reference values decreased from an average of about 50 percent during the mid-eighties

to about 30 percent during the early 1990s. Severe malnutrition decreased from an average of about 6 percent to about 2 percent during the same period. The rates of reduction of underweight in these eight regions in an average period of 4 years was about 59 percent for severe underweight, 29 percent for moderate underweight and 32 percent for total underweight. At the national level the 1991/92 Household and Demographic surveys have also indicated that just about a quarter of the under-five children were underweight as compared to survey averages of 40–60 percent in the early 1980s.

At the national level, there also seems to be an improvement in the prevalence of low birth weight, which is an indication of an improvement in the nutritional status of women. While estimates for the prevalence of low birth weight in the early 1980s was 14 percent, the prevalence for 1990–91 was about 9 percent.

There have also been improvements in the micronutrient situation. For IDD, in some places severe IDD as manifested by visible goitre rates has decreased by nearly 60 percent while total goitre rates have decreased by about 30 percent through oral iodinated oil distribution. Vitamin A deficiency in the form of xerophthalmia has decreased by about 25 percent through integrated general measures. In one region, Shinyanga, it was possible to reduce severe vitamin A deficiency measured by the prevalence of serum retinol levels of below 10 µg/dl from about 20 to below 2 percent in a period of two years in two divisions through universal periodic distribution of capsules.

These improvements are particularly significant because the nutrition situation even during the good economic times of the 1960s and early 1970s was described as constant over time and geographical location. The improvements in the nutritional situation is a reflection of a series of positive nutrition related policies and programmes carried out during the mid- and late 1980s. It is of interest to note that the initial improvements in the indicators of the nutrition situation occurred at the same time as the economic indicators were improving.

The economic reforms and structural adjustment programmes which followed the economic crisis during the 1980s have begun to generate economic growth currently at a Gross Domestic Product (GDP) of above 4 percent compared to a population growth rate of 2.8 percent. The reforms which were highlighted by the liberalization of trade, introduction of flexible management of foreign exchange transactions and cutting down on government spending, have also been accompanied by institutional and political reforms to increase accountability and greater participation in the mobilization of people for grass root development and official participation of the private sector in the country's economy. This kind of economic growth is essential to enable the government to effectively finance "social security" for those adversely affected by the short-term effects of the economic reforms and further develop human resources for sustained development. The political reforms are meant to strengthen people's participation in the growth of the economy.

The basic reason for success in both the improvement of nutrition and the economic and political reforms lies in Tanzania's political stability and ideological commitment to social action. This politically favourable climate backed up by an unprecedented grassroots social mobilization structure from the national to the village level has resulted in the mobilization of some kind of a nutrition movement in Tanzania and to a very large extent the inclusion of nutrition considerations in sub-national and national development plans.

The formation of the Tanzania Food and Nutrition Centre (TFNC) by an act of parliament as early as in 1973 to catalyse and harmonize nutrition related policies and programmes is seen as one of the important forces behind the improvements in the nutrition situation. Nutrition advocacy for decision makers, assessment, analysis, operational research, training and conceptualization done during the late 1970s and early 1980s by TFNC laid down the ground work for the major nutrition programmes in the form of the WHO/UNICEF supported Iringa JNSP and the UNICEF supported CSD programmes in the mid- and late 1980s. It was also during this period that the micronutrient malnutrition control programmes initiated by TFNC, under the various component financial support of SIDA, the Netherlands Government, UNICEF, WHO, FAO and a soft loan from the World Bank were started. It is pertinent to mention that a number of NGOs have also increased their nutrition activities on the basis of the TFNC/UNICEF conceptual model during the last decade.

Thus although Government financial resource allocation to the nutrition related sectors declined during the 1980s due to the severe economic crisis and an apparent shift in emphasis to the productive sector, a closer examination will reveal that if donor and NGO support was included in the equation, financial, human and organizational resources to support nutrition during the last decade were more than in previous decades. It seems that donor financial support was able to mobilize apparently idle human and organizational resources and created widespread community concern about malnutrition and child and maternal mortality.

Reasons for the improvement in the nutrition situation

An analysis of the successful programmes shows a number of characteristics which should act as lessons for the 1990s.

Community-based

Firstly they are **community-based with strong community participation and management** through the Government and Party administrative structures. National, regional and district technical supportive mechanisms were strengthened or in some cases established. The major stimulus for undertaking the programme came from broad developmental thrusts of the government and the programmes were distinctly inter-sectoral in nature with a wide variety of health, agriculture, education, planning, community development and other productive activities linked to nutrition. The lead role was played by planning or community development. Community members actively participated in the programmes with specific and relatively concrete tasks such as helping in the quarterly weighing of children, running feeding stations and participating in the selection of village staff like Village Health Workers.

Social mobilization

Secondly there was a strong component of **social mobilization through advocacy, information and communication** which led to the creation of community concern with regard to the problem of child deaths and malnutrition. Results of nutrition monitoring using weight-for age were effectively reviewed and used for making various decisions at all levels beginning right in the community through the "triple A cycle" of assessment, analysis and action.

Management and capacity building

Thirdly active participation was sustained through **improved management; the result of the systematic strengthening of the process of continuous assessment, analysis and action**. The management systems emphasized improved information through quarterly **child growth monitoring** using children's growth cards and the understanding by both men and women of the child's growth. Programme design was flexible and decision making was sufficiently responsive to feed-back and feed-up so that it was possible to make any necessary adjustments throughout. Starting relatively small and then expanding after careful review of results was also an important programme management design.

Also **management** was strengthened through **training** at all levels and discussing results from the information systems in the health and nutrition committees. Training was mainly in-service and was augmented with frequent supervision. To a very large extent this improved the implementation and decision making process. This indicates that with some training field staff with limited basic education can perform adequately. As a result nutrition improvement was included as a goal to be achieved; and to some extent the contradiction between men and women with regard to nutrition related information and resource allocation improved. More household and community resources are now been allocated towards the improvement of nutrition. Management was also strengthened through the provision of essential management tools like supervisory transport and other expendables. The management systems created helped also in monitoring programme impact.

Use of an integrated explicit conceptual framework

The fourth characteristic was the **integrated multi-sectoral and multidisciplinary approach** used. Actions on the improvement of household food security, caring capacity, health services, education and water were carried out at the same time. In many cases extension staff from the relevant sectors including NGOs continued to do the same things they used to do. But with an understanding of the consequences of their actions on the nutrition situation, they did them better. The **explicit conceptual approach used facilitated dialogue and analysis of the causes and problems** of malnutrition. The emphasis on the **triple A approach** prevented the intrusion of external magic packages of solutions. As a result emphasis was initially placed on the development of the **process** for the reduction of child and maternal mortality and malnutrition. Coupled with extensive internal and external technical contacts, this resulted in the creation of confidence and capacity in community and national institutions.

Empowering the vulnerable groups

But success is usually accompanied by problems and contradictions. As local people become more empowered to act on their own behalf, they are more likely to challenge authoritarian leadership styles common in village and district leaders. Women would be less likely to accept gender discrimination as

enforced by tradition. Many extension staff are somewhat naive about the existence of social differentiation at the local level. The delineation between mobilization from above and animation inherent in the social mobilization process provides space for people to raise questions concerning the behaviour of state officials and local leaders. Though this is useful for furthering grassroots democratization it has a potential to lead to increased conflict and tensions. Practitioners must learn how to cope up with this issue. There is also the issue of the contradictory role of external funding and external control even if it is unintended. External donors, national and sub-national levels and the beneficiaries may need to pay special attention to this at the local level as it affects sustainability. The "Mtwara Initiative" is an example of what can be done.

The coverage of actions in relation to nutrition needs need to be expanded. Out of the 20 regions in Mainland Tanzania only 9 regions had been covered and only in selected districts between 1983 and 1991. There are plans to cover the rest of the regions during 1992–96. The whole of Zanzibar is covered by the JNSP which started in 1989. As the 29th largest country in the world, the geographical vastness of Tanzania and the general low population density of about 27 per kilometre makes it difficult to evenly spread out the nutrition programmes without compromising impact. The villagization programmes of the 1970s partly resolved this problem. In the face of limited continuing limitation of resources, targeting was done to those in greatest need. Thus activities initially were targeted to those areas with highest levels of infant and child mortality and malnutrition. In these areas the programmes targeted children and women in general and children and women in "poor" households and villages in particular.

While mechanisms for targeting women and children were set in place, no mechanisms were developed to help identify and target the poor. Indicators for the assessment of the manifestations, immediate and underlying causes of malnutrition as articulated by the 'conceptual framework' are available, but no social indicators exist to assess and monitor the basic causes. There is need to work out conceptual tools of assessment and analysis of the basic causes at local as well as district, national and even at the international level. There is clearly a need to pay more attention to social indicators. The lack of a clear formulation about social and economic relations in the conceptual framework is indicative of the inherent difficulty there is in concretizing better what is meant by these relationships.

Observations from the programme areas clearly show that there are two opposing conceptions by focusing on women alone. The first is the "women focus" where the analysis of the problems, causes and solutions tend to be focused on women, thus reinforcing the gender division of labour, with the woman pushed more and more into the home. The "gender" view includes men in the analysis and assumes that gender relations themselves need to be changed and not just individual women and men. Since it is the women focus view which dominates over the gender view there is need to further articulate the gender view in the social mobilization and animation process.

Sustainability

There are indications that the achievements which have been made can be sustained provided that further effective mobilization of financial, human and organizational resources continue and that the economic and political reforms currently under way continue to be peaceful and create adequate safety nets for social security of the vulnerable groups. Given the nature of the malnutrition problem and the widespread poverty faced by communities in Tanzania complementary government and external support is required. This means that the flexibility of the conceptual model would need to be called into play and even modified to improve the designing of nutrition related actions for the 1990s. The community-based approach which has been used in the JNSP and CSD programmes and especially the triple A cycle approach has already created a good basis for the redesign of programmes as it cycles. In this process, there is an urgent need to learn from the only two major generalizable experiences gained so far.

The flexible process approach

The first is that the 'only magic bullet' for a successful nutrition programme is a "process approach" of a cyclic assessment, analysis and action where you learn and adapt as the programme progresses. Several key factors in this approach need to be born in mind (Jonsson, 1992). The first is that the people should be regarded as key actors in the process. Secondly, provided that they have access to adequate information and resources, the people are in a better position to judge what will work or not work in their local situation. Thirdly, their mere existence in a continuously changing and sometimes hostile environment, indicates that their survival and coping strategies are adaptive processes, which need to be recognized and facilitated. Thus instead of preparing detailed multi-year nutrition plans, a mechanism should be established to facilitate what Jonsson calls "adaptive programming". The fourth factor is empowerment of the people in terms of among other things, resources, reduction of social and gender disparities and improved knowledge

and health. Community participation is the fifth factor and is a means and outcome of empowerment. Often participation is sought at the stage of implementation only. This is not participation, but involvement. Participation should cover all stages of the project including planning, assessment, analysis and action. The sixth factor is community ownership which is an outcome of participation and empowerment. Local ownership is important for sustainability. People will feel inclined to contribute or take some risk in an issue they feel it is theirs. The best programme would be that which after it is successfully over, people would say “we did it ourselves”. That would be the best way to implement the various global plans of action on nutrition of the 1990s. This approach requires social mobilization and animation which will create enthusiasm and commitment. Again, there is no one magic formula which will lead to successful mobilization/animation for nutrition or other goals.

From scientific to moral analysis

The **second major lesson is the shift in emphasis in the analysis of the malnutrition problem at all levels from a biological perspective to a social perspective or what Jonson (1992) calls a “shift from a scientific to a moral analysis.”** This was facilitated by the integrated conceptual framework. Thus the major arguments for action started to be based not on economic developmental issues but on what Jonsson (1992) calls “normative, moral or ethical arguments.” The lesson is that social factors need to be emphasized more in nutrition programmes if they are to be successful. This was exemplified by the growth monitoring systems which were not designed for impact monitoring, but for mobilizing social action. In many villages the concept of the growth monitoring card with green (normal), grey (moderately underweight) and red (severely underweight) was given a new meaning and scope:– **the green household, the green school and the green village** (Mbilinyi, 1992). The implication is that you cannot maintain a “green child” in a “grey or red” household in which access to resources is not adequate to sustain the “green revolution.” In the final analysis, households, schools and villages need to be “weighed” just as the child to determine its position on the colour band and take appropriate action. This village concept could be extended to a “green district, a green region, a green nation and even to a green globe.” The challenge is to determine a minimum set of indicators needed to nutritionally weigh the household, the village, the district, the region, the nation and the globe.

Recommendations and some options for the 1990s

National adoption of the TFNC/UNICEF conceptual model

In order to achieve the goals and objectives for the 1990s, it is essential to build upon the success of the 1980s. The TFNC/UNICEF conceptual model for the causes of malnutrition and its application through the triple A cycle should be adopted nationally by all those whose actions are related to nutrition. This will conceptually harmonize the various nutrition related policies and programmes. It is recommended that all donors accept this approach in their support to nutrition action in Tanzania. Various sectors could then carry out their nutrition related activities from a multi–sectoral perspective, but with specific actions still based on their own sectoral emphasis. The “inter–sectoral” coordination fear initially responsible for the delay in the processing of the Food and Nutrition Policy should be replaced conceptually by the more positive “multi–sectoral” collaboration.

The economic and political reforms must continue to be evolutionary to ensure a peaceful transition

The positive trend of the economic reforms and structural adjustment programmes which have been implemented in Tanzania is essential to enable the government to effectively finance “social security” for the poor and further develop human resources for sustained development. The political reforms are meant to strengthen people’s democratic participation not only in the growth of the economy, but also in the provision of their own social services. The concept of the triple A approach, community empowerment, active participation etc can only function effectively where democratic systems operate. Social mobilization, animation and the concept of malnutrition as both a scientific and moral issue are fundamentally democratic concepts. The ongoing process of strengthening democratization in a multiparty environment should insure that nutrition is an important agenda for all parties. The government and any party should feel embarrassed about the poor nutrition and situation of children and women.

Though the positive economic trends should be cause for optimism, Tanzania still faces daunting challenges to consolidate and reinforce the gains already realized before a sound base for economic and social take off is contemplated. First is that a strong commitment to the peaceful economic and political reforms be maintained now and in the future as has often been indicated by the Government and the ruling Party (CCM). This is

important in order to avoid civil strife which among other things will have daunting effects on the nutrition situation. The examples in Angola, Mozambique, Somalia and Sudan where civil wars have caused severe famines and nutrition problems should act as lessons for the people. The evolutionary process of reform currently pursued must continue in order to be able to learn and take appropriate measures in correct time. Secondly there are a number of priority areas where the reforms need to maximize results.

The first is the need to have an efficient road, rail transport and telecommunication network in order to create a conducive economic base to support the ongoing recovery process. Rehabilitation and development of surface transport and the communication infrastructure is a mandatory undertaking if the country's economic development initiatives are to continue to bear fruits. The multi-donor and multi-million dollar Integrated Road Project (IRP) which took off in 1991 under the lead of World Bank support must be monitored strictly to insure that maximum results are achieved and that a maintenance component is incorporated from the start. The IRP should be boosted by a similar project for the rehabilitation and development of the railway and the telecommunications network so that centres of production are effectively linked with centres of consumption. There is also need to strengthen tourism and natural resources a sector which made significant contribution to the improvements and whose potential remains largely unexploited.

The plans to restructure the parastatal sector so that commercial parastatals operate commercially with the possibility of the public and the private sector to buy shares is expected to enable the Government to increase its support to the social and economic service sectors since it will be relieved off the burden of subsidizing loss making parastatals. It is recommended that strong consideration be given to nutrition related services, policies and programmes in the resource reallocation.

The need for debt relief

In addition to the inadequacy of the supportive infrastructure and a reliable economic base, the external debt burden is heavily pressing. As of 1992 the external debt burden for Tanzania stood at 5.3 billion US \$ or 212 US \$ per capita which is above the per capita annual income of 160 US \$ of the GNP. Unless some kind of debt relief to Tanzania is done, it is unrealistic to expect the Government to give more resources to the social service sector and at the same time honour its debt payments. The international community need to respond positively to the question once posed by "Mwalimu" Nyerere the father of the nation of Tanzania "should we let our children die so that we can repay the debt?" It is recommended that the international donor community seriously consider substantial debt relief for Tanzania and whenever possible write it off altogether.

Maintaining and expanding the scope of social security

As the reforms continue, the social security "safety nets" incorporated in the ongoing Economic and Social Action Programme (ESAP) under donor support need to be consolidated and the scope expanded in order to minimize the apparent economic and political polarization resulting from the reforms. One safety net the Party has made is the creation of the "Mwalimu Nyerere Educational Trust Fund" which is being used to sponsor students whose parents cannot afford cost sharing in education. There is need to consolidate and expand such types of funds to cover other areas like health and nutrition. This is important to allay fears of polarization which have started to surface with the cost-sharing approach.

Strengthening nutrition information systems and using nutrition indicators as a measure of development

The effect of the economic and political reforms on the nutrition situation; and the harmonization of other nutrition related policies and programmes can only be gauged if more representative information on nutrition trends and causes will continue to be available. This will require strengthening of inter-sectoral analysis of the information. What will be needed is more and timely decisions and actions based on that information and not only further statements. It is recommended that the strengthened nutrition information systems also capture the nutrition status of adults. It is on the basis of a proper nutrition information system that more lessons can be learnt.

There is also the need to incorporate nutrition indicators as measures of development at both the national and sub-national levels. This will not only indicate how far have the economic and political reforms been people centred, but also the productive capacity of the next labour force.

Strengthening community based nutrition actions

Tanzania has now adequate experience in carrying out nutrition programmes. An important lesson learnt is that it is only through community based evolutionary nutrition actions as done in the JNSP and CSD areas can

significant nutrition improvement be achieved both from a short and a long term perspective. It is important that this approach is strengthened in the 1990s and higher levels continue to be supportive to community action. With regard to growth monitoring there is an impression that too much emphasis is placed on the reductions of malnutrition probably losing track of the need to promote satisfactory growth. That severe malnutrition decreased faster than moderate malnutrition is probably partly an indication of this emphasis. The stress on severe malnutrition was an important and necessary step in developing community concern about the problem of high rates of mortality and malnutrition among children. The success achieved in reducing the severe rates of malnutrition show that it is now important to emphasize satisfactory growth in monitoring more than has been done in the past. It is also recommended that the Community based nutrition rehabilitation strategy developed by TFNC and successfully applied in the JNSP and CSD areas should be nationally adopted.

Recommendations on Food Security

The recommendations and options on infrastructure and macro-policies will heavily impact on food security. Nationally the FAO assisted food security programme emphasize on the macro-level. It is recommended that household level food security be given adequate consideration and emphasis and methodologies for its measurement be developed. It is also recommended that household coping mechanisms in times of food security stress be documented and lessons derived for adjustment of policies and programmes. In this respect, the role of labour-intensive public works should be considered.

Recommendations on Caring Capacity and Women's control of resources

Care for special groups would require adequate provision to meet essential needs through self help, community and government support in strengthening capacity and capability. While the caring capacity for women and children need to be strengthened there is need to start laying down strategies for the elderly.

The special legal and political gender sensitivity in favour of women need to be strengthened in deed. More advocacy is needed to positively influence gender role in the upbringing of children.

Institutional and legal reforms supportive to the social services, caring capacity and women's control over resources need to be enhanced. Such reforms need to address the gender contradictions and not merely issues of women if the plight of women in Tanzania is to be fundamentally addressed.

Recommendations on essential services

The success achieved in the delivery of the essential services like health, education, water and sanitation need to be maintained and coverage improved in both quantity and especially quality with full involvement of the community. The participation of the private sector, NGOs and the approach of cost-sharing should continue to be pursued. The question of creating a "safety net" by developing a selective and targeted social security to the poor approach has already been recommended. There is need to also expand the scope of population issues from that of mainly family planning to that of development.

Institutional capacity building

The rapid social and economic changes over the last decade and the many policies and programmes which were developed in response have overburdened the carrying capacity of many institutions from the grassroots to the national level. These changes calls for two types of response from the nutrition related institutions. The first is the need to have institutional structural adjustments to enable these institutions to function more efficiently in a different social and economic environment. The second is for these institutions to strengthen their human resource capacity and capability so that they become more proactive in their operations rather than reactive as is the case at present. If progress toward meeting the nutrition goals of the 1990s is to be sustained, a stronger local initiative for action is required.

Finally

The important achievements made by Tanzania in the areas of health, education, water and the reduction of infant and child mortality and malnutrition despite difficult economic conditions is cause for optimism. It is a demonstration of extraordinary capacity to overcome formidable obstacles. Even when the government found it difficult to provide basic services, parents and the community at large stepped in to provide support in terms of providing labour (for example to build schools) and finances for cost sharing in education and health in a modification of the Bamako Initiative. The increasing participation of the community in the provision of basic

services is an inevitable empowering action for sustainability. By ratifying the UN Convention on the Rights of the Child; adapting and adopting the World Summit for Children goals and those of the International Conference on Nutrition, including the development of National Plans of Action (NPA) within the framework of a National Food and Nutrition Policy, an ambitious framework for social development has been set in place.

In order to achieve the goal of eliminating malnutrition in all its forms, this socio-economic developmental framework should be maintained and adequate "space" provided for its operationalization. The first pre-requisite for this is a peaceful democratic political climate where all parties will feel embarrassed if they do not include the improvement of nutrition in their political agenda. Secondly more deliberate and targeted actions in resource allocations at national and especially at community levels should be taken towards efforts to eliminate malnutrition. Perhaps it is time that resource allocation is fixed proportionally by law to avoid diversion by the "soft state."

In view of trends observed in the economy of the country it is likely that international assistance from United Nations Agencies, other multilaterals, bilateral donors, industry and Government and Non-Governmental Organizations (NGOs) will need to continue giving support to achieve the goals for the 1990s. New partnerships need to be formed and "nutrition programmes" should now move to the plane of a "nutrition movement". This requires broader and deeper interventions related to capacity building and empowerment than those described in this review, while at the same time improving on the service delivery interventions. This means that short-term, medium-term and long-term actions should be taken in a balanced way at the same time. Perhaps too much precious time is wasted arguing about which intervention is more important. Practical experience as shown in this review indicate that all types of interventions are important when carried out in a balanced way. Politicians, decision makers, affected communities and relevant national and international institutions and organizations should take the opportunity and challenge to become more involved in the "nutrition movement" of eliminating the scourge of hunger and malnutrition.

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ANNEX 1: THE ROLE OF TFNC AS A MAJOR NUTRITION INSTITUTE IN TANZANIA

Historical background

The first government concern with regard to malnutrition was articulated by the British colonial administration in 1937, when a committee under Dr. R.R. Scott was appointed to advise on human nutrition in the then Tanganyika [Maletnlema, 1983]. This resulted in the formulation of a proposal to start a nutrition programme which did not take off because of the second world war which started soon after. In 1947, two years after the war, the first full time nutrition officer in the ministry of health was appointed and formed a nutrition unit. Some short term interventions in the health and nutrition status of defined populations in specific areas were initiated. Although a multi–sectoral central advisory committee on nutrition was formed in the 1950's to review and advise on a wide range of nutritional issues, there was no systematic pursuit of national nutritional objectives, since the committee was formed as a response to the famines of 1953 and 1954.

The Central Advisory Committee was replaced in 1962 by the Tanganyika National Freedom from Hunger committee (TNFFHC) with mandate to work on policy formulation with emphasis on food–self sufficiency. This was a political move intended to lessen the country's reliance on external food aid since it was feared that food could be used as a political weapon to sabotage the newly won independence in 1961. Thus the TNFFHC under the chair of the ministry of agriculture received strong political support from president Nyerere by then. The President's commitment to nutrition was reiterated in 1963 when he announced the intention of his government to fight malnutrition as part of efforts to fight the three enemies of the people which he summarized as disease, ignorance and poverty. He called upon the development of strong nutrition extension services through the mobilization of both internal and external resources.

The first nutrition plan (1965–1969) was worked out by the nutrition unit of the Ministry of Health and the Tanzania Nutrition Committee (TNC) which was a subcommittee of the TNFFHC. The plan envisaged the development of nutrition services at regional and district levels. A nutrition school was founded in 1966 and provided training courses to nurses, agricultural extension workers and others who by then managed field work. External agencies such as FAO, WHO, UNICEF, OXFARM–UK, CRS (Catholic Relief Services) and the Max Plank Research Institute in Germany, responded by providing scholarships, experts, survey and laboratory facilities, funds for field work and food aid.

The Arusha declaration of 1967 and the decentralization policy of 1972 led to the strengthening of social services in the rural areas where the majority of people live and malnutrition is rampant. The 1968 presidential reiteration on the importance of alleviating malnutrition in Tanzania, prompted many parties to act. The Ministry of Agriculture and to some extent the Ministry of Education started nutrition units independent of the

one in the Ministry of Health. By 1969 there were 27 districts in 16 regions which had already started their own nutrition activities as part of mobile clinic activities [Malentlema, 1983].

During this time there was a feeling that a field oriented coordinating centre should be established so that it could work hand in hand with the extension staff on one side and leaders and scientists on the other. Already in 1967, the TNC had proposed the establishment of a national Food and Nutrition Institute. In 1968, the Government of Tanzania requested the Swedish International Development Authority (SIDA) to work with the Tanzanian nutritionists to formulate a proposal for the new Food and Nutrition Institute. An initial proposal which focused on laboratory based research was rejected by the government which requested a more field oriented institute. A second SIDA mission commissioned in 1972 completed its work in the same year and recommended a model that was approved leading to the creation of the Tanzania Food and Nutrition Centre (TFNC) as a parastatal organization by parliamentary act n. 24 Of 1973, passed on November 21st and assented to by the first President, Mwalimu Julius Kambarage Nyerere on December 6th, 1973 [URT, 1973]. TFNC started functioning in 1974 with a staff of about 15 with the current President Ali Hassan Mwinyi, then Minister for Health as chairman of the Board of Directors. Unfortunately the act which established TFNC did not specify the authority under which the centre would fall under; so it was first placed under the Ministry of Agriculture, later the Prime Minister's Office and finally by Presidential directive under the Ministry of Health where it still is today, as a semi-autonomous body. It was after the creation of TFNC that the pursuit of national nutrition objectives became more explicit and an unprecedented level of nutrition activities took place starting towards the end of the 1970's and especially during the 1980's.

The mandate and role of TFNC

TFNC was given the mandate to initiate and coordinate nutrition intervention, carry out research and advice the government and related institutions on all matters concerning food and nutrition.

The detailed functions of the Centre as stipulated in the establishing act are:-

- to plan and initiate food and nutrition programmes for the benefit of the people of the United Republic
- to undertake reviews and revisions of food and nutrition programmes
- to provide facilities for training in subjects relating to food and nutrition and prescribe conditions which must be satisfied before any diploma, certificate or other award which may be granted in any such subject upon completion of any such training undertaken by the Centre or other education institution in the United Republic.
- to carry out research in matters relating to food and nutrition.
- to advise the Government, the schools and other public organizations on matters related to food and nutrition
- to stimulate and promote amongst the people of the United Republic, awareness of the importance of balanced diets and of the dangers of malnutrition
- to gain public confidence in the methods suggested by the Centre for the correction of malnutrition
- in collaboration with the Ministry responsible for Development Planning to formulate, for incorporation in the national development plans, plans relating to food and nutrition for the benefit of the people of the United Republic.
- in collaboration with the producers, manufacturers and distributors of articles of food, to ensure proper nutritional value of the food marketed in the United Republic or exported to foreign countries.
- to make available to the Government and people of the United Republic of Tanzania its findings on any research carried out by it on matters affecting nutrition.
- to participate in international conferences, seminars and discussions on matters relating to food and nutrition.

- to do all such acts and things, and enter into all such contracts and transactions, as are, in the opinion of the Governing Board, expedient or necessary for the discharge of functions of the Centre.

The Centre has been carrying out its functions as a catalyst in nutrition intervention through appropriate advocacy, information, communication and education (IEC); development of policies and strategies; training and operational research and advisory and consultancy services to both national and international agencies.

The organization of TFNC

TFNC is an autonomous institution under the umbrella of the Ministry of Health. It has its own chief executive who is responsible to a board of directors. The Board and the Managing Director are appointed by the Minister for Health while the Board Chairman is appointed by the President. The Board is appointed for a period of three years. The composition of the Board is wide. For example the current Board (1991–1993) draws from the Ministries of Health, Agriculture, Finance, Community Development Women Affairs and Children and the Prime Minister's Office; the Universities of Dar–Es–Salaam and Sokoine University of Agriculture in Morogoro; the Presidential Trust Fund and retired prominent personalities.

The Managing Director who is the Chief Executive Officer (CEO) of TFNC is also the secretary to the Board and Chairman of the National Food Control Commission. He coordinates both administratively and technically the activities of the Centre. There are six departments whose directors compose the Management under the chair of the Managing Director.

The organization of the departments reflects the conceptual approach of the causes of malnutrition described in the first chapter and the projects address the problem and causes at all levels—immediate, underlying and basic in terms of service delivery, capacity building and empowerment.

The Department of Planning coordinates the formulation of Food and Nutrition policies; inclusion of nutrition objectives in various development plans; inclusion of nutrition indicators in measuring macro–economic development; support to community–based programmes, nutrition surveillance; monitoring and evaluation and coordinates TFNC's involvement in the African and International context. The activities of this department are mainly capacity building and empowerment.

The Department of Community Health and Nutrition works on the areas of maternal and child nutrition in the context of Primary Health Care (PHC); promotes community based nutrition rehabilitation; institutional diets; nutrition related chronic diseases; the control of micronutrient malnutrition (iodine, vitamin A and iron) and other relevant areas. This department deals mainly with issues of service delivery with some aspects of capacity building.

The Department of Nutrition Education and Training disseminates food and nutrition information to the public through publications and the mass media; identifies nutrition education and training needs for different sectors; initiates and supports nutrition training programmes through curricula reviews and short term in–service training of extension workers. Presently there are efforts to establish a regular training programme for middle–level nutrition related staff as a means of sustaining the nutrition strategy based on the conceptual framework through regular training of staff working in the Child Survival, Protection and Development (CSPD) programmes and other nutrition–relevant extension staff, including those working with NGOs. The activities of this department are mainly capacity building in nature with considerable aspects of empowerment.

The Department of Food Science and Technology deals with issues of household food security; research on traditional food processing and preservation methods; and weaning foods (germination and fermentation). The activities are capacity building in nature.

The Department of Laboratory Services provides facilities to conduct biochemical determinations of nutritionally related laboratory tests; microbiological determinations and food analysis. The activities of this department are capacity building in nature.

In order to efficiently utilize the human and organizational resources with respect to the departments of Laboratory and Food Science and Technology, the two departments are going to be merged into one department of "Food Science and Nutrition" in 1994. The new department will focus more on the development of capacity to initiate and advocate for multi–mix energy dense product development, and especially on providing support to monitor the process and impact biological indicators of the nutrition goals of the 1990s.

The Finance and Administration Department deals with issues of personnel; general office routines; human resource development; staff welfare including the development of suitable career and motivational packages; maintenance of buildings and equipment; supplies and printing.

Placement and Personnel

Since its establishment, TFNC has been physically located at 22 Ocean Road, Dar-Es-Salaam. Since 1991, two departments – Food Science and Technology and Laboratory Services were shifted to Mikocheni Offices about eight kilometres North-West of the main offices.

Starting with only five staff in 1974, over the years, TFNC has grown into a six department institution with the capability to train and keep experienced and highly qualified staff in all areas of food and nutrition. As of 1993, there were 160 staff. Of the 70 or so nutrition staff, four are Ph D holders, another four are pursuing their Ph Ds; five MDs, 13 Masters, 14 Bachelors and the rest have diplomas or certificates. All staff are stationed at the headquarters in Dar-Es-Salaam, and apart from occasional attachments there is no permanent decentralization of staff to regions/districts. A system of Regional Nutrition Desk Officers (RNDOs) operates so that each region maintains permanent contact with designated TFNC staff.

TFNC's professional skills and expertise cover a wide range of specializations in the area of nutritional and social sciences. The Centre maintains and seeks close collaboration and partnership with many institutions, organizations and development agencies within and outside the country. In addition TFNC actively participates in national and international forums related to the elimination of hunger and malnutrition. All these have afforded TFNC with the opportunity to have a comprehensive knowledge of current theoretical and practical developments in understanding the multiple problems and causes of malnutrition. This has enabled TFNC to play an effective role in the national, regional and international efforts to combat malnutrition as evidenced by the designation of TFNC as the first WHO collaborating Centre on Nutrition Training and Research in Africa in 1990.

There has been a debate over the last several years about the need for TFNC to decentralize and station staff at the district level. While this type of expansion has been resisted because of the fear of the costs involved there have also been stronger principled arguments against such a move. The first is that such a move would sectorize nutrition which would be against the multi-sectoral view of malnutrition which TFNC itself has propagated. The second relates to the role of TFNC in nutrition activities. There is an overwhelming opinion that TFNC should not concentrate on service delivery because there are already sectoral ministries like Health, Agriculture, Education, Community Development etc which are already offering nutrition services. Instead, TFNC should concentrate on supporting grassroots institutional capacity building and empowerment for nutrition intervention through the triple A cycle. Actions could include training, policy and strategy development, monitoring and evaluation, conceptualization, social mobilization, IEC, operational research, networking, etc. Thus TFNC should continue to concentrate its actions in areas where a multiplier effect is more likely to be achieved through a relatively small staff at headquarters who are well trained, and who maintain a permanent link with the districts.

Funding

Apart from the government which funds 100% of the recurrent budget and a variable proportion of the program budget, TFNC's program budget comes mainly from SIDA and UNICEF and recently from a soft loan from the World Bank which has been provided for the vitamin A and nutritional anaemia programmes. A number of other organizations like WHO, SAREC, UNU, IPICS, IDRC, Ford Foundation and IFS have been providing some programme support for research and training.

TFNC's approach to the nutrition problem

The poor state of food supply in the early 1970's influenced TFNC's decision to examine the country's food system. In this approach food was followed up from production, harvesting, distribution, storage, preparation and eventually consumption. Food losses occurring at the various sites in the system were identified as the causes of malnutrition and it was believed that if leakages were plugged then malnutrition would be addressed. The focus of TFNC programmes reflected elements of this food cycle approach and the model was adopted as the TFNC logo.

The food cycle analysis placed undue share of the causes of malnutrition on the food aspects of nutrition. Implicitly non-food factors were not given adequate attention in nutrition programming. It was in view of the experiences gained in the application of the food cycle approach that TFNC and UNICEF Dar-Es-Salaam

advanced the new perspective with a more explicit and comprehensive integrated conceptual framework discussed in earlier whose application was tested and found to be very useful in the 1980's.

The use of the integrated conceptual approach in addressing the causes of the food and nutrition problem has drastically shifted the direction of food and nutrition programmes from a perspective of charity and therapeutics to more developmental oriented and multi-sectoral interventions. The approach has not only facilitated dialogue among and between sectors, but has also recognized malnutrition as the outcome of social processes. It is now realized that as a manifestation of a social process in society malnutrition cannot be a medical, agricultural, educational, economical, anthropological or any one discipline's problem. It is a problem with these and many more aspects, since in reality social processes cannot be compartmentalized into sectoral areas. It is also acknowledged that solutions to the problem can be generated from single sectors, but their application needs more than the efforts of that sector alone.

Organization of programmes/projects

The Programmes are headed by the relevant Departmental Director. Each project is headed by a project leader and a co-leader who are specialists in the project area. In addition, each project has several participants. The project leaders, co-leaders and participants form a project committee whose main job is to steer project development and implementation. The project committee meets about once every month, so are departmental meetings. Management meets every two weeks and discusses short reports of all projects. The meetings are meant to regulate project implementation towards corporate goals, and act as early warning for any problems. An annual Work Plan called "Plan of Operations" indicating budget and responsibilities is the main guide. The development of the "Plan of Operations" is participatory and extensively consultative; the plans reflecting implementation of the recommendations of various national workshops and consultative groups. They also reflect the implementation of national and international collaborative agreements and memorandums of understanding. To add more transparency in the operations, a mixture of line and matrix systems of relationships of different staff operates.

TFNC Programmes and Projects

Only the Finance and Administration Programme and Projects belong to TFNC to facilitate its operations. They are meant to build TFNC's technical capacity and provide a conducive environment for work. Though they are recurrent, they are reflected as projects to emphasize the need to develop those areas further. The rest are national in character and TFNC's role is to catalyze relevant sectoral and inter-sectoral action. The most successful ones have developed national five year plans under a process of national and international consultations through the Consultative Groups, workshops, expert committee meetings and writer's workshops. Those which have faithfully followed the process have been able to develop five year plans which have received funding. A fundable plan should address a priority problem; initial efforts to build consensus on the extent, causes and intervention strategies should be made including management and accountability of actions (triple A cycle); the development of the plan should involve potential donors from the start. The consultation process should not only be technical but should include political and decision makers. In short it should have an advocacy effect on the beneficiaries, political and decision makers and also on potential donors.

The full list of projects as of financial year 1993/94 are as follows:–

Table 58: TFNC Programmes and Projects for 1993/94

| Programmes | Projects |
|-------------------------------|--|
| 1. Finance and Administration | 1. Human Resource Development (training) 2. Office Building 3. Staff Houses 4. Transport 5. Dispensary 6. Canteen 7. Recreation 8. Management Services 9. Printing |
| 2. Planning | 10. Nutrition Policy and Strategy development 11. Support to Community-based Nutrition programmes |

| | |
|-------------------------------------|--|
| | <ul style="list-style-type: none"> 12. Priorities in Nutrition Research 13. International Cooperation in Nutrition 14. Nutritional Surveillance 15. Nutrition Surveys 16. Nutrition during Emergencies 17. Sociological Development |
| 3. Community Health and Nutrition | <ul style="list-style-type: none"> 18. Community Based Nutrition Rehabilitation 19. Vitamin A Deficiency 20. Iodine Deficiency Disorders 21. Nutritional Anaemia 22. Fluorosis 23. Institutional Diets 24. Diet Related non-communicable Diseases 25. Child Nutrition/Breast feeding 26. Maternal Nutrition 27. Nutrition in Primary Schools 28. Nutrition and Women's Workload 29. Adolescent Nutrition 30. Nutrition of the Elderly |
| 4. Nutrition Education and Training | <ul style="list-style-type: none"> 31. Training Facilities. 32. In-service Training 33. Curriculum Review and Development 34. Radio programmes 35. Print Media 36. Publications 37. Library 38. Audio Visual materials 39. Educational Research 40. Nutrition and Forestry |
| 5. Food Science and Technology | <ul style="list-style-type: none"> 41. National Food Security 42. Household Food Security 43. Composite Products development 44. Germination and Fermentation 45. Household Weaning Mixtures 46. Vegetable Oil Protein Systems 47. Tubers and Roots |
| 6. Laboratory Services Development | <ul style="list-style-type: none"> 48. Analytical Methodology 49. Toxic Factors in Food 50. Food Safety and Consumer Protection 51. Food Fortification |

TFNC involvement in national nutrition related policies and programmes in the 1980s

National nutrition related policies.

The instrumental role played by TFNC in the development and declaration of the Food and Nutrition Policy for Tanzania has already been described. TFNC has also been a key participant in several nutrition related policies including the Agricultural Policy; the Food Strategy; Population Policy; the Health Policy; Women and Development Policy; Women and Children Policy; development of a national code for the marketing of breast-milk substitutes; and in some aspects the policies related to the Priority Social Action Programme (PSAP). However, apart from the food and nutrition policy, TFNC's involvement in the development of policies and strategies for the other areas mentioned was rather peripheral. This indicates the need to strengthen TFNC's capacity in influencing nutrition related policies and strategies.

National nutrition related programmes

TFNC has been involved in various capacities in all the major nutrition related programmes which have taken place in Tanzania since its inception. The role of TFNC in the JNSP, CSD and the micronutrient programmes has already been pointed out. TFNC has also contributed substantially to the development of the National

Plan of Action (NPA) as a follow up of the World Summit for Children and the International Conference on Nutrition. In fact TFNC was the focal point for the preparations of the International Conference on Nutrition (ICN). TFNC's involvement is mainly in the four areas of conceptualization, programme design, situational assessment and analysis and monitoring and evaluation. In a few cases TFNC has been involved in actual service delivery, but this is done with the view to train and handover the service delivery to the locally based relevant institutions. TFNC places much emphasis on process and institutional capacity building in supporting nutrition programmes.

TFNC's IEC component in the various programmes has been particularly successful. Since 1983, TFNC started a regular weekly radio programme called "Chakula na Lishe" (Food and Nutrition) which is still going on. The programme uses expert discussants, replying to listener's questions and recently radio plays. At the same time TFNC has been training various national, zonal and local journalists on food and nutrition issues. As a result many food and nutrition issues have been appearing in the print media [Navetta, 1991]. In-service training for extension workers from various sectors including Agriculture, Health, Community Development, Education, the ruling Party CCM and Planning have also been carried out. There are plans to start a middle cadre short term training certified course for such extension workers. Presently nutrition at degree level is taught as a subject at Sokoine University of Agriculture in the options of Home Economics and Human Nutrition and Food Science and Technology. The Ministry of Agriculture also runs diploma courses on Food Production and Nutrition.

Curricula review to include food and nutrition issues has also been coordinated by TFNC and such reviews have been done for the health sector schools, primary schools and teacher training schools.

TFNCs influence in multi-sectoral collaboration

Over the past few years TFNC has established national consultative groups in order to enhance multi-sectoral collaboration in dealing with some of the most important nutrition problems. The word "multi-sectoral" is used here to mean "several sectors taking part" as opposed to "inter-sectoral" which means "measures of different sectors integrated with each other for coordinated effort". Thus the consultative groups have been created for purposes of multi-sectoral collaboration.

Most of the large scale projects being implemented by TFNC are "partnership" projects. They address national nutrition problems and are harmonized by the multi-sectoral National Consultative Groups with TFNC acting as the Executive Secretariat. Active National Consultative Groups have been formed for iodine (NCCIDD), vitamin A (NVACG), anaemia (NNACG), breastfeeding and young child feeding (NIYCF CG), nutrition surveillance (IMTCNS), household food security (HHFSCG), Nutrition Research and Ethics Committee and maternal nutrition in safe motherhood (NMNCG). An Inter-ministerial National Food and Nutrition Committee (IMNFNC) under the Planning Commission as Chair and the Ministry of Health as Secretariat with support of TFNC as its technical arm has recently been formed following the declaration of the Food and Nutrition Policy. These groups have proved very useful in policy and strategy development, resource mobilization, steering of implementation and the inclusion of sector-specific activities into the plans of their own sectors. In addition a National Coordinating Committee on Child Survival, Protection and Development (NCC/CSPD) where TFNC is a member has been formed under the Planning Commission. Whenever necessary, the Consultative technical advice is obtained by organizing expert committee meetings on the specific issue. For example Expert Committee Meetings have been organized for iodine, vitamin A, nutrition education, the Food and Nutrition Policy etc. The composition of both the Consultative and Expert Committees have included international experts and donors. While membership to the Consultative Groups is on the basis of sector or agency representation, membership to the Expert Committees is on individual capacity. The Consultative Groups and Expert Committees have been invaluable as a mechanism for TFNC's role in harmonizing nutrition activities in the country. For example they account for Tanzania's lead in micronutrient malnutrition programmes way ahead of the recent international consensus.

Experience has shown that these groups are highly useful in encouraging multi-sectoral collaboration, implementation, monitoring and evaluation and also responsibility and accountability in specific interventions. It is necessary to strengthen and support such consultative groups in the coming years.

International collaboration

At the international level there has been increased technical collaboration with UNICEF, WHO, FAO, the World Bank and several academic institutions. **Since 1990 TFNC has been designated a WHO Collaborating Centre for Nutrition Research and Training.** Also TFNC is a member of the East, Central and Southern Africa (ECSA) Nutrition Cooperation and is sub-regional coordinator for the ICCIDD and

IVACG. Collaboration with Universities and research institutes like, the Agricultural University of Wageningen (Netherlands), Uppsala (ICH, IPICS, Paediatrics, Sweden); University of Gothenburg; John Hopkins, Cornell, Emory (U.S.A.); the Centre for International Child Health (CICH) London; the International Food Policy Research Institute (IFPRI), the United Nations University (UNU); IDRC; Brown University (World Hunger Program) would need to be continued and expanded in such a way as to ensure technical and technological benefit to TFNC. Also TFNC coordinated and acted as Secretariat to the formulation of the African Nutrition Strategy, AFNS, (initially as the International Decade on Food and Nutrition for Africa, IDFNA) a role which was later taken up by the OAU.

The Evaluation of TFNC

Since its inception in 1973 TFNC has had three external evaluations: in 1979 [Knutsson et al 1979]; in 1986 [Burgess et al, 1987] and in 1991 [Latham et al 1991]. These evaluations have been important in helping TFNC in the development of operational and programmatic strategies. The most recent evaluation which was done during the first stages of the preparation of this document concluded that TFNC is fulfilling its mandate and will continue to be relevant in both the national and international context. After now 20 years of continuous SIDA support, the evaluation concludes that TFNC is highly professionally sustainable and is mature enough to take full responsibility for its direction and programmes.

The professional institutional building that SIDA and other donors have done for TFNC has been highly successful as evidenced by its strength and effectiveness in catalysing nutrition related actions. There still remains much to be done and in order to maintain that strength external support will continue to be needed for some years to come. This is easily understood when viewed in the context of the development of the Tanzanian economy. Though the Government's contribution has been substantial in relation to total health budget over the last few years, the poor economic situation means that external support will continue to be needed if TFNC is to be able to continue with its important task. It is expected that periodic evaluations of TFNC will continue to be made to enable TFNC to cope effectively with the changing environment and context in which it will operate.

Support needed by TFNC

TFNC requires financial support and technical back stopping in the following major areas:–

a) Implementation and nutrition monitoring of the Food and Nutrition Policy and other nutrition related development policies.

Support is required to enable strategy development, mobilization of decision makers, strengthening nutrition surveillance and documentation in order to accelerate the inclusion of nutrition considerations in developmental planning and the use of nutrition indicators in monitoring. Institutional building type of support is required to enable TFNC to play its role effectively in the implementation, monitoring and evaluation of the World Summit for Children's Plan of Action (NPA) including post-ICN follow up actions. The aim would be to promote and effectively harmonize policies and activities in nutrition. Support is required to strengthen the analytical capabilities of TFNC by strengthening epidemiological, laboratory, computer and sociological/anthropological aspects.

b) Nutrition information, communication, education and training.

Support is required to strengthen publication, social marketing and communication capacity using all available forms of media. An Editorial Board for publications has been established and it needs to be supported. **The establishment of regular in-service training courses with accompanying facilities also needs external support.** A proposal for such training was jointly developed by two experts from the International Agriculture Centre, Wageningen, The Netherlands, and TFNC in February, 1992 [IAC/TFNC, 1992] under the support of SIDA. The development of a National Library on food and nutrition also need support.

c) Public Health Nutrition, control of nutrient deficiencies and ensuring adequate and nutritionally sound food intakes.

Continued support is required to the micronutrient (iodine, iron, vitamin A) malnutrition prevention and control programmes and the infant and young child feeding programme. Support is also needed for work on cereal germination and fermentation, diversification and

better use of food security crops like cassava, sorghum and millet, and the dietary management of infection. There is the whole question of promoting nutrition in the Primary Health Care programmes (MCH/Family Planning, EDP, EPI, CCD) and nutrition considerations in emergency situations which also need to be supported.

d) Operational Research.

Support is required to strengthen the multi–sectoral Ethics and Nutrition Research Committee so that it would be able to give small research grants to individuals interested in doing research in priority areas and strengthen the promotion of nutrition operational research in the country.

e) TFNC's sub–regional role in Eastern and Southern Africa and in the international arena.

Over the years, TFNC has played a significant role in giving technical support to other countries and institutions in the Eastern and Southern African Sub–region, especially in the areas of micronutrient malnutrition and training. TFNC also played an important role in the development of the African Nutrition Strategy (AFNS) which was endorsed in principle by the ICN, the ACC/SCN and is expected to be adopted by the OAU heads of state at their meeting in Cairo, June 1993. The post–ICN and African Nutrition Strategy follow up actions would require a broader role for TFNC within the sub–region and Africa in general. In accomplishing this role there is a need to carefully balance the national and international roles of TFNC. While the establishing act allows TFNC to play an international role, it mainly emphasizes its national role. Support would be required to enable TFNC to play this role better during the 1990s.

Twenty years of TFNC

This year marks twenty years (1973–1993) of TFNC. This review has to a very large extent shown the successes and failures of TFNC. It is important that now TFNC builds on the lessons of the past if it is to continue playing an effective role in harmonizing nutrition–relevant actions in Tanzania. This review is thus an important input into TFNC's 20th Anniversary celebrations.

