Transforming Social, Gendered Practices Affecting Malnutrition: Action Research in Malawi

by

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ABSTRACT

This dissertation is an evaluation of an educational programme that took place within the context of a nutrition improvement project. The goal of the project was to effect dietary modification and diversification for the purpose of increasing vitamin A, iron and zinc status in children. The project itself provides a model for dietary change projects because it demonstrated the effectiveness of mobilizing community resources, including local knowledge, existing leadership and indigenous foods. Furthermore, this evaluation has particular significance because of its depth in exploring the behavioural change process. The lack of such descriptions has previously left undetermined the value of similar nutrition education projects. Thus, this thesis gives credibility to programmes that focus on building self-reliance in communities, revisiting caring roles within the family, and changing behaviour related to food and diet. The dissertation emphasizes that by exploring and changing social practices related to the family nutrition system, the problem of malnutrition may be addressed more effectively than by exclusively medical means.

The project, called Tulimbe Nutrition Project, took place from 1995-1997 in two rural communities in Southern Malawi. Five Malawian home economists were hired as facilitators for the four-month dietary intervention. Three hundred families with children from three to seven years old participated. Various programmes were introduced to the parents of these children: food

processing, meal planning and preparation, agricultural activities, and appropriate technologies. The success of the intervention was evaluated by analyzing data collected during cooking demonstrations, home visits, interviews and focus group discussions. The data is organized into three major themes reflecting the changes which occurred as a result of the intervention: community involvement, gender relations, and dietary change.

As a result of the project's approaches to community development, community members, individually and collectively, had a new understanding of their identities, attitudes and capabilities. By involving men in the project, along with women, people noted positive changes in families, because both husbands and wives became better caregivers. Finally, as a result of the momentum of project activity over the intervention period, there was a significant increase in the adoption rates of new food processing and preparation methods.

Although the issues of targeting, leadership and incentives were problematic ones, the intervention strategies continue to be practiced and enhanced by new initiatives. The project gained national attention for both its dietary strategies and its approaches to community involvement. Local agencies in Malawi have taken on the challenge of replicating the project in other areas. However, in order for dietary diversification and modification programmes to have a more widespread effect, political commitment and mass mobilization campaigns are required.

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DEDICATION

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I. INTRODUCTION

From 1994-1997, I accomplished the field work for this dissertation in Malawi as the Senior Research Co-ordinator of Tulimbe Nutrition Project, a nutrition education project which focused on food-based strategies for dietary diversification and modification (described in Chapter Two). On a monitoring visit to the project in 1996, a UNICEF official claimed that at the time, Tulimbe was the only project in Malawi which addressed all three underlying causes of malnutrition through education and inputs projects: food insecurity, lack of access to health services, and lack of care. In most cases, agencies will tackle one or two of these issues--food, health and care--in their project plans, but not all three at the same time. Thus, taking on such a broad range of activities was challenging, but more challenging was involving people in these activities in meaningful ways.

Engaging people in meaningful learning processes is important to me for political, professional and personal reasons. These reasons are described in this summary of my personal subject location, and how it is relevant to this dissertation. Before my experience in Malawi, I had lived in West Africa (Nigeria and Ghana) for four years and in China for one year. I worked mainly in schools and universities, but my commitment to development work grew over the years through my interest in non-formal education programs for rural people. My daily life, academic and work experiences continue to define my politics and beliefs about how I live my life, both in the North and in the South. For me--a middle class, able-bodied, white, single woman who has enjoyed many opportunities and freedoms--living in the South forces me to examine my life according to my privilege, and according to the kinds of influence I have to make changes. My politics are informed by three major influences: the social gospel, feminism and radical adult education. The influence of the social gospel comes from my upbringing and my family's liberal view of an equitable and just society within a Christian context. This influence has led me to work with organisations in Canada advocating for and with immigrants and non-English speaking peoples, women who require shelter or supportive housing, women who have experienced sexual abuse or assault, and adults who are learning to read and write. My feminist perspective helps me sharpen my analysis of inequity by focusing

on hegemonies and hierarchies in societies which are oppressive to women, children, and men. Both in Canada and in African countries, I work to promote education and health issues affecting women. Finally, the principles of a radical and activist adult education upon which this dissertation was founded, have always shown me that the potential for change and empowerment comes from people themselves.

In Ghana, I worked with rural people within the context of my students' field work, a complement to their courses in Home Economics. More recently in Malawi, I worked with programme staff in two rural communities. Being so close to people who live so differently than I do causes me to examine all the contradictions in my life and in the larger context in which I live. Whereas I enjoyed what I think of as standard requirements for quality of life—running water, electricity, a well-constructed house, an income, transportation, telephone and a steady and accessible food supply—the people in villages a short distance away had to struggle almost daily to meet their basic needs. At the beginning of my career overseas, I examined these injustices from a microcosm, being a junior professional within a limited setting, but now, even with a short history in development work, I have come to discover that there are many factors at play within the macrocosm of the developing world. I know that these factors are not neutral, but loaded with interests from many sides. I have recently taken a position as a Program Officer with the largest non-governmental development organisation in Canada. My job entails writing proposals with officers from six African countries, and seeking funding and support for the intended programs. My position of privilege and power increases as I become more experienced and qualified as a professional, but also do my abilities to critically examine and influence programs and policies for equitable development.

The complexities of development cause many, in both the South and the North, to be cynical about the potential for growth and change. Indeed, the interplay of the various factors impinging on development is overwhelming, and building a better world seems like an impossible task. Negative views equating development with neo-colonialism have caused many people to opt out of taking action in support of development efforts. More and more, those who work in development, especially multi-lateral, bilateral and non-governmental sectors, are being forced to look critically at the consequences of development for the peoples

of the South. During this period of backlash against the failures of intervention, aid dollars are disbursed more carefully. Donors are demanding not only accountability, but evidence of impact and efficiency. These mandates are held high, but they are not easily followed. Although policies are changing, the conditions for implementing them are often deteriorating. I do not believe that this is the time for countries in the North to opt out of development efforts, especially in the face of globalisation. More than ever, countries in the North must support those in the South who are working toward justice and equity. There are many non-governmental, and even governmental agencies, in countries in the South which are ready to uphold the aims of effective and sustainable development programming. The North can show solidarity with the South by lobbying international financial institutions who use exploitative practices, ensuring equitable trade policies, and supporting autonomous and democratic decisions. Within the context of education and training—my particular interest--I believe that countries in the North must continue to assist in the development of countries in the South, but in ways which enhance human resource potential. Long-term support and training for those working with rural people are necessary. For many African countries whose populations are largely rural and increasingly female, there is tremendous potential for improvement in quality of life, if formal and non-formal educational programmes are delivered effectively. By critically examining their own values and how societal practices impinge upon the less privileged, those informing the processes of development can understand the importance of human resource development strategies based on humanitarian goals which honour human life, health, education and equity. Having opportunities to work toward these goals is for me a challenge and a privilege.

PROJECT RATIONALE

In 1992, I was just beginning my doctorate in Sociology in Education, when I was approached by Professor Rosalind S. Gibson from the University of Guelph, now at the Department of Human Nutrition at the University of Otago in New Zealand. At the time, Gibson had completed research on micronutrient intakes in Malawi, and on that basis had compiled a food

composition database for both micronutrients and antinutrients (Ferguson and Gibson, 1993). With E.L. Ferguson et al. (1995), she had devised ways of preparing and processing local Malawian foods in order to maximise their micronutrient absorption. Although R.S. Gibson's specific micronutrient interest is zinc (Gibson et al.,1989), her dietary recommendations are also relevant for the high-profile micronutrients--vitamin A and iron. In order to complete her research cycle on the Malawian diet, Prof. Gibson needed to know if the dietary strategies which she had devised in theory, were indeed feasible and acceptable at the household level, and most of all, if the strategies would improve children's nutrition status, especially the bioavailability of vitamin A, iron and zinc. As the Principal Investigator of the proposed project, she would be the first in Malawi to introduce alternative methods of processing maize flour for making staple foods. Since a programme for behavioural change was required, Rosalind Gibson asked me if as part of my doctoral studies, I would be interested in co-ordinating the community mobilisation and education aspects of the pilot project. Since such a project fit in well with my vocational goals, I was quite enthusiastic about my potential involvement.

BACKGROUND TO THE EVALUATION COMPONENT

The proposed pilot project had two components: nutrition intervention through education and programme evaluation. The evaluation component was significant and various types of indicators were measured at frequent intervals to prove project effectiveness. Process indicators relate to project activities (i.e. number of events, number of attendees). Output indicators correspond to immediate results (i.e. number of seedlings planted), and outcome and impact indicators give evidence of long-term changes (i.e. adoption of innovations, growth, biochemical status). A significant criticism against nutrition interventions is that they "have frequently not been monitored or evaluated effectively with respect to processes or outcomes" (Combs et al, 1996). As a result, comprehensive evaluations of the impact of food-based approaches to combat simultaneously, deficiencies of vitamin A, iron and zinc are limited (Gibson et al., 1995). Many nutrition-related studies have been published about food and

nutrition in developing countries, but most were undertaken in controlled or clinical settings. Few studies have been accomplished on nutrition interventions using available food resources in natural rural settings. There are significant gaps in the literature on both the implementation and evaluation of community-based nutrition projects in Africa.

In light of the lack of documentation on food-based projects, the proposal Prof. Gibson submitted to the project's major funder, the Micronutrient Initiative Fund, contained a plan for a rigorous multi-dimensional evaluation approach, based on the experience of a food-based nutrition project in Thailand (Smitasiri, 1994). Tulimbe was to set a precedent for other food-based projects in Southern Africa. Theoretically, if other projects followed Tulimbe's dietary strategies, they would be assured of having similar results, and would not have to repeat such comprehensive evaluations. In order to prove the efficacy of Tulimbe's approach to nutrition improvement, a quasi-experimental design was proposed with both test and control communities. The Thailand experience notwithstanding, pressure from granting agencies to measure and show "impact" (CIDA, n.d.) as well as "cost-effectiveness" (Oshaug, 1996) impelled Prof. Gibson to mount such an extensive evaluation. The ability to show impact was necessary to obtain funding, and to secure credibility for future programme and policy development (Oshaug, 1997: 158). According to Andrien and Beghin (1993), even though they are more expensive, donors prefer to fund quasi-experimental projects because they produce credible statistics about the project's impact.

This emphasis on providing comprehensive and reliable statistics arose out of the need to ensure that the study was rigorous enough to meet stringent academic standards. These statistics would have little significance unless there was a positive change in biochemical status from the baseline to the final sets of measurements (see Chapter Three for a detailed description of the nutrition evaluation). My challenge was to work with programme staff to mobilise and educate community members so that people would adopt the dietary diversification and modification strategies. High adoption rates would show a difference, not only in biochemical status, but also in how people perceived children's nutritional needs. The purpose of this dissertation is to fill gaps in the literature which call out for evaluations on dietary change and nutrition education programs in rural African communities.

My role in this multi-dimensional evaluation was to monitor behavioural change by engaging in "process evaluation" (Oshaug, 1997): collecting evidence of the adoption of innovations, and exploring with participants their experience of behavioural change. As a sociologist, I was able to observe the changes in various social phenomena throughout the life of the project. Michael Cernea, in the introduction of *Putting People First: Sociological Variables in Rural Development* (1991), says that because "projects are purposive interventions used for accelerating and targeting economic growth and social development . . . . [they] offer broad scope for intensive, applied socioanthropological work" (Cernea, 1991: 5). Most people employed by development projects have technical expertise, but fewer have the skills to analyse social change. Usually consulting sociologists are brought in at the proposal-writing and evaluation stages to predict and measure social impact. Sociologists should be involved at every stage in the project cycle: identification, planning, implementation and evaluation (see Chapter Three for a description of activities at each stage). Cernea (1991: 16) says that each stage of the cycle requires a different type of sociological contribution, whether informational, analytical, or predictive. Some examples from Tulimbe include the decision to target men for involvement in the nutrition project, even though it was not conventional; and the decision to choose certain dietary strategies over others, even though those not chosen were recommended by nutritionists. By analysing the social variables, decisions were made on the basis that they would elicit and sustain peoples' participation and commitment. In discussing with people their sociocultural characteristics, and how they perceive their strengths and challenges, Tulimbe programme staff were able to plan a project that was not only culturally acceptable, but "capable of being operated and maintained by the local social actors and their institutions and organisations (Cernea, 1991: 19). McKee sees the social scientist as the primary "capacity builder," helping project staff and communities to "move from learning-to-be effective, to learning-to-be-efficient, to learning-how-to-expand operations" (1994: 223). Finally, Cernea's argument is that people-centred development, which originates from social analysis, inspires social action and change. As an educator and a sociologist, I was able to promote both action and analysis in my work with staff and communities.

BACKGROUND TO THE EDUCATIONAL COMPONENT

The philosophy for the project comes out of the Participatory Research (PR) movement from which has emerged the concept that the research process has the potential to become an educational and emancipatory experience for those involved (Hall, 1975). PR challenges the conventional notions of research as a top-down process in which people are exploited for their knowledge. PR is particularly relevant to the adult, non-formal educational setting (Hall, 1981), because it addresses immediate social issues and involves the whole community in posing problems and seeking solutions. As a perspective from which to analyse health problems, the philosophy of PR is appropriate because it honours indigenous knowledge often blamed for barriers to health, and is sensitive to the different voices in the community (Nichter, 1984). This approach to research is becoming more accepted by research and donor agencies (IDRC, 1993; PAHO, 1988). Tulimbe Nutrition Project used PR methods to facilitate participants' use of their own knowledge to analyse the potential of various solutions to the problem of child malnutrition. As a foundational philosophy for the project, PR concepts helped staff to keep their priorities focused on people and their process for change. Even though staff were not able to consistently practice PR methodology throughout the life of the project (see Chapter Five), without this foundation the project would not have been as successful.

Achterberg and Clark, in their article on the use of theory, say that nutrition education programmes are "not as effective as they could be or should be if a strong, organised knowledge base or theory for explaining the success and failures in nutrition education strategies were available" (1992: 233). They cite that either nutrition educators are not using theory to guide their work, or that the theories they are using are too limited to address the needs of effective programming. Also, they observe that those who design nutrition education programmes do not base their plans on previous work (Achterberg and Clark, 1992: 233). I was aware of the general weaknesses of nutrition education programmes, and certainly of the potential pitfalls of doing nutrition education in an African setting. I knew that a community-based programme with a strong participatory approach would be more successful than a conventional didactic

approach. If I was guided by PAR methodology, my overall approach to community-based programming should evoke change.

The community-based approach for nutrition education draws on a "range of foundation disciplines and changing practices" as do most non-formal education programmes (Blackburn, 1989). These include extension, adult education, community development, social work, sociology and anthropology, psychology, communications and political/development studies. Because of my background in rural extension, my work as a practitioner is primarily influenced by adult education and community development theory. In rural community-based contexts, all these theories are interwoven, and provide the basis for quality programming. Adult education programming is learner-centred, and based on respect for the learner's knowledge and experience (Moore and Waldron, 1981). When educational programming for rural people is not founded on adult education principles, it is more likely to fail. Rinke's objectives for "holistic education" as a new paradigm for nutrition education, correspond to my own for rural extension:

1. to [assist] individuals learn about how to learn and develop a positive self-image about their capacity to learn,
2. to provide learners with the capacity to think creatively and innovatively, and
3. to demonstrate to learners that learning can be fun and rewarding. (1986: 155)

Rural extension is non-formal education, most often associated with agricultural and home economics programmes. These programmes are more extensive in developing countries which have large populations of rural residents who are serviced by extension workers or change agents, usually from the Ministry of Agriculture. Extension is a type of intervention or a systematic effort to "permanently reorient [an ongoing social process] in directions deemed desirable by the intervening party" (Roling, 1988: 39). Often interventions are oriented to technology transfer initiatives, such as new seeds, fertilisers, or cropping patterns. New inputs or processes are called "innovations," and when an innovation is used or practised over a long period of time, "adoption" is said to have taken place (Rogers, 1971). Those who introduce innovations--"change agents" and "extension-workers"-- are often criticised for working from top-down origins and approaches. However, extension is not more intrinsically oppressive than any other approach to communities. The "extension" of knowledge does not detract from

listening to people, honouring their knowledge, "do[ing] with" them for change (Roling, 1988: 56).

Tulimbe's approach to extension was centred within a general community development framework, in which community participants were engaged in creating a meaningful nutrition programme from the options of innovations presented to them. In all the recent policy-related literature on nutrition improvement programmes, "community participation" is listed as a major factor for success (ACC/SCN, 1997; ACC/SCN, 1989; INPF, 1990; Manoff, 1984). Various strategies for involving communities are promoted in practical programme manuals for planners and implementers, and circulated by influential nutrition and agricultural agencies (FAO, 1994; King & Burgess, 1992; Werner & Bower, 1982; Caribbean Food and Nutrition Institute, 1992). Most community-based projects have the potential to provide growth-oriented opportunities (Srinivasan, 1992) for men, women and children through educational programmes.

The programme staff (myself and five Malawian home economists), through daily briefings and debriefings between ourselves and community members, attempted to design a project based on the principles of community involvement, gender inclusiveness, and the use of local knowledge and resources. The evaluation of these three principles and how they were enacted in the communities is the basis for the three analytical chapters that make up the body of this dissertation (Chapters Five, Six and Seven). Discussions of these principles are not unique within the literature on small-scale development projects, but are distinct within the Malawian context, and offer some important insights for nutrition and community development projects within the general African context.

PROJECT OVERVIEW

Judging from all the feedback received through the final summative evaluation, Tulimbe Project was appreciated by the communities, field staff and government officers who participated in it. Tulimbe's partners and collaborators enjoyed being part of the project because of the opportunities they had for learning and involvement over two years--a relatively

long period of time compared to most projects. The reason cited for this sustained interest was that project staff put people first, before its programme needs. Staff showed respect for people at all levels of involvement, and made them feel that their contributions were essential to the project's success. There were a variety of avenues for people's participation in the nutrition project. By building on existing structures and activities, and creating new ones, the project encouraged various groups of people to use their knowledge, talents and skills.

Tulimbe Nutrition Project was unique because of its multi-sectoral approach to the problem of malnutrition, and because of its collaborative efforts to affect change in communities. Many of its programmes were accomplished in partnership with other organisations and personnel, such as credit, appropriate technology, agricultural inputs, and clinic programmes. Several new crops were introduced, some on a large scale (sunflower seeds, soybeans), and some on a smaller trial scale (groundnuts, pigeon peas). New technologies (solar dryer, oil press, double-barrel oven) were brought into communities so that people could preserve and store foods. Existing food resources were processed and prepared in different and more nutritious ways. The food-related programmes explored the potential of both new and traditional food technology and processing. The connections between food and health soon became obvious, because children's health improved when parents paid more attention to their eating habits.

The project's nutrition evaluation component which measured children's nutrition status became part of a scheme to provide medical services to the community. Children were both measured and treated during bi-weekly clinics. Each child had a project health card, so that parents could monitor changes in growth. Children who were sick were treated or referred to the hospital. When it was available, the project vehicle would assist people with transportation to the hospital. Tulimbe enabled communities to have greater access to health facilities, so that people became less hesitant to go to the hospital, or to demand better treatment. An organisational structure for better health care inspired both community leaders and government staff to be more proactive in combating health problems in those villages.

The project was also special because of its approach to communities, and because of the nature of its intervention. Many small projects run by private organisations experience success,

but apart from their normal reporting procedures, do not share how they achieved success with agencies who need such information. One phenomenon in Malawi is that people who work for NGOs, often expatriates, share information and meet together, based on their personal connections. Often government officials at every level are left out of this exclusive network. Because Tulimbe had a strong relationship with its government collaborators at the national and district levels, it disseminated information through a newsletter that was sent to all the offices of the ministries of Health, Agriculture and Community Services. Almost 500 copies of the second issue of *Micronutrient Malnutrition in Malawi* were circulated. Several district officials wrote to Tulimbe, expressing surprise at being identified for the mailing, and also thanks for having received such useful information.

The newsletter was also sent to multi-lateral agencies, such as the European Union and UNICEF, and nutrition-related NGOs and private companies. Responses to the material in the newsletter came in for weeks after it was sent out. The European Union offered Tulimbe its paid radio spots for a series of programmes on Tulimbe's messages. Tulimbe staff were asked to provide training in its approaches by several agencies, including Save the Children (USA), International Eye Foundation, Canadian Physicians for Aid and Relief, Ngpani Estate (Commonwealth Development Corporation), and the Smallholder Sugar Corporation (Dwangwa). I was asked to write a chapter on community participation in World Vision's MICAH (Micronutrient and Health) Guide, a manual for nutrition projects in six African countries. Tulimbe's reputation grew because the project disseminated information about its progress. As a result, it was a well-known project in Malawi.

NUTRITION SITUATION OF CHILDREN IN MALAWI

Tulimbe was conceived and implemented against the background of a situation of chronic malnutrition in Malawi. Currently, Malawi is one of the poorest countries in the world. According to the *State of the World's Children* (UNICEF, 1998), per capita income is USD170, with a negative per capita growth rate. Life expectancy has dropped from 48 to 41 years, whereas the fertility rate remains one of the highest in the world (6.8) with negligible reduction

from the 1960s. According to the UNDP's Human Development Index (1996), Malawi ranks 15th from the bottom before Africa's war-torn and drought-stricken countries. Nutrition-based poverty lines define 55 per cent of the population as poor, while about 20 per cent form the 'core poor' meaning that they attain at least one-third less than the minimum recommended nutritional intake (House and Zimalirana, 1992).

Malawi's malnutrition and infant mortality rates are among the highest in the world. According to The State of the World's Children (UNICEF, 1998), 20% of babies born have low birth weights. Infant mortality (under one year) stands at 137 deaths per thousand children, with under-five mortality at 217 deaths per thousand. Although these figures are an improvement over the previously cited figures for 1980/81, they continue to reflect a grave situation. Overall in Malawi, the primary reason for child mortality is malnutrition. Thirty per cent of children under five are underweight, 9% severe and 7% suffering from wasting (UNICEF, 1998). Of 38 developing nations surveyed, Malawi is one of 9 which has a rising rate of child malnutrition (UNICEF, 1996). This chronic situation, described in further detail in Chapter Two, is a ever present reality for rural Malawians. The situation is not acute, and therefore Malawi is not in a constant state of nutritional emergency. However, lives and potential are lost due to this persistent chronic situation. Good nutrition is a basic need and a human right because every child is entitled to "survival and development" (UNICEF, *Convention on the Rights of the Child*, 1989).

BASIC NEEDS

In many African countries, development assistance is given through projects that focus on meeting "basic human needs." This emphasis on human welfare has evolved from failed experiments by the World Bank and other donor agencies, which emphasised poverty reduction through economic growth or a "trickle-down" rationale. In Malawi and other countries, not only did the trickle-down economic theory fail, but it obscured the reality of the poor. Thus, "a new paradigm of development emerged which focused on improvements in human welfare as the primary objective of development[:] . . . growth through poverty reduction . . . " (Quinn,

1994: 264). This paradigm makes basic human needs a priority before other types of development efforts. The Canadian Statement on Foreign Policy defines human needs as "primary health care, basic education, family planning, nutrition, water and sanitation, and shelter" (Canada, 1997). Addressing basic human needs is one approach to development assistance, and provides the context for Tulimbe Nutrition Project.

In emergency situations, such as famine or disaster, people must have their basic nutritional needs met in direct ways, such as the distribution of food aid. These are rehabilitative, "band-aid" solutions which are not usually sustainable, but temporary. In emergency situations, aid is distributed through top-down approaches, and "beneficiaries" are not involved in the process of decision-making. At the same time, the recipients of emergency food aid may not be in a stable position to make decisions or choices about their immediate circumstances. This would be true in the case of migratory refugees or victims of natural disasters. Unfortunately, this kind of band-aid relief is sometimes given out in normal rather than emergency circumstances, and causes people to become dependent, have fewer expectations of themselves, and their own capabilities and knowledge.

Wisner (1989) classifies the Basic Needs Approach (BNA) into two categories: weak and strong. A weak BNA focuses on doing or providing things for people to help them meet their basic needs, whereas a strong or radical BNA supports people in their initiatives and efforts to meet their own needs. In the case of Malawi, most people do not require direct food aid, but rather need assistance to cope with the changing environment which affects food systems. When farming and food systems break down, the interventions needed to produce food are not "basic," in the sense of "simple" or "lower order," but are more sophisticated and technological. For example, when soils become exhausted, natural or artificial fertilisers must be used. When local varieties of crops do not produce enough food for people's needs, high yielding varieties must be planted. When the effects of malnutrition are severe, medical intervention must be sought. These solutions puts basic needs into complex social and political contexts (discussed in Chapters Two and Seven), and moreover, require programs to address gaps in resources and capacity. I emphasise the word "gaps," because people have local resources and capacity, but often underestimate them when external factors deprecate or

threaten them (discussed in Chapter Five). Local capacity and indigenous knowledge should to be uncovered as the first steps in a radical Basic Needs Approach. From my perspective, as a practitioner of non-formal education, meeting people's basic needs in other than emergency conditions, means recognising their knowledge, supporting their efforts, and building on existing strengths with further training and technical support. This was the philosophy of Tulimbe Nutrition Project.

THE CONTROVERSY OVER THE ROOTS OF MALNUTRITION

There are various opinions about the major determinants of malnutrition described in greater depth in Chapter Two and Chapter Six. Chapter Two describes the overwhelming socio-economic factors which affect food security and nutrition in Malawi, and Chapter Six describes the household factors which determine how children are cared for and fed. In the larger socio-economic picture, solutions involve agricultural and trade policies, basic infrastructures, health reforms, and poverty alleviation programs, which not only have the support of national governments, but also of the international community. Indeed these larger socio-economic issues have to be considered and acted on. People on all fronts must continue to lobby for justice and well-being for children. This is a continuous and long-term struggle. However, in the short term, these plans to mitigate harsh and debilitating situations do very little for the everyday life of rural Malawian children. In the immediate, there are issues and actions which can be explored in communities and households to lessen the effects of the larger forces which are impinging on people's ability to meet the basic needs of their children.

According to Weaver (1984), malnutrition in Malawi is largely a result of family food practices. She argues that the food available for family consumption is insufficient; preservation and storage techniques are underdeveloped; and knowledge of sound nutritional practices is lacking. Her argument supports other studies which have examined child feeding practices in Malawi. For example, in Malawi, as in most other African countries, weaning foods for very young children lack the required nutrients for this crucial stage in child development. West et al. (1986) believe that breast-feeding and weaning patterns influence subsequent risk of

xerophthalmia, particularly during the early post-weaning years. Thus, children who are fed on maize porridge too early may reduce their dependence on breast milk. Malawian scholars Msuka and Chimwaza document that the type of diet given to children does not provide the necessary nutrients which can support child growth (Malawi, 1986). More specifically, low meal frequency and the bulkiness of food detract from the energy intake of children, causing many to be malnourished (Malawi, 1992b). As well, Quinn et al. (1990) note that there is no special feeding routine for toddlers.

Before I left to work in Malawi, I was initially sceptical of the authors who blamed child malnutrition on family feeding practices. I thought that such practices, having roots in indigenous knowledge, would surely be sound and good for children. I now agree with Weaver's point of view only to the extent that I believe that some families do not always know the optimal ways to care for and feed their children, and that there is room for intervention at the household level. However, what is missing in Weaver's argument about deficient family food practices is an analysis of the social history of the Malawian diet, and more importantly an analysis of the process of intervention and dietary change which is the purpose of this dissertation.

Over time, changes in the diet have been affected by various socio-cultural and economic factors. When in Malawi, I learned that many indigenous practices and indeed indigenous foods, are thought to be too traditional to have much value in today's world of manufactured food and drink. Influences from the outside exert great pressure on families, and contradicting messages leave many in confusion about how to feed their children. As the number of home-grown and home-processed foods become fewer in number, the diet becomes more monotonous and non-nutritious. According to Kuhnlein and Receveur, some of the factors affecting the traditional diet are fewer numbers of plant and animal species available; less land for planting; less time and energy for farming because of other employment; and a decrease in the transfer of cultural knowledge to youth (1996: 433).

Another reason for Malawi's acute malnutrition problem has been the government's priority over the past thirty years on growing maize to the virtual exclusion of other crops. Smallholder land allocated to maize increased from 58% in 1980/81 to 70% in 1990/91

(Malawi, 1993). During this century, the diet has essentially changed for the worse, and become limited and monotonous. In general, the rural Malawian diet is based mainly on cereals and plants, rather than meat, beans and dairy products, and thus, it contains high levels of dietary fibre and phytate which inhibit absorption of iron and vitamin A. Micronutrient-rich plant sources are available only seasonally, so there are few food options in the dry season, except for foods grown in irrigated gardens or river beds. Even though the rural diet is dependent on indigenous dark green leafy vegetables, pumpkins and mangoes--all high in vitamin A--there is such a low fat content in the diet that absorption is inhibited. Fat- and protein-rich foods which would enhance absorption are not produced in most rural communities. Unlike countries in West Africa, there are no oil palms, and the technology to procure oil from trees and seeds is only beginning to be explored in Malawi. Since international prices have dropped, fewer groundnuts are grown, making them more expensive locally. Although some families in rural communities have goats or chickens, these valuable commodities are sold for cash and rarely consumed.

The emphasis on cash crop production has a significant impact on the national economy; however, there has been no proof that children in households which engage in cash crop farming suffer from malnutrition more than others who only grow food crops. From studies with families who participate in cash crop farming, no positive or negative effects have been observed on child health, nutritional status or child feeding practices (Sahn et al., 1994; Kurth, 1989: 253). Some nutritionists claim that for child nutrition status to change there must not only be a rise in income, but an improvement in sanitation, and a reduction in the incidence of disease (Kennedy et al., 1992).

Although poverty is probably the most significant factor in a poor adult diet, poverty combined with a lack of knowledge about the implications of poor feeding are both significant factors affecting a child's diet. Authors like Kennedy (1992) and Weaver (1984) are of the opinion that presently the most significant determinant in child health and nutrition is the parents' recognition of nutritional problems, ability to practice optimal feeding methods, and disposition to adequate nurturing of the child. Economic and environmental factors notwithstanding, nutritionists believe that the family has the potential to exert immediate

control over child malnutrition. This view is compatible with the radical Basic Needs Approach to development which recognises people's knowledge and capacity, and supports them in their initiatives. The contribution of this dissertation to the existing literature is to describe and evaluate from several perspectives, the contribution of parental knowledge and practices to child health before and after a nutrition education intervention.

VARIED PERSPECTIVES ON NUTRITION EDUCATION

Most nutrition interventions implemented in Malawi, such as the distribution of supplementary food or vitamin capsules, require people to receive assistance from agencies or health personnel. Most rural people are not aware of all the things they can do themselves to prevent child micronutrient malnutrition. Nutrition education, a component of most types of interventions (Zeitlin and Formacion, 1981), should help people in their households or kitchens take steps to prevent or treat some of the problems which result from nutritional deficiency. Nutrition education can be defined as a "group of communication activities aimed at achieving a voluntary change in nutrition-related behaviour to improve the nutrition status of the population" (Andrien, 1990). Thus, the goal of nutrition education is to help people be somewhat self-reliant, at least in their food-related and dietary decisions.

The history of nutrition education is relatively short (Gillespie and Brun, 1992), its burgeoning theory and practice originating from the West, especially from the USA where it evolved from public health education on dietary guidelines (Welsh, 1994). As nutrition communication methods have been applied in the developing world, they have been criticised as ineffective and expensive. A common criticism is that "the assumptions behind nutrition education are too academic and often quite alien to the actual needs as experienced by the target population" (Bantje, 1977). Also, not all policy-makers agree that nutrition education is cost-effective, while some believe that it is a waste of money, arguing instead for income or food supplements to immediately address the problem of food access (Zeitlin, 1988). By distributing supplements, some believe that families will automatically and equitably diversify and increase the nutrient potential of each member's diet without need for education (Harrison, 1996). Some

argue that supplementation and fortification are more cost-efficient in the long run, reducing the need to maintain cadres of public health personnel for country-wide nutrition education programming which is too difficult to operationalize (Pant et al., 1996). However, whether supplemental assistance is given in the forms of cash, food or capsules, these do not replace the need for changes in child feeding practices, such as exclusive breast feeding and preparing nutrient-dense foods for very young and sick children. Although supplementation is more efficient in the short term, there are long-term benefits for families who know how to use their food resources for optimal nutrient intake. After all, families receive emotional satisfaction from eating nutritious, well-prepared and tasty meals. This is why one state in the U.S. started a nutrition education campaign which encourages families to sit down to one meal a day, recognising that good dietary habits are stimulated by eating home-cooked meals with loved ones.

One reason why nutrition education has not been effective in affecting change in people's dietary practices has been a lack of "distinction between information provision on the one hand and behaviour change on the other" (Gussow, 1988: 17). Smith and Smitasiri believe that "ineffective nutrition education programmes are more likely to be the result of ineffective implementation processes, rather than a lack of technical knowledge about what works in nutrition education" (1997: 38). As evidence became available to prove that there was no correlation between knowledge transfer and behavioural change (Gillespie and Brun, 1992: 223), a new "social marketing" approach to nutrition education was tried, putting an emphasis on the "marketing mix"--product, price, place and promotion--to change behaviour. Social marketing has also been used as a health promotion tool (Hastings and Haywood, 1991) in developing countries to address problems of over-population and sexually transmitted diseases. Nutrition education from a social marketing perspective may be included in the domain of non-health disciplines and sectors, such as formal and non-formal education, community development, agriculture, social work, psychology, communications and diffusion of innovations (Zeitlin and Formacion, 1981). With an emphasis on communication, rather than nutritional science, nutrition social marketing is successful on a wide scale in Southern Asia and

in countries within the Pacific Rim (Smitasiri et al., 1993; Andersen and Valyasevi, 1988; Manoff, 1984).

Within the African context, although there are various theories about how to do nutrition education with groups using local knowledge and paradigms (Pratt and Pratt, 1987; Weaver, 1984), there seem to be more opinions about the ineffectiveness of nutrition education in Africa than in any other developing area (Hornik, 1985; Msuya, 1996). In general, nutrition education in Africa has been characterised by an "individualistic and conservative approach" (Schuftan, 1980). There are no cross-cultural studies comparing how social marketing strategies work through the mass media in Asian and African countries, because there are fewer such comprehensive projects in Africa, the Iringa project in Tanzania being a qualified exception (INFP, 1989). Generally, in Africa, rural people have less exposure to the mass media because of their isolation, not only in terms of physical distance from centres, but also a social distance caused by poverty, illiteracy, alienation from a democratic process or at least a process in which most people can engage for mutual benefit.

Within this context, Reseau pour l'Education Nutritionelle en Afrique (RENA) is critical of a rigid approach to social marketing in which interventions and messages are decided "par une minorité d'acteurs sociaux, parfois étrangers au pays, pour convaincre une majorité de modifier, a court terms, certaines pratiques liées à la nutrition" (Andrien and Beghin, 1993: 26). RENA advocates for the "management of social communication for nutrition education," based on Freirian approaches (Freire, 1970; Drummond, 1975) in which social actors show their will to combat a common problem by confronting, analysing and acting on their nutritional issues. Andrien and Beghin make a simple distinction between "social marketing" as a "top-down approach," and "social communication" as a "bottom-up approach." Many social marketing specialists would disagree with RENA's separation of social marketing from approaches based on Freirian theory, arguing that the latter can equally be construed as preconceived and manipulative (McKee, 1994: 216). In fact, contrary to Andrien and Beghin, Brown et al. define social marketing as a "bottom-up approach to developing behavioral change programs" because of the attention to formative research (1992: 22).

In a similar vein, Smitasiri et al. believe that social marketing has evolved into "a strategic social change management approach" (1992: 203) which necessitates the "participatory development" of a strategy to combat malnutrition. Smitasiri's approach is in line with definitions of "community-based" nutrition education, stressing that "participants . . . be full partners, if not the leaders, in the design, implementation and evaluation of the nutritional effort" (Usinger-Lesquereux, 1994). Another term for this approach, seen as the "new terrain in nutrition social marketing" is "social mobilisation," the context for which is the grassroots or community level (Parlato et al., 1992). Both Smitasiri et al. (1992) and Andrien and Beghin (1993) write about the importance of formative research and of "comprehensive" support and resources for community-based programming. Smitasiri (1994) calls this community-based approach the "new paradigm" for nutrition communication, based on the principle that people are key actors in their own development. This new paradigm has evolved from "the most effective combinations of theory" for nutrition educators (Achterberg and Clark, 1992), and embraces the differences between adherents of various approaches to nutrition education. Cheryl Achterberg, in her summary of an international conference on "Effective Nutrition Communication for Behaviour Change," says that in programs which took social marketing principles as their guide (price, product, promotion, place),

> another "p" for "process" emerged as a critical factor: Although not . . . explicit . . . it was evident that . . . process should be added to the model, because the process used to identify and develop each of the other "p's" determined the success of the entire effort (1991: 1).

Therefore, it is not the type of intervention which is most important, but instead how the intervention is carried out. The success of Tulimbe Nutrition Project was in its ability to address basic needs with in ways that would also meet people's higher needs for enhanced self-knowledge and self-respect. This work is a project evaluation which analyses the process of Tulimbe's community-based approach to nutrition education and dietary change.

CONTENTS OF THE DISSERTATION

This qualitative, summative evaluation of Tulimbe Nutrition Project draws on various types of literature relating to non-formal education and social change. The review of literature was accomplished in two phases. During the proposal writing stage, I based my arguments on established theory, especially in Gender and Development and community development theories as they related to nutrition education. In addition, the tenor of the proposal was heavily influenced by readings in both Participatory Action Research (PAR) and feminist research methodologies. When I returned from the field, I wanted to compare the Tulimbe experience with other case studies relating to community development and nutrition education programmes in Africa. After examining these cases, I discovered gaps in my theoretical understanding in areas such as political history, development theory, nutrition improvement programmes, behavioural change, and care and nutrition. I also lacked knowledge about Malawi's historical and political background. After living in a relatively remote area for three years, my view on the situation was limited to the communities in which I worked. Reading more about Malawi allowed to me fully appreciate the constraints which people had to overcome in order to meet their basic needs. The following descriptions of the contents of the dissertation recount how both literature and research results are integrated within each chapter.

The second chapter, "Background and Situation Analysis," is a description of the problem of child malnutrition in Malawi. A framework for understanding the underlying causes of malnutrition is presented, and this provides the basis for examining both the historical and current situations affecting nutrition policy in Malawi. A typology of nutrition interventions is also presented, and intervention projects currently implemented in Malawi are described. The information for this section is largely from literature, except for my own observations about the current situation in Malawi.

The third chapter is a description of the project design, and includes an overview of the methodology and research techniques. References cited are from resources on evaluation and research methods which have an emancipatory, or at least people-centred, emphasis. The multi-dimensional evaluation, which formed the basis for the design of the whole project, is described

at the beginning. The chapter is organised according the chronological phases of the project: target group identification, formative research, intervention, and summative evaluation. Outside of the chronology, there is a description of organisational structures and processes which continued throughout the project's life: training, collaborative work, leadership development, and workshops.

The purpose of Chapter Four, "Description of Project Communities," is to provide the general setting within which the nutrition project took place. Most of the information for this chapter comes from the key informant interviews and focus groups held during the formative research stage, although some comments are based on my own observations. This chapter does not rely heavily on literature, although some aspects of the society are explained by reference to scholarly works. The chapter is divided into sections about the people and their political life, living conditions, economic activities, and health situation.

There are three chapters which analyse information collected from both formative and summative evaluations. Chapter Five, "Evaluating Community Involvement," draws on adult education theory within the context of community development. Three approaches to community participation are discussed according to how they are relevant to the project. After the theoretical discussion, two sections describe the project's approaches to adult education and community involvement. The final section focuses on the communities' response to their involvement. Most of the views from project participants expressed in this chapter were gathered during the summative evaluative.

Chapter Six, "Evaluating Changing Gender Relations," is grounded in Women in Development (WID) literature and studies on intra-household resource sharing in Africa. A new framework on "care and nutrition," introduced in the 1990s by UNICEF and elaborated by the International Food Policy Research Institute (Engle et al. 1997), is used as the basis for a gender analysis of the care-giving resources of men and women. Information about gender relations, before and after the intervention, comes mainly from focus groups held during both the formative and summative research phases.

Chapter Seven, "Evaluating Dietary Change," draws on types of literature which explain the determinants of behavioural and dietary change, especially within the contexts of nutrition

improvement projects. Information on the diet comes from research accomplished at the formative stage, whereas data on the acceptance of the new dietary strategies comes from records taken at demonstrations and home visits. General impressions about behavioural change were gathered during the summative evaluation.

The Conclusion summarises both Tulimbe's achievements and limitations, which reflect the ideas of project participants, as well as my own. After discussing the limitations, I reflect on what I would have done differently, and make various recommendations. The final discussion revolves around the issues of sustainability, political support and mass mobilisation strategies.

II. BACKGROUND AND SITUATION ANALYSIS

This chapter provides a background to the problem of micronutrient malnutrition, but expands on the situation of Malawi. Malnutrition in Malawi has particular historical and political roots, which help to explain the status of current policies and programmes. I use a number of government documents, as well as revealing analyses from journal articles, to give an overview of food and nutrition issues in Malawi.

MALNUTRITION

The rate of malnutrition is one of the most significant indicators of a nation's level of poverty (House and Zimalirana, 1992). National and international agencies have been seeking to mitigate problems of malnutrition since the 1940s, during and after the Second World War. At that time programmes were implemented for women and children, such as institutional feeding and the distribution of concentrated vitamin sources. In the 1950s, organisations, such as the Food and Agriculture Organisation of the United Nations (FAO) and the World Health Organisation (WHO) paid close attention to the situations of newly decolonised countries, and monitored their national nutrition status as an indicator of their economic development (Geissler, 1995). As these large multilateral agencies set up infrastructures and means for intervening in developing countries, various trends have emerged over the decades for addressing the situation of malnutrition.

PROTEIN ENERGY MALNUTRITION

The issue for the 1960s was Protein Energy Malnutrition (PEM) which was addressed in part by the focus on the "green revolution." PEM is a catch-all term which covers the whole range of types of malnutrition, excepting symptoms linking to specific nutrients. PEM results from a lack of enough food, and its consequences are evident in clinical symptoms. Children with signs of oedema (swelling) are diagnosed as kwashiorkor, whereas symptoms of wasting are

classified as marasmus. However, severely undernourished children may be classified as marasmic kwashiorkor. These children may be 60 per cent of expected or normal weight for age, and very wasted or very small (Waterlow, 1992). The images of children with PEM, such as those televised from Ethiopia in the 1980s, are the most typical characterisations of malnutrition.

Through the 1970s and '80s, the problem of malnutrition, like any other in developing countries, was perceived as an economic problem. Thus, nutrition was linked to trickle-down economic theories in the 1970s and structural adjustment programmes in the 1980s. It was not until the 1990s that the problem of malnutrition was addressed with nutritional solutions, as opposed to economic ones.

MICRONUTRIENT MALNUTRITION

The new trend in addressing micronutrient malnutrition came out of two landmark meetings: the World Summit on Children in 1990 and the International Conference on Nutrition (ICN) in 1992 (FAO/WHO, 1992a). One of the themes of the ICN was "preventing specific micronutrient deficiencies" (FAO/WHO, 1992b), especially deficiencies in vitamin A, iron and iodine, because they are the nutrients most often found to be lacking in the diet and to have significant impact on child health. Vitamin A is linked to child growth and resistance of infection, as well as healthy eyes and good sight. Iron is essential for red blood cells, and iodine for the development and function of the brain and nervous system, regulation of energy and body temperature, and growth (King and Burgess, 1992).

Micronutrient malnutrition is often called "hidden hunger" because its symptoms are not as evident as those of PEM, i.e. the symptoms of kwashiorkor or marasmus are not evident. However, vitamin A deficiency (VAD), iron deficiency anaemia (IDA) and iodine deficiency disorders (IDD) have far-reaching consequences on the growth, development and health of infants and children. VAD is the most common global cause of preventable blindness in children, its warning signs being night blindness, Bitot's spots on the conjunctiva, and xerophthalmia or nutritional blindness. Lack of vitamin A also leads to increased morbidity and risk of mortality. IDA is the most widespread nutrition disorder in the world. Many

women, especially in developing countries, are anaemic when they give birth, having babies who are at increased risk of sickness and death. Severe IDD manifests itself in goitres which appear as a swelling or lump in the thyroid gland. Without a visible swelling in the thyroid, children may still suffer from hypothyroidism, which affects growth and intelligence. Cretinism, also caused by IDD, has symptoms which range from slow growth, deafness and mutism, and mental disability (King and Burgess, 1992). Micronutrient malnutrition is more widespread than PEM, and since its effects are not as readily evident, its "hidden" aspects are all the more dangerous.

Therefore, even though people may have enough food to eat, they may not be eating nutritious foods, nor optimal combinations, portion sizes or frequencies to be healthy. "It is the poor and socially deprived who are most affected by micronutrient deficiencies . . . . Poor people obtain most of their nutrients from food plants, which are cheaper and more accessible than animal foods" (FAO, 1993: 9). Plant foods, such as dark green leafy vegetables, must be accompanied with foods which enhance absorption, such as oil or protein foods. Attention to the diet, especially by parents in countries where procuring a daily food supply is a challenge, is essential for a child's micronutrient status. Although micronutrient deficiencies, especially vitamin A and iron, have dietary origins, "a host of cultural socio-economic and environmental factors emerge that offer both constraints and opportunities for dietary improvement" (Smitasiri et al. 1992). Some of the causes of micronutrient malnutrition reveal significant constraints to nutritional improvement.

CAUSES OF MICRONUTRIENT MALNUTRITION

Micronutrient malnutrition is prevalent in developing countries and has serious health, social and economic consequences (Micronutrient Initiative, 1997). In parts of Africa (Fawzi et al., 1997; Perry et al., 1996) and other developing areas in Asia, such as India (Vijayaraghavan, 1995), the causes of malnutrition in general, and specifically micronutrient malnutrition, have persisted over the past several development decades (Schuftan, 1980). In sub-Saharan Africa, one reason for the rate of malnutrition may be that there has been substantial negative economic growth per capita since 1980. As a result, some countries owe external lenders more than they

produce, and are heavily dependent on foreign aid to finance their public expenditures. Structural adjustment programmes (SAPs) have been put into place by the International Monetary Fund and the World Bank. Public services, which were provided free of charge to assure equitable access to the poor, are now limited by "user fees," making them prohibitive. Hospitals, rural health services and schools have experienced significant reductions in their budgets, resulting in poor or non-existent services to rural people.

Health Services

Despite great medical advances in other parts of the world, in East Africa, pneumonia is the leading cause of child death. Generally in tropical Africa, rates of malaria are on the increase, as is the AIDS pandemic (Brockerhoff and Derose, 1996). Diseases, parasites and infections, common in rural areas where basic housing, water and sanitation conditions are lacking, take their toll on nutritional status, demanding more from the body's nutrient stores, while at the same time causing deficiencies. Most rural African communities lack basic amenities, such as electricity, piped water and toilet facilities. Abject poverty means that children often grow up in over-crowded housing conditions and at risk for disease. Many children begin their lives with low birth weights or health problems because of their mothers' dietary habits and poor antenatal care (Perry et al., 1996). Although immunisation programmes begun in the 1980s have been successful in achieving optimal coverage, the absence of broader health services, economic improvement and agricultural productivity may have "simply shifted causes of death, with minimal change in the overall level, to competing threats such as acute respiratory infections, diarrhoeal diseases, malaria and malnutrition" (Brockerhoff and Derose, 1996).

Food Availability

Agricultural programmes and subsidies are also affected by SAPs (Due, 1992; Gladwin, 1992), resulting in cuts to many programmes for the poor. Also, unpredictable weather cycles and droughts increase the risks of inadequate crop yields. As a result, people are usually not self-sufficient nor "food secure" throughout the year. One definition of "food security" is "access by

all people at all times to enough food for an active, healthy life" (Ali and Pitkin, 1991). Another definition further clarifies the expectations of a strong basic needs approach: "sustainable access through socially acceptable means to adequate food in quantity and quality" (Harrison, 1996). For the majority, especially the rural poor, food shortages, either seasonal or throughout the year., are an ever-present reality. Without steady income and food supply, people must cope with hunger, sickness and often death.

There is a difference between national and household food security. Although a country may have surplus food stores or even export food, individual households may not be able to purchase or access food. For rural people, a lack of off-farm employment means that people do not have the income to purchase staples when they run out of their own stored grains, nor can they purchase processed items, such as oil, sugar and salt. Households of low socio-economic status have limited access to high-priced micronutrient-rich foods, such as meat and fish, which are absorbed efficiently into the blood.

However, neither food nor income security necessarily determines optimal nutrition status for the household. Without knowing how to use food to its greatest advantage for maximum bioavailability, marginally food secure households may not be using their resources to their best potential. Often parents lack knowledge about the importance of providing children with micronutrient-rich food sources. In most areas of the developing world where vitamin A deficiency occurs, food sources of vitamin A, such as dark green leafy vegetables, are widely available but under-utilised (Fawzi et al., 1997: 231). Food security entails more than just quantity of food, but also factors of quality and diversity (Wasantwisut et al., 1995).

Illiteracy, not having enough information, or not practising optimal behaviours for good nutrition, affects how food is utilised, and plays a large part in child malnutrition (Weaver, 1984). In Africa, rural women still lack basic literacy and numeracy skills, as well as vocational opportunities. Thus, as the economic and agricultural situations worsen over the years, women have more difficulty maintaining a healthy diet with fewer resources. Moreover, women are not making the best use of their existing food resources because they are not convinced nor "motivated" (Staudt, 1987) that anything they do will improve their situations.

FOOD SECURITY AND NUTRITION IN MALAWI

Malawi is unique because the country is densely populated--four times more than the average country in Africa (Hirschmann & Vaughan, 1984). On arable land, densities will range from 96 to 641 persons per square kilometre in the year 2,000 (House & Zimalirana, 1992). Presently, 85 per cent of Malawi's ten million people live in rural areas. As the population grows, the landholdings of subsistence smallholders are divided and become smaller, the average size being less than one hectare, or less than one acre in some highly populated areas in the Southern Region (Trivedy, 1989). Thus, it has become a convention in Malawi to define poverty by landholding size (Sahn et al. 1994).

Malawi is a small, landlocked country, similar in size to Liberia, Guatemala or former Czechoslovakia (Pryor, 1990). Although it has some climatic and geographical advantages, it has a shortage of agricultural land relative to its population, and a lack of exploitable minerals. Only about thirty per cent of the land is used for agriculture, and the lake which takes up about one-fifth of the country's area, is not used for any large-scale irrigation projects. Because of Malawi's landlocked status, transportation links with the outside world are available only at high cost, and this disadvantage has always had a negative effect on Malawi's economic development.

Malawi's contact with the West began after 1859, when David Livingstone first visited Lake Malawi. As a British colony, the Nyasaland Protectorate did not flourish, and attempts to introduce full-scale agricultural production based on European models failed. Pryor argues that colonialism had little to do with Malawi's inability to thrive:

> I do not agree with some observers that British policies caused poverty in Malawi, because the level of development was very low before the British came; but they did little to alleviate the problem (1990: 31).

Malawi was considered an "imperial slum," and when it became independent in 1964, there was little optimism in the international community that the country would rise above its low level of productivity.

Some economists hold little hope for Malawi because "entry constraints to neighbouring markets, small domestic market size, narrow mineral base, declining soil fertility, and high transport costs seriously limit the opportunities for growth" (Meyers, 1990: 218). On the other hand, Malawi has some infrastructural advantages, such as extensive hydroelectric supplies, communications services, and an established network of government offices with contacts even in the remotest areas for economic monitoring (Babu and Mthindi, 1994: 283). Therefore, Meyers believes that gains can be made through the development of assembly activities, light industry, and shifts in rural farming approaches.

POLITICS OF FOOD AND NUTRITION

Although the situation for Malawi's poor has become worse during recent years, the country's path to development from its independence in 1964 to the mid-1980s, was considered to be Africa's success story. However, according to Victoria Quinn's history of the politics of food and nutrition in Malawi (1994), the international community was fed propaganda rooted in a flawed analysis of Malawi's domestic food self-sufficiency. Malawi's agricultural policies had ensured a situation of national food security. This, however, had no reflection on household food security. Government storage facilities were full, but the poor could not afford to purchase the grain. Even so, the international community was led to believe that Malawi was one of the few countries in Africa which, on a national average, produced sufficient food to supply its population. This was tragically not the case, and by ignoring the reality of hunger and malnutrition, Malawi undermined its potential for both human and economic development.

Concealing the Problem

The regime of the Malawi Congress Party's Life President Dr. Hastings Banda was based on a platform that extolled his contributions to the people of Malawi since their independence. Through government-controlled mass media, people were led to believe that their quality of life had greatly improved. Thus, "officially hunger, malnutrition and poverty did not exist and discussion on these topics was stifled and printed materials heavily censored" (Quinn, 1994:

257). Suggestions which contradicted the propagandist claims were seen as attacks against Dr. Banda, who was notorious for imprisoning or assassinating his detractors.

Until the 1980s, there was little attention paid to the issue of malnutrition, and there was no capacity in Malawi to address the issue on a wide scale. However, multi-lateral organisations such as UNICEF, WHO and FAO were in the country to carry out their mandates which paid special attention to health and agricultural issues. Only when UNICEF was commissioned by its regional African office to set up nutrition surveillance systems did its attention to the country's situation become a matter of concern. A National Sample Survey of Agriculture (NSSA) including a child nutrition module, was carried out in 1980/81, and analysed by 1983, showing a 56% rate of stunting and an under-five child mortality rate (U5MR) of 320 deaths per 1,000 (UNICEF, 1987). Hirschmann comments on this juxtaposition between child malnutrition and the government's stance: "That a country whose model and rate of growth have received such praise among donors had the fourth-highest U5MR in the world corroborates the evidence of an extremely distorted distribution of the benefits of that growth" (1990: 474). However, because of the lack of capacity to understand the significance of these statistics, government officials paid little attention to the survey. More action was required before the government would intervene.

Louis A.H. Msukwa, who was in the 1980s the Director for the Centre for Social Research (CSR) at the University of Malawi, became the first national advocate for food security and nutrition. As early as 1984, he was giving papers on nutrition at conferences, and making provocative statements based on NSSA data, such as " . . . one conclusion emerges and that is malnutrition in Malawi is a problem" (1995: 515), and "it is clear that the government looked at the development of agriculture not just as an end in itself but as a means to some other end--economic development through increased exports" (1995: 516). Msukwa's interest in Malawi's nutrition situation and his relative independence as the director of a research centre, allowed him to collaborate with others who desired to expose Malawi's true situation and bring about change. With assistance from UNICEF and Cornell University's Nutritional Surveillance Program led by Pelletier (Pelletier and Msukwa, 1991), a series of country wall maps was produced which displayed Malawi's nutrition data, as well as other demographic features. The maps graphically showed the reality of Malawi's malnutrition statistics. Fearing counteraction

from those representing the president, the Vice Chancellor of the university ordered the maps banned.

However, UNICEF continued to distribute the maps to the international donor community, represented in Malawi as well as outside. Those in government agencies who previously ignored the dense and incomprehensible statistics of the NSSA had mixed reactions to the reality depicted on the maps. The Ministry of Agriculture saw that its emphasis on national food security was folly in the face of mass hunger. The Ministry of Health, which had to cope with the fall-out of malnutrition in hospitals and health centres, was relieved that the situation had been exposed so it could justify the need for enhanced primary health care programming. Although it is possible that Dr. Banda never saw the maps, the government had to bend to the new pressures exerted by UNICEF and WHO.

Revealing the Problem

In 1986, the Secretary to the President and Cabinet held a high level Symposium on Nutrition in Development for principal secretaries (Malawi, 1986). At this conference, the issue of nutrition was presented within the context of health and education in order to avoid the sensitive issue of food security. However, a major recommendation from the symposium was that Malawi needed to strengthen its policy and planning capacity to deal with nutrition issues across all sectors. To co-ordinate these efforts, the Food Security and Nutrition Unit (FSNU) was set up in the Department of Economic Planning and Development under the Office of the President and Cabinet. Only in 1990 was the Food Security and Nutrition Policy adopted by the government as a guideline to address the country's nutrition status. Its four objectives are to increase agricultural productivity, employment opportunities, human resource development and income transfers. However, because of the food crises in the 1990s as a result of drought, few attempts have been made to consistently meet these objectives.

However, one positive change occurred after the founding of the FSNU--there was regular and honest reporting of Malawi's food and nutrition situation. Since 1989, the FSNU has published the *Food Security and Nutrition Bulletin*, which describes both national and household food security situations, as well as national nutrition programmes. Although the

FSNU has been credited with several initiatives, most of their impetus originated with the line ministries which have nutrition mandates, and with multi-lateral organisations, especially WHO, FAO, and UNICEF. Its critics believe that the FSNU should have been placed within either the ministry of Agriculture or Health, where there is some nutrition capacity. The failure of the FSNU to provide leadership, especially in the absence of a nutritionist, has discouraged those with less decision-making power who have to account for high rates of malnutrition. Since its inception, the FSNU has been preoccupied with national food security issues, such as drought, famine and refugee influx. In its report in July 1996, the FSNU issues a strong statement for help:

> The FNSU does not have the carrier [sic] structure for nutritionists and thus there is no avenue for further human resource investment in terms of positions, status, and advancement. This has resulted in having a bottleneck in nutrition issues coordination (Malawi, 1996c).

Apart from being a figure-head for nutrition co-ordination, the FSNU will be largely ineffectual without appropriate expertise and leadership.

The problem of a lack of human capacity to provide leadership for nutrition issues is also present in the line ministries: Health, Agriculture, Community Services and Education. From 1994-1997, in each of these ministries, excepting Education, there was one nutritionist with a Masters degree. However, in the Ministry of Agriculture, the principal nutritionist was seconded to FAO to co-ordinate a national soybean campaign, and did not return to her post. Also during that time, three women were sent by a World Bank programme to study for their Masters degree in Nutrition. Of these three, one has been promoted to an administrative position, in which she has been given non-nutrition responsibilities. The same type of decision had been made during an earlier period for at least three other Masters nutritionists working for the Ministry of Agriculture. With current cuts in funding, several of these government nutritionists have taken jobs in the private sector where they have better pay and facilities.

Efforts to recruit more nutritionists are constrained. Yearly university enrolment is limited, and opportunities for undergraduate studies outside the country are rare. Therefore, few students gain access to post-secondary education. Two university sites, Chancellor College and Bunda College of Agriculture, offer undergraduate programmes in nutrition in their Home

Economics departments. Bunda College has a defined Human Nutrition stream, and a strong faculty. Dr. B.M. Mtimuni, the only Ph.D. nutritionist in the country, teaches there and advises on most nutrition initiatives taken in Malawi. Dr. M. Ngwira, currently chairing the department, is the only Ph.D. food scientist. There are several newly trained Ph.D. level faculty in Home Economics, and also several new Masters level lecturers, educated as part of an institutional strengthening programme sponsored by the University of Oregon. Chancellor College has a much weaker staff complement, with only one Masters level nutritionist. Students graduating from Chancellor's programme are expected to teach Home Economics, whereas those from Bunda's programme are recruited by government ministries or non-governmental organisations. Once a student has graduated with a Bachelors degree, few have the privilege of moving on to the graduate level without first being employed by the government or university.

Even given this environment of small capacity, multi-lateral organisations, especially UNICEF, have funded several efforts to advocate for Malawi's role in combating malnutrition. Currently in Malawi, there is a positive policy environment for implementing nutrition interventions. Government commitment is demonstrated through incorporating nutrition objectives in a number of development programmes, including health, agriculture and poverty alleviation. Both sponsored by UNICEF, the comprehensive 1993 publication, *Situation Analysis of Poverty in Malawi* (Malawi, 1993), follows in the path of the 1987 publication *Situation Analysis of Women and Children* (Malawi, 1987) in exposing the reality of food insecurity and malnutrition. In 1994, a workshop on collaborative programming for poverty alleviation included nutrition concerns in its discussions of health and agriculture sectors (Malawi, 1994a).

Malawi has been involved in both of the international conferences which brought global attention to the problem of child malnutrition: the World Summit for Children held in New York in 1990, and the International Conference on Nutrition (ICN) held in Rome in 1992. In response to the Summit, Malawi signed the Convention on the Rights of Children in 1991 and formulated a National Programme of Action for the Survival, Protection and Development of Children in the 1990s (Malawi, n.d.). One section in this action programme is devoted to Food Security and Nutrition. Malawi also participated in the ICN by preparing and presenting a

country paper (Malawi, 1992a), and by reporting on its progress to develop a plan of action at the 22nd Commonwealth Regional Health Ministers' Conference in 1994 (Malawi, 1994b). Finally, in 1996, the National Plan of Action on Nutrition (Malawi, 1996b) was launched by the vice-president. The National Plan outlines how all sectors should address their respective and related nutrition problems. Firm policies and plans supported by government have been put into place, providing an impetus for interventions. What remains to be done are both large- and small-scale interventions to meet policy requirements.

SITUATION ANALYSIS

As discussed above, Malawi's food insecurity situation has historic, political and economic roots. Malawi is a single-sector economy and depends exclusively on agriculture for its own subsistence and for 94 per cent of its exports (Lele, 1990). Although Malawi's staple food is maize, its main export products are tobacco, tea and sugar. The estates upon which these crops are grown account for a fifth of the total cultivable land. Even though recent liberalisation means that all farmers may plant cash crops, smallholders still reserve most of their land to grow food, balancing their needs for production for consumption and production for income (Peters and Herrera, 1994: 326).

Food Security

At the turn of the century, maize replaced sorghum and millet as the staple food in Malawi. The availability of maize defines a food secure household, and "the ideal of producing enough maize to meet household food needs 'informs everyone's actions and rationales for their actions before, during and after the maize harvest'" (Smale, 1995). The common phrase *chimanga ndi moyo* which means "maize is life" illustrates just how important maize is in the Southern Region of Malawi, where no other grain or cereal can replace it as a staple food. Most maize is produced and consumed in rural villages. Although local or "flint" maize is preferred because of its taste, farmers also plant hybrid maize because they are usually guaranteed higher yields

on their small landholdings. However, because of the cost of inputs (seeds, fertiliser), only twenty per cent of available land is cultivated with hybrid maize (Malawi, 1993).

Because of a variety of factors, a high proportion of households are unable to produce sufficient food year round. An average family requires 90 kg of maize per month. In the Southern Region of Malawi in 1991, eighty-seven per cent of households had run out of maize three or four months before harvest (Ali & Pitkin, 1991). In 1996, if a rural family had run out of their own stored maize, someone would have to work for 60 days in order to purchase the amount required for only one month (Malawi, 1996c). Thus, smallholders seek incomes from many sources in order to achieve family food security. According to Peters and Herrera's study (1994), over 30 per cent of a family's total income is from marketed agricultural production (i.e. vegetables), 39 per cent from off-farm sources, including transfers from relatives, and another 30 per cent from home-grown maize. Some people work temporarily in other farmers' fields to earn some cash. This "by day" work called ganyu often prevents smallholders from working on their own farms, and thus, they sacrifice their own food production to earn instead ready cash for the family's survival (Babu and Mthindi, 1994: 280). Some who have items to sell, such as radios or bicycles, will sell them for cash, even though it means losing the prestige or convenience of owning them (Lindskog and Lundqvist, 1989). For poor families, selling their own maize is a desperate measure to fend off crisis, because most families require all their maize and more. When maize runs out and when income generating strategies do not produce enough cash, families share with relatives who have bigger reserves. If they live close by, they will combine resources, or if they live far away, children and the elderly may be sent to relatives for the duration of the season. In any case, the number of meals eaten in a day is reduced, sometimes to one main meal. As few resources as possible are used during this time, i.e. food, firewood, human energy. For example, the fast of Ramadan falls during the hungry season, but most eat when and what they can, conserving the energy that they anticipate losing during the daily fast. These coping mechanisms notwithstanding, household food shortage takes its toll on the most vulnerable groups in society, especially children.

Mitigating the situation of long-term food insecurity requires complex solutions. Becker (1990: 170) says that smallholders must be willing to adopt land-saving and yield-increasing technologies. However, although these solutions have been proposed, Sahn and

Arulpragasam (1991) list several factors which affect smallholders' decisions to adopt technological innovations. First of all, the poor have limited control over resources and assets. Although there have been several experiments in credit for agricultural production, these schemes failed and were not repeated. Thus, there are considerable limits to farmers' access to capital to purchase basic inputs. These limitations on the smallholder level are magnified at the market level at which exists a fragmented and unreliable system to support a country dependent on agriculture. The inadequacies of a rural infrastructure--markets, transportation, communication, water, storage facilities, credit sources--all contribute to the smallholders' inability to, first, achieve food security, and second, stimulate the market. Finally, investments in human capital have been limited in general, and particularly with regard to smallholders. Even with a will to improve productivity, a lack of consistent technical expertise thwarts the best intentions. More expertise is required to advise farmers on current technologies relating to maize; intercropping and food diversification; drought resistant and short-duration crops; cash crops and pesticides; storage and pest control; off-season gardening; and food utilisation. With all these constraints, Smale et al. (1994: 544) calls for an investigation of "farmer risk attitudes," taking all these factors into account when examining the adoption of high-yielding varieties.

Economists looking at the larger picture believe that with modern technology, Malawi will, despite constraints, be able to expand its cultivation area. Smale (1995) is convinced that with the current use of chemical fertilisers and hybrid maize seed, Malawi is on the way to a slow but promising green revolution. In a similar vein, Babu and Mthindi (1994: 281) believe that a new agricultural policy for food security should include rural credit schemes, small ruminant livestock production, and a comprehensive market information system. Ali and Pitkin's (1991)opinion varies since they believe that individual households should concentrate their efforts on income generating activities, rather than solely on food production, in order that there is a year round supply of cash for household food needs. All these theories are based on stimulating the market and empowering the smallholder.

However, for these theories to become reality, a radical re-orientation is required by policy-makers and the Ministry of Agriculture and Irrigation. Farmers themselves must make the biggest adjustments, for they are accustomed to two scenarios of assistance: receiving free

inputs or receiving nothing. These two extremes have encouraged farmers to depend on outside resources for their subsistence, or to blame others than themselves for food shortages. Mlia and Kaluwa in their article on rural growth centres in Malawi, say that:

> governments have a role and indeed a duty, to promote widespread economic growth while allowing a majority of those living in underprivileged predominantly rural regions to participate more effectively in productive activities and obtain greater benefits from the development process. (1989: 243)

Engaging farmers to participate in a free market economy in which they must view all their activities as for-profit businesses is one of the greatest challenges to economic development. Opportunities and constraints notwithstanding, Quinn et al. summarise the implications of not finding solutions quickly: "If families do not have adequate access to food, the possibilities for improving child feeding practices, and ultimately child nutrition, simply do not exist" (1990: 143).

Child Malnutrition

In Malawi, children suffer from both Protein Energy Malnutrition (PEM) and micronutrient malnutrition. PEM is determined by deviations from standards of height and weight for age. According to the Malawi Social Indicators Survey (Malawi, 1996a), "the rate of stunting of under-fives in Malawi now stands at 48.3%. The rate of wasting has worsened since 1992 and is now at 7%. The rate of underweight children is 29.9%." Peters and Herrera (1994: 323) have remarked that the early deficit in height found among young children, together with the short stature and normal weight-for-height of the mothers, suggests a pattern of intergenerational stunting. These visible signs of malnutrition are worse in rural areas; however, there is increasing evidence of wasting in urban areas.

"Hidden hunger" or micronutrient deficiencies have subclinical or non-visible symptoms. In Malawi, iron deficiency or anaemia is the most common and widespread. In 1986, 14% of all hospital admissions of children under five had anaemia, and in 1989, anaemia was the second largest cause of hospital admissions or children under five. In 1990, anaemia

accounted for 12.8% of all paediatric mortality in health facilities throughout the country (OMNI, 1996).

Many areas in Malawi also have high levels of subclinical vitamin A deficiency, and in some parts of the country, severe vitamin A deficiency exists. It is estimated that two million children in Malawi are suffering from severe vitamin A deficiency (Malawi, 1996a). A survey conducted at the southern point of Malawi (Lower Shire Valley) in 1993 revealed that 3.9% of 5,436 children had severe Vitamin A deficiency with varying degrees of damage to the eyes.

Iodine Deficiency Disorders (IDD) present a significant health problem in Malawi. Prevalence surveys show that there are pockets of severe IDD in some parts of the country. In a national survey conducted in 1984, it was found that between 1 to 2.5 million people are at risk of developing IDD. A survey of 18,077 people in six districts found that 66% had goitre and 1.1% were cretins (Malawi 1996a).

These statistics demonstrate that the benefits of addressing the problems of micronutrient malnutrition have deep and far-reaching implications for Malawi's population and for its development. From the above analysis, it is evident that both agriculture and health issues impinge upon the situation of malnutrition in Malawi. Actions must be carried out to rehabilitate malnourished children, and to prevent children from becoming malnourished.

INTERVENTIONS TO COMBAT MICRONUTRIENT MALNUTRITION IN MALAWI

Nutrition interventions are "planned actions that introduce new goods or services into the existing food system for the explicit purpose of improving the nutritional well-being of designated groups" (Austin and Zeitlin, 1981). There are three broad categories of interventions to combat micronutrient malnutrition: fortification, supplementation and food-based approaches. There are also other explicitly nutritional approaches which complement these, such as policy-driven food subsidies; the promotion of food production and processing activities; targeted feeding programmes; and nutrition education. Without being explicitly nutritional, there are other types of programmes which have an indirect effect on nutrition

status, such as primary health care, water and sanitation, income generation and maintenance, labour saving and child care (Geissler, 1995). Some interventions may combine both direct and indirect approaches to nutritional change within the context of a general "community development" programme.

In Malawi, current interventions focus on dietary diversification, nutrition communication, public health, food fortification, supplement capsule distribution, and rehabilitative treatment. Programmes in public health, treatment, fortification and supplementation are higher profile programmes in Malawi because of well publicised and funded mass campaigns, i.e. salt iodination and Vitamin A capsule distribution. The Government of Malawi had recently recognised the problems of micronutrient deficiency, and efforts are being intensified to ensure that the population has access to a variety of programmes, such as exclusive breast-feeding promotion, supplementation, and education about improved dietary strategies. Public health and treatment programmes, such as supplementary feeding and various therapies, are available from hospitals and health centres, but not always supplied with the necessary drugs or foods. Ongoing research and debate continue about which methods for combating micronutrient malnutrition are most effective and sustainable over time. The three most widespread programs are discussed below.

FORTIFICATION

Fortification involves adding minute quantities of vitamin A, iron or iodine to commonly consumed foods. This approach is effective for populations which regularly purchase and consume processed foods, especially staple foods (Micronutrient Initiative et al., 1996). In industrialised countries, everyday foods, such as breads, are fortified or "enriched" with various vitamins and minerals, while all common salt is iodised. Fortified products have little affect on populations in most developing countries in Africa. Rural populations process their own staple foods, and make few regular food purchases from quality controlled market sources. However, there are attempts to fortify commonly used products, such as salt, sugar, oil, and milled cereals and grains. In developing countries, such efforts require collaboration by government, private

sector and marketing specialists. Critics of fortification believe that fortified products will have little impact on the rural poor who need them most, because of lack of access and affordability.

In Malawi, the most successful fortification programme is the iodination of salt. In 1995, after a tremendous push by UNICEF and the Ministry of Health, the salt iodination bill was passed in parliament. The World Health Organisation has set standards for iodine levels which Malawi is currently following. Four salt iodination plants were donated by UNICEF to the Government of Malawi. However, much of Malawi's salt is imported, and major salt distributors must now adhere to salt regulations and quality assurance guidelines.

To explore other options apart from salt iodination, a delegation from Malawi attended the XVII International Vitamin A Consultative Group meeting, held in Guatemala in 1996 (IVACG, 1996). Since Guatemala has successfully fortified sugar with vitamin A, the main purpose for the visit of the delegation was to examine whether this option was feasible for Malawi. Although the fortification of sugar may be technically feasible, sugar is expensive and purchased in very small quantities by rural people.

There are foods, both imported and produced in Malawi, which are fortified with iron and vitamin A, such as margarine and oil. Cooking oil in particular has been promoted as a vitamin A-rich food source by Lever Brothers, and radio jingles, billboards and posters have been used to sell the product for its nutritional value. However, these products have not been regulated nor labelled, and therefore they have not met government fortification standards.

Several companies now produce fortified porridge mixes, which do label their products and assure their quality. "Sunshine Likuni Phala" made by Rab Processors in Blantyre, is the most well known of these products. "Likuni phala" is the name for a generic porridge first developed in a place called Likuni in Malawi. It was promoted as a complementary food to breast feeding, and is more nutritious than plain maize porridge because it contains other milled protein-rich ingredients, such as soybeans, common beans or groundnuts. The Rab version is also sweet and milky when mixed with water, making it appealing. However, for poor families, the price makes the product inaccessible. A cheaper version produced at St. Gabriel's Hospital in Mulanje is available in supermarkets; however, most rural people do not have access to this urban-based product even though it is less expensive.

Other smaller-scale experiments in fortification have taken place. During the height of the Mozambican refugee crisis in 1991, Malawi with the World Food Programme (WFP), the United Nations High Commission for Refugees (UNHCR) and Save the Children Fund UK used a volumetric feeder for adding a "premix" of niacin, riboflavin and thiamine to the maize flour distributed in camps (Henry and Seaman, 1992). Encouraged by the results, project collaborators saw potential for localised fortification projects to spread throughout the country, if they were able to gain the requisite political and logistical support.

WFP with the Ministry of Health provides a milled maize/soya mix (4:1 proportion), also called *Likuni Phala*, to hospitals and health centres for distribution to families with malnourished children. The recipients call this flour "soya." WFP considered fortifying this product in 1994, but decided against fortification, believing that the product should be "sustainable." Eventually, the WFP stopped providing *Likuni Phala* for the general population, and instead provides a fortified product only for severely malnourished children who are admitted to hospital. Instead, it was decided that people should be given the inputs to produce their own *Likuni Phala* at home or in their communities. Although the decision to stop widespread distribution of the nutritious flour is potentially positive for communities, there has been no concerted effort by the government to hand over the necessary agricultural or technological inputs to encourage such production.

SUPPLEMENTATION

Nutritional supplementation involves taking supplements or capsules with the appropriate prescription of micronutrients. Supplementation programmes are a simple and relatively cost effective way of distributing iron and vitamin A to a large population (Pant et al, 1996). However, they are usually criticised for not being accessible to those living in remote areas, nor sustainable in the long term.

In Malawi, high dose vitamin A is administered to children between 0 and 6 years of age at an interval of up to 72 months and to post-natal mothers within 2 months of giving birth. National coverage is relatively high (70%) for 0 to 2 years, but above 2 years is low (Malawi, 1996c). Iron and folic capsules are given to all pregnant women who attend antenatal clinics at

health centres, and to Traditional Birth Attendants (TBAs) who distribute them in their communities. Iodised capsules are also provided to women and children who live in severe iodine deficient districts where the prevalence of goitre is high (Malawi, 1996c). In 1996, country-wide campaigns (July 16-17 and August 20-21) were held to distribute vitamin A capsules, as part of the Ministry of Health's Micronutrient Control Campaign. In Mangochi District, there was 60% coverage in the first round (Malawi Ministry of Health public announcement, *The Tribute*, Aug. 20, 1996: 4). Other capsule distribution programmes are sponsored by private organisations in partnership with NGOs and government departments. An example is World Vision Malawi's Micronutrient and Health programme (MICAH) which distributes supplements through approximately 20 agencies in the country. Although Malawi is just now exploring the feasibility of fortification, efforts in supplementation are more advanced, succeeding in gaining better coverage throughout the country, including the rural areas. For supplementation to have an enduring impact, both the programme's promotion and distribution components must be ongoing and far-reaching. Capsules are usually available in the hospitals, but unless they are available in large quantities and brought into the rural areas, the impact of supplementation may be minimal.

FOOD-BASED APPROACHES

There is an ongoing argument about both the cost-efficiency and effectiveness of the three types of interventions, and especially between supplementation and food-based approaches in countries where micronutrient deficiencies are severe (Pant et al., 1996). A food-based strategy is a "preventative and comprehensive strategy that uses food (i.e. natural sources such as plants and animals, new forms, fortified, or a combination) as a tool to overcome micronutrient deficiencies" (Nandi and Tontisirin, 1995: 2). According to the ICN's World Declaration and Plan of Action for Nutrition, countries should "Ensure that sustainable food-based strategies are given first priority, particularly for populations deficient in vitamin A and iron, favouring locally available foods and taking into account local food habits" (FAO/WHO, 1992c). Many believe that food-based approaches are more likely to be sustainable than supplementation and

fortification, because they result in long-term changes in consumption patterns, infant and child feeding practices, and food preparation practices (Phillips et al, 1996).

Food-based strategies take place "within the food systems" (Combs, 1996) involving modification and diversification of food resources that are high in specific micronutrients. This type of intervention involves various activities: production (land use; soil, crop and livestock management; harvesting), acquisition (processing, storage, purchasing) and utilisation (preparation, cooking, decision-making, distribution, water and sanitation). Thus, a multi-sectoral approach to food-based programming is necessary because health, agriculture and community development personnel are required to mobilise communities around these activities. Food-based approaches are contingent upon community support (Mtalo, 1990). Therefore, food-based strategies must be accompanied with a strong nutrition communication or social marketing programme to promote the consumption of targeted foods. If the conditions are optimal, and if strategies are tailored to local needs and culture, the time required to change behaviour may not be long (Trowbridge, 1993: 783). Studies suggest that a combination of nutrition education, economic incentives, and convenience are the most important factors leading to the success of dietary modification (Wright et al., 1982). Food-based strategies provide more nutritional benefits than a supplement or capsule which contains only one micronutrient. Individual foods may be consumed to boost the intake of one particular micronutrient, but also improve caloric, protein and other micronutrient intakes (Phillips et al, 1996: 1667).

Introducing new crops and utilisation techniques for their consumption is essential to food security and better nutrition. The risk of total crop failure is considerably reduced when there is greater diversity in the cropping system. In Malawi a number of programmes have been implemented by both government and non-governmental organisations for the promotion of existing and new micronutrient-rich foods. The programmes promote the production and consumption of green leafy vegetables, yellow/orange fruits and vegetables, oil-rich crops, and small animals and fish. Some Agricultural Development Divisions (ADDs) have "nutrition village" programmes, adaptations from the International Fund for Agricultural Development (IFAD)-sponsored project in Kasungu District, which promoted agricultural production, sanitation, growth monitoring and supplementary feeding (Malawi, 1996b). Although several

ADDs have implemented the nutrition village programme in select communities, there has been little national support for such efforts and no consistent targeting. In 1995-96, the Ministry of Agriculture, funded by FAO, promoted the extensive use of soybeans in three districts in Malawi. Some NGOs inspired by this innovation, have started their own soybean projects, using the expertise of the Ministry of Agriculture. Various NGOs, such as Concern Universal and International Eye Foundation, have promoted vitamin A-rich vegetable gardens in communities.

One project (FAO/United Nations Development Programme, 1991) in the highest vitamin A-deficient area in Malawi promoted "exotic" (as opposed to indigenous) vegetables: carrots, chilli, cucumber, eggplant, lettuce, onions and turnips. These vegetables were not consumed by the target population, but marketed as expensive prestige foods. Technical staff promoted the new vegetables, but neglected the indigenous vegetables, oilseeds, legumes and tubers. The project failed because, instead of concentrating on modifying and diversifying traditional food resources, it introduced new ones which were barely accessible to the poorest families and no impact on improving vitamin A status in the region. The more recent (1995) soybean project may be more successful. In the wake of the World Food Programme's decision to discontinue mass distribution of *Likuni Phala*, soybeans should be perceived by rural communities as having value both for consumption and for sale. This soybean project emphasised not only production, but more importantly, the processing and utilisation of the bean. However, there is no evidence at this early stage that soybeans will have a lasting influence on the Malawian diet.

Food-based interventions are the least developed of the three strategies in Malawi, compared to national efforts in supplement distribution and the promotion of fortified salt. No food-based programme has lasted long enough or has been successful enough to become promoted throughout the country. Food-based projects have had limited success because they require intensive formative research in order to plan appropriate programmes; effective management and field staff; a rigorous monitoring scheme, as well as educational materials and demonstration inputs. In Malawi, there are also several external constraints which prevent food-based approaches from being more successful: lack of national expertise, absence of

markets, lack of capital or credit to purchase inputs, unavailability of seeds for distribution, and lack of irrigated land for all-season vegetables (Dzikolidaya, 1994).

NUTRITION EDUCATION

Because Tulimbe Nutrition Project was a nutrition education programme, one year before the project began, I engaged in extensive networking with nutrition education practitioners and examined relevant publications to assess the status of nutrition education in Malawi. According to a report entitled "Promotion of Nutrition Education in Malawi" (Malawi, 1986), nutrition education is a component of the programmes of several government ministries, each with different nutrition emphases. The line ministries of Health (MOH), Education (MOE), Agriculture (MOA), and Community Services are involved in various types of nutrition education activities. MOH personnel emphasise antenatal care and feeding, coupled with growth monitoring. Almost all mothers in Malawi have growth monitoring cards for their children, and outreach clinics get to even the remotest areas with regularity. Women receive nutrition education led by Health Surveillance Assistants during most MOH-sponsored activities in their communities. Teachers working for the MOE in schools teach nutrition education to students through the curriculum, in combination with life skills or home economics courses. Within the Ministry of Agriculture, female Farm Home Assistants are responsible for communicating with female farmers about food production, utilisation and nutrition. Community Development Assistants and Homecraft Workers who work within the Ministry of Community Services also teach nutrition education, concentrating on breast feeding promotion, complementary foods, food groups and child growth. Homecraft Workers are the cadre of field staff most consistent in their teaching of nutrition education to women's groups. They are a large group of women, but mostly overlooked and rarely paid. Although nutrition education is part of their work plans, field personnel in the line ministries are often preoccupied with seasonal activities, and nutrition education is mostly neglected in favour of more immediate concerns. For example, in 1995-96, as a result of a German-funded programme called Promotion of Women in Rural Areas, Community Services staff in Mangochi were always busy training new groups for small business and supervising revolving loans.

Agriculture field staff must often attend to crop trials. Health staff are the busiest of all with their rural clinics, and they must accommodate nutrition messages at the same time as new information about HIV/AIDS, vaccinations, supplements, and sanitation.

Nutrition education has traditionally been a low priority relative to other concerns, and it is taught by less qualified people, usually women, who receive minimal and often inappropriate training. They are not only lacking in the skills to work with groups and communities, but they lack in accurate nutrition knowledge (Malawi, 1990). Various booklets have been developed for field workers in the hopes of addressing some of the knowledge gaps for both nutrition field staff and families. The Ministry of Agriculture has produced two small publications: *Nutrition Booklet for Field Assistants and Farm Home Assistants* (Malawi, 1984), and *Improved Vitamin A Consumption Through Agricultural Production: a Reference Manual for Use by Agricultural Workers* (n.d.). The Ministry of Health has published a booklet called *Weaning Facts for Malawian Families* (Malawi, 1992c) which is also available in the vernacular. *Nutrition Facts for Malawian Families* (Malawi, 1990), a comprehensive publication for all field personnel, was published under the auspices of the Inter-Ministerial Food and Nutrition Committee and the Food Security and Nutrition Unit (described in Chapter Two). *Nutrition Facts* was inspired by *Facts for Life*, a simple guide to healthy practices sponsored by UNICEF/ UNESCO/ WHO, which has been translated into many languages. However, *Nutrition Facts* itself is a rather dense booklet without the user-friendly qualities, photographs and illustrations needed by field staff with little education. All of these booklets produced for field workers in Malawi have limited use because they are fact-oriented, and do not give clear, action-oriented instructions about how to teach the material.. Of *Nutrition Facts for Malawian Families*, field staff interviewed said that they needed a shorter version in the vernacular to make it easier to use (Malawi, 1991). The Ministry of Health booklet has accompanying sections called "What to discuss with families" after each lesson; however, the layout is not consistent throughout the booklet. "A lack of appropriate teaching materials also reduces programme's effectiveness. The monotony of messages and lack of innovative extension methods for reaching rural women is another constraint" (Malawi, 1988). Most of the booklets have not been evenly distributed to staff throughout the country. Even for those

that have, without training and support for their use, booklets on nutrition facts may not inspire staff to effective dissemination of them.

Nutrition education in rural Malawi "is so standardised that it lacks any real relevance to specific conditions under which rural communities live. It fails to deal with the real causes of nutritional problems in specific communities" (Kishindo, 1990). Lessons are given repetitively, with few visual aids or interactive techniques. There is little concern for the context in which the target group is situated, and the fact that often women do not even have the essentials with which to feed their families (Malawi, 1986). Trivedy cites this common scenario:

> [a] mother had been advised to feed her child pawpaws and mangoes. In fact however the mother had a small garden in which these fruits were not grown and lacked money and resources with which to purchase the fruits. Thus, although the mother had been made aware of what the child required, it was not easily possible for her to follow the advice" (1989: 34).

At least pawpaws and mangoes are indigenous fruits. More common are examples of Homecraft Workers teaching women how to make "french toast" or raw salads, the ingredients for which are not available at all within most villages. Field staff seem to want to impress rural women with the knowledge of foreign or urban delicacies, and only succeed in alienating them. When asked to evaluate the content of their nutrition lessons, women said that they themselves were not consulted on what they were taught (Malawi, 1991). Thus, attendance at nutrition classes is low, because the messages do not appear relevant to the learners. Because field staff lack skills in basic adult education methods, which respect the knowledge and experience of the learner, neither staff nor learners desire to pursue programs in nutrition education.

Most of the nutritionists I talked to in Malawi believe in nutrition education and food-based strategies to combat micronutrient malnutrition because they believe that people are able to make their own decisions and use their own resources to improve their nutrition status. This is why, beginning in 1994, when micronutrients became a high-profile health issue in Malawi, workshops were held in November to create relevant messages in the vernacular, as well as channels for their dissemination. A variety of print media was introduced, as well as radio messages. These efforts were initiated by UNICEF and the Ministries of Health and Agriculture. In 1995, CIDA with the Micronutrient Initiative, provided funding to UNICEF

and the Ministry of Health for the distribution and promotion of vitamin A supplements. Later, in 1996 and 1997, funds became available, again primarily from CIDA, to assist government and non-government agencies in their implementation of area-based nutrition projects throughout the country. The most well-known of these projects is the Micronutrient and Health (MICAH) programme, executed by World Vision, which sponsors the nutrition activities of 15 agencies. Although many of these projects distribute supplements, most also promote food-based strategies, and all have nutrition education components.

With this momentum for nutritional change in Malawi, implementing agencies need good models for nutrition education and community mobilisation. Tulimbe Nutrition Project staff were challenged to introduce effective techniques to engage people in their exploration of nutrition issues. As a community-based project, Tulimbe's approach to nutrition education is distinct in Malawi because of its emphases on community involvement, gender relations, and dietary modification. The next chapter describes the design of Tulimbe Nutrition Project—both its research and programme components.

III. PROJECT DESIGN AND IMPLEMENTATION

Within the context of current trends in nutrition education and with initial direction from Prof. Rosalind Gibson, the Principal Investigator of the proposed dietary diversification and modification intervention, I wrote my first research proposal for the project in 1992. Following an "action research" model, I would design, manage and implement the project, while at the same time document its progress and evaluate its effectiveness. The following goals and objectives were established:

1. Identify and analyse the linkages between malnutrition and its causes at the levels of household, community;
2. Within the context of indigenous knowledge about food, promote existing and introduce new dietary strategies which improve micronutrient status;
3. Identify and implement effective nutrition education approaches and techniques which are compatible with the learning styles of women and men.

The following actions were expected outcomes of the project:

1. Training of local extension and project staff to use participatory approaches to address community priorities;
2. Development, implementation and evaluation of nutrition education activities for different segments of the communities;
3. Dissemination of the approaches and content of the programme for the promotion of dietary diversification and modification within Malawi.

In the first quarter of 1993, my proposal was submitted to and accepted by the Health and Science Research Committee of the Ministry of Health, Government of Malawi. After completing my course work, I departed for Malawi in September, 1994, and was oriented to Mangochi by Prof. Cullinan, the Head of the Department of Community Health, College of Medicine, who was a co-investigator of the project and an institutional collaborator.

I had scheduled myself to be in Malawi for three years to secure support for the project, and to co-ordinate staff and collaborators to complete the project cycle (planning, implementation, evaluation). When I arrived, it was evident that apart from the collaboration

with the College of Medicine, there was little infrastructure for the proposed research project, known then as the Guelph Nutrition Project and later in 1995 as Tulimbe Nutrition Project. The housing I occupied was rented from missionaries on a six-month furlough, and the vehicle purchased for the project was a thirty year-old Land Rover. On the other hand, there was enough office equipment to run a project independently from other organisations. Since one of the goals of the project was to influence national nutrition programming and policy-making, I had to establish both legitimacy and visibility for the proposed project.

In 1994, I won an Ontario Graduate Scholarship to assist me with the initial phase of the work. I also wrote with Prof. Gibson several funding proposals for the operational and research costs of such a project. They were submitted to the International Centre for Research on Women (ICRW), Opportunities for Micronutrient Intervention (OMNI), UNICEF-Malawi and the Canadian International Development Agency (CIDA) through the Micronutrient Initiative (MI). The latter two agencies funded the project from mid-1995 to 1997, with CIDA/MI meeting most of the budgetary requirements. At the end of 1995, I was able to rent a compound with four homes for staff housing and office space. In 1996, World Vision Malawi through its Micronutrient and Health programme (MICAH) donated a new pick-up truck for project use. Because the base for support and resources kept growing, the project gained in credibility.

In 1994 and 1995, I engaged in a networking campaign to promote the concept of the project, during which I was invited to nutrition workshops and planning meetings for a national educational campaign on micronutrients and the National Plan of Action on Nutrition. After six months in Malawi, I had secured letters of support for the proposed project from interested academics and senior nutritionists in the line ministries of Agriculture, Community Services and Health. Apart from my contact with ministry headquarters in the capital city, Lilongwe, and the university, more significant was the collaboration in the field with agencies who were struggling to do similar work in nutrition. The Food and Nutrition Officer from the Machinga Agricultural Development Division included the prospective Tulimbe as part of its "nutrition village" programme, which promoted dietary diversification through horticultural, poultry and small ruminant programmes, as well as nutrition education. As a proposed model nutrition village for the Mangochi Rural Development Programme, Tulimbe fit into an existing structure which had relevance for district officers and field staff alike. Support from the divisional Food

and Nutrition Officer encouraged district officers from the departments of Health, Agriculture and Community Services to become associated with the project as consultants and participants. This body of officers became the District Consultative Committee to Tulimbe Nutrition Project, and its inauguration in June 1995 marked the official beginning of its work as an advisory body and, since funds had been promised by UNICEF, the inception of the project itself.

RESEARCH DESIGN

My objectives which related to social and behavioural change, were subsumed within the overall goal of the Principal Investigator and Canadian nutritionist, which was to prove the intervention's efficacy in elevating child micronutritional status through a comprehensive monitoring protocol. The dietary diversification and modification intervention, which was under my direction, was to show biochemical change in one year's time. Whereas I was using an action research design with a community development approach for the intervention (described in Chapter Five), the nutritionists employed an experimental design for the nutritional evaluation, involving the two intervention villages and also two control villages. The nutrition evaluation was scheduled to take place at pre-, mid- and post-intervention times, corresponding to months one, six and twelve during the funded period.

Planning for the baseline measurements began when the Canadian nutritionist arrived in Malawi at the beginning of 1996. This nutritionist co-ordinated all the activities relating to the collection of the nutritional outcome indicators. According to Giessler (1995), evaluation of the effectiveness of intervention is "theoretically simple but practically difficult" (30). Mounting such an evaluation required devising research instruments, training assistants and monitors, assembling both mobile and stationary laboratories, and creating a management information system for the incoming data. Systems and protocols aside, the biggest challenge was to secure the co-operation of the people in the communities to participate in activities which were in varying degrees invasive. The nutritional evaluation (Gibson, 1990) had five components which were monitored at varied times: Knowledge, Attitudes and Practices (KAP) testing (see Appendix 1); biochemical (blood, saliva, hair); anthropometric (height, weight, knee height,

skin folds); food recalls (Ferguson et al, 1995); and morbidity (examination and treatment). The KAP questionnaire and biochemical assessments were administered at pre- and post-project periods, whereas anthropometric and dietary data were collected during pre-, mid- and post-evaluation periods. Clinical examinations for morbidity monitoring were held every two weeks. A socio-economic status questionnaire (Appendix 2) was administered once at the beginning of the pre-project evaluation. All of this quantitative data would be the basis for proving the difference between test and control groups. Some believe that it is not necessary to evaluate change through biochemical indicators, since behavioural indicators should be adequate. This was evident in a high-profile vitamin A project in Thailand. The project was a success, but "despite significant change in KAP, the changes in Vitamin A status were negligible" (Smitasiri, 1994: 16). This could also be the case for Tulimbe--measurements taken over a brief one-year period may not yield significant quantitative results (these results will be available in 1999).

From my perspective as an adult educator and sociologist, not only was the rigorous adherence to the experimental design and quantitative data collection methods disproportionate to the effort required for the intervention, but it was also incompatible with the community development approach which was to inspire ownership and self-direction of the dietary diversification and modification process. Since the Principal Investigator was not on site, there was no one to supervise or mediate between the two seemingly opposing aspects of the project, and there was no resolution to what was an ongoing struggle between the two research philosophies. As a result of these structural problems, only four months out of eighteen available months was allotted to the dietary diversification and modification intervention. However, because of the community mobilisation work which had preceded the intervention, my fears about the project's failure to inspire behavioural change, as a result of the short intervention period, were not realised. The remainder of this chapter is a chronological account of the stages of the project and the research techniques which were used to assess the success of the project in evoking social and dietary change.

IDENTIFYING PROJECT SITES AND TARGET FAMILIES

During the first meetings of the District Consultative Committee, the intervention communities were chosen. One site, Nsanyira, was first identified by Prof. Cullinan of the Department of Community Health, and this site was confirmed as a priority by the district Health and Agricultural offices because of its high number of malnourished children. The other village chosen was Mchisa. The people of the communities were a relatively homogenous group; there was no diverse range of income level or occupations. Most families lived in stable nuclear units, and because of the Islamic influence, there was little evidence of alcoholism or other disruptive behaviours. Thus, the project was able to take advantage of the homogenous nature of the communities and their cohesiveness and co-operation. Ogionwo (1973) states that a stable, well-organised community is a prerequisite for the success of a community development project. These qualities were also seen as essential by government field staff, who helped to identify appropriate villages, and also helped project staff implement various activities. Duplicating efforts in both villages was time-consuming, but worthwhile, since the communities had different characteristics and different ways of responding to the programme. Staff were better able to analyse their effectiveness by comparing the reactions of both communities.

Identifying participating families involved a long process with the community. First, in August 1995, a workshop was held with the District Consultative Committee (DCC) and government field staff to discuss the criteria and the ramifications of targeting. Children aged 3-7 were targeted because they were likely to be fully weaned, and were especially vulnerable to micronutrient deficiencies because of inadequate weaning practices and their high requirements for growth (Gibson et al, 1995). During the workshop, district officers went to the villages and held meetings with the community decision-makers to confirm mutual understandings of targeting and participation. Later on in August, project enumerators conducted a census in each community to identify the families with children in the target group. After the census, a verification process took place which involved numbering all the households in the target group. The verification process was supervised by Senior Officers from the DCC, and carried out by government field staff, and members of the Health and

Agricultural Clubs. All eligible households were targeted and invited to participate. Almost all consented to having their houses numbered, and many of those who were not eligible complained about being left out. Initially, there were 372 participating families altogether, 202 in Mchisa and 170 in Nsanyira. The children of these families were the subjects for nutrition evaluation, and their parents were targeted to participate in the various activities which were part of the nutrition intervention programme.

Although the homogeneity of the communities, in terms of ethnicity, culture, class and economic status are perhaps imperceptible to outsiders, relational aspects of difference are significant within the community itself. Differences in gender, economic status and age are the most important for this study. If there had been more time for programming rather than nutrition evaluation, staff would have carried out their plans to work more closely with the youth and children, reaching them and not only their parents, with nutrition education and related activities. Various plans to disseminate messages within the larger community and the schools were cancelled by the nutritionist, who was afraid that control villages would be "contaminated" with knowledge of the intervention. Because of the design constraints of the project, only the views of men and women who actively participated in the project were examined in any detail. This is not to undermine the importance of multiple readings of situations. However, my original goal was to focus on the changes in relationships between men and women and their children, and to explore their effect on child nutrition.

FORMATIVE RESEARCH

The programme cycle--a model upon which most development interventions are planned--is an iterative research and evaluation process beginning with formative research and ending with evaluation research (Smith and Smitasiri, 1997). The information for this evaluation was collected during phases of the programme planning cycle: formative (group and key informant interviews), baseline (Knowledge, Attitudes and Practices and Socio-Economic status surveys), implementation (observations and activity logs), and summative evaluation (group and key informant interviews, questionnaires). Because of the delay in receiving operational funds, the baseline study was delayed until the beginning of 1996. However, during the last half of 1995,

there were enough funds from UNICEF-Malawi to begin some of the preliminary work with the communities, including formative research. Cheryl Achterberg, in her report of the Sixth International Conference of the International Nutrition Planners Forum (1991), says, "Program planners need to understand a person's total life; they need an accurate picture of the community level and of what is practical within the context of village life." The lead time in 1995 was essential for establishing trust and forming structures to facilitate community participation.

Within the context of Participatory Rural Appraisal methodology (Scrimshaw & Gleason, 1992; Odour-Noah et al, 1992; Kabutha et al, 1991; Chambers, 1983) a number of interactive research methods were employed to engage people in discussions about their lives and situations. According to Cassidy, "The essential reason for beginning research with qualitative approaches is that they help researchers position themselves to be open, to listen, and to hear" (1994: 193S). He classifies research techniques according to their "warm" and "cool" qualities, characterising open-ended interviewing and group discussions as "warm-ups" to "cooler" methods, such as the use of questionnaires for large surveys. Thus, during a project in which there are several stages of research, Cassidy suggests that there be a "layering" and "mixing" of qualitative and quantitative techniques that relate to each other and correspond in their significance to people's understanding of them (1994: 194S-195S). For example, the formative research accomplished with focus groups informed the Knowledge, Attitudes and Practices survey, which was part of the baseline survey. Initially, however, all research was carried out using "warm" techniques, such as meetings, interviews and participatory appraisals. These methods provided the "detailed, specific information required to create a successful program" (Achterberg, 1994: 1809S).

INITIAL COMMUNITY MEETINGS

In July 1995, project staff, senior officers and field staff held two mass meetings, one for each intervention community, lasting about one and a half hours. These meetings were programme staff's first entry into the communities. Senior officers from each collaborating agency (Health, Agriculture, Community Services) took turns presenting aspects of the proposed project. In order to sensitise people, they were asked about their communities' nutrition and food security

situations. Some of the issues discussed during these meeting were: breast feeding and complementary foods; crops and diversification; fruits, vegetables and legumes; agricultural inputs; meal frequency; income generation; family planning; financial planning; and collective efforts to mitigate poverty and hunger. Although these meetings were held to form agreements between those representing the project and the communities, they also revealed important information about the situation of the villages.

KEY INFORMANT INTERVIEWS

Seventeen key informant interviews held in August to September 1995 were accomplished to give recognition to existing village leaders and to learn from them: village headmen, political party leaders, Agricultural and Health Club leaders; traditional birth attendants; teachers; initiation leaders; and religious leaders. From these men and women, programme staff gained an initial understanding of the issues, problems and opportunities which were prominent in the communities, as well as their interpretation of the nutrition situation. The Health Surveillance Assistants were also interviewed about the health and sanitation situation. Questions were derived from rapid assessment manuals (Kashyap & Young, 1991; WHO, 1986; WHO/UNICEF, 1989; Scrimshaw & Hurtado, 1987), and from staff's understanding of the relevant issues (see Appendix 3).

PARTICIPATORY RURAL APPRAISAL

Participatory Rural Appraisal techniques were taught to government staff during the initial workshop in August 1995. The second workshop in September brought new PRA skills into communities. The following activities took place with the assistance of the Agriculture Clubs: community walks, map drawing, demarcation of zones, survey of geographical features, farm visits and farm sketches. At the conclusion of these exercises, a meeting was held with the village headman, councillors and the Agricultural and Health Clubs to discuss the findings of the spatial survey, problems and opportunities. The PRA exercise allowed community members to show project and government staff their communities' environmental and

agricultural conditions. At the conclusion, community leaders and members challenged one another to work together. This exercise provided important general information about the lay out of the communities, and specifically about farming practices, crops, livestock and food-related activities.

FOCUS GROUP DISCUSSIONS

In order to gain greater understanding of nutrition and food security issues in the communities, focus group discussions (Dawson et al, 1993; Casley & Kumar, 1988; Scrimshaw & Hurtado, 1987) were held with the Health Clubs in both communities. Health Clubs were formed by the Health Surveillance Assistants (HSAs), and included men and women volunteers. Because Health Club members assist the HSA with monthly growth monitoring sessions for children under five years, and because they are often consulted by their neighbours about health concerns, programme staff showed regard for their role by consulting them at length about the nutrition situation in their communities.

There are about five men and five women in each club. Because gender roles are an important aspect of the research, the focus groups were held with men and women in separate groups. To achieve a number of ten in each group, members were asked to bring one friend to join the discussion. From a feminist perspective, doing research involves "first and foremost listening to and learning from mothers, rather than imposing any a priori scientific research agenda" (Gordon, 1984). However, because of the nature of gender relations and their influence on the family food system, the views of men were equally important. Thus, a "non-sexist" research approach (Eichler, 1980; 1991) was adopted, which took into consideration the perspectives of men and women. The male research assistant facilitated the men's group, and the female research assistant facilitated the women's group. Male and female recorders were recruited to record the responses. Five focus groups were held in each community with both men and women, making a total of twenty sessions.

The focus groups discussion guides included the following topics: breast feeding; weaning foods; daily dietary practices; differences in food habits in the lean and plenty seasons; gender differences in food intake and roles related to food; planting practices; income, fuel and

water issues; task and time division; child illness; and child feeding (see Appendix 4). Each discussion evolved around 10-20 questions which were decided upon among the research team. The women's questionnaire was drafted first, and then the men's. Upon analysing the differences in the questions, the research team noted that the men's questions tended to be broader, related to attitudes rather than practices, and called into question differences in gender roles. Since the men's questions seemed to be leading and suggestive of the researchers' gender biases, it was agreed that the same questions would be asked of both men and women, in order that gender differences be immediately discernible.

In order to make the sessions lively and interesting, flannelgraphs from educational resources by Gill Gordon (n.d.) purchased from TALC (Teaching Aids at Low Cost), were used as visual aids to stimulate conversation. Through discussion, general nutrition messages emerged and were reviewed at the end of the session. The facilitator was careful not to negatively judge answers which revealed harmful health practices, and instead highlighted the good practices. At the end of the session, two or three core messages were reviewed and emphasised.

The meetings were held at the compounds of those who could provide a quiet and undisturbed space. The husband or wife, depending on whether the group was male or female, would be requested to make sure that no member of the opposite sex or children would wander past the discussion or eavesdrop. During one session, the wife of the man hosting the men's group decided to listen in, and the facilitator chose not to embarrass the family by asking her to leave. The result was that the men did not engage in discussion--some gave short and uninteresting answers, while others fell asleep.

In order to procure as much information as possible from the focus group facilitators and recorders, a de-briefing was held immediately upon returning from the exercise. At the beginning of the session, I would ask the facilitators about the number of participants, the general mood of the session, types of interruptions, and the quality of answers, discussion and analysis. Then I would ask one question at a time, and the recorder would give the answer s/he wrote down in English. I would continue to question the recorder about the context of the response, or about the meaning of any phrases. Once I probed for more detail with the recorder, I would ask the facilitator if s/he had anything to add. Usually, the facilitator had a number of

additions. The recorder would again be asked if s/he remembered anything to add. During the time I was probing for a detailed account of the discussion, I would write down for myself everything that was recounted to me. This process would continue for the men's group and then start all over again for the women's group. At the end of the recording, there was a general discussion about the differences between the men's and women's groups. Because there was no pre-testing of focus group questions, sometimes changes were made to the phrasing of questions, and sometimes questions were left out or added.

Although focus group discussions are not the most effective method for obtaining sensitive information (Helitzer-Allen et al., 1994), the collection of such data was not my purpose. Even though the same data could have been collected more quickly from key informants, it was more important to form relationships with existing leaders. The project created a forum for Health Club members and their friends to talk about nutrition issues at length, following Shaffer's recommendations for building in "the time needed for the traditionally African discussive mode of learning" (1995: 49). Rural people in Malawi rarely have an opportunity to learn in formal or non-formal educational settings. They have few chances to discuss issues of their health and development--instead they are usually told what to do, and the same simple messages are repeated over and over, as if they had never been heard before. They do not have opportunities to share their own knowledge or to have it reinforced. Any opportunity to share knowledge in order to have it legitimised brought a sense of joy and pride. Even if nothing new was learned, people still remarked that the session was educational because it made them start thinking about issues in new ways, and begin the process of analysing their situations. Thus, even though programme staff gained much information about the food habits and perceptions of the community, the participants felt that their own knowledge was verified, and that as Health Club members, they were able to disseminate their confirmed knowledge to the community with new confidence. Project staff gained not only information about cultural beliefs and food habits (Blum et al., 1997), but became more familiar with the discourse surrounding nutrition and health issues, which would enable them to formulate relevant and effective messages for the intervention programme (Aubel, 1988).

FOUNDATIONAL PROJECT STRUCTURES

Formative research and project co-ordination were accomplished in 1995, at which time the foundations for the intervention were laid. These foundations were established by the following processes: ongoing training with staff, collaboration with government officers, leadership development with community members, and co-ordination of regular planning workshops for all participants. Since these processes began at the inception of the project and were continually strengthened throughout all the stages of the project's life, they were a significant part of the intervention programme design.

PROJECT ROLES

As an extension education specialist, I analysed my role vis-à-vis Malawian staff, and believed that I was to facilitate both learning and feedback processes for their work with rural people. In short, I was responsible for their in-service training and tried to provide as many opportunities for professional development as possible (Parkinson and Rutherford, 1987). Because I did not have a national counterpart and because the Malawian staff were inexperienced, I was not able to work behind the scenes, as Burkey recommends: "If at all possible, white people should keep out of project areas until the people have built-up self-confidence in their own abilities to change their situation" (1993: 113). However, my visibility in the communities was generally reserved for the onset or completion of activities, and special events. For the rest, the staff worked independently in the communities.

> In practice, of course, there is never an issue of us as external programmers participating as direct partners to poor people in the communities. Instead the issue is to what extent we, within our programmes, have been able to identify change agents or animators and provide them with skills and tools useful for the persons and communities where actions have to take place. (ACC/SCN, 1995: 7)

To some extent, the Malawian staff and I were all considered "outsiders" by the people in the communities where we worked. I was a different type of outsider because I was white, but in any case, we were all strangers, with different class and educational backgrounds, and, with the exception of two members, different ethnic backgrounds and languages. Being an outsider is

not necessarily counterproductive to the initial stages of community development. People often need an outside stimulus (Burkey, 1993: 75) to help them realise what they can do to improve the quality of their lives. The project provided this stimulus, and staff motivated people to become involved.

Although staff worked most closely with the people, I was identified with the project, as its figurehead or patron, and as the person who made the major decisions about finances and the use of other resources, such as transportation. I was accountable for the project and its reputation.

In some ways, I believe that the trust that people put, first in me, and then my staff, gave them courage and confidence to make changes. I was careful to maintain that trust. I did not interact with rural communities outside of the protocols and sanctions of research ethics committees, national and district government officials, and village chiefs. As Lewin says, "As an expatriate it was also important for me to avoid misunderstandings. It had to be clear that the research was officially sanctioned and not designed to penetrate sensitive issues that had not been approved" (1990: 131). Having been in Malawi for one year before I gained permission to enter rural areas in an official capacity allowed me the time to make important alliances and to establish credibility for myself and the proposed work. Zeitlin and Formacion (1981: 54) identify the "credibility of the institutions and individuals providing the education," and an "authoritative image" but "good role model" as important factors for the success of nutrition education programmes in developing countries.

The intervention staff comprised three graduates from the Home Economics Department (two from Chancellor College; one from Bunda College), and two student finalists also from the Home Economics/Human Nutrition department at Bunda College. One of the project's goals was to build capacity with graduates who could continue to provide leadership for nutrition improvement programmes within the national context. Often programme planners assume that national staff will have a natural ability to work with rural residents in their own country, more so than white expatriates. However, this is not always true. As Stephens says,

> It would be a mistake . . . to think that it is only the expatriate who is the outsider in the research process. Or that he or she is necessarily at a disadvantage. . . . However, it is probably true to say that . . . forms of intervention in the daily lives of the community (whether one is a member of it or not) raises problems of an ethical nature . . . faced by

> individual researchers coming from one very different community to research another (1990: 79).

Community members admitted that they were prepared to be aloof to Malawian project staff, because in their experience, organisations had sent individuals who could not relate to them or speak their language. Bulmer warns against the recruitment of university students or graduates. He says, "Most students are 'elitist', on the road to becoming members of a privileged class. Serious problems can result from their employment . . . [because of their] great difficulty in abandoning their high status roles to establish rapport with illiterate, subsistence-level peasant farmers" (1983: 215). When I initially hired two Yao-speaking staff members (a man and a woman), community members were pleased at being able to relate intimately to them in the same language. Given that the male research assistant was also a Moslem, people listened to him with respect, and eventually gave him the title, "Sheikh," honouring him not only as their teacher, but also as a religious leader. Community members became so comfortable with staff, that they often came to visit them at the project compound. A visitors' book was instituted so that we could keep track of the number of visits from community members who came for some assistance or just for a chat.

STAFF TRAINING

All staff members had taken nutrition courses, so they were familiar, in principle, with Prof. Gibson's recommendations. Therefore, instead of technical skills, their training programme initially concentrated on communication skills and participatory methods: "Training efforts which focus solely on teaching nutrition science or food science to nutrition educators fall short if they fail to include communication skills, and leave the trainee ill-equipped to fulfil the mission of teaching nutrition both for knowledge acquisition and behaviour change" (Hosmer et al, 1997). Staff who use participatory methods need much support and encouragement in settings in which top-down methods are the norm. A "reversal" (Chambers, 1983) is required so that staff cease to feel that their knowledge is paramount, and that their communication abilities are superior. Instead, staff are called to humility, patience and kindness.

The intervention programme team had two weeks of orientation for team building and planning. Members engaged in a number of exercises to help them explore their technical and relational skills. They developed "self-profiles," a "group profile," and a "team contract" (Pretty et al., 1995). The team divided the roles and responsibilities of the programme amongst themselves by assessing their own talents, and also by identifying the areas in which they wanted to gain some experience and expertise. Each team member took responsibility for one aspect in each of the three areas identified as essential to the programme:

TECHNICAL TRANSFER: Agricultural Production, Food Processing, Meal Planning and Preparation, Solar Drying, Oil Processing;

COMMUNICATION: Drama and Music, Visual Aids, Family Contacts, Community Leadership and Initiatives and Community Events;

ADMINISTRATION: Workshop Logistics, Data Capture, Newsletter, Agency Visits, and Transportation and Supplies.

Giving team members set responsibilities for various areas of the programme built self-esteem and leadership skills, as well as skills in programme planning and evaluation.

Once responsibilities were established, the team planned how it would present the programme to the communities. Three team members had significant experience in the communities, and two were new to the project. In order to bring everyone to the same level of understanding about the communities within which they were working, they used various planning tools: Family Nutrition Performance System Worksheet, Discrepancy/Intervention Summary Worksheet, and Skills/Thoughts Interventions Worksheet (Whitmore, 1988). Once these worksheets had been completed, the team worked out their own programme responsibilities following a framework of Objectives, Activities and Indicators. This latter exercise provided the direction for planning and scheduling. Finally, the team was able to construct a four-month calendar of activities to meet its objectives. The participatory planning process at the team level provided significant momentum for the programme. The team was able to achieve most of its goals effectively and efficiently because its members were motivated and committed to the plan they had created themselves. Thus, considering the short period of time as one "input" factor (Oshaug, 1996), other programme inputs, such as the plan itself, and material and human resources, were used optimally, if not pushed to the limit.

Throughout this intense period, I was constantly analysing and re-analysing my communication skills vis-à-vis the staff, and their skills vis-à-vis the community. This analysis was accomplished formally in meetings with staff and group leaders, and informally as we talked in the Land Rover on the way home at night or shared a meal. Our programme with the communities, although planned in detail, was subject to change as we learned more about each other, and the strengths and challenges of the community members with whom we worked. The whole process was daily iterative--a continuous feedback loop which required constant attention, flexibility, and ultimately compassion. The process of reflection-action-reflection came out in both our work with communities and in our work with ourselves. To say that personal transformation took place would not be an exaggeration. This experience illustrated for me how Participatory Action Research can be "a way of life" (CSIH, 1993).

DISTRICT CONSULTATIVE COMMITTEE

One of the project's goals was to build capacity with government personnel who were working in the areas of nutrition and food security. In order to engage district officers in the project, they were asked to join a committee to advise the project in its decisions. Also, there was an expectation that each department would contribute to the project its expertise, resources and personnel. The consultative committee involved the district officers from the three ministries which had nutrition education mandates: Health, Agriculture and Community Services. When the committee was initiated, departments were asked to provide equal numbers of men and women; however, because of job transfers and a lack of women officers, most of the members were male.

Beginning its work on June 23, 1995, the committee at first met frequently for project start-up consultations. Later it met quarterly, and by the time I left in April, 1997, the committee had had a total of eight meetings. All the meetings were held in the classroom of the Department of Community Health, an annex of the district hospital. Minutes were produced after each meeting, and distributed to all committee members. Agendas were assembled and delivered before meetings, in order for members to prepare their contributions. Officers saw their consulting roles for the project as an extra responsibility, and one for which they should be

remunerated. They received a sitting fee for all meetings attended, but volunteered their services when they were asked to participate in community meetings. They understood that the objectives of the project were related to their own programme objectives, and thus had an avid interest in the workings of the project.

In general, officers treated the project as an important development in their district. They saw their advisory roles as necessary, and they created their own files for project correspondence to illustrate their confidence in the committee as an ongoing forum. Committee meeting attendance throughout the two years was consistently high. A low turn-over rate in committee membership enabled project staff to maintain continuity in its relationship with district collaborators. Apart from quarterly meetings, officers also attended project workshops and meetings in the communities. Their presence gave the project staff credibility, and showed government field staff that the project was a worthwhile endeavour and worthy of their support.

COMMUNITY LEADERSHIP

Part of the project's philosophy was to encourage and support new leadership in communities. The short-term success of the project was dependent on the relationships between project staff, and community members and leaders. However, the sustainability of the project was dependent on the staff's ability to empower the community and its leaders to own and manage the project. The staff established good relations with the primary decision-makers in each community: the Village Headman and his councillors, representatives of political parties, religious leaders and Traditional Birth Attendants. Since project efforts were mainly within the areas of health and agriculture, programme staff also worked with the Health and Agricultural Clubs. As described at the beginning of this chapter, these leaders and clubs were consulted for introductory activities: initial planning meetings, key informant interviews, Participatory Rural Appraisal activities, and focus group discussions.

Although the existing leadership was co-operative, their time was limited because of their responsibilities in the community. Thus, there was a need to reach families more consistently through an effective management structure (Boeren, 1992). In order to facilitate

communication and their involvement in activities, there was a need to place families in groups with leaders (Rudqvist, 1994; Ogionwo, 1973). These groups became the foundation for community participation and mobilisation. Thus, the community was divided into zones, each representing forty families. In Nsanyira, there were four groups, and in Mchisa, five. The target families in the zones elected "group leaders," both a male and a female leader (not from the same family), so that there were nine women and nine men. The leaders appointed a co-ordinator outside of themselves, i.e., the chief in one village, a councillor in another.

The leaders of the groups, and selected members of the existing Health and Agricultural Clubs, received training through workshops and meetings held approximately once per month. Workshops and meetings held to manage and monitor the project became opportunities, not only for planning and building capacity, but also to develop ownership of the project. Group leaders were involved in mobilising the community, promoting and defending the project, distributing and collecting inputs, monitoring, teaching, and advising. Training, new recognition as Tulimbe leaders, and attractive opportunities to meet new people and see new places provided enough incentive for leaders to participate willingly without monetary honoraria. Programme staff worked to encourage leadership in the communities. In 1995, group leaders from both communities named the project. After several titles were considered, the name Tulimbe was chosen, which means "let us be strong" in the Yao language. The name Tulimbe has provided a strong identity for the project at community, district and national levels.

WORKSHOPS

The technical content of the programme--the nutrition intervention--was established before the project began. However, there were many aspects of programme planning and implementation in which the community could participate. Workshops were instituted not only to introduce aspects of the programme, but also to allow community leaders opportunities to critique the proposed programme, to predict its success or failure, to articulate their roles and responsibilities, and to formulate action and dissemination plans and schedules of their own.

Workshops were also sites for pre-testing the research instruments and measuring equipment, especially for the baseline nutrition evaluation. During the intervention, workshops were the forum for pre-testing and refining recipes and messages. All in all, a series of ten workshops were held at the Day Training Centre at the offices of Nasenga Extension Planning Area. Those in attendance from the communities were elected group leaders (18 men and women), selected health and agricultural club members and village headmen.

Workshops were also attended by members of the multi-sectoral District Consultative Committee. These senior officers functioned as discussion leaders at the workshops. Field staff, from the same collaborating ministries, also attended. With project staff, average attendance at these workshops was thirty-five people. For senior officers and their field staff, meeting together in a training session was a rare occasion. Mixing these government personnel with community leaders and members was an unprecedented learning environment. This is what Attig calls "joint training . . . to establish an initial climate for collaboration and understanding" (1995: 123). Joint training built positive relationships, not only between community members and government officers, but between government sectors at the district and field level. This multi-level, multi-sectoral training brought about a heightened awareness for nutritional concerns (Shrestha and Hussain, 1993). Government officers testified that they had never been engaged by a non-governmental agency in a genuine collaborative effort, "based on a common understanding and complementary roles and responsibilities" (Attig, 1995: 123).

NUTRITION INTERVENTION PROGRAMME COMPONENTS

Three types of programmes were implemented as part of the intervention: food diversification, dietary modification, and nutrition education.

FOOD DIVERSIFICATION

The food diversification programme involved the planting of new crops, plants and trees. Tulimbe received its advice on diversification from the Food and Nutrition Officer of the Machinga Agricultural Development Division. At the beginning of the project in November 1995, each family in the target group received 2 kgs of soya seed, .25 kgs of sunflower seed and a papaya seedling. Upon receipt of seeds, families agreed that after the harvest they would repay Tulimbe with the same amount of seed. This seed would be distributed to two other villages. The seed exchange programme was a success with approximately 90% recovery. Seed recovery was accomplished by the group leaders. Crop failure was cited as the reason why not all of the seeds were recovered. Soya was planted on a larger scale the following year, and was disseminated outside the programme area, even though it was a new crop. The sunflower crop was equally popular.

As part of ICRISAT's soil fertility research on legume intensification and its collaboration with Tulimbe, short-duration groundnuts and pigeon peas were given to selected farmers on a trial basis. The goals of the ICRISAT-Tulimbe collaboration were to investigate and to develop, in partnership with farmers, technologies which improve soil fertility and productivity of the cropping system, as well as contribute to improved human nutrition. Collaboration with ICRISAT began in 1996 and is ongoing.

DIETARY MODIFICATION

During the four-month intervention project, staff concentrated on the modification aspect of the project because of its potential to affect the daily lives and habits of the people. Under the dietary modification programme, people learned how to process and prepare maize-based products and plan meals in ways that enhance micronutrient absorption. The content of this programme and its results are described in detail in Chapter Seven.

To assist people with their dietary modification, the project introduced to communities the solar dryer and oil press. These technologies were introduced with the hope of enabling communities to process and prepare new foods more easily. In Malawi, most of these food

technologies exist in prototype form at agricultural research stations. However, Tulimbe worked with the Malawi Industrial Research and Technology Development Centre to bring the equipment into the communities.

NUTRITION EDUCATION

Before dietary intervention took place, there was one year of intensive project activity which included formative research, group formation, baseline surveys, and workshops. Group leaders assisted project staff with all these activities, and thus were well established in their roles to begin the intervention. As well, the people found new identities within their groups, and became used to being called to attend events and meetings. Although they did not altogether understand the nature and purpose of the intervention, people were open to and anticipating change.

In order to facilitate maximum participation during the intervention period, the communities had to be organised in different ways than they were during the pre-project evaluation. Although the families participating in the project had an identity within the large group, the large group setting was not effective for learning. Thus, each large group was divided into three or four small groups of ten families. These sub- or small groups were self-selected for the most part, and were groups of friends. Small groups chose their own leaders at whose homes the demonstration lessons took place. When polled about the qualities they chose in their sub-group leaders, these characteristics stood out: cheerful, respected, liked by others, active in community activities, ready to work, co-operative, and willing to provide the ingredients needed for the activity. Sub-group leaders were also chosen according to the features of their household compounds: toilet facilities, kitchen area and equipment, meeting space and a tree under which to gather. The use of small groups has been recommended by Pratt and Pratt in their article, "A Model for Communicating Nutrition Information in Sub-Saharan Africa." They believe that having small groups "establishes rapport among the members and encourages open discussions of health-improving topics, even sensitive topics" (1987: 57).

The project's nutrition education strategies were effective because they encouraged community participation and creativity on a wide scale, and because they used many and varied media (Attig, 1995: 120). Performing arts and visual aids were perceived as the most popular channels through which to disseminate Tulimbe's messages to the larger population. However, demonstrations and home visits gave women the support they needed to change the dietary practices in their households.

Demonstrations and Home Visits

Small groups had their own programme staff person or "teacher" throughout the intervention period. Staff worked with leaders of large and small groups to mobilise community members and communicate messages to families. Three small group demonstration campaigns were held over the period of the intervention phase: the first on maize processing (germination, soaking) for 21 groups; the second on meal planning and preparation for 29 groups; and the third on fermentation and review for 23 groups. The number of groups formed for demonstrations varied according to people's interest. Sometimes groups had to be combined because leaders or staff members were ill. A total of 73 sub-group demonstrations were held over a period of four months. About 200 women attended the first demonstration, and approximately 240 the last two. Sixty-five per cent of the target group was covered at demonstrations. During each demonstration, staff were required to fill in forms about the number of attendees, reactions to the new ideas and recipes, retention of information, and variations on cooking practices (see Appendix 6).

Two follow-up home visit campaigns with individual families were held over the four-month intervention period in order to reinforce the messages taught at the demonstrations. The objectives of home visits were to encourage people in their efforts to change their dietary practices; answer their questions and concerns; and monitor their adoption of recipes and child feeding techniques. The staff used teaching kits with visual aids for home visits. The kits were baskets containing micronutrient-rich foods. During home visits, each mother received a small sachet of groundnut flour as an incentive from the project to encourage her to add the flour and other nutritious ingredients to porridge.

Surveys accomplished at home visits provided the data about peoples' retention of new knowledge and their adoption of new practices. The two surveys, corresponding to the home visit campaigns, were taken--one in the middle and one at the end of the intervention period. During home visits, it became evident which families attended demonstrations, understood the lessons, and followed project recommendations in their households. This information was recorded by staff on monitoring forms (see Appendix 7). Two-hundred and forty families were visited during each campaign, with a 65% coverage rate of the target group, corresponding to the coverage rate of the demonstrations.

Festivals and Performing Arts

After each set of home visits, in order to carry the nutrition messages to the whole community, community festivals were held. These festivals were a focal point for the creative expression of the people. In 1996, two festivals were held in each village, one in October and another in December. The community members organised themselves to perform various acts, which became more creative and elaborate during the occasions of the second festivals.

Nsanyira village already had one established band made up of the members of its Health Club. This band was active before the project started, but as the project gained momentum, the band focused its efforts on composing new songs which incorporated nutrition messages. In 1995, the drama group and band from Nsanyira village received formal training by the professional drama troupe, *Kwathu*, who came for three days in November. In July 1996, Mchisa village, which did not have a drama group, was encouraged by project staff to form its own troupe. Not one, but two groups, were founded--one by group leaders, and one by the Health Club. Two nationally known actors trained the new drama groups, who, at the end of their workshop, put on performances for the whole village. Each group won a small cash prize from the community compensation fund for purchasing costumes for future plays. When the project organised its first festival in Mchisa, to the staff's surprise, a third drama group made up of younger couples also performed.

During festivals, Nsanyira showed off its music--drumming, dancing, singing with women and children of all age groups--culminating in performances by the band and drama group. Mchisa celebrated the project with poems by men, women and teens, and drawings by teen artists. Young girls with bowls of new foods poised gracefully on their heads staged a chorus line of songs and poetry about new crops and recipes. All three drama groups performed, and there was even a magic show. Each festival was attended by approximately 600 people.

No doubt in rural Malawi, where there is no electricity, television, few books or writing materials, the most effective channels for communicating messages are music and drama (Malamah-Thomas, 1987). Tulimbe was able to maximise on the talents of the intervention villages by providing training, incentives and opportunities for these best-loved pastimes to become vehicles for nutrition messages.

Visual Aids

Visuals were used to promote nutrition messages (Fetter et al, 1987), reminding people of the importance of what was being learned at small group demonstrations and reinforced at home visits. Most adults in Nsanyira and Mchisa are not literate. Although there are more literate men than women, giving parents printed reading materials to promote project messages would not have been effective. There was a need for other simple but far-reaching ways to create awareness for dietary diversification and modification. At the maize processing workshop, group leaders suggested that small illustrated books be printed to help people remember how to make the recipes. With the help of a local Mangochi artist, the project was able to assemble a pictorial recipe booklet. The title of the booklet was *Kalungolikoko*, which is the name of the most popular recipe the project introduced. The booklets were given out to mothers at the first set of small group demonstrations at which the maize recipes were introduced. Also, UNICEF and the Ministry of Agriculture donated posters and calendars, depicting foods rich in vitamin A and iron. The project designed its own small poster illustrating a bowl of porridge around which were drawn a variety of ingredients which could be added to it. Green and yellow pennants, representing the colours of vitamin A-rich foods, were distributed by the project and

became the most visible sign of the project to the larger community. These nutrition education techniques had varied impact. In Chapter Five, "Evaluating Community Involvement," the effectiveness of these methods and aids is discussed.

SUMMATIVE QUALITATIVE EVALUATION

The summative evaluation of Tulimbe Nutrition Project took place in March, 1997, only two months after the end of the intervention. The purpose of this qualitative exercise was to evaluate the processes that project staff and community participants undertook in anticipation of the intervention, and the effectiveness of the intervention itself. The summative evaluation focused on the conceptual and relational aspects of the project, such as child care and parenting; cause and effect; and learning and change.

The evaluation's objectives were:

1. To analyse the factors contributing to people's adoption or non-adoption of innovations, considering issues such as community leadership, family contacts, new relationships, social marketing, social pressure, change, acceptance and resistance.
2. To analyse the communities' perceptions of their futures, aspirations, and paths to development, i.e., change in individual and collective consciousness since the project's arrival.

Although there was initially some thought of having an external evaluator's involvement, this was not possible due to time constraints, and instead a comprehensive internal evaluation was carried out. The same constraints curbed plans for a participatory evaluation because such an evaluation would have required much time to train members of the community. Participatory evaluation requires community members to formulate their own methods for data collection and analysis, and to create fora and/or media through which to communicate the information to the whole community (Feuerstein, 1986). Such a process would have had programming and logistical demands similar to those of the intervention programme. Thus, doing a participatory evaluation was not feasible because of the time demands of the post-project nutrition evaluation (fully explained at the beginning of this chapter).

Instead an internal and conventional programme evaluation was accomplished with the following methods (see Appendix 9): focus group discussion (community leaders and members), individual interview (key informants, chiefs, field staff) and self-report through use of a questionnaire (senior officers). Except for English interviews with field staff and questionnaires written in English given to senior officers, all interviews and focus group discussions were held in the vernacular. All questions were formulated to be open-ended, with the expectation that respondents would answer in detail. The qualitative evaluation was executed by the two remaining and longest standing programme staff members, one woman and one man.

The formulation of questions for interview guides and questionnaires was undertaken by me and the programme staff. Questions were devised according to the criteria and objectives listed above, and according to the group of respondents. There were attempts to make questioning consistent in order that comparisons could be made between groups of respondents. In the case of questions asked in the vernacular, the staff translated the questions from English into Yao or Chichewa, depending on their own language skills. They then translated the questions back into English and discussed any variations or revisions (back-translation method; Cassidy, 1994: 192S). Words had to be chosen carefully because direct translation does not always convey the same meaning from language to language (Jarosz, 1990). I often asked the staff to speculate about the types of answers inferred by the questions, so that they would both have the same understanding about the meaning of the questions.

In the case of focus groups, male and female community leaders and members were interviewed in sex-segregated groups in the same manner as they were during the formative research phase. Men and women whose families participated in the project were interviewed. Women were readily organised by the female staff member into the small groups previously formed for demonstrations. The male staff member gathered together men whose families were active in the project. Six groups of women (8, 8, 12, 12, 13, 9) and two groups of men (9, 10) were interviewed. The reason why only two groups of men were interviewed was because of men's more marginal involvement in the demonstrations. There was no attempt at randomisation--focus groups were recruited by "convenience" sampling, also allowing for the

formation of "natural groups" (Rink et al, 1993: 58). Each discussion took an average of an hour and a half for participants to answer twenty-four questions.

The results from these evaluation interviews, discussion groups and questionnaires are the basis for much of the information presented in this dissertation. The questionnaires were comprehensive, and thus, the responses yielded a breadth of data on social change from participants and collaborators. These views are reflected in the last four chapters of the dissertation.

LANGUAGE, TRANSLATION, REPRESENTATION AND VALIDITY

In this chapter I have described the design, activities and various research methods used during the project. Information for this thesis was collected during all stages of the project, and while undertaking both formal research activities and informal observations and interactions. I recognise that I am representing the voices and ideas of many people in this thesis, and that I do so by liberally paraphrasing what they said. The issue of language is an important one for this thesis. As I described earlier in my discussion of focus groups, the local languages, Yao or Chichewa, were used in most interactions by programme staff with community members. Significant limitations to this thesis are my inability, first of all, to speak the local languages, and secondly, to have all the information collected recorded in those languages and translated directly into English. I did not have the resources or staff time to concentrate on translation activities. However, I believe that I have represented the opinions of the respondents accurately through the recording and feedback process that I undertook with programme staff, and which is described earlier in this chapter.

In most cases, the voices of community members are paraphrased. In cases in which the translation from the vernacular into English is close and the wording precise, I use quotation marks. I also use quotation marks when I quote from the questionnaires of senior officers, who filled in their own evaluation forms, and from the interviews held with field staff, but recorded in English by programme staff. Throughout the thesis, I identify at which stage the information was recorded and from whom it was collected.

It should be noted that information was collected over two years, mostly by the same programme staff members. Every effort was taken to ensure that the information was collected in a consistent manner, and that it truly represented the thoughts of the respondents and participants. There was no conscious attempt to influence either staff or respondents to collect or give information that was favourable to the programme. In fact, since it was an action-research project, and since we tried to establish relationships of trust with all participants, I believe that information given in the evaluation was valid, with both positive and negative feedback. For the most part, responses that were conforming are summarised, and any that disagreed are noted in the text.

Finally, I want to emphasise that this research took place within the context of a project which had particular meaning to the participants, who did not consider themselves research respondents at all. People had different perceptions of the project than the investigators, and the primary motives of community members were not the same as those of the researchers. Collectively, the funders, investigators, researchers and staff wanted to prove that dietary strategies could be effective in improving micronutrient status. On the other hand, community members had a myriad of reasons for participating in the project, the primary reason being the hope for better lives for their children. Community participants had little interest in the research agenda.

For the community members participating in the project, there was no distinction between formative research, intervention or monitoring. They were all intervening--sometimes invasive--activities which were assessed according to their meaning, relevance and, most importantly benefit. Cassidy says, "Historically, nutritionists and epidemiologists have been little concerned with questions of meaning" (1994: 190S). However, when people are engaged in participatory research, they are able to assign meaning to an activity, even if that meaning challenges or contradicts that assigned to it by the researchers. Travers says that it is "necessary to explore the meanings people give to food, nutrition, and health and the values placed on these in relation to other valued pursuits in life" (1997: 58).

For the people to agree to participate in them, project activities had to be somehow related to children's health, because this is how they understood the project's ultimate goal. Thus, when project staff were doing cooking demonstrations, people identified that this was the

"food" component of the project which would benefit their children's diet. People identified morbidity monitoring as the "health" component of the project which would cure their children's illnesses (Umar, 1996). Because the project had a presence in the communities, it was assigned responsibilities for caring for members who needed emergency services. Thus emerged, without conscious planning, the three main themes of the project--health, food and care--which also correspond to UNICEF's analysis of the three underlying causes of malnutrition (UNICEF, n.d.).

In contrast to the community's, Tulimbe staff's schema were quite different, and followed the programme planning cycle. What we saw as monitoring, people saw as a health programme; what we saw as intervention, was a food programme; and what we saw as emergency assistance, some people saw as the essence of the project. The people's understanding of the project reflected "how people perceive reality, what meanings they attach to words and acts, and what values they attach to concepts such as health and good diet" (Cassidy, 1994: 190S). Meaning was assigned according to what people understood as beneficial for their children, and not according to our research objectives. In understanding peoples' values and motives for participating, staff could predict the reactions of people to the introduction of various activities. Attig, in his discussion of bridging the gap between the understanding of scientists and programmers, brings this out clearly, "Motives also aid in formulating a program objective that is realistic and acceptable to the community, program managers and scientists" (1995: 121). In the minds and hearts of community members, our success will only be measured in terms of what we did to prevent sickness and death, and most of all how we were able to achieve this, while at the same time preserving people's dignity and enhancing their sense of self-reliance.

This chapter has given an overview of the project's design and components, but the actual situation of the people in the project communities has not been described. The next chapter gives a description of the geographic setting, the people and how they are organised, their economic activities, living conditions and health status.

IV. DESCRIPTION OF PROJECT COMMUNITIES

The two communities, Nsanyira and Mchisa, are about four kms apart, located in Nasenga Extension Planning Area (EPA), both equidistant (7.5 kms) from the town of Mangochi on different routes. Mangochi is also the name of a district, one of 24 in Malawi. Malawi's total population is estimated to be between 9 and 10 million, and the population of Mangochi District is 700,000, making it a densely populated area. Comparisons between 1977 and 1987 show that, out of 24 districts, Mangochi was one of eight with a less than 10 per cent change in its infant mortality rate. Kalipeni (1993: 194) believes that the regional variable is the most important determinant of infant mortality, and that the Southern Region of Malawi is disadvantaged because of the population pressure on the land and the insufficient service infrastructure at district and sub-district levels.

Mangochi's large populace can be explained by its proximity to the lake and the lucrative business of the fishing industry. Fishing and trading in fish attract many people to the stretch of lake shore. To meet the needs of the transient population, rest houses and drinking places have proliferated, resulting in high statistics for HIV/AIDS. Because of the lake climate, Mangochi's weather is harsh compared to other areas in the country. Illnesses, such as malaria and bilharzia, are also more pervasive. From September to the onset of the rains, the weather is very hot and humid. Rains begin in November or December, become heavy in January, and last until March. The weather pattern is often irregular, however, and the area is prone to droughts. The cooler, dry season begins in May and ends in August.

Tulimbe Nutrition Project was located in Mangochi because it was affiliated with the Department of Community Health, College of Medicine, which operated a field office in the Mangochi District Hospital for the purpose of orienting medical students to rural health issues. The Department of Community Health had several projects in the district, including a teaching health centre, a "safe motherhood" project, and programmes for the prevention and treatment of bilharzia and cerebral malaria. Other agencies had small projects throughout the district, but the largest non-governmental agency with significant health programming throughout the district was Save the Children/USA, which concentrated its efforts on HIV/AIDS education and

malaria prevention. With the help of the head of the Department of Community Health and the District Consultative Committee, two communities were chosen in areas where there would be no duplication of programming. Nsanyira village, in particular, had already been identified by several government agencies as a priority for intervention. A national delegation from the Ministry of Agriculture discovered on a routine fact-finding tour, an alarmingly large number of malnourished children in Nsanyira. Therefore, Nsanyira was chosen first, and Mchisa afterwards, because it was nearby but not adjacent. Both communities were perceived by government field staff as co-operative, and therefore amenable to an intervention programme.

Information for this chapter comes from ethnographic literature on Malawi, my own observations, and data gathered during the formative research phase of the project (see Chapter Three for description and Appendices 2,3,4 for selected instruments).

PROJECT AREA

The two communities are located in flat areas bordered by hills and the Nasenga River. Mchisa is about one km from the main tarmac road, and thus its people have easy access to public transportation. People in Nsanyira must travel a dirt road for seven kms before reaching the tarmac road. There are some vehicles on this road which pick up passengers for fares, but many men and some women use bicycles or walk the distance. People from both villages travel frequently to Mangochi for trade, or to visit the hospital, post office, or government agents. There are no markets in or near the communities of Mchisa or Nsanyira, so people who are engaged in trading must travel to larger centres. As well, there are no health centres in the area, so people must go to the district hospital if they want to receive medical advice and treatment. The nearest public facilities are schools--Mpinganjira School is about 1 km from Mchisa close to the main road, and Mlambe School is about 3-4 kms from Nsanyira down the unpaved road in the other direction from Mangochi. Some limited field services are available from the Nasenga Extension Planning Area (EPA) office which is closer to Nsanyira than Mchisa. Field staff from the ministries of Health, Agriculture and Community Services operate from the EPA office. However, apart from schooling, residents of Mchisa and Nsanyira must travel to the town of Mangochi for most major services.

POPULATION

Census exercises undertaken by Tulimbe project staff in August, 1995 show that Mchisa's population (1,665) is slightly larger than Nsanyira's (1,256). The number of households in Mchisa was 378, and 314 in Nsanyira. Female-headed households were 70 and 67 respectively. However, these women collectively had few children--only 38 in each community. Therefore, the majority of female-headed households most probably represent widows, rather than young mothers. Most of the families with children are two-parent families. Polygamous marriages, although they exist, do not have a significant effect on what appears to be a relatively stable community of nuclear families. Mchisa had 458 children under the age of seven years, while Nsanyira had 359. The population has fluctuated somewhat since this census was taken.

PEOPLE

The predominant language group in Malawi is Chichewa. However, most people in the project communities belong to the Yao group. In Mangochi District, most Yaos are Muslims, and in the project communities, 96% of the respondents who answered the Socio-Economic Status (SES) survey identified themselves as adherents of Islam.

The Yao are a matrilineal group, and therefore people reside matrilocally. Men are not required to provide bridewealth, but only to offer the parents some small gifts, and labour on their land for a period of time until the marriage takes place (Power, 1995: 81). Upon marriage, a husband joins his wife in her community, and lives on and cultivates the land she inherits. However, the children belong to her, since they belong to her matrilineage. She, her husband, and her children comprise a banja household (Davison, 1993a: 407). However, the person with the most prestige in the larger family unit is not the husband who is considered an "outsider," but the woman's brother or the nkhoswe, who is ultimately responsible for her and her children. Collectively, the woman, her sisters and their children make up a mbumba over which the nkhoswe has authority. The nkhoswe is in the position of inheriting the chieftancy or headship of a community. Thus, having a large mbumba is desirable, for it constitutes a potential basis

for political power (Kishindo, 1994: 63). If the nkhoswe becomes dissatisfied in his situation, he will move the mbumba to a new community where he is able to gain more influence.

Extended families live in the same area in a semi-dispersed settlement pattern, but they do not live together on one compound. Husbands with more than one wife set up different households for their wives, usually not in the same community. Unlike some other African ethnic groups, the influence of members of the extended family in decision-making, notably mothers and mothers-in-law, is quite minimal (Kalipeni and Zulu, 1993).

Many of the women's activities are centred in the home, such as cooking, washing and caring for children. Women are also busy outside of their homes, drawing water, fetching firewood, going to the mill, and maintaining their gardens. Men are engaged in activities which take place primarily outside the home, such a building, farming, going to town, doing business, and maintaining their equipment and bicycles.

If a woman dies, or is divorced from her husband, the man must go back to his community, and seek a piece of land from his own people. He loses any rights to his wife's land and children (Kishindo, 1990: 503). Even though the husband seems to have little authority as opposed to the nkhoswe, he does make decisions about the cultivation of his wife's land, and how the resulting yields will be consumed or sold. As the population grows, the land available for the mbumba becomes divided into smaller parcels. Many husbands discover that the land does not meet their families' requirements. Men leave the household in search of ways to earn income from the wage labour sector (Davison, 1993a: 413). In the past until it was outlawed, many men left Malawi to work in the mines of South Africa, sending home remittances to support their families. Presently, many men work in the urban areas of Malawi, leaving their wives at home with their children for periods of time during the year.

As current economic trends put more stress on rural people, marital living arrangements become more flexible as both women and men seek more ways to earn income. Women, however, have far fewer options for income than men (Peters and Herrera, 1994: 313). Even after migrating, men are often unable to remit enough income or any at all because of lack of job opportunities and high costs of living. Sometimes, women seek other men who can support them more comfortably than their husbands. Women may have children with other men during their husbands' absence, and there are few sanctions against this practice in a

society in which paternity is of little importance (Power, 1995: 81). This flexibility in marriage ties, which is created by economic stress, has caused irreparable harm to the family structure in Malawi (Pryor, 1990: 27). In some cultures, economic hardship strengthens traditional ties; however, in Malawi, marriages within the matrilineal context have lost much of their significance. What has survived instead is the strength of the banja household as an independent unit, with or without the husband, and only sometimes with the support of the extended family or mbumba (Davison, 1993a).

Although the project communities were populated by Yao-speakers, there was little evidence of the widespread family breakdown that was found in the studies cited above, which largely surveyed women in peri-urban areas. Most husbands and wives lived together with their children, with relatives close by in separate housing. The stable status of marital and family relations was a contributing factor to the success of the project because both husbands and wives were able to contribute to the family nutrition system. Thus, the project benefited from the strength of the Yao group and their dedication to Islam, which inspired pride in and commitment to the new developments.

The Yao are known for celebrating the uniqueness of their culture, and this is expressed through their initiation ceremonies which take place during the months of August and September. Children used to be initiated at the onset of puberty from the ages 11-14, but now go to initiation camps when they are as young as 8. The general purpose of the initiation camps is to prepare boys and girls for the life ahead of them. They are taught to become responsible, productive members of the community, and to live peaceably with others. Sex education is also taught. The initiation experience for boys is most significant because they are circumcised. However, the ceremony for the girls is different from the boys' because they do not experience any kind of "circumcision" or female genital mutilation. Much of what actually happens to the boys and girls during their thirty-day period of instruction in the camps is a secret to those non-initiated. The secretive and sexual content of the instruction is frowned upon by other ethnic groups, who believe that the Yaos encourage their young girls to be promiscuous. Because of the social pressure against promiscuity as a result of the AIDS crisis, the emphasis of initiation camps is changing its focus to moral instruction and social skills. More and more, male circumcisions are taking place safely in hospitals and health centres, while the essential rituals

of passing from boyhood to manhood are preserved. In any case, for the people in Mchisa and Nsanyira, the initiation ceremonies are much anticipated, and their celebration is the highlight of the year. Key informants said that the communities' sense of cultural unity finds expression in these celebrations.

POLITICAL SETTING

The first democratic election was held in 1994. The United Democratic Party (UDF) succeeded the Malawi Congress Party after its regime of over 30 years, since the end of the colonial era in 1964. According to Kaspin's (1995: 615) analysis of the election, in the Southern Region voter turn-out was highest in Mangochi and neighbouring Machinga districts. This turn-out is attributed to the high population of Yao in the area. In contrast, those districts without Yao majorities had the lowest voter turn-out in the region and in the country. Because Bakili Muluzi, the UDF candidate at the time and current president, is a Moslem and has an affinity to the Yao, the voting pattern was defined along ethno-religious lines.

The UDF introduced universal free primary education, its impact on the rural areas being significant. For the first time, families who could not consider sending all their children to school, had the opportunity to give each of their children a schooling experience. Although it began during the Banda regime, the emphasis on girls' schooling through the programme GABLE (Girls' Attainment in Basic Literacy and Education) had a high profile as it made the transition with the new government. The Yao have a reputation for encouraging their girls to marry at an early age, and for undermining the importance of formal schooling because of its associations with Christianity (Lindskog and Lundqvist, 1989). GABLE, under the leadership of United States Aid (USAID)-sponsored personnel and the Ministry of Education, mounted a social mobilisation campaign which is active throughout the country, even in the remote rural areas (Davison, 1993b: 331). In 1996, GABLE paid three-quarters of the school fees for each girl who attended secondary school. Every two weeks, neighbouring village headmen come together with community leaders to discuss how to encourage families to keep their young girls in school. The importance of schooling for children has become a greater concern for the communities since the new government came to power.

Key informants noted several positive changes since the election. The practices of forcing people to purchase MCP identification cards, and imposing surprise levies have been eradicated. People can now talk freely without fear of being taken to the police. During the MCP regime, people were forced to "volunteer" their time and resources for various national causes. Now, according to local leaders, people are reluctant to do any work or self-help activities without pay, because of the promises made by the new government. However, people are disappointed because, although there is more freedom, the new government has not met their expectations—there are still few opportunities for individuals to improve their lives and livelihoods. One party leader in Mchisa said that the impoverished and uneducated in rural areas are not affected by a change in government.

COMMUNITY LEADERSHIP

The leadership structure in most communities consists of a village head and his councillors. Most chiefs in Malawi are men: few women become eligible for the chieftancy. The village heads or chiefs are the most influential people in communities, and the primary decision-makers (Mitchell, 1994). Their roles have been enhanced since the election of the democratic government because Malawi Congress Party representatives have been stripped of their powers to control community affairs. The chief now is consulted in all issues of land tenure and disputes among neighbours. The chief is notified when any important decisions are made which affect the community, and any outsiders coming into the village must pay respect to the chief before they fulfil their task. At the same time, community members seeking assistance from outside agencies or bringing in innovations must ask permission of the chief.

When the project was introduced to the two communities in 1994, their village headmen reacted differently to how they received the project. Nsanyira's headman was very co-operative, and agreed to co-ordinate all activities project staff proposed to him, without asking for clarification. Chief Nsanyira never complained about the extra work he was asked to do for the project, and always took opportunities during gatherings to encourage people to participate in project activities. On the other hand, the headman in Mchisa complained that the project staff were demanding too much from him. He resented the number of community and group

meetings which were required for project planning. When left with responsibilities, Chief Mchisa delayed and caused confusion. He often complained and sided with those against the project. When he died in February 1997, he was not mourned with the usual displays of grief because there was speculation that the chieftainship did not belong to him. His replacement is an older man, always accompanied by councillors. He has been counselled by group leaders to support the project because of its benefits to the community.

The contrast between these two chiefs was reflected in the response to the project by the two communities. Mchisa people were initially critical of everything that the project proposed, and as a result were slow to accept the new ideas. People argued amongst themselves and caused divisions in the community. Eventually, this seemingly counterproductive behaviour created the need for several meetings to discuss and mediate grievances, and eventually enhanced the relationship between project staff and community members. Criticism continued but became more constructive and insightful, community members often offering a better alternative to the plans of project staff. On the other hand, Nsanyira people were rarely critical, but eager to understand what was expected of them, and to participate fully in all activities. After the project staff left, however, both communities were held back in their development activities by the chiefs who sought to undermine the continued efforts of elected leaders, especially the male leaders. Thus, although the MCP party leaders have had their ultimate power removed, village headmen were also reluctant to share power. Thus, with such centralised leadership, large communities are disadvantaged in carrying out effective social mobilisation programs.

Currently, the headmen have the most recognition as community authority figures, but the religious leaders (sheikh) also play important roles in the communities. They are consulted for all religious matters, funerals and memorial feasts (sdaka). Religious leaders are influential in organising the community, and in implementing activities that require participation and volunteerism. For example, in 1996, the people of Mchisa, with help from the African Moslem Association, built a large mosque.

Other leadership structures have emerged from government development initiatives, such as committees to mobilise people in the areas of health, agriculture and community development. In Nsanyira and Mchisa, there were active health and agricultural clubs led by

government field staff—the Health Surveillance Assistant, the Farm Assistant and the Farm Home Assistant. However, even though there was a government-posted Community Development Assistant active in the area, attempts to form and sustain a Village Development Committee were in vain, according to government personnel. Whereas, as described below, the health and agricultural clubs' activities were centred around a straight-forward series of tasks, such as planting and monitoring crops or measuring children's growth, the tasks related to a development committee are less clear. The members of such a committee—both existing leaders and elected or self-selected members—would have to discuss and agree on initiatives together, and mobilise the community to carry out the plans. Thus, a Village Development Committee was a much more politicised body than the aforementioned clubs. People were accustomed to directives given out by existing leaders, especially the village headman, and it became evident that the village headman was reluctant to share his power with members of the community, even within the context of Village Development Committees. It was clear that there were differing opinions about what constituted development and change, and how far groups and individuals would be allowed to push their agendas. Although the struggle for power did not affect the project during the period when staff were present in the village, it had serious implications for the sustainability of the project after staff left the area, leaving neither existing nor new leadership with the support to which they had become accustomed.

COMMUNITY DEVELOPMENT

According to the key informants interviewed in 1995 (see Appendix 3), there were a number of chronic problems in the communities: food insecurity, lack of health services, water shortages, illiteracy, lack of income generating opportunities, overpopulation. The male Health Surveillance Assistant, who serves both communities, says that people are willing to listen to those who bring health messages, but they most often fail to carry them out because of the learned helplessness caused by living in poverty.

Material poverty notwithstanding, Nsanyira's Health Club leader believes that the strength of the community lies in the fact that people live peaceably together and are hard-working. In Mchisa, the female initiation leader said that people work together for funerals,

weddings and initiations. During the initiation period, everyone is affected by the festive mood, and enjoys celebrating. One religious leader said that features of their culture bring people together, and because many people worship in the Muslim faith, they are close as a community.

Before the nutrition project began, there were various activities initiated by government field staff which they reported at the first workshop. Most of these staff are based at the Extension Planning Area office and accommodated on the grounds in government housing. Community Services staff were in the process of organising a women's credit group in Nsanyira, which eventually received funds in early 1996 during the life of the project. Through the district Social Welfare office, supplementary food was given out from a distribution point located in the community adjacent to Nsanyira, but this programme was stopped because of a national re-orientation of priorities. The Agriculture field staff were collaborating with the Malawi Rural Finance Corporation to provide credit for farm inputs to groups in Nsanyira and Mchisa. However, this credit programme was also subject to national review, and ceased its operations, so that cash credit was no longer available. The Agriculture Clubs worked with Farm Assistants from the nearby agriculture office on model crop trials and experiments with new varieties of seeds. Various types of trials were taking place in Nsanyira and Mchisa, including those involving agroforestry, green manure, and drought-resistant crops. The Farm Assistant started a seed multiplication programme involving drought-resistant cassava and sweet potato, and promoted early-maturing sorghum, the traditional cereal, which has inherent drought-resistant qualities. However, these trials involved Agricultural Clubs and model farmers, so that the majority of the community was not aware of these innovations. Most of these trials are part of national experiments, and rigorously monitored, necessitating the selection of low-risk farmers. Land reclamation and agro-forestry activities were initiated by the local Ministry of Agriculture personnel, but according to the Farm Assistant, people were discouraged because the results were not immediate, and their efforts were not always recognised nor rewarded. Agricultural programmes also targeted women. The female Farm Home Assistant engaged women's groups in home and kitchen improvement activities, such as the construction of mud stoves and cupboards. One group had started a nursery for cassava and sweet potatoes.

The Health Surveillance Assistants (HSAs) are the only staff who live in the communities because their purpose is to hold regular growth monitoring and immunisation clinics. They are also involved in water and sanitation projects, and in the past, were able to provide cement for shallow wells and chlorine for unsafe water. They are assisted by community Health Clubs which assist in mobilising people to attend growth monitoring clinics. When there are serious outbreaks of illness, the Health Club works with the Traditional Birth Attendant and the Health Surveillance Assistants to cope with health problems in the community. One HSA co-ordinated a drama group and band from Nsanyira to perform during nutrition clinics held at the district hospital in Mangochi. This band was sponsored by Tulimbe during the life of the project.

Although there were various activities initiated by government field staff, none involved significant numbers of community members. When asked, most people were not aware of the services provided by government field, apart from the well-publicised growth monitoring sessions. Except for religious and cultural activities which involved everyone, there were no social mobilisation programs, and most families were not engaged in community development activities. Thus, when Tulimbe Nutrition Project came to the villages, people were at first sceptical to become involved, but then when they understood the purpose of the project, the majority of families with young children became involved. Although families realised that the project focussed on child nutrition, they hoped that the project would also somehow assist them with their inconsistent household food situations and improve their local economy.

ECONOMIC AND AGRICULTURAL ACTIVITIES

Mchisa and Nsanyira are not fishing villages, and although Mchisa is closer to Lake Malombe than Nsanyira, lake activities do not have a great influence on the lives of the people. Thus people rely on agriculture as their main subsistence activity. People are also occupied with petty trading, cash cropping and selling firewood to earn income. Most of these activities are centred around day-to-day food procurement. Their small plots of land do not allow people to grow enough maize for surplus yields, and thus they cannot usually depend on earning cash from selling maize. The leader of the Agricultural Club in Nsanyira said that the stored maize

runs out two months before the next harvest. However, if people have not used fertiliser, they will have a much smaller harvest and run out of food even earlier. Generally, people start rationing their maize in January, four months before harvest. Under drought conditions, harvested maize only lasts for two months. When people were asked about food security, they said that their yields depend on the weather. When the rains are regular, there is more food. If they have a surplus or if people require cash, they will sell their maize. However, if a family sells its maize, it puts its future food security in jeopardy.

At the time of the discussions, September, 1995, people had experienced two years of drought. In November, two months later, they planted seed in the hope that the rains would come and provide them with high yields. Fortunately, the conditions for growing maize in 1995/96 were ideal, and the harvest beginning in April 1996 produced bumper yields, which were almost enough to last until the next harvest in 1997. However, during the growing season of 1996/97, the rains poured continuously during the months of January and February, asphyxiating the roots of the maize plants, and killing most of the crop. The harvest of 1997 was not successful, and people predicted that "there will be hunger," implying significant food shortages.

Because of the unpredictability in both climatic and economic conditions, people cannot be consistent in their strategies for land use and allocation for food and cash crop production. Each year in Mangochi seems to bring new challenges: drought, too much rain at one, too little rain at crucial growth periods, labour shortages, and inputs prices out of range. (These issues were discussed in some detail in Chapter Two). Those who try to get the most out of their land invest in the inputs required for high-yielding varieties of maize, and tend their acreage assiduously during the growing season in the hope that they can fill their silos with the staple food. Not all families can afford to meet both concentrated financial and labour inputs requirements.

The people in Mchisa and Nsanyira, because of their proximity to each other, grow similar crops. Agricultural production is accomplished through the use of traditional farming methods and implements, such as the hoe and the scythe. Carts, similar to wheel barrows, are used to transport the crop from the field to the home. Animal traction is not used, and farmers are dependent on human labour for all tasks. The main soil type is sandy loam. However, the

soil may vary slightly in different zones in the community. For example, one zone in Nsanyira is more conducive to the growing of cassava, and other zones have soil containing more clay. Farmers makes ridges and box ridges to prevent erosion.

Peoples' planting patterns are dictated by the location of their fields. People may have several plots upon which they farm; however, individual plots rarely exceed two acres. Most land is inherited; however not all land is used nor cultivated. If people want a piece of land which has not been used, they ask the owner of the land whether they can use it, and once they have permission, the chief acts as a witness to the agreement. In many cases, the river separates peoples' landholdings. The land closest to the village is easier to access and monitor. The land away from the village is sparsely inhabited and must be planted with crops which do not require constant attention because animals, such as baboons, will disturb crops.

Cereal crops grown in the project area are: maize, sorghum and millet. Maize is the staple food, and people say that if they have not eaten nsima (patties made from cooked maize flour), they have not eaten. Thus, if a family has enough maize to last until the next harvest, its staple food needs are met. Although other staples are part of the diet, such as cassava, millet, rice, potatoes, these foods are considered as snacks or light foods. The increasing dependence on maize over the years has affected land allocation and dietary practices. The modern tendency to monocrop maize has been detrimental to soil conditions, and the need consume maize products at every meal has lowered the nutritional value of the diet. Agricultural staff have tried to encourage diversity in cereal production to decrease farmers' risks by mono-cropping maize. There have been attempts to promote a dwarf variety of sorghum; however, birds often eat the crop before it can be harvested. There is little production of millet, although millet is used to make the chimera required in thobwa and kalungolikoko (described in Chapter Seven).

Current local practices ensure that both local and hybrid maize seeds are planted as a precautionary measure in case one or the other fails. Local maize does not require chemical fertiliser, and its seeds are saved and planted year after year. Natural fertilisers are used, such as the residues from maize stalks and weeds, which are hoed into the furrows after harvest. Cow and goat dung are also used, but infrequently because few people own animals. The yield expected from the local maize is lower than hybrid maize, although the rate of spoilage is less.

On the other hand, hybrid seeds must be purchased every year at considerable expense, but people prefer the hybrid varieties because of their potential for high yields. Early maturing varieties are planted because of the unpredictable rain patterns in Mangochi. In order for the hybrid varieties to achieve their expected yields, they require chemical fertilisers. However, when hybrid maize is stored in bags with powdered pesticides, there is less chance of spoilage than with local maize. Maize cobs are stored in large silos made from woven grasses which are mounted off the ground (nkhokwe). Maize kernels are removed from the cobs by hand and stored in bags. Stored cereals are often attacked by pests, such as weevils, and by rodents, such as rats and mice. Chemicals are available to deter pests, but they are expensive.

Maize is interplanted with pumpkins and sunflower. Pulses commonly interplanted with maize are cow peas, pigeon peas and green gram. Root crops grown are sweet potato and cassava. Vegetables are planted in dimba gardens, close to the river for easy irrigation. According to the SES survey, 45% of respondents have dimba gardens with an average size of 1.5 acres, in which they grow maize, sweet potatoes and vegetables. As a dry season activity, selling indigenous vegetables is a main source of income for the women. Nsanyira grows leaves known as turnipus, rape, Chinese cabbage, and drumhead cabbage. Mchisa grows more pumpkin leaves and amaranthus. Nsanyira is more limited in its variety of fruit trees than Mchisa. Nsanyira has mangoes and pawpaws, while Mchisa has mangoes, pawpaws, guavas, bananas, and mposa (small sour cherry apple). There are few citrus trees because they do not grow well in the soil type. Women will sell small quantities of fruits and vegetables when they are in season. Fruits are sold within the community itself, whereas vegetables are usually taken to the Mangochi market, where they are in demand by town dwellers.

According to the SES survey, about one third of the respondents have goats and chickens, while very few have cows. Cows are found in Mchisa, but there are none in Nsanyira. People are encouraged by agricultural personnel to build corrals for their animals in order to avoid transferring disease. Poultry are susceptible to Newcastle disease and fleas. Cattle, goats and sheep suffer from coughing, boils and swellings. Both health and agricultural officials advise people how to care for their livestock.

The major cash crop in the project area is cotton. Cotton is prone to pests, and therefore several types of pesticides must be used to protect the crop. These pesticides are applied by farmers who rent or borrow backpack sprayers. Tobacco is also grown, only recently being de-regulated. The private production of most cash crops was restricted by the former regime, which sought a monopoly over the most lucrative crops. Presently, the sale of both cotton and tobacco is facilitated through marketing boards and central depots.

FAMILY AND COMMUNITY RESOURCES

During formative focus group interviews, women were asked to identify all their resources, and to decide if they were using them to maximise their potential to produce food. Women said that they plant different types of seeds in order to have a variety of foods on the same piece of land, i.e. beans, groundnuts, cassava, potatoes and chick peas. Men defined their resources as their tools: hoes, axes, slashers. Both men and women said that they were not able to use all of their land to grow food because they did not have enough money for agricultural inputs nor for labour. The men said that they did not have enough time to farm because they were too busy earning money to buy food. They were frustrated because they could not use their labour capacity to work their own land. Women said that they would be able to grow more maize if they had money to buy fertiliser. Some said that they had started small businesses in order to earn enough to buy inputs.

When asked what they could do to produce more food on their land, people said that they could prepare the land earlier, use manure, add more fertiliser, use hybrid seeds, hire labour, and start home gardens. Realising that they would need more money in order to produce more food, both men and women recognised the need to start or enhance their small businesses. Women engaged in a variety of income generating activities, including baking maize flour cakes, frying doughnuts, and making candy. Both men and women engaged in the buying and selling commodities, such as sugar, salt, beans, vegetables and fish. The inability to raise capital was seen as a major constraint to starting a business.

In summary, agricultural activities seem to be dependent on new technologies—high yielding varieties and chemical fertilisers—for any degree of success. Dei's conclusions about indigenous knowledge and economic production (1990) are relevant to the Malawian context. There seems to be a considerable "erosion of existing indigenous knowledge and production systems from such factors as . . . external, social, cultural, economic and political influences, as well as the pressure of exploitation of the natural resource bases supporting local peoples" (Dei, 1990: 18). People's reliance on purchased agricultural inputs, and their undermining of their own knowledge of local plants and vegetables, has had a negative effect on their health and nutrition status.

LIVING CONDITIONS

People were willing to involve themselves in a project which would improve their quality of life. Generally, the living conditions in Mchisa were poor, and as a result the health and nutrition status of children was further jeopardised. Inadequate housing and sanitation left little protection from cold and rain, mosquitoes and other disease-carrying insects. One of the more serious and immediate problems is the water situation.

According to the SES survey, 53% of the people in both Mchisa and Nsanyira get their water from boreholes, and 47% from shallow wells. Eighty-six percent are able to access water within one kilometre's distance from their homes, and 14% must travel more than 1 km. Nsanyira is close to three boreholes, but two are available only for the offices of the Extension Planning Area. The community has access to a river, from which many draw their water. Mchisa shares a borehole with a neighbouring village, but for its water, must rely on thirteen shallow wells, only three of which are protected. Protected wells are raised and surrounded by a cement wall which is covered. Unprotected wells have no covering, and are gaping holes into which any refuse may fall. The water from boreholes and protected wells is safe, and does not need to be treated. However, the water from unprotected wells is not safe, especially during the rainy season. People are told by Health Surveillance Assistants to boil their water, but most are resistant to do so because they do not like the resulting taste. Water-purifying chemicals are

sometimes available from the hospital, such as chloride of lime. Health Club members in Mchisa procure water treatment chemicals during outbreaks of diarrhoea, especially in the rainy season.

The people in the project communities live in one-family dwellings with a fenced-in backyard. According to Tulimbe's Socio-Economic Status (SES) survey, about 50% of houses are built with bricks and mud. The bricks are smeared with mud to create a smooth surface for the walls. Bricks are moulded from clay, dried, and baked in a type of kiln made from the bricks themselves. Not all people bake their bricks, and the majority only use bricks dried in the sun (zidina). In rain storm conditions, houses made with unbaked bricks often disintegrate. The other fifty per cent use bamboo poles to form the walls of their houses. The poles provide the frame, and mud is packed to form a thick wall. The colours of the mud are used decoratively. Much attention is given to maintaining the floor and the outside walls.

Ninety-three percent of homes have thatched roofs, and only a few houses have tin or tile roofs. The tile-roofed homes are those built with the assistance of Habitat for Humanity, an international non-profit housing organisation. Some people lay plastic sheets on the frame of the roof before adding the thatch for better protection against the rain. Floors are formed from a mud mixture in order to achieve a smooth consistency which dries to look like cement. The ingredients of the cement-like mixture may include: maize flour, soil, leaves and charcoal. A small smooth stone is used as a trowel to level the floor. According to the SES survey, most people (70%) do not have windows in their houses. Thirteen per cent have glass windows, 8%have openings in their walls which are not protected, 6% cover their openings with wood, and 3% with a plastic mesh or screen.

Generally, the house is used for storage and sleeping at night. Those who are more financially advantaged have a table and chairs for visitors. Most adults sleep on a ngwambala bed framed with wood, and covered in hand-woven sisal. Because of the expense of a bed, children often sleep on mats woven from grasses. People prefer to sleep raised up from the floor because of the pest problem. Common household pests are cockroaches, mice, rats, bedbugs, fleas and mosquitoes.

The houses are kept clean, and swept several times daily as needed. The first task of the morning is sweeping the compound. Less attention is given to the grounds, and refuse is allowed to accumulate until the next morning's sweeping exercise. Some families have a pit for refuse located outside their compound, but most allow deposit their garbage indiscriminately. Most compounds have fencing made from grasses which are aligned and woven together with more grass or rubber string made from recycled tires. The grass fencing is supported by posts made from saplings. The fencing does not usually enclose the whole compound, but only the back.

The area in the back of the house is where most of the household activity takes place: preparing food, caring for small children, and carrying out various chores and activities. Depending on the family's wealth, there are many different structures and types of equipment to accommodate its needs. Water for cooking and bathing children is brought into the compound and stored in clay pots, usually uncovered. If there are older, initiated boys in the household, separate huts are built for them. The silo or granary holding the year's supply of maize is central to the back of the compound. Small animals and poultry are kept in this area at night. There are shelters for goats, and coops (kholas) for chickens and pigeons. However, many households cannot afford such shelters, and at night, goats and chickens are made to sleep in the house for their safety.

The kitchen, usually a small hut-like structure with gaps at the top, is also located in the back compound. The three-stone stove is in the kitchen, but kitchen implements, such as water buckets, pots, plates, cups, and cooking sticks, are stored inside the house when they are not being used. Implements which are being cleaned or dried are put on an elevated drying rack made from sticks. The practice of sun drying and storing dried leaves (called mfutso) is well known and practised. Green leaves (pumpkin leaves, etc.) are blanched, then dried on mates, and stored in clay pots for future months when they are not in season.

Meals are prepared in the back of the compound in a covered kitchen area or outside. The three stones upon which food is cooked can be moved, so that the heating area is not necessarily in a stationary position. Some men in the communities say that they know how to make more fuel-efficient mud stoves; however, these stoves are not popular because they do not heat food as quickly as the three-stone method. Most rural homes use firewood to cook, not

charcoal or dung (Borrower et al., 1997; Borrower et al., 1993). The people in Nsanyira sell firewood for a living because of their proximity to the hills, while the people in Mchisa only collect it for home use. Some families purchase their firewood, but most go to the hills to collect it themselves since they cannot purchase the fuel locally because of a lack of cash. The journey to the hill to collect firewood takes approximately twelve hours, and usually women are assigned this time-consuming and arduous task.

On the outside of the compound fence is a small fenced enclosure, meant for bathing. Although not all homes have their own toilet facilities, all have a sheltered area for bathing. There are no soak-away pits for the drainage of bath water; therefore, the dirty water stagnates, attracting flies. According to the SES survey, 81% of the people surveyed use a pit latrine, and 19% do not use any manufactured facility for toileting. Of those who have pit latrines, only 2.5% are located in the house itself, whereas the great majority locate their latrines outside of the compound, on the border of their fence or nearby. The shelter for the pit latrine is usually made of burnt bricks. Care is taken that the latrine is protected from rain, because it may collapse.

HEALTH AND ILLNESS

Many of the health problems evident in the project villages are a result of the living conditions and limited agriculture and food production activities described above. Party representatives in Nsanyira cited the death rate at 3-4 per week in 1995. They believe that this high rate was due to AIDS, bloody diarrhoea, and sores due to coughing. They could not identify a segment of the population which was more effected than others, i.e. people from all age groups and backgrounds were dying. However, the Health Club chair in Nsanyira said that children, especially those aged 2-5 years, are most affected by death. Nsanyira's Traditional Birth Attendant believes that more children than adults die in the rainy season, citing contaminated water as the reason.

During the formative research stage, key informants identified the adult diseases that they thought were most common, and gave explanations about why they were prevalent. They said that malaria occurs because of poor sanitation, lack of proper rubbish disposal, and tall

grasses around houses which attract mosquitoes. The hot, rainy months between January and March are most conducive to malarial conditions. Bloody diarrhoea occurs more frequently in the rainy season when people drink water from unprotected shallow wells or from the river. They said that diarrhoea is also a result of poor sanitation: there are not enough latrines, and some people keep animals, such as goats, in their homes, which contribute to unsanitary conditions. Cholera outbreaks also occur during the rainy season. Coughing and "sores" in the chest are common, and are associated with many medical problems and causes.

The Nsanyira Agricultural Club leader identified AIDS as prevalent. He said that he has observed people die of AIDS. He recognises people with AIDS because they are very thin and their hair looks like that of a malnourished child. The Traditional Birth Attendant also cited AIDS as a health concern, but said that only a few, not many, were dying of AIDS. She said most are middle-aged, and they become sick because they are reckless in their sexual relationships.

Although the key informants and decision-makers interviewed had received some formal health education about the causes of diseases, they may also believe that certain illnesses are caused by witchcraft. Discussions of witchcraft are too sensitive for the type of research initiated by the project. However, it is worth mentioning that there are other factors which affect people's beliefs about sickness and death. According to Englund (1996), there is a prevailing belief in witchcraft because of contradictory or unexplained circumstances in people's lives. Often illness, death or misfortune is blamed on another party's jealousy over some type of material accumulation or new power. On the other hand, wives are commonly blamed for using witchcraft to bring about their husbands' deaths. I have observed this blaming of widows in cases in which husbands have died from prolonged and terrible deaths of AIDS-related diseases. However, when a man dies of another type of short-lived disease, his enemies, those who envy him, are blamed. People watch the attendance at funerals noting those who do not come to pay their respects, and suspect them of causing the death.

Currently, in Malawi, the rate of death, of both middle-aged adults and children, is overwhelming. For well-connected Malawians, the deaths of people known to them may occur weekly. Dying has become an epidemic, and many deaths are unexplained. People do not seek explanations through autopsies or investigations, but many accept the situation as a disruption

in the balance of the larger cosmology which evolves around seasonal decay and regeneration (Kaspin, 1996). A cosmological explanation for death is reinforced by observations of the weather patterns, which in recent years are either too dry or too wet, bringing on food shortage and illness. Thus, when witchcraft is not sufficient to explain the larger patterns of death and destruction, fatalism provides an answer. Although illness and death may be explained by environmental and biological means, there is also a belief that adversity cannot always be rationalised by science. Thus, there is a tension in Malawi between modern medicine, witchcraft and fatalism.

Several key informants identified children as the group most at risk to succumb to disease. They believe that children fall sick because they are malnourished, and do not eat from the "three food groups." According to both men and women, the most common child illnesses are diarrhoea, measles, vomiting, sores in the mouth, malaria, eye infections, sore throat, coughing, and malnutrition (kwashiorkor). Malnutrition and oedema (kutupikana) are thought to be caused by the way food is prepared, the low quantity of food available, and poverty. Kwashiorkor is believed to occur because parents do not practice child spacing. These explanations correspond to people's observations, but they also have scientific validity. For example, kwashiorkor is most often attributed to the cessation of breast feeding as a result of a new pregnancy or baby.

While community members identified causes in the household, Health Surveillance Assistants and teachers identified infrastructural reasons for the prominence of child disease and death: lack of health services, sanitation systems, and health promotion campaigns. They also blamed the people, especially men, for not taking their responsibilities for their children seriously, and not providing the resources for their welfare.

The fact that illnesses attack often, without warning, and many times end in death, leave people with a sense of helplessness. Seeking answers in fatalism or witchcraft seems to be the only ways to explain rates of sickness and death which overwhelm communities. This was why it was important that Tulimbe Nutrition Project not only disseminate nutrition messages and recipes, but help people understand that by changing their behaviours related to child feeding and child care, they could reduce incidence of child sickness and death. Essentially, parents

could be made to understand that they themselves had the potential to have more control over their children's welfare.

HEALTH-SEEKING BEHAVIOURS

Representatives from political parties in Nsanyira said that people go to the hospital in the town of Mangochi if they are sick. The distance from Nsanyira to Mangochi is 10 kms, and from Mchisa to Mangochi almost the same. According to the SES survey, 93% from both communities said that they depend on the hospital when they are sick. When asked if they took their sick children to hospital, women said they usually took their children several times a month. The men said that they would take children to the hospital if they cried all night long, had a fever, or had diarrhoea. The Health Club leader in Nsanyira said that the distance to the hospital and the cost of transportation prevents people from going to the hospital more frequently. If money is available, parents catch a lorry or a mini-bus. However, if money is not available, women walk and men ride their bicycles, carrying children on their backs. Because bicycles are a luxury item, few women have access to them. However, women are not restricted from riding bicycles, and those who have access to bicycles do use them for transportation. Bicycle ambulances are gaining in popularity, although they are expensive and must be purchased by a community.

Both women and men said during group interviews, that they wait at the hospital from nine to eleven hours on average before they receive treatment for their children. Others said that they give up and go home without treatment because they cannot wait any longer. They complain that sometimes a child dies while waiting to see the doctor. Women and men also complain about the medicine they receive from the hospital. Women said that they are given aspirin and Fansidar (a malaria treatment) for whatever ailments they present to the medical officer. If the child has diarrhoea or a stomach ache, they are only given Oral Rehydration Salts (ORS). Men complain, because in the past they would receive chloroquine for malaria which they believe is more effective than Fansidar. The men from the communities believe that they are ill-treated when they go to the hospital because they are seen as "villagers," and no one wants to pay attention to them. Women were also frustrated because they did not receive the

advice they needed in the brief consultation times they were given. Because of people's frustrations with hospital services, children are not taken to the hospital until their problems become too serious. Children are usually taken to the hospital too late, and therefore do not survive. One party leader from Mchisa said that it is difficult to tell people to take somebody to the hospital because it is a sensitive issue.

On a regular basis, children are taken to "under-five" clinics for growth monitoring. Clinics are held monthly in the communities, usually under a large mango tree which provides good shade. Children's height and weight are measured by Health Surveillance Assistants (HSAs) and Health Club members. The results are recorded on their government-issued health cards. Almost all parents have health cards for their babies. Health professionals use the occasions of growth monitoring clinics to come into the communities to vaccinate children. They are vaccinated against measles, tuberculosis, polio, whooping cough, diphtheria and tetanus. If people had to go to the hospital to have their children vaccinated, most children would not have received their vaccines.

People do not always go to the hospital for medical advice. In fact, the 93% who said that they depend on the hospital for medical advice and treatment may be an inflated number because people knew that Tulimbe was affiliated with the hospital. People's visits to traditional doctors are generally kept confidential because, although people believe in them, health officials discourage people from relying on them. However, from the observations of project staff, the reluctance of people to take their children to hospital for primary health care programmes, or even for serious illness, shows that they will try all available cures within the community before travelling the 10 kms to town. Instead, people rely on several alternatives because of the inconvenience and discomfort involved in a trip to the hospital.

Some people buy medicine, such as aspirin, at the local shop (1% according to the SES). Some people also go to herbalists (6% according to the SES). These traditional healers are called asing'anga, and there are usually several in each community (Morris, 1986: 368). Asing'anga dispense traditional medicine or herbal remedies. Most children can be seen with charms and amulets (chilisi) filled with herbs around their necks and waists. Traditional medicines are used for both preventative and curative purposes. The Traditional Birth

Attendant also plays the role of traditional healer in the community, and so others, not only pregnant women, see her for advice.

People have ideas about how to improve the health of their communities, but often find themselves frustrated by environmental and economic factors, as well as government policy. During the formative research stage, representatives from political parties in Nsanyira said that in order to improve the health situation for children, the water and sanitation situation should be addressed. The Nsanyira Health Club leader identified the unpredictable droughts as affecting all aspects of life and livelihood. The Nsanyira Agricultural Club leader said that people's poverty must be alleviated in order to mitigate the food insecurity and malnutrition problems. These community leaders have identified the problems impeding their progress, but need support for taking the steps forward in their development. Tulimbe Nutrition Project was able to begin to provide this support, and the impetus for change in the community.

V. EVALUATING COMMUNITY INVOLVEMENT

This chapter describes approaches taken by project staff to enhance community participation. First of all, the historical and political setting is reviewed in order that results may be put into a meaningful context. Secondly, a critique is presented of philosophical and theoretical orientations and assumptions underlying this study, and how they were applied during the life of the project. Finally, various factors are described which contributed to the project's positive outcomes in the participating communities.

MALAWI'S HISTORY OF OPPRESSION

The thirty year regime of the Malawi Congress Party (MCP), from 1964 until 1994, under the leadership of its "life president" Dr. Kamuzu Banda, did little to encourage popular participation. Traditional leaders could not make decisions independent of MCP party leaders who were present in each community for the purpose of reporting subversive behaviour and maintaining support for Dr. Banda's directives (Pryor, 1990: 33). These directives often involved giving money, farm produce and building materials for Dr. Banda's projects. Young women and girls were assembled and made to board flat bed trucks and buses when the president required dancers to perform en masse at political rallies. Rarely did rural communities benefit from their contributions to the government, with all or most benefits accruing instead to an urban elite. Subjugated by fear and poverty, rural people had no political representation or recourse. In his article on Malawi's transition to democratic government, Minnis says that during the regime of Dr. Banda rural Malawians "looked increasingly inward [to relationships with family and friends] for enjoyment and intimacy" (1996: 6), rather than making contributions to the larger community.

Although rural people were expected to contribute to the government's causes, rural communities were not encouraged to initiate community development projects. Dr. Banda's political rhetoric promoted smallholder family production rather than communal production. From an historical perspective, there is evidence that individual banja family production

evolved into the basic production/reproduction unit among matrilineal groups in southern Malawi (Davison, 1993a). Government rhetoric and oppression, combined with a pattern of production that had evolved in reaction to the colonial practice of conscripting labour, created highly individualistic self-preserving attitudes in society. Consequently, it has been observed that "Malawians have no history of looking outward onto a wider public to which 'private' problems could be transposed into 'public' issues" (Minnis, 1996: 6). The rural Malawian economy might be characterised as an "economy of affection" (Hyden, 1980) in which familial and communal ties and concerns have greatest affect on day-to-day behaviour rather than engagement or integration with the larger economic sphere. Thus promoting community allegiances for the purpose of advocating change and community development is difficult because of deep mistrust and fear of retribution. Organising with others means risking individual and familial security, and therefore people tend to remain detached when presented with changing social situations.

Thus, when the MCP was defeated in the first democratic elections of 1994, there were very mixed public responses. Several newly founded newspapers, using their recently granted freedoms of expression, began to publish stories of the UDF government's corrupt practices, revealing for example that MPs were receiving thousands of dollars of Poverty Alleviation funds for their constituents. Because there was no accountability for this money, the Poverty Alleviation programme deteriorated and was severely admonished. In conjunction with high-level corruption, the urban crime rate rose. In response, mob justice prevailed in the streets and people engaged in widespread illegal and disorganised strikes and protests, destroying property and causing social turmoil. This dawn of the new government coincided with drought, food shortages and currency devaluation, which in turn caused a marked decline in the standard of living for the poor. Though people experienced new freedoms, they were generally confused about how to exercise such freedoms under the conditions of rapid socio-economic change. According to Deborah Kaspin, Malawians went to the polls "in a political vacuum" (1995: 611), their most powerful motivation to vote being "oppositionalism" (1995: 614). People were opposed to the MCP regime but had no clear vision of what kind of government could replace it, nor any general conceptualisation of the meaning of democracy.

The first civic association founded in Malawi in 1992 was a government parastatal called the Public Affairs Committee (PAC), which recommended in its first political advocacy statement that the practices of forfeiture (seizing the assets of those perceived to be threats to the regime) and of political and preventative detention should be abandoned (Ng'ong'ola, 1996: 90-91). The stated goal of the PAC at the time was intended to alleviate fear in the ranks of the elite and to restore basic human rights, rather than encourage radical change. In its more grassroots efforts at promoting civic responsibility, the Electoral Commission was successful with its voter education campaigns before the election in 1994. However, only more recently has there been a limited effort on the part of the Public Affairs Commission to educate people on the importance of "building local democracies" (Malawi, 1996d).

According to Kerr, the root cause of many of the problems rural people have faced in Malawi is:

> the highly authoritarian political machinery, which tends to create a similarly authoritarian development ethos, with villagers considered as objects of administration and decision-making at a higher level. This creates a mood of passivity and community inertia towards development projects. (1989: 470)

In the rural areas, where the government is represented by field staff working in the areas of health, agriculture and community development, there is little understanding of how the shift to democracy affects rural people. This breach in communication is not unusual with this cadre. E.A. Cebotarev has made similar observations about field staff in Latin America:

> . . . very few field workers had a clear conception of the social, economic, and political interrelationships in their area of work. They were not unaware of these forces, but they seemed to lack the conceptual tools which could permit their explicit inclusion in the planning of their education and action programs. (1980: 38)

Most field staff who work in rural areas are frustrated with the people's lack of co-operation, and their lack of ability to visualise why change is inevitable and important in their lives. Invariably the reason for people's negative attitude to field staff's interventions is their authoritarian approach. Field staff usually only have a minimal educational advantage over their clients, and are not given the supervision and support they need from their supervisors or colleagues. In their official position as government representatives, they believe in their right to assert their relative power over people. Poorly trained and insecure in their own expertise, they

preach their lessons with poor communication and public relations skills. Government change agents are seen as ineffectual, and thus people's potential for change evolves into hostility and a rejection of those who come from outside their immediate community.

COMMUNITY DEVELOPMENT AND EMPOWERMENT

There are, however, collective ways by which people can find solutions to the problems affecting their families and communities. By recognising the need for collectivity and action, communities are able to take the first steps to organising for change. The process of attaining "civic competence" (Lackey and Dershem, 1992: 220) stems from people's experience of "empowerment." Schuftan (1996) defines empowerment as a continuous process that enables people to "understand, upgrade and use their capacity to better control and gain power over their own lives." Once people empower themselves they have "the ability to choose, as well as to gain more control over resources they need to improve their condition" (1996: 260). Checkoway believes that empowerment is a "multilevel process" including individual involvement, organisational development and community change (1995: 4). During Tulimbe's first workshop with senior government officers and field staff, participants defined "empowerment" as "giving people the chance/opportunity to do things on their own; giving people their rights/the ability/the authority to do things." In the definition given by government staff, there is an implication that people have not been given permission or do not permit themselves to make decisions or take initiatives. There is also an allusion to the idea of oppression because the participants refer to the need for "rights" and "authority." Inferred is the idea of not having the "ability" to do things, which applies both to "authority," and knowledge and skills. Ultimately empowerment is self-reliance, and initiatives for self-reliance should be undertaken by people themselves.

The process of working with communities in their initial struggle for self-reliance is at the heart of the "community development" movement that began in the 1950's and 60's. More recent movements which stress "participation," may be called collectively by the newly coined term, "Participatory Learning and Action" (PLA) (Pretty et al., 1995). Levels of participation

are depicted in the "ladder" of participation (Pretty et al., 1995: 61) which lists steps to "self-mobilisation" or "empowerment." The ladder begins with more "passive" forms of participation and works up to "interactive" participation, a prerequisite to "self-mobilisation." The typology of participation describes how people are involved, and also predicts the outcome of a project. For example, if "self-mobilisation" has occurred, the project is not only successful but also sustainable. However, if participation has occurred only at a passive level, there will be need for continued intervention.

For the community to be supported on its journey to self-reliance, Shaffer (1995) suggests that there be a balance between that which is done by the community for itself and that which is done for the community by outsiders. He calls this sharing "community-balanced development," in which both the community and the intervening agency take initiatives, raise resources, assume responsibilities, and enhance relationships (1995: 50). The idea of balance presupposes external involvement: "Only rarely do participatory development activities arise from within poor groups without any form of outside stimulus" (Burkey, 1993: 75). Interventions from outside the community are almost always accomplished by government or non-governmental agencies, and usually by indigenous personnel who come from outside the community itself. Boeren says that external communication inputs are "indispensable" in initiating development activities (1992: 270). The outside agency brings with it an idea for a project or intervention, a philosophy of development, human and material resources, and an approach to working with communities--all of these factors may contribute to the community's ability to become self-reliant. Although many outside interventions have been criticised as inappropriate for rural people, all interventions are not detrimental to communities. For example, community-based health interventions have save many lives. Even so development agencies have had to re-orient many of their strategies over the past three development decades, and now employ approaches which involve people in decision-making processes. On the other hand, Fussell disagrees that communities require an outside facilitator in order to experience change. He believes that the change process is a "natural characteristic for healthy communities" (1996: 47). Although change from within communities is an ideal phenomenon, it is unlikely that positive changes would occur at the rate at which they are needed in Malawi, because of its history of oppression.

Often project ideas are already defined by funders, along with human and material resources. Agencies cannot veer too far from the plans made in proposals and budgets. Shuftan (1996) describes his taxonomy of types of community development projects: service delivery, capacity building, advocacy, and social mobilisation. In essence, Tulimbe Nutrition Project was a conventional community-based project which included to varying degrees all the aspects which Schuftan (1996) lists: service delivery (growth and morbidity monitoring), capacity building (skills training), advocacy (with agencies such as the district hospital) and social mobilisation (for nutritional change). However, even in conventional nutrition projects, there are many opportunities for creativity in how the work is accomplished with and by communities. Most of this creativity may be generated by the community itself, and how it carries out the processes of adoption and change. The greatest indicator of a project's success is the community's acceptance of it, and willingness to continue promoting its innovations without depending on motivation from outside. When donors use the criterion of "sustainability" to evaluate project proposals for funding, they assess whether the project will be viable after the intervening agency leaves. The sustainability of an intervention depends on the people in the community to continue and maintain the changes. However, significant factors for a project's success and sustainability is the agency's approach to people and its ability to inspire ownership and self-reliance in the community.

APPROACHES TO COMMUNITIES

From the experience with Tulimbe, it was observed that rural communities often interpret interventions according to their social significance or benefit, and if the social relevance is not evident, the intervention will probably be rejected or overlooked, even if its use would lead to some material advantages. For example, even though ovens, oil presses and solar food dryers were introduced into the communities, people did not use them because after project staff left, the chiefs felt that group leaders had more power than they did. Thus in order to preserve their power in the communities, the chiefs took control over the pieces of equipment, disallowing their use. Thus project staff were not effective in their initial approaches to introducing the machines, concentrating instead on how they worked, rather than how they would be shared and

used by people. Regardless of the type of the project, even if the project exists solely to install equipment, such as pumps or grinding mills, there must be an approach to the community that inspires understanding of the need for change. The social-relational aspects of the intervention are most important for the viability of even the most technical project.

Initial approaches with the community involve educational processes in which the participants engage in learning new things. This learning according to Lackey and Dershem is of two types: "external knowledge" (information and skills) and "self-knowledge" (confidence, abilities and limitations). (1992: 223). Tulimbe Nutrition Project's emphasis was on people and learning or "human resource development." Calling Tulimbe a "nutrition," "food," "health," or "children's" project is accurate only by the fact that these areas of concern were content areas for learning. More accurately, it could have been called the "Education for Change Project," because the learning exceeded the content areas and spread to all areas of public and private life, so that people perceived their situations in different ways than they did before. People learned about the content areas mentioned above, but also about more themselves and their communities. Government partners, staff and community participants were conscious of the types of learning that were taking place because they were asked to reflect on their learning processes during workshops, demonstrations, home visits and evaluation exercises. During the summative evaluation (see description in Chapter Three and instruments in Appendix 9), they were asked to reflect on all their experiences in the project. The data reflects participants' learning in both self- and external knowledge, and their multiple readings of the significance of the project for their lives.

APPROACHES TO SOCIAL TRANSFORMATION AND THEIR LIMITATIONS

The education processes of community projects need solid philosophical and methodological underpinnings. According to Srinivasan (1992), approaches to community education can be separated into three categories: didactic, transformational, and growth-oriented. The didactic mode or what Paulo Freire (1970) calls "banking" is the most common way of teaching people. Participatory and popular education movements were begun in reaction to didacticism and

oppression. The goal of popular education is to achieve societal change through people's recognition and critical analysis of the causes of their poverty and marginalisation.

This approach has also been applied to nutrition education, especially the type of programming which currently exists in Malawi (see Introduction), in which both field staff and community women are alienated from the messages and from each other. Travers criticises conventional nutrition education for its "emphasis on individualistic behavior change strategies [which] negates the role of social context in shaping behavior, and thus implies a separation of people and their environment" (1997: 58). She applies, "critical social science," to nutrition education, and advocates for an "emancipatory nutrition education practice" that explores the social roots of nutrition problems, such as social isolation, low literacy levels and poverty (Travers, 1997: 59). Bantje (1977) makes similar conclusions about his work in Jamaica, where the people's lack of receptiveness for nutrition education is blamed on ignorance and lack of motivation, instead of the actual causes--poverty and alienation. He says, that the "real issue lies not with food habits and cultural beliefs, but with the structure of society and the semantics of nutrition education" (Bantje, 1977: 105). A transformational nutrition education would analyse the larger political and economic issues behind food insecurity, but also critique the discourse and practices of extension staff who preach the benefits of foreign recipes and strange foods, while negating people's indigenous knowledge and practices. Because the project was centred in changing children's dietary practices, a transformational approach would also include an exploration of gender and power roles within the family and community, and how they contribute to child malnutrition. Such an approach to nutrition education would challenge the status quo and inevitably cause conflicts between those who perceived themselves as disadvantaged and privileged.

In much of Africa, the emancipatory approach to community education has been well disseminated in three manuals called *Training for Transformation* (Hope and Timmel, 1984) which adapts the ideas reflected in Freire's *Pedagogy of the Oppressed* (1970). Srinivasan (1992) calls this approach confrontational because it assumes that people will take action against what they identify as the cause of their situations. Closely linked to popular education are Participatory Research (PR) and Participatory Action-Research (PAR). PR methodology allows people to articulate, reclaim and create knowledge for their own purposes (Hall et al,

1982; ICAE, 1982). PAR movements which have social change as their goal are used in both developing and developed countries alike (Fals-Borda and Rahman, 1991; Park et al, 1993).

Many movements and projects have Freirian philosophy and methodology as their raison d'être; however, not all are successful in achieving the higher goals of societal change. Kidd and Byram (1982) describe their experience of "demystifying pseudo-Freirian development" in their article about a popular theatre project in Botswana. They conclude by saying that their project was limited in its quest for social transformation, because although the actors and audience explored community problems during the performance, they did not explore root problems, nor ways to address or take civil action to confront the status quo. The community was not organised into special interest groups to follow up on the issues presented in the plays. Performances were seen as isolated occasions for entertainment and not perceived as vehicles for social change. Therefore, although Laedza Batanani was touted as an innovative method for social change, it was largely a failure in achieving its ultimate goals. The program achieved the goal of popularising drama for the purpose of disseminating development messages, but its approach was largely didactic.

Another methodology which began as a reaction to top-down research and program planning is Participatory Rural Appraisal (PRA). In his books expounding on the theory and methods of PRA, Chambers (1983; 1997), emphasises that people can be empowered by using their own knowledge to analyse and solve their community problems. More structured than PR, PRA has a well-documented selection of techniques which non-literate people can use to illustrate or articulate the issues they face in their communities (Odour-Noah et al., 1992). The goal of PRA is a practical one--to develop a community action plan.

Although PRA is popular because of its defined but adaptable research techniques, the methodology is not always used to assist communities to explore the potential for new community programs. Instead, PRA is often used "as a set of ad hoc techniques for information extraction, rather than a structured method for participatory project planning and empowerment" (Warner, 1996: 331). Organisations often use PRA methods to collect baseline information, but do not follow up with any programme, or instead implement a pre-packaged project that disregards the PRA process altogether. Others use the methods to "gain a better

overall understanding of community processes and interests" within a participatory format, whether or not all the methods are relevant to the going concern (IEF, 1996: 11).

There is much borrowing of the principles and techniques of participatory methodologies for the purpose of exploring issues with communities and doing community development work. However, this borrowing results in a weakening of the original intent of PR, which is to provoke societal change, and the intent of PRA, which is to plan community action. The appropriation of PAR methods and approaches is sometimes used to manipulate people to join movements, or to convince them to think or act upon certain issues—all of which are in the best interests of the intervening agency, rather than the people. PAR methods may even be used by researchers who know that they will collect better data than if they were to use conventional research methods. PAR methods are powerful and should be used responsibly by individuals and institutions who are willing to support communities through their process of change. Most organisations and communities in Malawi need intermediate skills to develop both personal and group strengths before they are ready to engage in effective strategies for Participation Action Research and social transformation. Thus, even though the orthodoxy of the methodologies is not preserved, there is still potential for positive changes if not ultimate transformation, if the intent is to reach the ideals and the integrity of PAR.

I desired to instil within the communities the fervour for societal change, especially within the context of their new democratic status. I also wanted to follow through with each step of Participatory Rural Appraisal so that the communities would in the end formulate and carry out their Community Action Plans. At the beginning, there was much enthusiasm for the approach. The process began with meetings and training sessions, and many of the techniques were accomplished in such a way that people began to see the potential of change in the collective life of their communities. However, six months after the initial community process began, the course of working intensely with communities to establish their own plan for change was interrupted by the necessity to proceed with the baseline nutrition study. Although there was always the intention to effect nutritional change in the communities, I wanted the people to have a large part in designing the nutrition project. What happened instead was that funding and time constraints put staff under so much pressure, that most design decisions were made by the Canadian staff. The Malawian staff and community leaders were merely consulted about

the feasibility of the plans as we reached each stage. On the "ladder of participation," the community started out on the lower rungs, and I had fears that the project would not be viable because of what I saw as our conventional rather than radical approach.

As a student of PAR, who had read the critiques and case studies of those who tried and succeeded, or tried and failed, I was devastated by how quickly the process had broken down in favour of conventional research strategies and at the mercy of time and logistical constraints. My desire that the project would take a smooth and consistent road to social transformation was ruined.

The tensions between the top-down relegation of project decisions and a bottom-up decision-making process were a cause for stress among staff members and community leaders alike. In an article about a similar project, the authors write:

> the synthesis of social work, community development, practical daily experience and the input of local knowledge and experience time and again called into question theoretical abstractions about development. Indeed, it is the constant tensions between theory and practice, and between outside intervention and local action, which provide the most interesting aspects of the Project. (Kelly and Armstrong, 1996: 248)

These tensions began to resolve themselves when Tulimbe communities decided that they would either direct the process or not participate. Community leaders began to be more firm in their demands that they become part of the planning process. If they were not included at the inception stage of each phase, they would ask for special meetings with staff to ensure better communication. As well, staff learned that a failure to negotiate all the details of the project with community leaders often resulted in non-cooperation and resistance to carry out their functions, which included promoting the project and mobilising their groups to participate in activities. When staff learned to discuss each step with community leaders, both project staff and community participants grew in their understanding of what they could offer each other. Thus, the intense and consistent interaction between communities and project staff over a two-year period resulted in a transformation that might have occurred earlier had more activist approaches been taken.

GROWTH-ORIENTED APPROACHES

Instead of challenging the status quo, staff were consistent in using adult education principles within what Srinivasan calls a "growth-oriented learning program," in which people "develop an increased sense of self-worth, human dignity and awareness of talents and capabilities, resulting in a greater inclination to self-directed behaviour and to participation in community affairs" (1992: 43). Cebotarev, in her article, "A Non-Oppressive Framework for Adult Education Programs for Rural Women in Latin America," says:

> . . . the adult education program for rural women also must provide the opportunity for personal learning, growth and development. It must facilitate group discussions in which actual and potential feminine roles in the family and the community can be examined critically and new skills and practices learned. It must increase a woman's self-confidence and social responsibility and provide her with criteria for the selection of new social roles. (1980: 46)

Cebotarev's thesis is also relevant for men and other socially-defined groups who have roles in the community. This growth orientation put people at the "heart" (Boeren, 1992: 265) of the intervention program, and evoked adult education approaches as the most effective for bringing about changes in the ways people think about and do things. Thus, all those associated with the project had to be oriented to an adult education perspective that respects adult learners, and their knowledge and experience. Although adult education approaches in community development projects should be taken for granted, this cannot be assumed in Malawi where, as Kerr (1989) says, the "authoritarian development ethos" has created a "mood of passivity." However, once these principles were established and used by programme staff, people became less passive and more interested in what the project had to offer them.

Referring back to Schuftan's (1996) types of community development activities, "capacity building" was the most important to Tulimbe Nutrition Project. Capacity building is the development of human capital or potential. The vehicle for capacity building is "human resource development," a phrase which encompasses not only learning activities but also processes which enhance the potential of individual, groups and institutions (Shute, 1988). In her article on primary health care, Clark uses the term "capability" instead of "capacity" because she believes that when groups of adults recognise the relevance of traditional

knowledge or learn new skills and practices which are fundamental to development, such as collective problem solving, they will apply them to other problems and concerns (1980: 65). By identifying adult education concepts as those most applicable to the promotion of community involvement in health care, Clark questions why adult education is not specified more often as an approach for effective community health programming. Litsios agrees with Clark, saying that because adult education approaches are most often used to develop an aware, informed and active public, then adult education should be the "central thrust" of the primary health care system (1980: 15). Mangvwat, writing from the Nigerian context, says that "adult educators . . . are well placed to lead the fight against malnutrition and to promote good nutrition [because they serve a clientele], the majority of which are poor and malnourished" (1994: 22). Several articles written on the commonalties between primary health care and adult education (Feurerstein, 1982; Tandon, 1980) stress that adult education's most significant contribution to community health is the facilitation of community mobilisation and involvement. Tandon (1980) summarises the functions of adult education: informing, mobilising and integrating. Tulimbe Nutrition Project, essentially a community health project, illustrates how these adult education functions work. Learning about nutrition and new dietary strategies inspired participants to mobilise their communities in their community development process. Moreover, nutrition is a logical entry point for mobilising people around other development concerns (FAO, 1993) because it addresses the issues of health, food, income generation, water, sanitation and child care. Within the context of nutrition improvement, adult education approaches help people to integrate their concerns and act upon them to facilitate development and self-reliance.

TULIMBE'S APPROACHES TO ADULT EDUCATION

During Tulimbe Project's first workshop with senior officers and field staff, participants were asked to identify principles that would assist in the effectiveness of the "informing" process with communities. They devised the acronym V.E.G. for Visual, Empowering, and Group-Centred. The VEG acronym represents adult education principles that formed the basis for the approach to communities. By exploring the aspects of the VEG acronym, Tulimbe Nutrition

Project engaged in action research with people to examine both the constraints and possibilities of community-based non-formal adult education.

VISUAL

Staff and government partners were concerned about the fact that most of the women and many of the men were non-literate, or semi-literate with little formal education. Therefore, it was important that the project provided points of reference for people's learning other than reading materials and what Kerr (1989) calls "frontal talks"--using a "heavy-handed 'top-down' approach" in which field staff "merely preached to the . . . communities." Government staff realised that this approach, although it was used most frequently, was ineffective, and they wanted to learn new ways to communicate with people. The significance of the "V" for "visual" stood for a range of learning aids.

During cooking demonstrations, illiteracy was not a significant obstacle to learning because the lesson was reinforced through active participation, experiential learning, and visual and memory aids. Programme staff carried with them teaching kits--large baskets of real foods and ingredients to remind people of nutrient-rich items. Without these visual cues, people's ability to grasp the purpose of the lesson and to remember the foods was more limited. Carol Amaratunga (1977: 51) observed during her field work in Ghana and Sri Lanka that illiteracy had little effect on peoples' ability to perform successfully in non-formal adult education programs. Women were especially affected by their experience of learning with visual aids, and recalling new information. One female group leader spoke for many when she said how surprised she was at her ability to retain information.

The hands-on demonstration method was the most meaningful learning forum for women, but drama was also an effective way of communicating the project's messages to all members of the community, especially men and youth. In many parts of Africa, drama is the most "relevant and appropriate technology for imparting development information to people and for involving them in identifying, portraying and analysing their problems" (Malamah-Thomas, 1987). Drama performances were accessible to everyone, because they incorporated indigenous language and talents, such as song and dance. Similar to Kerr's experience in

Malawi (1989: 479), even without previous experience, men and women who comprised the troupes had few inhibitions and acted out improvised and humorous plays for everyone's enjoyment. The drama groups decided for themselves how they would communicate project messages to their communities. While most of the project's visual aids were formulated by project staff or Malawian artists outside of the community, the drama groups had complete artistic freedom to choose to portray the messages they wanted, with their own props, costumes, expressions, and story lines. Thus, drama troupes engaged in their own type of project promotion out of their understanding of the project. Drama groups and their plays inspired a sense of ownership of the project and gave more credibility to the nutrition information. By having their own drama troupes perform under their own mango trees, communities saw evidence of their potential for change. People who at first were not sure whether to participate in the project were able to think again about its potential to have an impact on their children's health.

Apart from drama, there were other ways in which community members created their own reminders about the project. People chose their own names, symbols and colours as important reference points as they sought to identify with the project. About five months after the group leaders had voted on the name "Tulimbe" for the project, a contest was held to decide on a logo. One hundred and three people from both communities submitted various crafts: clay figures, woodcuts, embroidered cloth, drawings on paper, wood carving, and metal sculptures. Of all the depictions of project themes, the figure of the sunflower was most frequently portrayed, and judged to be the project's symbol. Once the symbol had been chosen, one community discovered a cloth with the pattern of the sunflower at the border. Several women purchased this cloth and had it sewn into project "uniforms." In the other community, the band requested uniforms to enhance their identity as representatives of the project, and they chose their own cloth: yellow and green for the colours of the sunflower.

During the intervention period, there was a need to increase project visibility and participation. I wanted families to have something that they could display to show their support for the project, so I hired a tailor to sew seven hundred yellow and green pennants. One of each colour was pinned to a stick to be attached to the roof or door of each participating household. If a family flew their pennants, they would show themselves to their community as a

micronutrient-rich household. The colours represented not only those of the sunflower, but yellow fruits and vegetables, and dark green leafy vegetables. Extra pennants were used during festivals for decoration, and for incorporation into dances. The pennant idea did not come from the community, and although most participants flew their pennants with pride, project detractors made up elaborate stories to negate the purpose of the little flags. Interestingly, green is the colour of the flag of the old MCP regime, whereas yellow belongs to the new ruling UDF party. Critics who always wanted to prove their suspicion that the project had political connections, took their chance to make complex analyses of the two pennants. Some with more nefarious intent, said that the homes upon which the pennants were flown would be the first to suffer their demise in the apocalypse. Since the pennants were an outsider's initiative, there was more opportunity to condemn these visual props than there would have been had the idea come from within the community. The pennants served their purpose, but another aid chosen by the community would have been more meaningful.

EMPOWERING

Most rural development projects have the potential to provide life-changing opportunities through adult education approaches. However, many projects focus on the technical aspects of their interventions rather than involving people in a learning process (Amaratunga, 1977: 42). Tulimbe put people first, before its nutrition intervention programme, and thus pointed the ways to empowerment and self-reliance. Empowerment, as it was understood by government officers and field staff, means giving people authority to plan and implement development activities on their own. For communities to be empowered, they have to act independently. Even the process of empowerment itself has to be a process initiated by the communities and not by those outside. When government staff suggested that the learning process be "empowering," they meant that people should be engaged in ways that showed the potential for their empowerment and self-reliance.

Part of the project's strategy for keeping people at the centre of the process was its emphasis on local leadership. Of utmost importance was gaining the acceptance of the village headman and other opinion leaders. The project's credibility was largely affected by whether

the headman's support for the project was consistent, and thus, his attitude toward the project had an affect on people's ability to learn new things. In one community, the headman's support wavered because some people were jealous of the newly elected leaders. The period of time taken for this village to mobilise itself effectively for participation in project activities was much longer than for the other village, whose village head man fully co-operated with the project staff and encouraged all opinion leaders to do the same. The people were encouraged to learn more effectively by their headman's co-operation.

The advantage of a community-based project is that the learning program takes place in the community, rather than a health centre or site removed from the community. Just as cadres of group leaders formed the basis for a "management structure," meetings and activities formed the basis for a "organisational structure" and at the same time a means to forge co-operation among people (Boeren, 1992: 270). The ten workshops held to introduce each new phase of the project took place at the training site of the Extension Planning Area (EPA) offices. Selected community and group leaders were invited to these workshops. Government field staff were critical because the training venue was held in a place outside the community. They felt that by isolating the leaders and taking them out of the village, the rest of the community felt alienated from their leaders' learning and planning processes. There would not have been as much initial resistance to project activities if community members had had a role to play in supporting their leaders when they held project meetings, i.e. providing the venue, amenities and food.

Another factor which positively affected peoples' learning process was the positioning of programme staff. Before the intervention programme began, I asked the staff to name their role, so that they could introduce themselves to the families in their groups according to a particular function. After considering a number of titles in the vernacular, including "facilitator," "advisor," or "friend," the staff decided that they most enabling title would be "teacher" (aphuzitsi). They chose this title because they believed it would connote a unique and respectful relationship that honoured the people. Government field staff were called "advisors," and therefore, the staff felt that they should be differentiated from them. Most of the women in the target group had not been to school, and the women felt more confident about the learning process because they could attend special lessons with real "teachers," whom they never had

when they were young. During the summative evaluation, one woman said that they were able to "understand the goodness" of the recipes by learning "like [at] a school."

A learning context which inspires change is one which "fosters joint discovery by the community and the facilitator . . .[of] shared experience-knowledge events that can potentially point to the solution that is most appropriate for the social reality" (Fussell, 1996: 52). The project promoted the use of familiar food practices, such as fermentation and the adding of germinated cereal flour. Project staff asked community women to demonstrate how they prepared their foods and how they varied recipes with different ingredients. By acknowledging and reinforcing the existing practices, a context was created which allowed people to consider modifying them. Fussell also says that what is most appropriate for the social reality may be "different from anything previously represented within the visions of either the community or the facilitator" (1996: 52). As families experimented with recipes and food combinations, they also introduced staff to their own ideas and variations. Sunflower seeds were introduced by the project and promoted for use in a seed-oil press. Even though the press was not immediately operational, people found ways to use the seeds as a seasoning or condiment. People owned their own learning process and felt free to experiment with their ideas.

Another way in which people were convinced of their own control of the learning process was by naming the new recipes that were taught at the workshops. Names were suggested and voted on by group leaders. Thus, porridge with germinated cereal flour became kalungolikoko and fermented flour became manyamunya. Both of these names are in the Yao rather than the dominant Chichewa language, reflecting the participants' pride for their marginalised culture.

For field staff, who work closely with communities, these were new approaches which honoured people, their knowledge and their potential to make decisions about their learning process. During the summative evaluation, one Community Development Assistant said that she never knew the value of the participatory approach until she became involved with the project, and now she believes, "it is the best thing to know." The Farm Home Assistant said that formerly their extension work was not effective, but now that they are using the project's approach, they are not only able to reach people, but see that what they are teaching is having an effect on behaviour. She said that before she started to use the new approach, she had to

learn to see people in their situation, to understand how they live, and to accept "what they want and what they don't want." The Farm Assistant said that now he knows that he should involve the community in his work because "there's not much resistance if we include rural people." The male Health Surveillance Assistant said that he now perceives his clients as "partners," and thus is open to working with them in "better ways." Government field staff's jobs were enhanced by their ability to use more participatory approaches, and thus both community members and field staff were united in learning situations which led to their own understandings of empowerment.

GROUP-CENTRED

At the beginning of the project, communities were divided into large groups of approximately forty families. For the purpose of efficiency, project staff planned large group demonstrations on soybean utilisation. Women had to walk to a place that was often far from their homes. Because of the inconvenience, many were late and missed the rationale for the demonstration. Mothers were accompanied by two or three children each, and the gathering attracted extra children from the community. Because the demonstration site was crowded and noisy, and since people could not see the cooking pots nor hear their teachers, they talked and distracted each other. At the time for taste-testing, there was not enough food for everyone to sample, and the purpose of the lesson was lost. It became evident that by trying to be "efficient" in the conventional sense, the project would not succeed in its goals. The large group demonstration was not learner-centred, nor a technique which showed respect for people. Rudqvist says that groups of more than twenty-five tend to hamper participation, and can break down into factions (1994: 13). Large groups were effective for activities that required mass participation and mobilisation such as morbidity monitoring.
However, for learning, small groups of ten were ideal.

Small group demonstrations were very popular with the women because they were able to ask questions and have discussions during the lesson without feeling shy. At the end of the session, each woman with her children was able to have a meal from the new foods. Women were not only able to learn new recipes and ways of feeding their children, but were able to

meet with their neighbours and make new friends. The women did not separate the experience of learning with others from the experience of learning new things. This observation corresponds with George Dei's principles of African-centred knowledge, one of which is that "All knowledge is socially and collectively created through the interactive processes between individuals, groups and the natural world" (Dei, 1996: 96-97). Women depended on the group learning experience for follow-up and feedback. After the demonstration, the women would remind each other about how to make the recipes, and compare their results and their families' reactions. There emerged a sense of loyalty to the small group that prevented women from being absent or from deserting the group altogether. Lackey and Dershem believe that that project participation improves an individual's competence, but also that the individual's participation also encourages and assists others in their performance of similar activities (1992: 222).

A week after demonstrations, "teachers" would come to visit the women in their homes and ask if they needed any clarification on the demonstration, or if they remembered and could articulate what they had learned. The home visit was a monitoring technique for the project, but there was also an expectation that people would enjoy these visits because the individual attention would make them feel special. This however was not the case because many people believed that their knowledge was being tested and therefore they resented the visit. The husbands of women who were part of groups led by male staff were suspicious of the purpose of the home visits, and some conflict between husbands and wives occurred as a result. People were more familiar with the small group technique for learning, but not accustomed nor comfortable with home visits. In his article on methods and attitude change, Ogionwo makes the distinction between "individual education" and education through "community involvement" (1973: 2-3). Although individual education is not wholly ineffective, the community involvement approach is more effective because of the social processes that are inherent in the collective context (Ogionwo, 1973: 4). Learning in small groups was empowering because women were able to support each other in their adoption of innovations.

As time went on and the momentum of the project increased, there was an upsurge of interest in the intervention. Because of peer pressure by leaders of large and small groups, parents in the target group became more committed to following the project's

recommendations. Those who were not targeted were eager to learn about the dietary strategies from their friends. Interest in the project achieved a momentum such that people who had previously refused to participate at the beginning joined in, afraid of being left out.

By being critically aware of the use of adult education principles, program staff were able to assess the most effective methods for communicating nutrition messages. Moreover, by facilitating community involvement in the creation of their own forums and media for learning, participants became responsible for their learning experiences. Thus, not only were people free to incorporate and apply their indigenous knowledge to the dietary intervention, but also their indigenous ways of knowing. In the identification and exploration of aspects of the adult education process—Visual, Empowering, and Group-Centred—learning became meaningful and relevant.

TULIMBE'S APPROACHES TO ENHANCING PARTICIPATION

By using adult education approaches for change, Tulimbe helped people define for themselves the their conditions for learning and change. However, apart from the project's approaches, there were components of programming and special inputs that also encouraged people to participate in the project. In the context of Shaffer's "community-balanced development" (1995), Tulimbe inspired communities to make contributions of their own to the development process. The following contributions by the project led to community acceptance and participation.

ADDRESSING RELEVANT CONCERNS

Child morbidity and mortality were urgent concerns for all members in the communities. During the summative evaluation, when asked what they thought motivated people to participate in the project, women said that their primary incentive for participating was to have healthier children. Baseline focus groups on child feeding showed that most parents were not aware that small children need special foods and dietary considerations that are different from

those of adults. Thus, parents did not know how to care for their children in ways that were optimal for their health and growth, and yet they desired information or assistance which would help to prevent their children from becoming sick and dying. The nutrition project was seen as addressing a felt need of the communities.

When community members heard that the project was coming to help their children, most were eager to participate. "Personal readiness factors" (Ogionwo, 1973: 13) played a large part in gaining support for the project at its inception, because at the time people were experiencing high child morbidity and mortality rates. Personal readiness factors include people's recognition of the seriousness of the problem; the belief that the health measures proposed are effective; and a predisposition to act. Because they perceived the problem as relevant, people were ready to learn and change their behaviours related to child care and feeding.

During the introductory meeting in one community, when a delegation made up of government and project staff asked about the needs of the community, people identified water, supplementary food and family planning programmes. However, one community leader commented on these suggestions by saying, "Please, when coming you should give us the right programme." For Tulimbe, the right programme was an integrated one. The nutrition goal of the project was not considered in isolation, but programmes were implemented to address other underlying determinants of malnutrition: food, agriculture, health, parenting and community development (UNICEF, n.d.). This framework corresponded to the project's partners from the government ministries of Health, Agriculture and Community Services. Joint co-operation by these sectors was seen as a strength because the project used a multi-sectoral approach to address the urgent issue of malnutrition. People said that they were able to see the problem of their children's health from a different and more comprehensive perspective.

MAKING A CONTRIBUTION TO THE GENERAL DEVELOPMENT OF THE COMMUNITY

Tulimbe Nutrition Project played an unprecedented role in the two villages by inspiring community development and change. During the summative evaluation, community members expressed that the project brought their communities into a period of modernity, in which they could "catch up with what was happening in the world." Men said that the project's arrival in their community had "historical significance." They cited the introduction of soybeans, which was the first time the crop had been planted in the area. Women said that they believed the project would "destroy their ignorance" and give them the "freedom" that comes from having new knowledge. They believed that the project would somehow direct their communities to address what they were lacking, and inspire their people to general development goals. One religious leader said that because of the project's activities, people are not only happier but more hopeful about the future.

CONTRIBUTING INPUTS AND SERVICES

The project contributed inputs and services of several types on a one-time basis. Seeds and seedlings were given as part of the food diversification program on the understanding that when crops were harvested, the same amount of seeds would be returned. Since then, seeds have been distributed in a community-initiated seed multiplication programme. During demonstrations, each mother received a packet of groundnut flour to encourage their use of the oil-rich product and to reward them for attending. At the end of the four-month intervention period, other incentives were given to participants. Each family received plates for all the children within the target age group. During the last festivals, performers received prizes and village headmen gifts. On two occasions, band members were taken on trips to perform. Because of their contribution of music and songs, they were given several incentives, including band uniforms and money for new guitars.

People did not expect incentives for participating. However, because Tulimbe was a small and short-term pilot research project, it could afford to provide certain incentives to encourage people to be involved. At the same time, the issue of incentives was a difficult one, because although we wanted to encourage people, we did not want people to become dependent on incentives nor to demand incentives for participation in any community development activities.

One long-standing programme staff member made this comment in his final evaluation:

> It was not surprising when people asked for incentives. Generally people believe that they have benefited if they see some physical/material thing given them. People were aware of all the benefits for participating but they also had to take advantage of the agency's existence to ask for more. . . . It might be good once in a while to give some incentives as part of strengthening relationship. Just as gifts are meant to show that one cares, loves somebody, not necessarily that you mean that the recipient is poor or in need of the thing . . . .

Generally, the project's purpose in giving small gifts or incentives was to honour and thank them for engaging with us. There was also a community compensation fund which was used for emergencies. Small amounts of money ($2-$10) were given as condolences or to help people out of desperate situations in times of sickness or death. As well, transportation was available on call for members of the communities who needed assistance in getting to the hospital, or in delivering bodies to grave sites. In its advocacy roles, Tulimbe staff helped to sensitise hospital personnel to the needs of rural people by demanding fair attention and adequate treatment. As a result of having transportation to and staff assistance at the hospital, people became more aware of their rights and more assertive about seeking services independently. The contribution of the project vehicle in helping people travel to and from town was seen as significant. People felt less isolated, more mobile and able to connect with town folk and market activities.

BUILDING COMMUNITY MANAGEMENT SKILLS

Attig says, "One of the most common findings of researchers who evaluate community action programs is that those which are most successful are ones which are planned, implemented,

managed and monitored by the people themselves (1995: 122). To facilitate this management process, the project initiated the election of leaders on both large and small group levels. Eighteen group leaders and 29 sub-group leaders were given training and encouragement in their leadership roles. This leadership and management structure is a "comprehensive and fundamental approach to participatory development" (Boeren, 1992: 270). The emphasis on building this capacity is what one government officer, in the summative evaluation, called "vital" to the project.

Because they had the authority to co-ordinate project activities in their groups, as well as the ability to take on the roles of instructors at demonstrations, leaders felt that they owned and directed the project's process in their communities. One government officer said, "the project was for the people and the people took it to be theirs." A year after the project began Tulimbe received a brand new pick-up truck from World Vision Malawi's Micronutrient and Health programme. When it was first driven into the communities leaders leapt into the back and jokingly demanded a test ride in their new vehicle. They perceived the truck as their own resource to assist their members.

Leaders were always occupied with project activities because of the intense two-year time line: scheduling, informing people, attending events, assisting project staff, and monitoring their members' attendance and acceptance of both nutritional assessment and intervention activities. During the summative evaluation, leaders remarked about how, for the first time, they learned to plan ahead and co-ordinate activities effectively. On several occasions, after a project activity was proposed for that day, a representative from the community would be sent to the project offices to tell staff not to come because other more important commitments had become evident. When community leaders came to say, "we don't want you to come today," they showed responsibility to the community and project staff. The more common experience of field staff is that they would go to a scheduled meeting, but instead find an empty village because of a funeral. Because of the mutual respect between project staff and community leaders, there was good communication and negotiation before misunderstandings occurred.

Community leadership was essential to the project's success and sustainability. Leaders said that they felt a sense of responsibility and obligation to see that their members continue to practice what the project taught them. One group of leaders said that knowledge has "freed" them, but at the same time, they now have a "burden" for caring more deeply for the community and working harder in their roles. When the male leaders were asked about the things they learned about themselves, some said, that because of their new knowledge and experience, they felt an obligation to practice what they learned. Therefore they "felt guilty" if they did not do "the right thing" because they knew the consequences. They had become acutely conscious of the health situation in their villages. Women leaders said that they wanted to be more proactive about people who refuse to participate, who resist the community's goals, and who attempt to destroy the project's reputation. Both male and female leaders felt that it was their responsibility to review with people what they had learned, and also to engage in their own evaluation with people to determine if the project had changed anything in their lives.

ENHANCING RELATIONSHIPS

As project representatives, staff set the tone for establishing positive relationships among people. Realising that they, as university graduates could be criticised as haughty and unfriendly, staff were sensitive to how they were perceived, especially by the lesser qualified government field staff with whom they had to co-exist. Female government field staff noted in the summative evaluation that female project staff dressed modestly, and wore traditional aprons and head scarves. They saw that both male and female project staff were kind to children, carrying babies and playing with toddlers. Group leaders said that never before had families experienced such care for their children from strangers. Because of their humble attitudes, people realised that staff were committed to their work with communities. As a result trust was established.

One senior officer said that Tulimbe Project was different from others because it was primarily concerned about people, and assisted them with their urgent needs. From my observation, people identified kindness, or translated from the vernacular, "goodness," as the most important quality for working with rural people. Relationships were bonded by staff's

attention to the communities' needs, joys and sorrows. Many times when staff arrived in the communities, project activities were suspended because of emergencies or funerals, but instead of leaving, staff offered assistance or mourned with the rest. Achterberg sees these kinds of adjustments as inevitable: "program planners must be willing to be flexible and change when needed to meet community needs" (1991: 8). During times of joy and celebration, such as initiation ceremonies and the opening of a new mosque, staff were there among the people. At the height of the hungry season, one community's football team wrote to ask the project for sponsorship and new t-shirts. This team, involving many project participants, felt ashamed to play in their worn-out shirts. Although this request was not related to health or food, it was still regarded seriously, for it would show the project's commitment to all facets of the community. During a difficult time, the community's spirit was lifted by rousing games of football with players wearing yellow t-shirts and kicking a new ball. This gesture will be remembered far into the future as an expression of care and support by the project.

One Health Surveillance Assistant and the Farm Assistant said that in the past, most projects had little impact because they were short-term. Because the project stayed in the community for two years, a relatively long period, people became encouraged and realised the potential of development programmes. As it evolved, the defining feature of the project was newly enhanced and caring relationships. Because people met together frequently for project activities, they had a greater understanding of each other, and therefore, were more concerned about each other. Friendships formed between project staff and group leaders; between government field staff and their officers; between project staff and government staff; and between neighbours in the community. Family relationships were strengthened; husbands and wives, parents and children had more love for each other. On his evaluation questionnaire, one senior officer wrote that the project "bound relationships" between people. Also during interviews for the summative evaluation, men from Nsanyira said that people enjoy close relationships because they come together as a community more often and enjoy project festivals and demonstrations. Leaders noted that when women come from the demonstrations, they immediately share the information with their husbands, relatives and friends. Now, unlike before, they "take time to sit together and teach each other." Women in Nsanyira said that community members now "come together" to discuss their problems, and women in Mchisa

said that people "agree amongst themselves" because they better understand each other. The new or revived relationships became the impetus for new initiatives in the communities. Because people were more cohesive, community leaders and field staff said that they observed a new sense of co-operation and willingness to do self-help projects.

PROVIDING NEW OPPORTUNITIES FOR INVOLVEMENT

The project contributed to the community simply by its presence. According to Dixon, an important indicator for successful community development activities is "the creation of an interesting and diverse social life" (1995: 335). The project's presence broke their routine and gave people something new on which to focus. There was always something happening in the village: vehicles passing through, staff visits, meetings with visitors, demonstrations, festivals, growth monitoring, and the installation of new technologies. During the summative evaluation, the village headmen in neighbouring villages were asked their impressions of the project villages. They said that there were some changes because the people were happier. They noted the frequent visits by the project vehicles and new people, as well as many activities, namely the installation of the oil presses and ovens. People were motivated by their anticipation of learning and doing different things. During group evaluation interviews, the women from both communities said that there are proud of their accomplishments in learning and doing new things. They believe that they are "famous" because they were invited to "special meetings," or demonstrations. Various types of opportunities were stimulating, and such a momentum of activity had never before occurred in the communities.

In order for the project to have been a success, project activity had to saturate the communities, such that no one was unaffected. Indeed the project, and its innovations and discourse, became part of the social fabric of daily life. Because of the project, one councillor believes that people were happier, and had a new outlook on life because they were part of something exciting and dynamic. They always anticipated the next project activity, and were anxious not to miss events. Various groups in the community became engaged in project activities, so that people had different things to do, and look forward to each day.

MAKING CONNECTIONS OUTSIDE THE COMMUNITY

Many new people came to the communities as resource people or "visitors." Those most prominently mentioned were the azungus (whites), resource people at workshops, and special delegations. During the final evaluation, male leaders said that each person who came had something different to share with them. As a result, they learned many new things and are able to share ideas. Because of the frequency of visitors, leaders became more confident, and more able to interact effectively with authority figures and visitors. Their relationships with others have changed, and people in the community look up to them because of their contact with outsiders. Government officers noted in their evaluations how much friendlier people in the communities were to visitors. One woman said that since her experience with the project, she felt she could "go anywhere" and "talk to anyone." Several women said that because of their new interaction with foreigners, they felt more confident to use the English language. Others said that because of their exposure to new people, they realised the implications of what it means to work with and understand all types of people, including government staff, project staff, other community officials, neighbours, and family members. One woman leader observed that she had grown in her community management role. She said that she does not "get angry" with people any more because she has learned to work with different kinds of people.

Enhanced community status was brought about by the project's credibility and prestige, both inside and outside the community. Credibility was secured by the project's many governmental partners who showed support for the project by their consistent presence at project activities. As well, the project hosted many visitors, both from Malawi and from other countries. Highlights were the visit of the esteemed UNICEF Resident Representative and a convoy of dignitaries, as well as visits from popular radio and theatre personalities.

During the summative evaluation, male leaders said that their communities' involvement in the project distinguished them from other communities, and "made them feel special." Apart from the health benefits, the varied activities and entertainment events have made the project communities stand out. A teacher who lives in an adjacent community to

Nsanyira was interviewed as a key informant both at the beginning and end of the project's life. She taught children from both communities, and noted that there is a distinct contrast between the two villages. People from Nsanyira had become more self-conscious and caring about their households and surroundings. The male leaders of Mchisa were proud when they met those from other communities who asked them how they were chosen to participate in the project. During summative evaluation discussions, they remarked that people in other communities were always talking about Mchisa and the project. When the paramount chief of the "traditional authority" caled all the headmen of the area together, the headmen of Tulimbe communities enjoyed new recognition and respect from their colleagues.

SHOWING RESULTS

Group leaders said that it took "some time" for people to understand the purpose of the project, but they eventually began to see its value and its contributions to the life of the community. People began to understand the cause and effect relationship between nutrition and health. During the group interviews held at the end of the project, women said that they measured the portion sizes of nsima and relish, and made sure that they were in the right proportion according to the age of the child. They now knew exactly how much food children eat because they served individual children in their own separate plates. Because they learned how to feed their children properly, they became more confident as parents. They discovered that they have control over whether their children fall sick as a result of poor nutrition. One woman cited an example of a child who fainted because she was fed only on large bowls of plain porridge. Now that the child is given a variety of food and smaller portion sizes, she no longer faints. The men interviewed made similar observations as the women about the lack of planning for children's meals. They said that the food served was neither tasty, nor nutritious. People did not know that they had to adhere to a feeding schedule for children, and sometimes they did not eat until 2 p.m. They did not know that children required special foods, and that food contained vitamins. They said that because they did not know any better, they could cause harm or "do anything innocently." Now they have a timetable for feeding children, and they know the best foods to cook for their meals.

Immediately when women started to prepare the new recipes for their families, there was a positive reaction because of the enhanced taste of the food. Husbands and children liked the new foods, and encouraged women to continue making them. The women felt better physically because they ate what they cooked for their children. Because women saw positive reactions to their cooking, they were encouraged to continue. As they experimented with recipes and new ways of feeding and caring for children, they began to see that their practices improved the way their children looked and felt. Thus, during the life of the project, families were rewarded for their participation by changes in their own homes.

Because of the medical attention they received from the project "clinic," and their new child feeding practices, people perceived that their children looked well-nourished and were ill less frequently. People saw that their children were "at peace" because they ate good food and felt better. One of the government field staff remarked that people have learned that they are not helpless to prevent sickness and death, and can somehow control their incidence.

THE COMMUNITY'S RESPONSE

The project's contributions described above were consciously planned in accordance with the overall community development approach and in response to the needs and desires of the community. Although, staff had hoped that the project would be a success, we could not always predict how people in the community would respond to project initiatives. However, as time progressed and in response to both the project's approaches and inputs, the community reacted by creating internal pressures to evoke change, and thus created more balance between outside and inside impetus for development activities. Through their actions, project staff could see people participating, but until we took time to do a comprehensive qualitative evaluation, we still did not know how most people felt about the project in their lives and communities. The three headings that emerged were not forced categories—they were not specifically addressed in the interview guides used for the group discussions, which focussed on assessing the issue of change in general. However, after the responses were analysed, it was evident that the respondents perceived of the project's contributions in broad social terms. As discussed in the introduction to the section on project contributions, people place more importance on the

social contributions of the project than on material ones. Their enthusiasm about the social benefits of the project has much significance for the study and evaluation of development projects. My analysis of the data reveals that people classified the types of changes which occurred in their communities according to the following categories: identity, attitude and capability.

IDENTITY

During interviews accomplished during the formative stage of the project, key informants characterised their communities as unified and co-operative, especially during the celebration of traditional ceremonies and religious events. The cohesiveness of the community can be attributed to its leaders and the relatively small populations and land areas of each village. Therefore, when given the opportunity, as one agricultural officer observed, the "community [took] Tulimbe to be their project." Since the community promoted involvement, ownership, and responsibility for the project, it has experienced a shift in its identity from inward-looking to outward-looking. During the summative evaluation, the male leaders believed that people have "come together" on the issue of nutrition and health because people always talked about the project and its activities. According to them, people met together more frequently and became more community-minded. They noted that the project promoted the forum of meetings because staff required many consultations with group leaders to discuss how to move forward with project planning. These meetings forced people to look at issues together. They believed that since the project brought about awareness of the causes of malnutrition, people were ashamed to see malnourished children, and were more unified in their efforts to combat malnutrition in their communities.

Community leaders noted that changes in the community occurred since the project began. They said that people had closer relationships because they came together as a community more often, and enjoyed festivals and demonstrations. People became closer to each other as they worked toward their goals. For the first time they gathered together to discuss their problems in productive ways. People were able to agree amongst themselves because they understood each other better. Instead of the endless dissension that comes from

feeling inadequate and threatened, community members were able to reach consensus because they had confidence in themselves and in their abilities and knowledge. They knew if they needed project staff as their advocates or advisors, staff would assist them, or help them make initial connections with other authorities. As they became more unified for change, communities took on a new pro-active identity.

New initiatives in the communities caught the attention of surrounding villages. Many people from outside their communities asked about the project, and expressed admiration when they were told of its benefits. Their friends were keen to know what was happening during every step of the project, and would ask about the pennants and new crops as they walked through the village. Some purchased soya seeds on their own or received them from project members. One man cited that his friend in another community planted even more soya than he did, so convinced was his friend of the benefits of soya. Their neighbours wanted to know when the project would come to them. People from Tulimbe communities believed that outsiders saw them as more "knowledgeable" and therefore more "respectable." Some believed that others were envious and "feared them" because they did not have their knowledge, and could not attend project activities. Because people in the project communities felt that they had accomplished more than their neighbours, they experienced a new sense of pride. According to Mills' (1994) account of a fish farming project in Zomba (about 120 kms from the project area), a significant motivation for people's involvement in an innovative program is an enhanced social reputation. Fish farmers in the Zomba project were regarded as more "clever" and knowledgeable. Also, having a well-fed family brought considerable prestige. Tulimbe participants experienced the same regard from their neighbours.

ATTITUDE

During the summative evaluation, government field staff were asked about the greatest accomplishments of the project. They said that the project's approach was able to change people's attitude toward their development, and to inspire co-operation instead of resistance. Before the project, field staff's proposals to communities would be treated with suspicion or indifference. During the project phase, people became "available," "co-operative," and

interested in doing new things. Field staff were delighted with the communities' willingness to embrace new programs.

Leaders observed that people were "active" in the life of the community, and "brave" to face new challenges. These new qualities were attributed to the fact that people learned new things, and understood more about life. They became more co-operative because they realised that through community participation, they could achieve great changes. One chief remarked that people were more willing to do things together, especially because of the group activities. People wanted to change, and were eager to learn and try new things. People realised that they needed more income for a better quality of life. Thus, the women noted that the "IGA spirit" (income generating activity) came to stay in the community. People were encouraged to initiate activities and carry them through on their own. Because people came to "a new way of understanding" about the potential of individual, family and community development, they were enthusiastic about self-help activities.

This change in attitude was evident in how people began take better care of their households and surroundings. People were also ashamed to see malnourished children, and assisted neighbours in their efforts to adopt the project's feeding practices. The communities pursued grants from the Malawi Social Action Fund (MASAF), and volunteers moulded bricks and donated them to a repository for the construction of the MASAF-funded health clinic. People said that they have "had their ignorance taken away." Because they have more knowledge, they have been inspired to try new things, knowing that because they have succeeded in the project, they will also be able to achieve in other areas of their lives.

CAPABILITY

Many of the people interviewed in the evaluation said that they had gained in knowledge and skills. Mentioned above, Lackey and Dershem's (1992) "external knowledge" and "self-knowledge" are useful categories for how people perceive their new capabilities. Women talked about the new skills they learned, such as cooking methods. Because they had learned new things, they perceived themselves as educated and more intelligent. They saw a difference in their children's health and growth because of their own cooking and care-giving efforts, and

therefore they experienced a new sense of accomplishment. Men said that they became more organised in their farms and businesses, and interacted more confidently with authority figures in the district hospital and the town's post office. Their farm and business ventures were directed more purposefully to providing better nutrition and enhancing the quality of life of their families.

Leaders, with their new responsibilities, grew in their community management roles. They learned many new things, and were able to share ideas, talk about and analyse their problems more easily, as well as think of better solutions. They became more unified in their efforts to solve problems, and became cohesive in their decisions and consistent in their actions. When asked by visitors how they would feel when the project was over, community leaders were confident that they would be able to continue to promote the project's nutritional strategies without assistance from the outside.

At the time group interviews were held, the confidence of the people and the leaders was bolstered by the support they had from project staff. Staff presence gave legitimacy to much of the energy and enthusiasm for self-determined changes. The Canadians' role became almost imperceptible at this point, and the Malawian programme staff representation in the villages was decreased from five to two. More and more, elected community leaders were expected to take on the major responsibilities for running the various project activities. Communities became more self-reliant because they had new tools for community management and organisation. However, the key to this change seemed to be in sustained support for communities. Within the framework of "community-balanced development" (Shaffer, 1996), people needed at least minimal support to plan, initiate and maintain change. Tulimbe's approaches to adult education and community involvement were instrumental in the project's ability to meet its goals of affecting changes in gender relations and child care and feeding, discussed in the next two chapters.

VI. EVALUATING CHANGING GENDER RELATIONS

The Tulimbe Nutrition Project inspired change by its approach to the community. Since Tulimbe worked in villages, it had to win over all the people who lived in the communities: older men and women, leaders, young families, teenagers, and children. Although there were opportunities for most community members to become involved if they wanted, the primary target group was women because their role is to feed the children. The secondary target group was men because they have the resources and the decision-making power. Thus, there was an emphasis on a family-focussed approach, rather than an approach which considered women as the only actors in the family nutrition system. Although Tulimbe touched the lives of all family members, feedback about the project was only collected from the adult men and women, primarily parents of the children who were part of the nutrition evaluation study. During the two-year period, Tulimbe placed a specific priority on involving fathers and seeking their views on child nutrition and dietary intervention.

There was a need to impress upon husbands and fathers that their roles in family food production and consumption are a crucial determinant for the health of the family. By making nutrition solely a woman's issue, program planners ignore the factor of how people relate to each other--the emotional aspects of their relationships, which may enhance either affection or hostility. Nutrition education is an entry point for men and women to explore ways in which they can enhance their care-giving roles and responsibilities.

> From a sociological perspective any adult education program in the context of rural development would have to be assessed in terms of its relationship to social change. One would have to ask: to what extent does participation in the educational program facilitate the evolvement of new roles and the awareness of alternative, and what kind of orientation does the program provide for the choice between the alternatives or for the selection of the content of the new roles? (Cebotarev, 1980: 41)

Tulimbe's family-focussed approach to nutrition intervention has implication for other types of community-based projects initiated by development agencies. This chapter illustrates that, even if projects are centred in conventional women's issues, they may be more successful if

legitimate avenues are provided for other family members to support women, and become actively involved in the issues themselves.

CARE AND NUTRITION

According to UNICEF's model (1990), the underlying determinants of child survival and development are household food security, access to health services, and maternal and child care. Of these three factors--food, health and care--care is the least explored by programme planners. However, "care" is recently gaining more attention as an important variable in child nutrition (Engle, Menon and Haddad, 1997). "Care" refers to all of the behaviours performed by care givers which result in nutrient intake, health, and the cognitive and psycho-social development of the child. These behaviours are performed by care givers: 1) special attention to pregnant and lactating women; 2) breast feeding; 3) feeding of young children; 4) psycho-social stimulation of children and support for their development; 5) food preparation and food storage behaviours; 6) care for children during illness (Engle and Menon, 1996: 3-4). All these behaviours may be performed by both men and women--even men can influence breast feeding behaviour by affirming their wives. In the case of Tulimbe, project staff were most concerned with the care-giving behaviours related to feeding young children and preparing food.

Citing Super and Harkness (1989), Engle and Menon (1996) list "care giver resources:" knowledge/beliefs; health/nutrition status; mental health; control of resources; workload/time allocation; and social support. Care givers must have these resources if they are to effectively accomplish the care giving behaviours listed above. If these resources are lacking, a situation occurs in which there are constraints to care giving. Both men and women have care-giving resources, although either one may have more control over his or her ability to use resources optimally. Thus, the care giver role is not exclusively for mothers, but also for fathers. From the roles and resources listed above, it is evident that both sexes in their positions as husbands, wives, fathers and mothers, influence the quality of care. Longhurst and Tomkins (1995) state, "The role of fathers is very important as they have specific care-giving behaviours to impart but often their care-giving role is limited because of employment, personal leisure or attitudes."

However, their limited role, within the context of a community-based nutrition intervention, can be enhanced and transformed for the benefit of the family's nutrition status.

WOMEN AND DEVELOPMENT PROJECTS

In rural Africa, women have typically been engaged in the development process by their involvement in programs related to Home Economics. At the same time, they have been marginalised from most mainstream development initiatives in agriculture and technology (Waring, 1988; Rogers, 1984). Development activities have been sex-segregated, and the benefits thereof have not necessarily been passed on from men to women, nor from women to men. As very few women have been taught new cropping methods, few men have been taught about family nutrition (Matenje, 1995; Malawi, 1988). In an attempt to rectify sex-segregation, planners target both men and women by naming the "farmer" as beneficiary. However, in reality "farmer" projects are not gender-neutral but male-biased (Elson, 1991: 9). Thus, women, even if they have a significant part to play in agriculture production have little access to agriculture extension workers or programs (Hirschmann and Vaughan, 1984: 74). In their attempts at being "gender neutral," planners ignore the fact that development programs are not gender-neutral in operation or effect (Gladwin, 1991: 5). As international agencies began to realise the consequences of marginalising women in the development process, the Women in Development (WID) movement began forwarding policies and programs to give women "full recognition . . . as important partners in development, not only as mothers and home managers, but also as agricultural producers and income earners" (Muehloff et al., 1995: 12). There were both economic and social reasons given for the need for Women in Development programming. Ester Boserup's study *Women's Roles in Economic Development* (1970) was the first to expose the fact that women's collective labour contribution to the economies of developing countries far outstripped their access to resources. WID theory was derived from liberal feminist thinking—if women are given the same opportunities as men, they will be able to benefit from and contribute to development programs. "If the main providers of nutrition in the family--women--are not full partners in the developmental process, nutritional intake and subsequent health will suffer" (Kurth, 1989: 253). WID planners work from the premise that men will

appropriate women's work and resources (Staudt, 1987), and therefore men, as a target group, are not included within WID programme frameworks. Since the 1970s, women have become the direct beneficiaries of projects and resources to assist them in their integration into development. In rural areas, popular WID projects were loan schemes, appropriate technologies, agricultural trials, and training for small business.

In many African societies, men and women work in different spheres of the economy, and often manage their own personal incomes (Guyer, 1980: 4). There may be no joint household budget nor expenditures, each partner being responsible for assuming specific costs relating to the household and children. Neither spouse may know the financial assets of the other. However, it is assumed that men earn more than women, and that men assume responsibility for the major items or services requiring cash payment. Thus, when women are given resources within the context of a WID project, men may believe that their roles and responsibilities in the family are being undermined.

There are social consequences when women are targeted for activities which have been associated with men's roles. Because there is no mandate for men's involvement in WID projects, men are left out of a decision-making process which affects their wives and the running of their households. If men are not well-advised about the purpose of the project, nor are they consulted about its effects on the welfare of the family, they may prevent their wives from participating, or from using their new skills and knowledge. Because WID projects target women only, they are less concerned with their effects on relationships between women and men. What happens at home—how women's new resources are incorporated and negotiated—within the existing family system is not a large consideration in WID programming. Rather, the focus is on integrating women into societal structures without regard for the social implications.

WID projects cause more conflict in households than projects directed at men because traditional roles are challenged. Patricia Maguire, in her alternative analysis to WID, says, ". . . focusing their resistance on women in development, men may fail to question the impact of development on themselves" (1984: 55). Men have to be part of the women in development process, just as women have to be part of the mainstream process. A feminist approach, which is more fitting to the African reality, looks more closely at roles and relations. African activists for women's causes work within their own feminist frameworks which are centred in family

and community, rather than the individual. African scholars have also criticised the WID approach for being Eurocentric. Elabor-Idemudia (1998) says that African feminists perceive of men as allies, not adversaries, in the process of development. Machila advocates for a family-focused approach to development which is more holistic in the African context than the WID approach (1992: 19). However, in the absence of a family-focused approach to development projects, and without a forum in which to analyse women's and their own roles, men are not compelled to change their attitudes about a system of roles which benefits them more than women (Connell, 1987: 141, 184).

Men should understand how development projects, whether targeted to men or women, are expected to bring a greater quality of life to all members of the family. Taking into account the potential of both women's and men's care-giving potential and resources, planners should consider the roles of husbands and wives when they are designing projects (Engle, 1995: 9). Projects which are currently popular in rural Malawi are often related to food production or food aid, such as food security or food-for-work projects. If both men and women understand their roles in the survival and welfare of the family, men's responsibilities will not be minimised or ignored in the context of a family food security project. Men should not be discouraged from upholding those aspects of their traditional roles which serve the well-being of the family (Holmboe-Ottesen et al., 1991). By engaging men with women in the development process, feminist goals are not being undermined. Women in Africa, especially poor, rural women, may be more empowered to make changes within their household and community roles with men's understanding and support, than without them.

GENDER RELATIONS AND FOOD

In rural Malawi, there are clear sexual divisions of labour and responsibility (Hirschmann & Vaughan, 1984). Women carry the labour load for agricultural and household tasks, but have limited decision-making power and control of resources. Men are responsible for deciding how and where crops are grown, and how poultry is sold. They make the major decisions about agricultural inputs, credit, labour and sales. Men also assume responsibility for children's school fees, visits to hospital, medicines, and large household expenses, including any costly

food items. Engberg et al., after their review of men's and women's activity patterns in Malawi, states that "the combination of activities of men and women in each household did influence the output of food and the health of individuals" (1994: 165). However, women's roles had a more significant and immediate effect on the provision of food and the nutrition status of household members. Because women's time is taken up with non-market household production, "group survival is dependent on the inseparable child rearing and family maintenance tasks assigned to women" (Engberg et al, 1994: 175).

Recent scholarship on Malawi reveals a proliferation of studies on female household heads to determine how they use resources for the benefit of their children (Kennedy & Peters, 1992; Due, 1991). Many studies prove that children raised by single mothers are not necessarily worse off than their counterparts in two-parent families headed by males. In female-headed households, mothers use more of their resources to feed their children than they could if the father were present. In reviewing cases like these, Kennedy and Peters (1992) conclude that the intersection between income and gender of head determines the "nurturing behaviour" which in turn determines how children are fed. According to Engle and Menon, however, there is also some evidence that "when [men] contribute a higher percentage of their incomes to family food budgets children are better nourished" (1996: 16).

Non-market household production for family survival is an overwhelming burden for women, whether or not men are present in the household. Another study by Engberg et al. claims that women have heavier work loads within the context of their households than their husbands outside of the household (1987: 145). The authors believe that family health would suffer if women had to shift their time and energy from home to market production in order to integrate themselves into a larger economy for the sake of earning more cash. Attempts to increase home food production would be severely constrained if women had to use all their time and energy to compete in the market place. Therefore, men's role in the cash and wage economy contributes essential resources for families in rural Malawi--men are able "to reduce and realign the overpowering dependency burden on women" (Engle, 1995: 2). Thus, men need to fully understand how their roles as decision-makers and income earners may enhance, not only their lives as individuals, but also the quality of life of their families. Often the relationship between men's decisions and their consequences is not understood by men as

having an impact on the family food and nutrition situation. Holmboe-Ottesen and Wandel (1991) observed Tanzanian men's contribution to the food and nutritional situation in households in which both husband and wife were present. Because sale of the family's stored food is sometimes the only way to procure quick cash, men often want to sell some of the family's reserve stocks to purchase beer or luxury items. However, since the cash gained from selling reserve stocks is not used to augment family food needs, women experience anxiety because they are constantly being forced into opposing their husbands' choices. From this example, it is evident that although women's roles are essential to the survival of the family, men's roles may improve or worsen the family's situation.

Within the recent history of Malawi, there are important lessons about gender relations which vividly illustrate women's dependence on men. In the 1940's, there was a food shortage which caused a famine, not only because of the environmental and agricultural situation, but because of the social structure of the society (Vaughan, 1987). At that point in time, "the institution of marriage . . . was structurally unstable and was in process of being redefined . . . (Vaughan, 1987: 145). Men were more involved in the wage economy than women, and women's cash earnings depended on home-made beer and gin. When the food shortage occurred, women were not able to make their drinks because production was dependent on maize--the crop which had failed. Thus, because women could no longer earn their own cash, they became completely dependent on men. Men, however, travelled to the areas where they originated in order to search for food, leaving their wives behind. Sometimes men did not come back, because they found new wives in more food-secure areas. Thus, many women left behind were eventually abandoned, and dependent on government rations. The colonial government did not expect families to break down during the food shortage, assuming that members of household units would work together to overcome their hunger and share whatever food they had equally within the unit.

Family break-down and the abandonment of women are not universal reactions to food shortage in Africa. George Dei (1992) in his article on a Ghanaian rural community's response to food shortage, describes another scenario altogether. People experimented with new techniques to make the most out of their agricultural crops as well as wild resources. They found new ways to earn income, and although many men left to earn wages elsewhere, they

sent remittances back to their families. At the community level, there was a renewal in the community's sense of social responsibility, and at the household level, a cohesiveness between husbands and wives. Dei says,". . . on the whole, the research period witnessed a remarkable degree of co-operation between the genders to find solutions to common problems both within the household and community and on the farms" (1992: 73). Dei's study illustrates that when there is cohesiveness within communities and between husbands and wives, there is a better chance for survival.

The Dei case describes a positive scenario for gender relations within the context of crisis and hardship. However, studies such as the various examples given above are accomplished outside of the context of any intervention which would challenge men's roles. An intervention may provide an entry point for men to relate to the household in different and more desirable ways. For example, Yetley et al. (1981) began their study on Mexican-American families with preconceptions about stereotypical "traditional" roles of men and women, but discovered that their suppositions were not based on empirical data, but on "ideals." Hypothesising that women would not want involvement from men in food-related activities, the researchers were surprised to discover that women welcomed their husbands' involvement. They also discovered that men were not necessarily involved in food-related tasks, but that they were involved in food-related decisions. Men had power over the larger decisions related to controlling resources, e.g. purchase and budget, whereas women were involved in the decisions about the details of meals--what should be served and how it should be prepared. Without exploring the roles of men in the family setting and their potential for change, men will continue to be excluded from discovering how they can most effectively ameliorate the family food and nutrition situation.

Although women are responsible for "group survival," the goals of development seek to achieve a higher quality of life which may be possible if men are more aware of the importance of their care giving roles in the household. Elson says, "there is no intrinsic reason why the work of caring for others should not be shared equally between women and men" (1991: 10). Nutrition education can serve as an entry point for promoting men's care giving roles.

GENDER RELATIONS AND NUTRITION EDUCATION

Although very few articles have been published on African men's perceptions of women's and children's health issues, there are many reports and policy statements which conclude by paying lip-service to the need for nutrition education programs for men. In the proceedings of an international conference on food-based approaches (Combs et al, 1996), the editors make the following statement:

> Micronutrient malnutrition cannot be seen as a "women's issue," although women are important to it in several ways: as mothers, as care givers, as food producers, as food decision makers, as food preparers, etc. Micronutrient malnutrition is a cross-cutting issue involving both men and women. Both are involved in the development and experience of the problem; both must be involved in its solutions. Accordingly, attention is needed to find effective ways of delivering information to, and creating participation by, men as well as women.

A commentary at the beginning of Malawi's nutrition handbook echoes the same concern:

> Traditionally, women have been the target group for most nutrition education, but many women are not able to increase food without the support of their husbands and other members of the household, and they cannot by themselves improve community facilities . . ." (Malawi, 1990: 4).

Engle and Menon say that "it is necessary to broaden the focus beyond the mother in order to include all resources for care, whether provided by siblings, older relatives, the father, or institutions such as child care centres (1996: 8). However, most interventions in Malawi target women only for family health education (Kishindo, 1994).

Therefore, men's lack of awareness and knowledge on nutrition issues may prevent fathers from assuming effective care giving roles. A study done in Nigeria (Ojofeitmimi and Adelekan, 1984) illustrates the need for fathers' involvement in the nutritional health of their children. When interviewed about their children who exhibited symptoms of Protein Energy Malnutrition (PEM), 35% of the male respondents attributed the cause to childhood infection and 26% to congenital disease from the mothers. Smaller percentages attributed PEM to the supernatural, and some fathers had no idea why their children were sick. Only a few fathers recognised PEM as a problem caused by lack of good feeding. When asked how they would address the problem, the great majority of the fathers said that they would admit their children

to hospital, while the rest advocated either traditional or modern medicine. The researchers noted that fathers who believed that child welfare was the sole responsibility of the mother, had children with severe forms of kwashiorkor and marasmus. The article concludes by saying that the father's awareness of child welfare and development, and his financial and emotional support for the mother, are important factors in child rearing.

Women-centred nutrition education programming also ignores the fact that men may be legitimisers of women's behaviours and/or controllers of resources (Yetley et al., 1981). When women are given nutrition education lessons, they cannot always practice what they have learned. Sometimes, their husbands are reluctant to listen to their wives because they resent the fact that women have received knowledge to which they do not have direct access. If men do listen to women's accounts of the day's lessons, they often do not trust the information because they have not heard it themselves. They may believe that their wives are trying to extort money from them to purchase special foods or equipment that are not essential. Also, men upon hearing new information from their wives may simply contradict or undermine what they are saying, because they do not want women to inform them of innovations or tell them what to do. Men want to hear new messages themselves, deliberate upon them, and be responsible for the decisions they make if they are to alter family food practices. Some Malawian researchers have therefore recommended that nutrition education programs directly involve men in their outreach campaigns (Kurth, 1989: 253).

According to Kent (1988), "nutrition education should help people to understand why they do not eat well, and support them in making their own analyses about what to do about it." In order to help people understand why they do not eat well, both men and women should examine their roles in the family nutrition system and negotiate changes. Nutrition interventions have the potential to be meaningful processes, which have long-term impact on food production and dietary practices. However, when men are not included in nutrition education activities, there is no official forum for them to explore family food issues. Men may hear nutrition messages on the radio, overhear other people in town talk about child health, or stumble on a play, a song or a public meeting which addresses nutrition issues. However, unlike women, men have no sanctioned group within which to discuss issues nor do they receive support for positive actions taken. Ekkehard Nuissi says that "there are no educational

programs for men which, like those for women, have as their object the individual and social problems and deficits pertaining to [themselves]" (1992: 40). Thus, "little is known about fathers' beliefs and attitudes, and the possibility of increasing their involvement in nutrition intervention programs" (Engle and Menon, 1996: 16). However, from what little research exists, there is evidence that men will respond positively when involved in nutrition education programs. Webb et al. cited in Pratt & Pratt (1987) found that in Haiti, communication between mothers and fathers about nutritional information motivated the father to develop a concern for the nutritional health of his family. The experience of Tulimbe Nutrition Project demonstrates that men were able to re-define and transform their roles as husbands and fathers as a result of the nutrition intervention.

MEN'S INVOLVEMENT IN TULIMBE NUTRITION PROJECT

One of Tulimbe's expectations was that gender roles within the family nutrition system would be challenged, but not confronted. For example, although programme staff knew that men consumed the largest and best portions of food, they could not directly address this issue. Some development projects have been criticised for inciting women's anger over their men's behaviour, or openly criticising men. Since Malawian society is generally peaceful and non-confrontational, public reproaches about private practices would have been unwelcome. It was not in the nature of Malawian programme staff to be disapproving or corrective. Instead, Tulimbe's approach to gender roles was not to force changes, but instead to take a more gentle way and include both men and women in as many traditional and non-traditional roles as possible. Learning opportunities were provided for men and women separately and together in order that they become more like-minded on the issue of child nutrition. Because Tulimbe's programmes were innovative and interesting, both men and women became more confident in their care giving roles through their involvement in the project. Thus, when men learned that children needed several small meals per day, with more varied foods and combinations, they adjusted their views about their own special eating privileges and extended new privileges to

children. Tulimbe changed gendered social practices by sanctioning good behaviours, rather than challenging harmful ones.

During the summative evaluation, through individual and group interviews with married men and women, it was determined that several significant changes had occurred in the lives of those who had participated in the project (see Chapter Three for description and Appendix 9 for instruments). These results were compared with the data collected in the formative research phase (see Chapter Three for description and Appendix 4 for instruments). The results are analysed according to the framework of "care giver resources" cited in Engle and Menon (1996). Providing the context are sections on men's and women's motivations for participating in the project, and their project roles.

MOTIVATIONS FOR PARTICIPATION

Men and women had different ways of interpreting the meaning of the project and its significance for themselves. Women's motivations for participating in the project were personal ones. They wanted to be better mothers and have healthier children, but they also felt that the project would give them the key to a new life. They emphasised the benefits of learning new things. New knowledge would let them know "what was happening in the world," "destroy their ignorance," and give them "freedom." They thought the project would help them see more clearly what they were lacking, so that they could be more "modern" in the ways they thought and worked.

Men's motivations for being involved in the project were not only centred around self-improvement. They wanted the project to have a positive affect on the wider community. Male leaders encouraged people to practice the new dietary strategies because they trusted that their children would be healthier. They recognised that growth monitoring and morbidity measurements made people more aware of their need to care for their children's health, so they supported Tulimbe because they perceived that the project's clinic helped to bring about a decrease in child illness and death. Men were aware that such large-scale improvements, such as those initiated by Tulimbe, raised the status of the community and its members.

PROJECT ROLES FOR MEN AND WOMEN

A variety of activities was established to enhance project visibility and awareness of nutrition issues in the community. Men and women were given opportunities to choose from numerous roles and responsibilities, participating in or assuming those which were meaningful and inspiring to them. Other community-based Vitamin A projects have also experienced more success when they involved men, especially when agricultural or technological innovations are brought in (Jefremovas, 1995: 12).

The programme was designed so that equal numbers of men and women would be elected as leaders, and take part in leadership training to prepare them to co-ordinate project activities in their communities. At first, men were hesitant to take leadership roles in the nutrition project because they felt that they did not have enough knowledge about child feeding. However, since the project offered education and training to the leaders, men were able to assume their roles as group leaders with confidence. Project staff were surprised at how receptive men were to volunteering for the nutrition project. Men did not question how their gender roles related to their involvement because they understood why their participation was necessary. They could list their roles and responsibilities for child welfare: procuring food, taking children to hospital, and cooking and caring for them in their mothers' absence. Thus, male leaders recognised the need for men to have information and skills for better care giving. They also knew that they could be effective in their leadership roles because they were accustomed to taking responsibilities for community management.

In fact, there was more scope for men to be involved in project activities than women. Women who did not have leadership roles were expected to improve their performance of their usual tasks, such as cooking and attending growth monitoring sessions. Women were more engaged in ordinary tasks to affect dietary change, but men were able to involve themselves in various innovative community development activities initiated or supported by the project. Men's roles included the co-ordination and use of appropriate technologies, such as solar dryers, ovens, and oil presses; Malawi Social Action Fund (MASAF) brick-making and building activities; Institute for Crop Research in the Semi-arid Tropics (ICRISAT) agricultural trials; new cultivar production and seed multiplication; and participation in project festivals. Some

women who were active in community management roles, such as the Health Club members, would have equal access to participation in most of these activities, but the majority of women who were less active would not participate in them because the activities were perceived of as more suitable for their husbands.

However, there were many home-based project responsibilities that parents had to assume jointly. Before each new phase of the project, a consultative process was held to assign responsibilities for the new tasks introduced to families by the project. Both men and women together decided on the roles each spouse would assume during activities.

Couples were given morbidity calendars to monitor child illnesses over a one-month period. The calendars depicted child illnesses and had spaces for the dates and frequencies of their occurrences. Parents were to keep an accurate record of their child's health by filling in the calendar. Upon receiving the calendar, the husband was to impress upon his wife the serious nature of the exercise. The wife was to inform her husband when the child showed signs of illness, so that he could verify the problem. If she could not accurately record the problem, the husband would write the date and identify the illness.

Three times during the life of the project, dietary monitors visited the homes of project participants to ask parents to recall what their children had to eat over a 24-hour period. The day before the visit, parents were given a pictorial list of foods to check off to show the monitors. The husband's role was to teach his wife how to use the form by helping her recognise and mark the foods on the list. The mother was to observe what the child had eaten and immediately record the foods on the form. She was supposed to recognise the foods on the form, and be truthful about what she had marked on the form. If she could not fill it out properly, she was to ask her husband to help her. He was to check the form, make sure that it was kept clean, and see that his wife had marked all the foods that the child had eaten. Overall, men have better literacy skills than women, so the final responsibility for the written self-reports belonged to them.

Anthropometric and biochemical measurement sessions were held several times during the life of the project. The various groups in each of the communities were asked to attend these sessions on specified days. Measuring stations were designed so that parents would line up with the children, and visit one station after the other until they had attended all stations.

Before the first measurements were taken, men and women agreed that husbands should be fully briefed by group leaders on all the details of the exercise and its importance. Men were to inform their wives, encourage them to attend the exercise, and see that they would arrive on time. If possible, husbands were to be at the measuring stations to help their wives control the children and calm them down. If their wives were not able to go, husbands were to take the children. Their presence was required at the measuring stations because men were able to command more authority and respect from children. They were also able to offer children small gifts and sweets purchased with cash.

New dietary strategies were introduced to families which required that the staple foods be processed differently, that new ingredients be added to old recipes, and that meals be prepared keeping in mind combinations of food and portion sizes (explained in detail in Chapter Seven). Women were given responsibility for preparing the new recipes, but men's support was essential in enabling them to follow the project's messages. In order to make the recipes properly, women had to negotiate with men to purchase the recommended ingredients. Women reported that men engaged themselves in new business ventures in order to earn money to buy food for children. Men asked their wives to teach them what they had learned, and once they were convinced of their merit of the new recipes, they reminded their wives to continue to practice the project's recommendations.

In summary, programme staff recognised that men in the community had to be well informed of all project activities to assure their co-operation, and the co-operation of their wives. The dietary, growth, and morbidity monitoring exercises involved sensitive and sometimes invasive measurements which would not have been possible to implement without being sanctioned by community leadership and household heads. By anticipating the roles men would take, or by assigning men roles in these exercises, the project sought men's involvement in all its activities. Some men, inspired by the new knowledge that they could prevent child malnutrition, took on new responsibilities in order that their families would benefit most from practising the project's recommendations.

CARE GIVING RESOURCES

Project activities were novel to men and women, and by defining new responsibilities, both men and women began to see their roles in the family nutrition system more clearly. By taking on project responsibilities, men's existing care giving resources were reinforced and given new meaning. These care giving resources were explored: knowledge/beliefs; control of resources; workload/time allocation; and social support.

Knowledge and Beliefs

A Knowledge, Attitudes and Practices (KAP) questionnaire was administered twice, first in 1996 and twelve months later in 1997. Men and women were asked about their knowledge of iron and Vitamin A, and the effects of their deficiencies. Answers to all ten questions about these micronutrients showed either that men answered "don't know" less frequently than women, or that men's and women's knowledge base was similar. Even though men had more knowledge about nutrition than women, men's attendance at meetings or activities about children's health was significantly lower than women's. The fact that men generally had more knowledge about micronutrients than women, but attended fewer formal meetings about child health, means that men are interested in nutritional issues, and that they are receiving nutrition facts from different information channels than women.

Men's mobility facilitates information-gathering from other sources or media. Men, more than women, have access to radios, and they are often seen carrying them wherever they go. Radios do not usually remain stationary in the household for women to listen to. Many radio news and human interest programs in Malawi feature stories about health and nutrition. Men also receive information about nutrition informally, through their everyday activities and observations. Women learn about nutrition through non-formal education programs, such as the customary initiation training (litiwo) for new mothers, and from health lessons given before monthly growth monitoring sessions with Health Surveillance Assistants. Women also receive advice from the hospital where they go to have children treated or to receive supplementary food. Moreover, as the KAP results show, husbands may also provide important information to

their wives (Engle and Menon, 1996: 16). Although men and women may be operating from a similar knowledge base about some nutritional issues, not all knowledge is shared nor has the same meaning for both groups. As well, men and women have differing opinions about food practices and their implications for children. Thus, there are gaps in knowledge; gaps in perceptions about common experiences; and gaps in communication between men and women about family food practices. For example, not all of men's knowledge agrees with what women know, nor is it accurate. For example, during the formative research stage, separate groups of men and women were asked the same questions about breast feeding practices. Women stated clearly that the colostrum was consumed by the child, and that disposing of any breast milk was a cultural taboo. Men believed that the "first milk" was squeezed out and disposed of because it contains no "cream." They were not sure if the disposal of colostrum was still the practice.

Men's and women's opinions also differed when they were asked about intra-household food allocation. Women described a schedule and pattern for family eating in which age and sex are the defining factors. They said that the smallest children eat first, then the older children, and finally the parents. Children eat together, but older children are separated into sex-based groups. Older boys are allowed to eat near their father. The small children and female members of the family eat in the kitchen, but the father eats on the veranda in front of the house, so that he may entertain visitors if they appear. Men denied that these intra-household practices were so defined, and said instead, that the family ate together. Women said that the men ate the most food and the best parts of meat or fish, if they were served. Men contradicted the women by saying that the children have access to the most food because they were given left-overs. Men said that they would only eat a portion of their food in order to pass the rest on to their children. Although the issue of intra-household allocation is not as simple as it seems (Van Esterick, 1985), there is little doubt that in Malawi the food distribution patterns favour the male (Kurth, 1989: 253).

Men also had different perceptions of child feeding practices than women. These perceptions arise out of the fact that they are in the position of observers when children are being fed, whereas women are in the active role of performing the feeding tasks. Generally, men's responses to questions about child feeding seemed more conceptual, whereas women's seemed more practical. Men noted children's restless behaviour when they do not like their

food, i.e. smearing food on their bodies. They understood that children's interest in eating a meal is affected by the care giver's attention to the task of feeding. They were able to identify the importance of "active feeding" on the part of the care giver (Engle and Zeitlin, 1996). Men also noted that children ate with more interest and appetite when they received sweet foods, meat or fish, or a variety of foods.

One man expressed frustration because he knew that his children would be healthier if they were fed regularly several times per day. However, his wife refused to feed the children in the morning, and because she perceived child feeding as her exclusive role, she did not feel obligated to listen to her husband. Because the project's recommendations included emphasis on the value of feeding children 5-6 small meals per day, the husband was able to prove to his wife that she was not feeding the children properly. Previously, men agreed that they were reluctant to advise women on how to feed their children. However, the project disseminated accurate messages about child feeding to the whole community, so that both men and women heard them. Thus, men said that women can no longer refuse to talk with them about child feeding because the information is for everyone.

Control of Resources and Decision-Making

In rural southern Malawi, married women are dependent on their husbands as providers and decision-makers. Women said clearly that their husbands had to give consent to any change that would have an effect on the household. If women suggest an innovation, men require verification of the new idea before they will co-operate. Men may undermine the new initiatives of women, as well as undermine the source of the new ideas. Although project staff had no access to spousal discussions of project activities, there was evidence of spousal conflict from the plays put on by the drama groups. The plays were conceived of by the members of the drama group, who were both men and women, all of them active in promoting the project through their roles as project leaders and health club members. This is the story line of one such play:

> The play begins with a man asking Mr. Gologolo if he has understood what was said at the workshop. Mr. Gologolo says that is complete bullshit. The new cooking methods

> are too strange--imagine putting germinated cereal flour into porridge. The friend says it is good for their children's health and the man does not agree.
>
> When the man arrives at his house, he asks his wife if she has already given the child porridge. The wife is giving fermented porridge to her child. Then Mr. Gologolo comes to their house and starts shouting at his friend's wife, saying that what they learned at the workshop is useless. The couple becomes angry and he is chased out of their house.
>
> Then Mr. Gologolo goes to his house where he finds his wife giving their child soaked maize flour porridge. He is angry with this and throws the porridge away. He says that she is wasting flour by soaking it, and that very soon they may starve because she will have wasted too much flour.

The play continues with this resistance theme until the child gets sick, and after many attempts to find treatment, Mr. Gologolo realises that the child must receive proper nutrition, and that he must agree to try the new recipes that the project has introduced. The theme and pattern of this play was repeated over and over by the four drama groups sponsored by the project. The play which illustrates men's resistance to household innovation, is a mirror on reality. It shows why the project had to address the issue of men's co-operation. It also shows that the community had its own way of dealing with men who thwarted project efforts. The play shames the husband who is resistant. Noted by Kerr, shame (manyazi) is a feature common to "oral satires, village forensic rhetoric, and to the PHC [Primary Health Care] plays . . . [in which] collective feelings are martialled against discountenanced behaviour" (1989: 482).

As the project's intervention gained wider coverage and credibility, men accepted the ideas and recipes their wives brought home from demonstrations. Non-conforming behaviour became more unacceptable in the community, and was seen as subversive, not only to the aims of the project, but to the overall goals of community development. The momentum of social pressure to participate in the project increased as time went by. Families competed over who prepared the most innovative recipes most often, and parents wanted to show off children whose health and appearance had improved. There was significant peer pressure to encourage fathers and mothers to work together so that they too, could show how their child's weight had improved, or how thick and curly their child's hair had become.

Workload and Time Constraints

Tulimbe Nutrition Project encouraged men to explore their identities and roles in ways which did not directly threaten their masculinity, i.e. men were not instructed to assume responsibility for women's work. To ask men to assume non-traditional tasks would have been threatening to both women and men. There is, however, evidence that men usually assist women with their tasks when women are preoccupied with caring for new born babies or when they are sick. During the formative research stage, women said that men help with washing clothes, cooking, collecting firewood, and drawing water. They said that men recognised the need to help out when babies are very small and prone to frequent crying. Men's responses agreed with women's. However, men said that they were reluctant to do public tasks exclusively associated with women's work, such as drawing water, because of the social stigma attached. They were even reluctant to do women's work in the home because they were afraid that their wives would tell their friends. They said that if their work in meal preparation became too frequent or too visible, they would be mocked by others in the neighbourhood.

Although it is evident that men will assume women's responsibilities in the household, social pressure dictates that men are limited in flexing their roles. However, social stigma and pressures changed when the project encouraged new ways of perceiving parental responsibilities, and when it introduced new tasks for parents to try. People saw both male and female leaders volunteer their time for the nutrition project. They saw both male and female programme staff doing cooking demonstrations. Visitors and delegates—men and women from different countries—were introduced as doctors, scientists, politicians and engineers. When the oil press was installed, men and women divided the tasks, but worked together to try the oil-making process. Men joined drama groups, wrote poems, and made posters to promote the project. Women started businesses and became more assertive about going to the hospital and market. Because the project's innovations were new, they did not have the same stereotypical sex roles attached to them as traditional tasks. Social pressure swung from a rigorous adherence to sex roles to a more open and flexible view of gender roles.

Social Support

During formative group interviews, men were asked about their roles and responsibilities in the household, and how they felt about their families. Before the intervention, men revealed that they had strong feelings about their children's welfare and nutrition. They said that they would not eat or relax until the baby is cared for and fed. If children are ill because they are not fed properly, everyone in the family becomes upset, including fathers. Men are concerned when babies cry because they do not want relatives, neighbours or passers-by to hear and come to the conclusion that their children are being neglected. Fathers, therefore, emphasised their concern about how children receive care.

When asked whether they had thought about women's experience of breast feeding, some men said that they felt sorry for them because they always have to carry their children, and have little freedom. Men said that when a woman is breast feeding, her husband is supposed to be kind to her, and not deny her things she may need. Men believe that they are able to influence the emotional health of their wives, and through them, the health of their children. They believe that if a mother is at peace, her baby will be bright and active.

There is strong evidence showing that men are concerned about the welfare of their wives and children. This is confirmed in the study by Kalipeni and Zulu in Malawi who asked men and women about their reasons for using a child spacing method: "both males and females were in agreement that care given to each child would be the overriding factor" (1993: 114). One of the unforeseen results of the project was an open expression of men's feelings for their wives and their children. During summative evaluation interviews, men said they that are closer to their children, and show more concern for them. Some fathers were relieved that their wives are more informed about child nutrition because they do not have to worry about whether they are feeding their children properly. In general husbands and wives felt more at ease, and because they feel more confident in their parenting roles, the family atmosphere is more relaxed. Men said, that since their involvement with the project, they feel a greater sense of love for their families.

The project's effect on spousal relationships was noted by government officers and project staff who said that they observed a greater sense of co-operation between husbands and wives due to the project's intervention. This was evident on one occasion when Community Services personnel had offered a small business skills course for twenty women in the project area. The agency frequently offered such courses within the district, and at the conclusion of each training session, request that women invite their husbands to celebrate their wives' new skills. Almost always, husbands do not accept the invitations; however, at the conclusion of the training with Tulimbe women, most husbands came.

Evidence of transformed gender relations was given by men and women during the summative evaluation. Through their involvement in the project, men said that they have new visions of their families and how as fathers they can be happier and wiser in their roles. Because they now know about their children's health and nutrition needs and their wives' roles in cooking and serving food, they are able to see their own roles more clearly. Since the nutrition intervention, husbands enjoy more prestige in their households because they provide the ingredients to make new recipes, and support their wives in their efforts to make more nutritious meals. Men believe that, since women started attending project activities, they have more respect for them. Because of this new respect, men are able to use their knowledge about nutrition to influence the family food situation more than they were able to before.

Women had a clear vision of their roles in the nutrition system from the beginning of the project, but were not confident in their roles or responsibilities for family feeding. Therefore, women's primary motivation for participating in the project was to gain more knowledge to become better mothers. After learning about the dietary strategies, they felt more sure about themselves. One woman said that because she prepares food that is tastier and healthier, she has confidence in herself. Another woman said that being involved in the project gave her confidence in her relationship with her husband--he noted her new attitude and was happy with the change in her.

Women in both communities said that their improved cooking skills have changed their relationships with their husbands for the better. Men liked the taste of the new dishes, and encouraged women to make more of them. Group leaders observed that when women came home from demonstrations, they immediately shared the new information with their husbands,

and not only with other women. Women said that they felt an obligation to discuss the project's messages with their husbands. Now, unlike before, couples sit together and discuss their concerns.

Parents also discuss with their children their reasons for practising the new dietary strategies. Some women said that because they have something special to share with their children, and because they have an increased interest in their daily routines and meal times, they have closer and more frequent contact with their children. Fathers, too, take time to look at their children to determine whether or not they have been fed properly or have any signs of being malnourished.

CONCLUSION

After two years, men's involvement in the nutrition project enhanced their roles as care-givers and providers. As a result, there was a new depth to family and community harmony. Once men understood the meaning of the project, they wanted to be more involved. Some men even felt disadvantaged because they did not have the same access to new information as their wives. Because they were seen as all-women's activities, men did not sit in on the cooking demonstrations, and therefore did not receive detailed information about foods and recipes. As revealed in the 1997 KAP questionnaire results, the frequency of women's "don't know" responses had declined significantly, whereas men's "don't know" responses were down from 1996, but not fewer than women's. Thus, from 1996 to 1997, women's knowledge improved and had outstripped men's knowledge on micronutrients.

If time allowed, the project would have organised separate demonstrations and lessons for men with male teachers to allow for effective learning and sharing (Bhasin, 1996: 58). One male staff member reported that men were intrigued when they observed him assisting with cooking demonstrations. However, culturally sanctioned roles place limitations on the type of nutrition education men receive. For instance, if sanctions exist against men's role in food preparation tasks, it would be futile to reach out to husbands by introducing them to tasks only associated with women's roles. Yetley et al. (1981) suggest that target audiences be identified according to their "task versus resource orientations." In this case, men and women would

receive the same nutrition messages, but different orientations to carrying them out: the women's program would focus on strengthening their existing skills (i.e. cooking) and learning new skills (i.e. planning); and the men's program would encourage them to support the changes their wives make through their resources (i.e. financial, food) and decisions.

Approaches and messages should appeal to the roles and needs of both men and women. However, women in Mchisa were against having men attend demonstrations because they involved cooking, which is women's work. Women in Nsanyira believed that men should be more involved, but only in the agricultural aspect of the project, so that they could learn to grow a greater variety of foods for family consumption. Thus, if men are expected to participate more fully in care giving, their roles as care givers—including child feeding--should be legitimised in the household, community and society.

In summary, community-based projects for women and children may be more successful with consent from and ongoing support of community leaders and household heads, most of who are men. Thus, men play a significant part in legitimising development projects, especially projects targeted for women. By not addressing the same issues with men, and by not making those issues relevant to men, women's projects put husbands and wives in competition with each other. Because the project did not target women only for nutrition knowledge, men and women have been encouraged to discuss issues together. Sharing knowledge and concern about child care helps men and women perform the tasks of care-giving together.

The unceasing machine of development continuously challenges gender roles, making them dynamic and malleable. Project planners should realise that this flux is an opportunity to work with men and women, and assist them to cope with change together. Family food insecurity and child malnutrition were urgent concerns to both the men and women who lived in Tulimbe's communities. A transformation in gender roles occurred because the issues at stake became so compelling to individuals that they had little choice but change their behaviours.

VII. EVALUATING DIETARY CHANGE

Strategies for community participation and family-focussed approaches were the basis for the dietary intervention. These processes began in July 1995, more than one year before the intervention was implemented. During the year before the formal nutrition programme began, people were involved in baseline nutrition measurements and various promotional activities. Community members became accustomed to mobilising and organising themselves under the direction of project staff and elected community leaders. Both new and familiar activities took place within the context of Tulimbe Nutrition Project. However, what people anticipated most were knowledge and methods to improve their children's health and nutrition status. This was the goal of the project and the following objectives devised by the Principal Investigator of the project, Rosalind S. Gibson, served as the basis for the intervention:

1. Increase intake of zinc, iron and carotenoid-dense foods by increasing consumption of flesh foods, dark green leafy vegetables and yellow/orange fruits and vegetables;
2. Increase intake of foods which enhance micronutrient absorption such as flesh foods, fermented foods, oil-rich foods, and ascorbic-acid rich fruits and vegetables;
3. Use combinations of soaking and germination or soaking and fermentation to further reduce the phytic acid content of unrefined cereal and legumes.

In order to meet these objectives, the project promoted the use of local food resources, traditional methods of processing, and nutritionally sound practices used elsewhere in Africa.

This chapter is divided into four parts. First of all the dietary situation is described according to observations and information collected during the formative and baseline research stages (see Appendices 1,3 and 4). Secondly, the four-month intervention programme is described, and thirdly, the results of the dietary changes are given. Finally, an analysis of the success of the programme is explained according to various behavioural variables.

DIETARY SITUATION ANALYSIS

The foods and feeding habits described in the first part of this chapter correspond to aspects of the intervention: foods rich in micronutrients, foods enhancing absorption of nutrients, maize-based food products, relishes, meal composition, meal planning and preparation, and child feeding behaviour. Only by understanding the "family nutrition performance system" could programme staff identify the discrepancies between the existing and desired situations (Whitmore, 1988). The family nutrition system is affected by the knowledge, attitudes and behaviours of its family members, especially the mother and father. As discussed extensively in Chapter 2, there are numerous factors which impinge upon family food security. However, even in food secure situations, families are still limited in their food choices by seasonality. The fruits and vegetables which the project promoted under its schema of vitamin A, iron and "helper" foods were available in seasonal cycles. Thus, along with the various constraints limiting the diet, the issue of seasonality will persist in regulating dietary behaviour, unless significantly mitigated by technologies for preservation and storage.

AVAILABILITY OF MICRONUTRIENT-RICH FOODS AND FOODS WHICH ENHANCE MICRONUTRIENT ABSORPTION

In the project area, there are many Vitamin A-rich foods available and consumed. These foods are grown in family compounds or gardens. Nutritionists generally characterise Vitamin A-rich foods by their colours: dark green leafy vegetables, and yellow and orange fruits and vegetables. Vitamin A-rich foods available during the rainy season are pumpkins and pumpkin leaves, and various leaves from pulses and sweet potato varieties. At the beginning of the rainy season (November-December), the mango, a fruit rich in Vitamin A, is plentiful.

Iron-rich foods are not as accessible as Vitamin A-rich foods. Iron-rich foods such as meat, poultry, fish, eggs and beans must be purchased, and the frequency of their consumption is dependent on cash availability, which fluctuates and is most scarce during the rainy/growing season. Eggs and meat are difficult to procure because of their expense. In 1997, one egg cost three kwacha ($0.30) and one kilo of meat cost 52 kwacha ($5.20). Beans and fish are less

expensive, but people cannot afford to eat them every day. Non-haem iron sources, such as green leafy vegetables, are readily accessible, but the iron may not be absorbed unless eaten with "helper foods."

"Helper" foods or mkamudusyo (both terms coined by project staff) are foods which help the absorption of micronutrients, i.e. oil-rich foods, citrus fruits. Helper foods are not foreign to the diet, but neither are they readily available nor inexpensive. Cooking oil is processed and bottled by large companies, such as Lever Brothers. For people who cannot afford bottles, the manufacturers make cooking oil available in small clear plastic sachets. However, most people purchase cooking oil by the spoonful from small shops. During the 1996 Knowledge, Attitudes and Practices (KAP) survey, over 300 respondents said that they used cooking oil, but 104 said that they used it rarely, only 25 said that they used it daily, and 143 said they had eaten food cooked with oil in the past two weeks.

There is no recent history of indigenous or local oil production in Malawi. Currently, several agencies are experimenting with prototype technologies to produce oil from sunflower seeds, groundnuts and coconuts, but these innovations are new and not widespread. Groundnuts (or peanuts), another source of oil, are not grown on a large scale in the project communities because the soil conditions are no longer suitable for the local seed. Groundnuts and groundnut flour must be purchased, and because of the relative scarcity of groundnuts in Mangochi, they are expensive.

Citrus fruits provide a source of vitamin C, which helps in the absorption of iron. They are available seasonally, and are usually brought in from other areas of Malawi. Oranges, tangerines, grapefruits, limes and lemons must be purchased from the town of Mangochi. In their season, only a limited number of grapefruits were sold in Mchisa. Citrus trees do not grow well in the project area. There are, however, other fruit sources of vitamin C, such as the fruit of the baobab and other traditional trees. The most popular fruit snacks are a cherry-type of fruit (masau), sugar cane, papaya, palm fruit (zikunda), purple fruit (bonofant), and baobab fruit (malambe).

Although plants rich in vitamin A are plentiful in the project area, people lack iron- and oil-rich food. As a result, the project introduced new cultivars through its soybean and sunflower distribution and seed exchange programmes. As well, the project collaborated with

the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in various trials for new breeds of familiar oil- and protein-rich crops, such as groundnuts and pigeon peas. These crops were introduced before the formal intervention period and thus were only starting to become part of the family diet. Programmes for the diversification of the diet are required when the local food system, for various economic, environmental and socio-cultural reasons, has lost its efficacy to provide necessary nutrients. However, even if foods are plentiful, there is no guarantee that children will be fed in ways which assure normal development. The following section examines family feeding practices, and illumines some of the focal points for behavioural change in the area of child care and feeding.

FAMILY FOOD EXPENDITURES

Food is purchased from several sources. Maize is available by the bag from the government parastatal, ADMARC. Other foodstuffs, including maize in smaller amounts, are purchased in the Mangochi market and from vendors who come into the communities from other places. During formative focus groups, health club members and their friends listed the following foods which they purchase regularly: cassava, sweet potatoes; legumes and nuts, such as beans, pigeon peas, chick peas, peanuts; vegetables, such as Chinese cabbage, cabbage, onions, tomatoes, pumpkin leaves, turnips; and flesh foods, such as small fish. Some people from the community are able to sell vegetables they grow in their own river-bed gardens.

When asked the amount of the weekly food bill, women in one community said MK100.00 ($10.00), while women from the other village said MK250.00 ($25.00) which included not only food, but fuel and the cost of milling maize. Men said that MK80.00 ($8.00) was spent per week for a small family, but they admitted that the amount was only an approximation because money is spent as it becomes available, and is not budgeted from a stable income. Another group of men said that MK50.00 ($5.00) per week was spent only on ingredients for relishes (beans, vegetables, meat or fish), but when they included the cost of maize, the amount would rise to MK100.00. Women also spent money on clothes, shoes, soap, pots, plates, cups and baskets. Men, too, said that they purchased clothes, soap, body lotion, paraffin, salt and soda for cooking. Some men said that they attempted to save some money for

the future or for emergencies; however, they admitted that saving money was not always possible. Some of the money which is budgeted for agricultural inputs goes for buying food.

MEAL COMPOSITION

According to the small survey taken with focus group members, the composition of meals in Malawi remains consistent, although the foods available vary from season to season. Breakfast usually consists of maize flour porridge. Alternatives are tea with sugar and sometimes cow's milk; maize meal banana cakes or doughnuts which are purchased; and boiled cassava or boiled sweet potatoes. Lunch and supper consist of maize flour patties (nsima) served with a "relish" or stew (ndiwo) made most often from vegetables or common beans, and less frequently with fish or meat.

This menu reveals that maize-based products are essential to the diet, and therefore it was important for project staff to examine existing processing methods to determine if there was an historical basis for some of the techniques which would be introduced during the intervention.

FOODS MADE FROM MAIZE FLOUR

In order to cook with it, maize is processed into a flour, either with the bran (mgaiwa) or without the bran (ufa woyera). Ufa woyera, the refined flour, is taken through six stages of processing: removing the kernels from the cob, pounding, soaking, washing, drying and milling (Ninje and Weaver, 1984). According to the 1996 KAP survey, ufa woyera is preferred by all members of the family because of its refined soft texture. However, the Ministry of Health promotes the use of mgaiwa for children because of its healthier whole grain composition. Making coarse mgaiwa also requires fewer processing steps, i.e. once the kernels have been removed from the cob, they are taken to the mill to be made into flour. There are both nutritional and labour-saving advantages to making mgaiwa, but ufa woyera remains the preferred flour.

For breakfast or babies' food, maize flour is made into a porridge (phala) by adding it to boiling water until it reaches the desired consistency. Salt is always added as flavouring. Coarse, non-iodised salt is usually on hand, although it must be purchased. Some families add sugar or milk to porridge. Sugar is purchased by the table spoon in local shops called "groceries." One man reported spending the equivalent of fifteen cents for sugar for the morning meal. Cow's milk is sold by roving vendors for the equivalent of twelve cents per litre. According to the 1996 KAP survey, some people are accustomed to adding groundnut flour (almost one half) and eggs (one fifth) to porridge, but the frequency was not indicated. According to information gathered before the intervention, people did not regularly add other ingredients to porridge, apart from milk, sugar or salt. No one in the project area either purchased or processed the porridge mixes called soya or likuni phala, but some people received it from the Mangochi District Hospital's nutrition clinic.

For meals after breakfast, maize flour is made into nsima, stiff oval patties or balls made from stirring maize flour in boiling water until it is thick enough to be scooped out. Nsima is served with a relish. If people do not have a nsima meal, they believe that they have not really "eaten." Other locally grown staples, such as rice, cassava and sweet potatoes are less valued and considered as snacks rather than meals.

Apart from porridge and nsima, people use maize flour to make thobwa or sweet beer, a non-alcoholic drink, consumed by all family members. It is made by following the same cooking steps as porridge. Once the desired consistency is reached, the porridge is cooled for a short while, and afterwards a germinated cereal flour called chimera is added. In the project area, the germinated cereal used most frequently is millet because of its "sweet" taste, but others, such as sorghum or maize, may also be used. Flour made from germinated cereal is called amylase-rich flour (ARF), the amylase of which has properties to thin the porridge (King and Burgess, 1992: 61). According to the 1996 KAP survey, people use chimera mainly because of its taste, its thinning qualities being less important. Once the porridge is thinned, it is kept overnight at which time it ferments. Thobwa may be kept for two or three days without spoiling. Some people boil thobwa each morning, so that it lasts up to four days, but some said that with boiling, the drink becomes thicker and less appealing in texture. However, the boiling improves the taste, making it less sour. The beverage is prepared once or twice a week during

the hot season, for it is thought to have cooling qualities. It is also consumed during times of celebration, such as the annual initiation ceremonies or at the opening of the new mosque. The 1996 KAP survey indicated that most people drink thobwa regularly, but do not give it to children less than six months of age because they believe it causes diarrhoea. However, they remarked that when children drink thobwa, they do not have as many symptoms of malnutrition, and are happier.

These three maize-based products--porridge, nsima, and thobwa--comprise the bulk of the Malawian diet. Because processed maize flour products contain limited nutrients, they were a major focus for the intervention.

RELISHES

Nsima is never eaten alone, and if the accompanying relish is not appealing, the meal will not be enjoyed. Even small amounts of relishes, prepared for optimal nutrient intake can make a significant difference in a child's health. The variety of relishes is dependent on the season. A typical relish is prepared in a small amount of water, and flavoured with tomatoes and salt. Onions are usually scarce, and oil is too expensive for regular use. If people can afford to buy it, groundnut flour (nsinjiro) is added to make a tasty gravy for the relish. Since the project introduced soya and sunflower seeds, women also processed them into flours and added them to relishes as they would groundnut flour. When these flours are added to relishes, not only is the flavour enhanced, but also the oil content.

Most relishes are made from vegetables, such as pumpkin leaves (nkwanee) or Chinese cabbage. In rural Malawi, the term "vegetables" usually refers to green leaves. "Exotic" vegetables, such as cabbage, carrots and green beans, are not grown in Mangochi, and if available, are expensive. Bean relishes are made most frequently from the common bean (nyambe), cow peas (khobwe), chick peas (nseula), pigeon peas (nandolo) and peas (nkhungudzu). Flesh food relishes mainly comprise fish, such as cat fish (kampango), small minnow-like fish (kambuzi), and for special occasions, chicken and beef. The latter are rarely eaten because of the expense. However, for both men and women, the eating of meat is essential for strength and energy (Morris, 1994: 38). Thus, when meat is not accessible, people

miss a vital element from their diets. When expensive relishes made from meat or fish are prepared, the biggest share goes to the adults, especially the men. There is little awareness that these foods high in protein and iron, are important for children.

FAMILY MEAL PREPARATION AND EATING PATTERNS

Food is prepared by the women, who are assisted by both young sons and daughters, but primarily by older teen-aged daughters. Men said that if there were no daughters in the household, they would take a more prominent role in meal preparation. If the woman is sick or absent, meals are prepared by her children and her husband. Relish is cooked once or twice during the day, and then reheated for subsequent meals. Nsima is cooked fresh for every meal.

Adults and young children usually eat separately, according to custom. The separation of family members into sex- and age-based groups also depends on the number of plates available in the household. According to the 1996 KAP survey, less than one eighth of parents gave children their own plates from which to eat. The number of plates relates to factors such as family income and number of children. Every grouping must have a plate for nsima and a plate for ndiwo. If there are not enough plates, fewer groupings are possible. There is also a belief that if the ndiwo is served in one bowl, the family is able to economise on the amount required. Because children's meals are served in communal dishes, they must compete for what is available.

When men and women were asked to identify meals eaten by men, women and children in one day, they listed meals and ingredients, but did not distinguish between family members. Evidently, no special dietary considerations were made for children. This agrees with 1996 KAP results which reveal that over two-thirds of the respondents do not believe that some family members need more food than others. Of the one third who believed that some family members have special food requirements, almost all identified children under five years old and school age children. Also, according to the 1996 KAP survey, about half the respondents said that children received three meals a day, while the other half said two meals. According to discussion groups held in 1995, women said they would try to feed their children more than three times a day if there was enough food. Children are not purposely discriminated against,

but the social practices of family eating are not to children's advantage. As well, parents do not seem to be aware of the extent that children's dietary needs are different from theirs. This lack of awareness of children's special needs for care and feeding is evident in the following practices.

CHILD CARE AND FEEDING

During formative focus group interviews, when asked whether they had specific times set aside for feeding children, women said that they did not. Men said that women were able to feed children at specific times only when there was enough food. When asked whether they had time enough to feed their children, the women said that they could not give children enough individual attention. They said that only those who could employ a girl to help had enough time to feed their children properly. Men said that during the farming season they were too busy to spend extended time with children.

It was evident that women's work outside of the home interferes with proper child feeding. Women were asked what they do to make sure children receive their noon meal when they take their children to the farm or market. They said that they feed children before they leave, or take food with them. They may take nsima or porridge if they are going to the farm. They carry the food in containers, in cups, or in the pots in which the food was cooked. The food is put in a basket with a five-litre bottle of water. Some mothers cook in the fields, and carry with them flour, salt, pots and water.

If they go to town, they buy snacks for the children, such as tea, Fanta, ice lollies, cooked rice, boiled cassava or sweet potato, bananas, banana fritters, doughnuts and pancakes. If the children are able to speak, they are able to choose what they want, so that they will have no complaints about their choice. When asked how they could tell if the food was clean, women said that they do not know, but they think the food is safe if it is covered.

If children do not accompany parents, they are left at home with child-minders, such as grandmothers, older children, the mother's elder or younger sisters, or neighbours. Women said that their husbands would look after children if they have gone to the maize mill or to the

market. Child-minders are given food and told when to cook it. However, sometimes no food is left behind, and the children have nothing to eat until the parents return.

Children may play with their friends and move freely from home to home during the day. Children who eat once or twice at their parents' home, may eat in between at the homes of their friends. Parents are not necessarily aware of what or how much their children eat because they often snack while playing with other children away from their own homes. According to Morris, young boys seem to fare the worst when it comes to having their food needs met at home, and they are left to their own devices to keep themselves satisfied (1984: 24). They are always looking for food upon which to snack, and when fruits are available, they will often be seen with pieces in their mouths at all times of the day. Usually parents do not monitor the consumption of snacks, nor consider their value as an integral part of their children's diets.

Although there may be some social benefit to children's roving feeding behaviour, most likely children are compelled to find other sources for food because they are hungry, and their home does not offer them enough. Parents do not plan to meet their children's dietary requirements throughout the day. Because children are fed at the same times as adults, they do not eat with the regularity and frequency required for optimal growth.

PROBLEMS FEEDING SMALL CHILDREN

During a focus group discussion of children's appetites, men differentiated the food needs of babies from those of toddlers, because they thought that the problems of refusing food and poor appetite were not relevant to toddlers, who seem to be always hungry. Toddlers become upset if they are given smaller portions than other family members. According to the men, toddlers eat a lot and spend much of their time finding food to eat. They believe that toddlers have to make adjustments from the breast feeding stage, when they had access to food whenever they desired. Men said that toddlers should be fed frequently, and that they should be given food earlier than those who are breast feeding. During times of food shortage or limited choice of ingredients, all family members will eat as much as they can, no matter how unappetising the food, just because they are hungry.

Women said that their toddlers often feel hungry and want to eat most of the time. Some said that they wake up at mid-night to cook food for children who complain about hunger. They recognise that children who are not given enough food have swollen legs (oedema) and become sick, usually with kwashiorkor. Women said that in order to solve these problems, children should be given food frequently but, because of seasonal food shortages, it was not always possible to meet children's dietary needs. In any case, women felt that children who have difficulty eating should be encouraged, and shown love and affection.

Usually, when small children cry, mothers feed children by cooking porridge or giving them snacks, such as masau, mangoes, doughnuts, and boiled sweet potato or cassava. Men said that it is primarily women's responsibility to stop children from crying because they prepare food. One man suggested that children cry because they are hungry or sick, but also because the food they want is different from what they have received. When children are sick, parents force them to eat something because they do not always know what is wrong with them.

According to the group discussion, people also try home-made traditional recipes and special foods when small children are sick. However, children often refuse to eat and must be force fed. Force feeding is accomplished, often by lying the child on the lap, pinching the nose, and pouring down porridge or liquid with a cupped hand or a cup. According to the women, if children have diarrhoea, they are given the following foods: maize porridge, the water from rice porridge, water from fermenting maize, tea with sugar, home-made oral rehydration salts, oranges, and papaya. If they have measles, they are given or force fed watery porridge and oranges. For malaria, they are given or force fed porridge, papaya and bananas. Children with kwashiorkor are fed meals three times a day. For sore throats and mouths, children are given watery porridge and nsima with okra relish for easy swallowing, as well as pieces of fruit or snacks which might stimulate the child's appetite. For vomiting, mothers boil tea leaves and add salt. Fanta and milk are purchased for the child, if money is available. There is no doubt that parents care about and love their children, but they do not always know which practices are the most effective for children's health.

There were various discrepancies noted between the existing family nutrition situation, and the desired situation which would ameliorate children's nutritional status. The source of these discrepancies arises out of the ways people perceive food. In times of food and economic

insecurity, people take food as a quick way to satisfy their immediate hunger. If satisfying hunger is people's priority, then they are less concerned with the quality of the foods they consume. During periods of hunger, people will procure and prepare whatever food is available, rather than plan for micronutrient-rich meals. They will put quantity of food before quality, and because adult members can consume more, they will be satisfied before children. Finally, people will depend on their "tried and true" recipes, reluctant to take a chance on new recipes for fear of spoiling meals or wasting food. Programme staff had to persuade people to put their children's food needs first by planning nutritious meals for them. By introducing simple dietary strategies, parents were able to have the confidence they needed to have more control over their children's health and nutritional status.

DIETARY INTERVENTION PROGRAMME

During the 1995/96 growing season, weather conditions were ideal, bumper crops were realised, and therefore, most people did not run out of maize before the next harvest. Thus, 1996 was an ideal year for a food-based intervention because there was enough food with which to try new recipes. As well, because there was enough food, people were in a positive frame of mind for receiving information about how to use their food resources in different ways. The intervention period in which the new dietary strategies were introduced was held from September to December 1996.

METHODS FOR TEACHING DIETARY MESSAGES AND STRATEGIES

People were anticipating the intervention, and since August 1995, had worked with staff to establish leadership and community structures to facilitate the project's objectives. The communities had also been engaged in numerous related activities initiated by project staff, i.e. workshops, growth monitoring, seed distribution, soybean utilisation demonstrations, drama and music performances. The extension methods chosen to disseminate the dietary messages and strategies were selected for their efficiency and effectiveness in achieving maximum coverage: workshops, demonstrations and home visits (see Appendix 5 for timeline). Along

with these more formal teaching sessions were community events, such as festivals; and a variety of visual reminders, such as pennants, posters, and booklets (see Chapter Three for a description of these methods).

Message Development

During the intervention period, two workshops were held at which the new practices were explained and demonstrated to group leaders. Each workshop marked the introduction of new strategies and messages. Five or six core messages were given at each workshop which were simple, directive, and focussed on altering a familiar behaviour. There is agreement among nutrition communicators that messages should emphasise "food-related **behaviours**, that take into account key target groups and their ability to enact specific behaviours within their society," rather than only the acquisition of general nutrition knowledge (FAO/WHO, 1992d). The emphasis of the messages therefore, was on "doing" rather than "knowing." For example, parents who were not aware of the importance of meal frequency were told to feed their children five small meals per day. Mothers who thinned porridge with water were told to thin porridge with germinated cereal flour. All messages incorporated an action verb, such as "soak," "add" or "eat." Giving simple directives or rules was helpful for both community leaders, and for husbands and wives. The clarity of the messages did not allow for much ambiguity, and those who chose to follow the messages could do so with confidence in following the project's instructions. Messages were designed by programme staff, and refined at workshops with group leaders during the discussion of the dissemination plan.

Social marketers, Favin and Griffiths, would judge Tulimbe's directive messages as lacking in creativity. They believe that effective messages contain "appeals or motivational statements" about mothers' concerns for their children (1992: 13). However, these kinds of appeals were not lacking within what became the project discourse. Community leaders and artists restated project messages into more motivational appeals. These translated messages are from poems and songs recited at festivals:

- Who will help fatten your children--His name is Kalungolikoko!
- Avoid going to the hospital today to receive Soya/for today we know where it comes from!
- Fathers, let us buy meat for our children/But we should buy bones/Because our children don't have strong teeth!
- Parents we shouldn't let our daughters/Just walk around in the villages/They should help us in this work.
- A child who eats Kalungolikoko/Is happy/Is good-looking.
- If we don't adopt/It's up to us/We will see our children suffering/Because we are ignorant.
- Blessed we are/that we know maize flour/has to be soaked/before cooking.

These messages were effective because they were designed by the people themselves. They had special meaning in the communities because they drew on local knowledge and analogies (Nichter and Nichter, 1986), and were based on the social implications of participation or non-participation. However, these messages were not formulated by people immediately upon learning about the project's dietary strategies. Project staff promoted project messages throughout communities, and at the same time, people went through a process of analysing the messages, deciding on their relevance, and creating their own versions of the messages with motivational content. The background information upon which the project messages were designed, and the content of both workshops are described in the following two sections.

Workshop on Maize Processing

The first workshop held in September 1996, was on maize processing and porridges. The following messages were given to group leaders to take back to their communities:

- Give your children thobwa all the time.
- Thin your porridge with germinated cereal.
- Add ingredients to porridge, such as oil, mashed fruits and strained vegetables.
- Soak your maize kernels.
- Soak your maize flour.

Investigators and programme staff assumed from the outset that people would reject the taste and texture of maize flour prepared in different ways. Therefore, project staff introduced the recipes by asking people to explain their traditional thobwa recipe which incorporates several similar preparation methods.

The project promoted the frequent consumption of thobwa because the traditional recipe incorporates two processes recommended by Prof. Gibson: use of germinated cereal flour to thin porridge, and fermentation of porridge. The use of thobwa as a basis for innovation is the best example of the project's attempt to

> preserve traditional food patterns as much as possible and help maintain their prestigious place within the overall cultural identity, and hence to give advice on the best use of local resources to satisfy the demand for these preferred products. (Eide, 1982: 16).

Although fermentation of food is not a current practice in Malawi, it is an ordinary process in some West African countries (Onofiok et al., 1996; Dei, 1991). However, in countries adjacent to Malawi, such as Tanzania, the practice of fermenting ugali, the equivalent of nsima, is common but currently in decline (Lorri and Svanberg, 1995). Given the familiarity with the process, fermentation was probably a more widespread practice in Malawi at an earlier time in its history.

By spending the first hour of the workshop discussing the preparation and benefits of the traditional recipe for thobwa with leaders, project staff established a reference point for the new recipes that was not strange but familiar. Participants were able to work from their experiences and knowledge. There was some evidence that the tradition of making thobwa was dying out because of people's preference for more modern, convenient and prestigious types of drinks, such as soft drinks and squash. However, staff encouraged recognition and reverence for peoples' traditional knowledge, and especially nutritionally beneficial cultural practices (Wilson, 1985).

The project promoted the use of germinated cereal flour (chimera) in porridge, both for its thinning qualities, and also for its ability to decrease the inhibitors to micronutrient bioavailability. Traditionally, when mothers make porridge for their children, it becomes thicker and harder as its cools. In order to thin porridge to make it easier to swallow, mothers add water. Watering down porridge decreases the amount of energy and nutrients in each

spoonful. At the same time, the water added to the porridge may not be boiled nor clean, thus introducing potential diarrhoeal pathogens. When a teaspoon of chimera is added to a bowl of porridge, it becomes thinner as it is stirred. However, the same amount of energy and nutrients is in the bowl--although the viscosity is reduced, the volume is maintained. Workshops participants named this recipe kalungolikoko, a combination of the Yao words for chimera and porridge.

The practices of soaking or fermenting maize flour were the major innovations introduced by the project because they are the most effective for reducing inhibitors of micronutrient bioavailability. People thought that soaking milled flour was strange, but they were familiar with the common practice of soaking maize kernels before milling. During the workshop, group leaders said that those who soak maize kernels do so to make the resulting flour softer, to improve its taste, and to reduce its odour. After cooking with flour from soaked maize kernels, leaders at the workshop believed that people would resume the practice of soaking maize kernels frequently.

Whereas the soaking of maize kernels was not altogether new to people in the communities, the soaking of maize flour was. Only nine people who answered the 1996 KAP questionnaire said that they soaked maize flour, and upon further discussion with these individuals, it was discovered that the method had been introduced to them by people who had been exposed to cooking methods in Zimbabwe. At the workshops, the participants were asked to compare soaked and unsoaked flour themselves, and discovered that the soaked flour was softer and smoother, and smelled and tasted better. However, group had various concerns about the introduction of soaked flour, and how it would be accepted in their communities. They wanted to know if they should use refined or coarse flour, how much water was needed for soaking, and whether the resultant nsima would be stiff enough to conform to that which they were accustomed.

The 1996 KAP survey revealed that the same nine people who had contact with Zimbabweans, both soaked and fermented their maize flour. At the maize processing workshop, when asked why the Zimbabweans would soak their flour, group leaders thought that it was because they liked the sour taste and the soft consistency. Participants were asked to examine a bowl of fermented flour. They said that it smelled sour, like a local beer called

napolo. In order to help the leaders understand the value of soured foods, they were asked which types of food would spoil more quickly--sweet or sour. Participants agreed that sweet products were more prone to spoiling and attracting bacteria. They believed that sour products have better keeping qualities. Comparing sweet and sour foods, they enjoyed the taste of sour foods better. The use of soured fluids to prevent diarrhoea was not a strange concept--they used the fermented water used to soak maize kernels (mphale) or the water left after pounding soaked kernels (matsukwa).

Even though there exist some precedents for the taste of fermented maize products, the taste of sour nsima and porridge was not accepted by group leaders, and they believed that those in their groups would not prepare the recipes using fermented flour. Nonetheless, the fermented flour recipes were the most important for the intervention because of their efficacy in making micronutrients bioavailable. In order to localise and popularise the concept of fermented foods, group leaders from Mchisa were asked to give a name to the soured products. They chose manyun'gunya which means sour in the Yao language.

Another recipe combined several of the techniques: adding germinated cereal flour, fermenting porridge, and adding ingredients. The recipe was named after the Principal Investigator and its creator, Prof. Rosalind S. Gibson. The name, Rosalind's Recipe or simply "Rosalind," was also incorporated into the new vocabulary that the project introduced to the communities. To make the recipe, maize flour and a teaspoon of chimera are soaked overnight. On the next day, thobwa is added to the mixture. Finally on the third day, ingredients are added to the fermented porridge, and it is cooked and eaten. According to the recipe, the following ingredients were recommended for adding to the porridge: banana, strained green leafy vegetables, groundnut flour, citrus juice, fish powder, and cooking oil. The porridges with added citrus juice and fish powder tasted too sour, and were not accepted by the participants at the workshop. Leaders did not like the porridge with strained green vegetables because of its appearance and because it tasted like local medicine. Cooking oil was an accepted ingredient, but only when it was added during heating. People did not like the taste of raw cooking oil in porridge. As well, the flavour of the groundnut flour was enhanced when it was cooked, rather than just added after cooking. Because of the added ingredients, especially groundnut flour and banana, Rosalind's Recipe was more popular than plain fermented porridge.

Participants in the workshop were enthusiastic about the workshop because it provided them with familiar but new recipes for using maize flour. In the afternoon, all workshop participants were divided into groups for cooking demonstrations. Both men and women learned how to make the recipes, and afterwards, tasted and evaluated them. Participants agreed to promote the porridge recipes and the recipes made from soaked kernels or soaked flour, but they were not open to promoting the use of fermented flour because they felt that the sour taste did not enhance the palatability of plain porridge or nsima. Interestingly, the group leaders' favourite recipe was thobwa, their own traditional drink. The group leaders were proud that thobwa was recognised for its traditional value, and also as the basis for new recipes.

Workshop on Meal Planning and Food Preparation

The second workshop held in October 1996, was on meal planning and food preparation. These messages were promoted:

- Eat dark green leafy vegetables, orange and yellow fruits and vegetables for Vitamin A.
- Eat vegetables, citrus fruits, meats and fish for more iron.
- Eat oil, meats, fish and citrus fruits to enable more vitamins to enter your body.
- Soak your beans overnight to enable more vitamins to enter your body.
- Cook vegetables with a little water, for a short time.
- Give your children small, but frequent meals 5-6 times a day, including snacks.

Because these messages do not follow a similar theme, as did the messages on maize processing, the rationale for each message will be explained separately, along with the workshop content.

Food Classification

The Malawian people classify foods according to their "hot" and "cold" properties (Kaspin, 1996), as do some other cultures (Sivaramakrishnan and Patel, 1993). Although this classification corresponds with their cosmological understanding of food and health, it does not

compel parents to feed their children in ways which necessarily optimise their growth potential. Although knowledge of nutrients does not guarantee consumption of nutrient-rich foods, programme staff believed that the identification and classification of foods rich in vitamin A and iron, and foods which help their absorption, would help parents to become more conscious of the nutrient content of children's meals and snacks. The 1996 KAP survey revealed that the majority of respondents were not aware of the nutritional value of the foods they ate.

The survey also revealed that half of the respondents (216/432) had heard of Vitamin A. However, there was speculation by programme staff that people did not know about the specific qualities of vitamin A, but were familiar with the English term "vitamin" or their vernacular version representing the plural mavitamin. People's knowledge of vitamins as a factor for "good growth" (42%) and "strength" (31%) may come from their generalised association of vitamins and health.

Their responses to the question about the effects of a lack of Vitamin A were non-specific, i.e. 36% said "sickness," and 36% did not know the consequences. Although, 44% said that Vitamin A was found in green leafy vegetables, at the time the survey was taken, these vegetables were plentiful and their availability may have prompted the answer. The same number of people said that Vitamin A was available in nsima and in groundnuts, and 31% said that they did not know in which foods Vitamin A was found. Of significance to the proposed intervention was the fact that most people believed that Vitamin A was found in food, and that in order to prevent deficiency, they should eat from the three food groups (42%), eat enough foods (32%) or eat fruit (28%). However, 23% did not know how to respond. The high affirmative response to knowledge of Vitamin A may have occurred as a result of listening to radio messages promoting Vitamin A.

People's knowledge of iron and its functions was much lower than their knowledge of Vitamin A. Only 17% knew that iron was available in food. The foods identified were green leafy vegetables, meat, fish and eggs. Sixty-five per cent did not know the functions of iron. Those who knew or guessed the functions of iron believed that a lack of iron causes weakness, swelling, pale skin, and illness. When asked how they could prevent iron deficiency, people said they could eat fruits and vegetables, eat from the three food groups, and take pills.

At the workshop, group leaders showed that they had a better understanding of vitamin A than iron. In order to emphasise the identities of foods, posters classifying their different qualities were used as teaching aids. Afterwards, a game was played in which two teams competed to see who could identify foods rich in vitamin A, iron, and helper foods. Teams had to choose from a variety of flannelgraph pictures and put them in the correct categories. These exercises helped group leaders to remember the nutrient characteristics of foods.

Soaking Beans Overnight and Cooking Vegetables

Only about one eighth of the people who were surveyed in the 1996 KAP said that they soaked beans for the purpose of saving firewood. The most common reason for soaking beans was to make chipere, a dish of mashed beans. For ordinary bean relishes, beans were prepared on the day they were consumed, necessitating several hours of boiling until they became soft enough to eat. Beans are prepared for eating on the same day because most parents do not plan their meals ahead of time. Most often, the ingredients for the relish are purchased on the same day as they are cooked.

When asked how vegetables are cooked, people said that they are left on the fire until it goes out and the green leaves turn soft and brown. On various occasions before the project started, the Farm Home Assistant (FHA) taught women ways of cooking vegetables to preserve their nutrient content. According to the 1996 KAP survey, more than half of the respondents knew that they should avoid over-cooking and using too much water. They also knew that they should not use soda (bicarbonate) in vegetables, which is a common practice, since people believe that it enhances the taste and appearance of the dish. However, even with the FHA's lesson's, overcooking and adding soda were still in common practice.

Both bean and vegetable dishes were prepared at the workshop to illustrate how to cook them, and at the same time, preserve the most nutrients. The beans had been soaked the night before, and during the workshop they cooked in under an hour which impressed the participants. Again, both men and women participated in the cooking demonstrations, so that they would be able to demonstrate the methods to their groups in the community.

Serving Small but Frequent Meals

The information gathered from group leaders at the workshop about family meal preparation and eating patterns was similar to what was collected during the formative and baseline research stages. Again, it was reiterated that children ate the same meals as adults, and at the same time. During October, when the workshop was held, group leaders pointed out that no specific meal times were observed because parents were working on their farms, and sometimes were too busy to organise formal meals. Meal planning was accomplished on a daily basis depending on what money could be found to purchase ingredients for relish.

In order to introduce the core message about meal frequency, group leaders emphasised that children who eat enough food are happy, grow faster, and are more "clever." Project staff knew this message would have an impact on behaviour because men and women who answered the 1996 KAP survey said almost unanimously that a well-nourished child is a happy child. However, parents were not always sure how to feed children so that they achieved the happy, active, and playful state they desired. Thus, clear messages were helpful in motivating them to change child feeding behaviour, i.e. "parents should plan and monitor their children's food intake," "if you leave home for a day, take enough food with you for the children," "children's need for food is different from adults'." These auxiliary messages were implied in the core message, "feed your child five or six small meals per day" which gives parents a clear goal to achieve.

To help leaders visualise what the five or six small meals would look like, several menus were displayed showing snacks, and food combinations and portion sizes (from Ferguson et al.'s recommendations, 1995). Although the foods were not new, their arrangement was. First of all, parents were encouraged to use a separate plate for a child, so that they could allocate the right amounts of food and watch what the child eats. Meals were classified according to snack meals, porridge meals and nsima meals. Appropriate snack samples were: thobwa, futali (mashed sweet potato with groundnut flour), roasted or boiled groundnuts, pieces of plain boiled sweet potato, kalongonda (boiled velvet beans), and fruits (pawpaw, banana, mapoza, and mangoes). Instead of plain porridge, parents were encouraged to add soya flour, groundnut powder, mashed banana, germinated cereal flour, and cooking oil.

For nsima meals, parents were encouraged to provide two types of relish for each meal, in situations in which only vegetables would be served. In addition to vegetables, parents should try to add some egg, fish or beans. In order to help parents visualise portion sizes, they were asked to scoop out balls of nsima the equivalent size of a fist, with half the amount of relish in the case of vegetables, and one-third the size in case of the foods higher in protein. Group leaders were shown how these meal ideas could make up a day's menu by including two snack meals, one or two porridge meals, and two nsima meals.

After the meal planning demonstration, group leaders were again divided into groups and asked to prepare model daily menu plans. Interestingly, leaders added some of their own items, such as nsima made from mashed pumpkin, boiled corn on the cob, roasted corn on the cob, maize meal cakes, and doughnuts. Although the group leaders from Nsanyira planned nsima meals using two relishes, those from Mchisa were resistant to doing so. They planned two nsima meals, each with one kind of relish. Evidently, they disagreed with the two-relish meals because they perceived them as economically unfeasible.

At the end of the workshop, group leaders were enthusiastic about all the messages. Messages and recipes from each workshop were disseminated during three sets of small group demonstrations, and followed up by two visits to each individual home of all project participants (see Appendix 5 to review timeline). The results of the adoption of the recipes and dietary practices follow.

RESULTS

Feedback on the feasibility of adoption and on the numbers of those using the new dietary strategies was collected during all small group demonstrations and home visits (see Appendices 6 and 7 for guidelines and monitoring instruments). The results of the intervention are divided into five sections: knowledge and use of micronutrient foods and foods which enhance micronutrient bioavailability; recipes incorporating soaked or fermented maize; porridge recipes incorporating new ingredients; food preparation; and meal planning. Final adoption results are given in Table 1 at the end of the chapter.

KNOWLEDGE AND USE OF MICRONUTRIENT-RICH FOODS AND FOODS WHICH ENHANCE MICRONUTRIENT BIOAVAILABILITY

During Tulimbe's intervention, for the first time, communities were educated about the importance of micronutrients and micronutrient-rich foods. During demonstrations, people were eager to learn about the things that had been asked of them when they answered the KAP questionnaire earlier in the year (see Appendix 1). They remembered being asked about Vitamin A and iron, but did not know the right answers. Many expressed gratitude to project staff when they learned about the value of the foods they were eating because they could use that knowledge to more competently plan meals for their children.

Vitamin A

During the second set of demonstrations, when the properties of foods were explained, a minority of groups were aware of vitamin A capsules, but not foods rich in vitamin A. However, during the third demonstration, when asked to identify vitamin A-rich foods, their knowledge had improved so much that members of groups gave 92 correct responses: 43 relating to green leafy vegetables (pumpkin, sweet potato, amaranthus, rape, cassava and bean leaves), 32 to yellow fruits (mango and papaya), and 4 to yellow vegetables (namely pumpkins, which were out of season during the time of the third demonstration). After the second demonstration, at the first home visits, the most popular vitamin A-rich foods identified were papayas, mangoes, pumpkin leaves and other types of dark green leafy vegetables. The same was true for the second home visits which took place after the third demonstration; however, the number of correct responses was higher. Women said that the main reasons why they could not identify the correct foods was forgetfulness and absenteeism from the demonstrations.

During the demonstrations and the home visits, there were various incorrect responses given as people confused vitamin A-rich foods with other foods which they thought of as nutritious, such as eggs, vitamin C-rich fruits (guavas, oranges, tomatoes), other common fruits (bananas, sour cherry apples), beans and fish. All of these foods were promoted within the

contexts of iron-rich foods and helper foods. Because of the potential for confusing the properties of foods, the green and yellow pennants (described in Chapter Three) were introduced to remind people of the colours of vitamin A-rich fruits and vegetables.

Iron

During the second demonstration, when the benefits of iron-rich foods were explained, most groups had never heard the term "iron." On the other hand, most knew that there were certain foods which "add blood" to the body. They identified these foods as red in colour, i.e. tomatoes, which the project classified as a helper food. However, during the third demonstration, out of 100 responses about foods containing iron, 24 identified fish, 21 green vegetables, 16 meat and chicken, 13 beans and 11 eggs. Wrong responses corresponded to Vitamin A-rich and helper foods. During the home visits, the most popular responses to the identification of iron-rich foods were beans and green leafy vegetables. The richest foods in iron were also identified, such as meat, eggs and fish. There was little difference in the frequency of identification of iron-rich foods between the first and second home visits. During the second home visit however, 18% said that they now regularly incorporated eggs into their child's diet; 27% meat; 37% beans; 47% fish. Since consumption of vitamin A-rich foods was common in any case, the more frequent consumption of the less available and more expensive iron-rich foods was significant.

Helper Foods

The project promoted these "helper foods" or foods which enhance micronutrient absorption: citrus fruits, cooking oil, and groundnut flour. During the second demonstration, when the concept of helper foods was introduced, participants said that it was "a new idea" to them. In any case, they habitually used groundnut flour and oil to flavour porridge and relish, even though they did not know their nutritional purpose.

During the second set of home visits, the number of families cooking with oil did not exceed 21% in Mchisa, whereas Nsanyira's numbers did not even reach 10%. Although the practice of using cooking oil did not change significantly because of its cost, people had a new awareness of "foods which made vitamins enter the body more easily." During the third demonstration, when asked to identify helper foods, 23% named cooking oil, 14% citrus, and 14% groundnut powder. Staff had taught participants to use a variety of Vitamin C-rich fruits and vegetables to compensate for their inability to procure the expensive helper foods. Fruits and vegetables such as tomatoes, guavas, baobab and avocado, were recognised as Vitamin C-rich.

During the second demonstration, participants believed that they would be able to procure and prepare the Vitamin A- and iron-rich foods that the project was promoting. However, they were less positive about regularly incorporating the "helper" foods into their diets. Members in only nineteen out of the twenty-nine groups said that they would be able to procure helper foods on a regular basis.

RECIPES INCORPORATING SOAKED MAIZE KERNELS, SOAKED FLOUR AND FERMENTED FLOUR

At the first demonstration, participants in all twenty-one small groups said that the method for soaking maize kernels was easy: no new ingredients nor costs were introduced, and everyone liked the resulting products. Two months later, during the third demonstration, one quarter of the participants were soaking their maize kernels. Those who were not doing so said that they were too lazy to take the extra steps, and others said that they were too busy with the initiation ceremonies which were taking place at the time. Further explanations were that the processing is too complicated and that food takes longer to prepare. Those who were soaking kernels disagreed, saying that soaking is an easy method and that there is no need to pound maize because the resulting product tastes like the preferred refined flour which is pounded. The results of the second home visit indicated that over 60% of participants were soaking maize kernels.

During the first and third demonstrations, both porridge and nsima were made from soaked flour, all small groups said that, apart from the soaking, the preparation was as usual. They all believed that their children would like it. However, when a poll was taken at the third demonstration, less than 10% were soaking flour. Most said that they were reluctant or too busy to go through the process, it involved too much time and effort, and that using wet flour to cook nsima was cumbersome. Since this demonstration took place at the end of the year which coincides with the beginning of the hungry season, some confessed that they did not have enough flour for trying new recipes. Several also said that they did not like the taste or that their husbands did not like the taste. With more explanation of the purpose of the process, mothers were persuaded to use soaked flour for the sake of their children. During the poll taken at the second home visit, over 40% were soaking flour.

Nsima and porridge made with fermented flour were recipes introduced in the first demonstration. Participants observed that the fermented products did not take more time to make than the regular products, apart from the fermentation process itself which takes two or three days. However, the recipes were not immediately adopted. Adults said that they did not like the sour taste, and therefore would not prepare the sour recipes. One programme staff member believed that the team did not try hard enough to promote the fermented foods. He suggested that a set of third demonstrations be scheduled for the express purpose of promoting fermented foods. This time, however, the staff were not to promote the foods for general family consumption, but specifically for children. When the products were demonstrated for the second time, none of the children rejected the porridge, and only one quarter rejected the nsima. Participants decided that it would be good for children who are ill and also for pregnant women. Some, however, said that it tasted as if it was not cooked, and that it was too sour. However, the batches of porridge were eaten during the taste testing time, and none was left over. Both adults and children enjoyed the fermented porridge more than they did the nsima. People discovered that some relishes complemented the taste of the fermented nsima more than others, such as small fish (usipa). The results of the second set of home visits showed that 28% of participants in Mchisa and 39% of participants in Nsanyira were using the fermented recipes regularly. Those who were not using the recipes cited reasons such as absenteeism from the

third demonstration, busyness, laziness, lack of resources, and children's rejection of the sour taste.

PORRIDGE RECIPES INCORPORATING NEW INGREDIENTS

During the demonstrations, people were taught to serve porridge to their children with added oil-rich or micronutrient-rich ingredients. Only one small group said that they had heard similar recommendations previously at a hospital supplementary feeding clinic. Although they said that some of the ingredients were not always affordable or available, they were now aware of a number of alternatives, so they would try to enrich their children's porridge. Additions to porridges were monitored at the home visits, and it was revealed that groundnut flour, bananas and cooking oil were the most frequently added ingredients. At the second home visit, 37% of participants in Nsanyira and 60% in Mchisa were adding groundnut flour to porridge. One quarter of all participants said that they added bananas, while less than ten per cent added cooking oil. Other ingredients represented less than five per cent: soya flour, sunflower flour, beans, eggs, small fish, tomato broth, green leafy vegetables, and fruits (papaya, mango, guava).

Kalungolikoko, porridge with germinated cereal flour (chimera) became the most popular of all the new ideas presented during the intervention. Because the chimera enhances the flavour of the porridge, people said that it was the best porridge they had ever tasted. Both children and their parents enjoyed the taste. During the first demonstration, people agreed that porridge with germinated cereal flour was easy to make, not unlike ordinary porridge. During a poll taken during the third demonstration, less than half of the people were making kalungolikoko on a regular basis. Those who were not making it said that they were too busy, especially with the initiation ceremonies, or that they were too lazy. However, at the time of the second home visits, 69% of participants in Nsanyira and 75% in Mchisa were making the new porridge regularly. Festivals held during the intervention featured songs and plays about kalungolikoko, such that its name and meaning had become part of the social fabric of the communities.

ROSALIND'S RECIPE

During the demonstrations, participants remarked that Rosalind's Recipe takes a long time to prepare (three days), but does not require any extra work, except for adding the ingredients at the appropriate times. Because ingredients had to be added over a period of time, some participants felt that making the recipe might be difficult because of the long process. Some said that they would try it when they were less busy. Others said that they had not followed the exact recipe, but made up their own adaptations of it. Those who did not try the recipe said that they were too busy, especially with initiation ceremonies, while others said that they could not remember the instructions. Although several groups noted that their children did not like the taste, others said that the recipe improves the taste of plain porridge, and that they liked the sour taste. Before the third demonstration, less than one per cent of the participants had tried Rosalind's Recipe at home. However, polls taken at the last set of home visits showed that over 30% of participants were making the recipe on a regular basis.

From discussions between staff and group leaders, it became known that leaders were promoting the recipe for relief from diarrhoea. The third demonstration and second home visit took place at the beginning of the rainy season which is associated with the onset of diarrhoeal outbreaks. Because no medicine for diarrhoea is given out at the hospital, except ORS (oral rehydration salts), the fermented recipes became popular as home remedies.

MEAL PLANNING AND FOOD PREPARATION

Cooking Vegetables

During the second demonstration, when the lesson on cooking vegetables was taught, those who did not know of the vitamin-saving techniques said they were not aware that there were particular ways of cooking food to preserve nutrients. Some knew that they should cook vegetables for a short period of time, but were not aware that they should only use a small quantity of water. Some wanted guidelines on how much water they should use and how much

time they should leave the vegetables on the fire. They noted that when groundnut flour is added to the vegetables, they require more cooking time. Second home visits results show that over 30% in Nsanyira and 53% in Mchisa were cooking vegetables to preserve nutrients. They commented that the vegetables tasted better, and were even more appetising when groundnut, soya or sunflower flours were added. Those who were not practising the technique said that they did not attend the demonstration at which the method was taught, or that they neglected to try it. Several also remarked on the seasonal food availability, and said that they could not afford to buy vegetables because they were in high demand and expensive.

Soaking Beans Overnight

During the second demonstration, when the concept of soaking beans overnight before cooking was introduced, participants were fascinated with the short amount of time in which the beans were ready to eat. They also learned to wash the beans, and to cook them in the same water in which they were soaked. Thus, people were grateful to learn a better way to cook beans, not only because of the enhanced nutritive value, but because they would save firewood and time. Women said that on the occasions when they did not soak, they had not planned for the day's relish. Because they bought the beans at the last minute, they were forced to cook them all day to be able to serve an evening meal. Since people had internalised the message about using little water to cook vegetables, they were afraid that soaking the beans in water for so long would destroy the vitamins. They were not aware that another process could take place, that of removing antinutrients. Aside from the all the benefits of soaking beans, they noted that beans that were soaked tasted fresher. Because of the overwhelming advantages to soaking beans, the second home visit results showed that over 65% of participants had adopted this cooking technique.

Meal Frequency

Project staff advised parents to feed children five or six small meals every day, including snacks. When this concept was introduced during the second demonstration, most participants felt that they could plan more frequent meals and snacks. Participants in several groups conceded that frequent child feeding was not a new idea; however, they did not realise its urgency, and in any case, were not used to planning meals. They realised that their current practices had to change, but also recognised that it would be difficult for them to get into the habit of feeding children differently.

Participants at the second demonstration were not sure how a snack was defined. Project staff asked them to list the foods consumed by children outside of meal times. Participants were surprised to realise that snacks could be found locally, and did not need to be purchased or sought for in town. They recognised that the provision of frequent snacks may be dependent on the season, i.e. in the rainy season pumpkins and mangoes are plentiful. With new awareness of the importance of frequent meals and snacks, participants paid closer attention to the number of times their children ate. During the third demonstration, the participants in most groups said that they had been feeding their children the recommended number of times per day. At the second home visit, 51% of participants in Mchisa and 64% in Nsanyira said that they were feeding their children 5-6 times per day. Another 40% in Mchisa and 26% in Nsanyira said that they were feeding their children at least 3-4 times per day.

Separate Plates

During the second demonstration, participants were told to provide separate plates for individual children, so that parents could monitor their children's food intake, and provide the appropriate portion sizes and combinations. According to the 1996 KAP survey, less than one eighth of parents gave children their own plates from which to eat. The use of separate plates was monitored during the first home visit and the third demonstration. During the first home visit, 27% of participants from both communities provided separate plates for their children. Most of those who did not give their children a separate plate had no reason for not doing so,

and had probably decided not to pursue the issue in the family. Several participants said that they did not have enough plates or food to show preference for children. Others said that mother and children were used to eating together, and one mother said that her child refused to eat from the plate she was given because she observed her mother's larger portion and perceived she was being cheated. Some parents believed that their children would become selfish if they had their own plates, and insisted that they share food with other children.

Many of these parents changed their minds about separate plates because by the time of the second home visits, 50% in Nsanyira and 61% in Mchisa were feeding their children individually. Participants said that they wanted to make sure that their children were getting enough food by monitoring the quantities. They also realised that adults eat more food and eat faster, thereby reducing children's chances of eating the right amounts, especially of the relish. When children had their own plates, they were assured of being able to eat the portions they were given, and eat at their own pace. Some parents noted that when they gave separate plates, meal time was peaceful because children did not quarrel over food. One participant said that her child refused to eat unless she had her own plate. Fewer parents continued the tradition of sharing plates with their children.

At the end of the intervention period, as an incentive for continuing what they had learned, project staff gave a plate to each child registered in the project. Families who previously did not have enough plates were able to feed their children separately. Plates were not given to the families at the beginning of the intervention because staff were concerned that families would become preoccupied with obtaining material rewards rather than focusing on behavioural changes for the benefit of the children's health. Giving the plates after most of the people were convinced of their value, made the incentive more meaningful and encouraged parents to feed their children separate portions. Children were proud to own and eat from their own plates, and some children refused to eat from other plates because they believed that their own project plates were special.

Portion Sizes and Combinations

During the second set of demonstrations, participants were given guidelines about combinations of foods and portion sizes. Some never had information on the importance of combinations, and others knew that they should combine meat or fish, vegetables and nsima, but could not follow "three food groups" recommendations because they did not have enough food. Participants said that they eat any relish available, and sometimes eat the same relish for several days, if there is not an alternative. They insisted that serving more than one relish at a time would appear wasteful, because relish is expensive, and cash and food resources would be stretched. If one type of relish is served at lunch, another type may be served at supper. An equal number said that they do combine foods, such as fish and vegetables, when there is a surplus, but combinations are not planned for their nutritional benefits. About half of the small groups at the second demonstrations supported the idea of combining foods, but overall, there was little enthusiasm for the idea of serving more than one relish at a time.

Similarly, when introduced at the second demonstration, children's portion sizes were not an issue of importance for most participants. Since children were not fed from their own plates before the intervention, parents were not aware of the amounts of food they were eating. Participants said that they usually gave children as much nsima as possible and as little relish, because the latter is expensive. At the end of the second demonstration, only half of the participants supported the idea of increasing children's portion sizes. During the first home visit 29% of participants in Nsanyira and 23% in Mchisa were being conscientious about combinations and portion sizes. Some were giving their children more relish in relation to the portion of nsima, or at least giving them enough so that they could finish the nsima with the relish. During the second set of home visits, 41% in Nsanyira and 60% in Mchisa were giving their children recommended portion sizes and combinations. Participants eagerly gave the details of how they were planning their children's meals: one portion of nsima to one half portion of relish; more relish than nsima; two eggs per child. They observed that their children need more food, and that if their children ate more relish, they would receive more vitamins. One mother had come to a compromise and shared measured food amounts with her child, so that she ate a double portion to what her child ate. Most of those who did not change their

child's diets had no specific reason, except that they said that they did not try. A number of participants said that they did not have enough food to experiment with portion sizes and combinations.

ANALYSIS

Although the bumper year was ideal for implementing the food-based intervention, the months from September to December in which the intervention took place were not optimal to have people focus on behavioural change. In September and October, people start to prepare their gardens for planting, and in November and December, the rains begin and the seeds are sown. Because not all people have fields close to their homes, some travelled and stayed in their fields during peak periods when attention to planting was required. As well, many parents who were participating in the project had children who were in the initiation camps. Initiation ceremonies are customarily held during August and September, but in 1996, the school year was changed, and camps continued into October and November. Mothers had to prepare food for all the children in their child's camp, and were often distracted from project activities. Initiation celebrations affected the whole community, so that people's attention was not always focused on the project. Also the seasonal temperatures in September and October are extremely hot and not conducive to an enabling learning environment. These reasons explain why people were absent, did not have time, or said that they were too "lazy" or tired to try the new dietary practices.

Ideally the intervention should have begun immediately after harvest in May. The period from May to August is when people celebrate the abundance of food and enjoy the benefits of the harvest. The weather is cool and people are generally relaxed and eager to pursue new activities. However, because of delays in funding and in accomplishing the baseline nutritional measurements, the intervention programme was postponed until all the quantitative measurements had been completed according to the experimental design. The intervention was limited to four months because after December the rains would have been too heavy to schedule learning activities in a consistent manner.

Even with the seasonal constraints, the numbers of those who had adopted the new practices doubled over the last two months of the intervention. Some of the innovations were more popular than others, such as the use of germinated cereal flour in porridge or the soaking of beans overnight before cooking. The child feeding techniques which gave small children special consideration were also accepted by a majority. The increased number of adopters implied that preparing the new recipes and using the new child feeding techniques were feasible and acceptable practices.

All in all, the four-month intervention was a success for it proved that people could and would change their dietary practices. According to the summative evaluation, the project's approach to dietary change was responsible for the success. Government field staff and officers said that the project's relatively long-term commitment to the communities inspired people's trust and co-operation. According to group leaders, forming groups and instituting group activities became the basis for promoting closer relationships between people which led to community unity in the fight against child malnutrition. People enjoyed the varied activities, such as demonstrations and festivals, and did not want to be left out of the experience of participating. Even though programme staff can claim much of the credit for the success of their approach, there are also other factors relating to the adoption process which should be explored.

In their evaluation study of a weaning food intervention in Nigeria, Guptill et al. say that the reason their adoption rates were so high was because of the "intense involvement of the intervention team in each community . . . [which] generated enthusiasm and interest" (1993: 671). They also explain the high rates of adoption by the fact that the time between the intervention and evaluation was very short, and thus the new ideas would be fresh in the minds of the participants. Both of these points are also relevant to Tulimbe Nutrition Project. The second home visit, at which final quantitative adoption data was collected, was indeed during the latter part of the intense four-month period. The obvious question that arises is, will the project's innovations continue without the motivating presence of project staff?

If people continue to practice the new dietary strategies on their own, they recognise the inherent value of them. Drawing on her experience in health promotion in Ghana and Sri Lanka, Amaratunga concludes that people "were very aware and rational about their decision to

participate or not in the change program" (1977 48). The "perceived attributes of innovations" can be described according to "relative advantage," compatibility, complexity, trialability, and observability (Rogers, 1971). According to classic adoption theory, the relative advantage of an innovation is positively related to its rate of adoption (Rogers, 1971: 218). Relative advantage is a measure of people's perception of the rewards and punishments resulting from the adoption of an innovation. In the case of Tulimbe's innovations, the rewards outweighed the punishments. People were able to see immediate rewards from practising the new dietary strategies. They noted improvements in their children's health, appearance and psychological well being. In terms of compatibility, the project's innovations were consistent with the existing values, past experiences, and needs of the adopters. The level of compatibility that was essential to the design of Tulimbe is not always the case with innovations introduced to Malawian women, and many innovations packages, whether they be related to health or agriculture, are "inappropriate" because they require resources that people do not have (Chipande, 1987: 325). However, the use and adaptation of local food resources and traditional recipes was "ideal" for rural communities, according to one senior officer's comment during the summative evaluation. Group leaders said that the recipes were "ordinary" and therefore inexpensive. Since people wanted better health for their children, the needs of adopters were met by introducing ways in which they could reconceptualize their knowledge and use their existing resources. Thus, nutritionally beneficial cultural practices were reinforced, promoting new confidence and pride in their indigenous knowledge.

At the same time, complexity was a factor in impeding adoption. Although people said that most recipes were easy and required no extra effort, the recipes involving soaking and fermentation required more effort in planning ahead for meals, and for safely storing the wet mixture for the time required. The rate of trialability varied, since there were several recipes and dietary strategies to try with different levels of complexity. People were overwhelmed with the number of new techniques introduced in a relatively short period of time. Therefore, those recipes requiring the least effort and change in routine were tried first, such as adding ingredients to porridge. The method of soaking beans overnight had two advantages—saving time and fuel—and therefore, it was adopted earlier than some of the other new ideas. Foods that were proven to taste better and were popular with husbands had a higher rate of trialability,

such as vegetables cooked for a short period of time, vegetables cooked with gravy-making flours, and soaked maize flour which had the preferred soft consistency. Both men and women voiced their positive opinions about the new recipes. They liked the new tastes and textures which enhanced their ordinary foods. Guptil et al. say that rates of adoption may be further improved if the new food is promoted for consumption by the entire family, rather than only for children (1993: 671). Most recipes introduced by the project were eaten by the whole family.

The innovations were observed by the people, who noted that their friends prepared and served meals differently. The frequency of these changes is evident from Table 1. Although it has not yet been proven biochemically, community members perceived that children's health status changed for the better (i.e. they looked healthier and did not get sick as often) because of improved feeding methods. The effects of new leadership structures and community initiatives were evident because the community experienced a renewed energy. Thus, the positive factors relating to "relative advantage" outweighed the negatives.

Another way to analyse the intervention is by using the "Precede" model (Green, 1980), which emphasises predisposing factors (knowledge, beliefs, values, attitudes, confidence), enabling factors (skills and resources), and reinforcing factors (family, peers, teachers, etc.) which reward or contribute to the continuance of the behaviour. The predisposing factors in the project communities were people's openness to change, and their desire to become more educated in the ways of the modern world. Primarily, they wanted to know better strategies for child feeding because of their desire for big, healthy and intelligent children. These are common motivating factors for people's participation in nutritional change (Zeitlin and Formacion, 1981: 54-55). Although not all were initially confident in their ability to change their situations, both women and men became more confident as they continued to participate in project activities. Andrien (1990) identifies self-confidence as a prerequisite to behaviour change, because people who lack self-confidence are reluctant to make changes.

The project was designed to capitalise on the enabling factors in the community--traditional cooking skills and local resources. Other resources were in shorter supply, such as money required to buy food, and time required to plan and arrange for frequent meals. These resources, according to a symposium on behavioural change and nutrition programmes (ACC/SCN, 1995: 5), should be addressed at the same time as the nutrition intervention.

Guptill et al. also identified cost and complexity associated with preparation time as limiting factors in adoption of weaning foods (1993: 670-71). However, with such a small and short-lived programme as Tulimbe, it was not possible to co-ordinate alternative income generating activities and child care facilities on a wide scale.

At the end of the intervention, people were beginning to experience the food shortages of the hungry season. Three months later, when information for the summative evaluation was collected, all women expressed that they were frustrated with the seasonal food shortage and financial hardship. There were few opportunities to earn money as field hands after the growing season ended. During the hungry season when the summative evaluation was held, women said that they were not able to regularly practice what the project taught them. For example, instead of soaking maize flour or making kalungolikoko, women only cooked nsima. They would not dare use flour for anything but their familiar food. On the other hand, they were afraid of going back to their accustomed ways of feeding children because they knew how much better the children felt and looked when they ate enriched meals. Thus, women's inability to control their food supply and finances was a blow to their new-found confidence.

Finally, the reinforcing factors were not as easy to predict as the predisposing and enabling factors. In fact, there were surprising outcomes. Because women discovered that they had more control over their children's health through new feeding practices, they had more self-confidence. The more they learned, the more they understood. This sense of "mastery or self-efficacy," according to Contento (1995: 4) is a significant motivating factor. Husbands took notice of their wives' new attitudes, and encouraged them to continue their new practices. Friends from other communities also took notice of their new confidence, and asked women for advice. They were seen as more knowledgeable, and therefore more respectable--this new status made women feel special. Men also received similar attention from their friends in neighbouring communities. The project's entertainment events and agricultural activities made their communities stand out in the area. Enhanced relationships, status and prestige are significant reinforcing factors to encourage people to continue to promote project practices in their families and communities. However, the question remains—will people continue to practice the new dietary strategies without the formal presence of a "project"? The conclusory chapter explores the factors contributing to the project's sustainability.

TABLE 1

NUMBERS OF WOMEN TRYING NEW RECIPES/METHODS

RECIPE/METHOD	HOME VISIT #1			HOME VISIT #2		
	Nsanyira	Mchisa	Average	Nsanyira	Mchisa	Average
MAIZE PROCESSING						
Use of Soaked Maize Kernels	20	29	25	64	60	62
Use of Soaked Maize Flour	15	13	14	45	42	44
Use of Fermented Flour	--	--	--	39	28	34
Use of Rosalind's Recipe	3	5	4	35	28	32
ADDING INGREDIENTS TO PORRIDGE						
Germinated cereal flour	26	38	32	69	75	72
Groundnut Flour	33	35	34	37	60	49
Mashed Banana	12	16	14	29	18	24
Oil	11	11	11	4	11	8
FOOD PREPARATION						
Use of cooking oil	12	22	17	42	32	37
Use of groundnut flour	5	8	7	22	10	16
Use of citrus	7	13	10	7	21	14
Cooking vegetables to save vitamins	40	44	42	30	53	41
Soaking beans overnight	34	24	29	64	68	66
MEAL PLANNING						
Use of separate plates for feeding children	29	25	27	50	61	56
Portion Sizes/Combinations for Children's Meals	29	23	26	26	60	43
Feeding Children 5-6 times per day	--	--	--	61	51	56

VIII. SUMMARY AND DISCUSSION

This evaluation study of change in Tulimbe communities has relevance for educators and development practitioners in their work with communities and families alike. The project had a dual purpose: nutrition education was coupled with community development. There are few studies which document in such detail the processes and behavioural outcomes of nutrition improvement programmes. As such, the research instruments used for the evaluation studies (see Appendix 9) are useful to programmers. Also from a programming perspective, this evaluation shows that local knowledge and creativity are essential elements of projects which require behavioural change. Rural people are able to define, not only the content of educational programmes, but also the settings and processes for learning and change. This agrees with Dei's (1996) definition of "African-centred education," which values indigenous knowledge and indigenous ways of knowing. Change agents within Africa, whether they be teachers in schools or extension workers in communities, should begin from the learners' situation and explore the relevance and potential of traditional and existing resources. This story also has value for development education programs in the North because it illustrates that rural people in Africa are willing and able to be self-reliant.

Even though the project's separate programme components--food diversification, dietary modification, appropriate technologies--are not necessarily matchless, the combination and intensity of activities makes the project a special case study in food-based strategies and nutrition education. Within the Malawian setting at the time, the project was distinct, and within the African context, there are few similarly documented projects.

A unifying theme emerging out of this multi-faceted evaluation may be how the existing qualities of "care" in the communities were promoted and fostered by the project. In the literature on care and nutrition (Engle et al., 1997) and from the examination of the concept in Chapter Six, "care" commonly refers to the nurturing behaviours that are enacted for children within individual households. However, as revealed in Chapter Five, if the project had targeted individual parents for nutrition education, taking the programme out of its group and community contexts, staff would have achieved limited success. Without the support of the

group and the community for behavioural change, the results would be short-lived. In rural Africa, if the situation of child care is to improve, it will be on the foundation of what I call an "infrastructure of care" in the community, which makes it possible for families to turn outwards for help and support from neighbours.

Therefore, one major contribution of this study is the conclusion that in order for change to occur, there needs to be an "infrastructure of care" at the community level. If "basic needs," such as good nutrition, are to be met on a continual and not just an emergency basis, the "higher needs" for self-esteem and role fulfilment have to be satisfied within the context of the community. A "growth-centred" approach to non-formal education allowed people to explore and build on their existing roles, both in their families and communities. Chapter Six, "Evaluating Gender Relations," describes how the programme, first focusing its attention on care for children, spread from mother to child, mother to father, parents to children, and family to family. In a similar food-based project in Ghana, Barimah and Nelson (1994) found that several outcomes, including the development of new skills and increased self-confidence, were related to self-determination and provider conduct. Care and concern were exhibited both within the community, and between outsiders and community members. An "infrastructure of care" was seen in the project's sponsorship of a football team, drama clubs, and several festivals. A more conventional aspect of the project's care component was nutrition education, which was provided at group demonstrations and home visits, and helped parents care for their children more effectively. With the confidence they gained by being part of an effort to improve their parenting and feeding skills, mothers and fathers were able to reach out to their neighbours in new ways. As a result, several self-help initiatives were realised, which were of benefit to the whole community. Nsanyira worked with government officials to apply for and meet the requirements of a MASAF (Malawi Social Action Fund) grant to build a health centre. In order to apply for the grant, the community had to show that it had already procured many of the required building materials, including thousands of hand-made bricks and wooden poles. The co-ordination and volunteerism required for such an effort shows that community members care for each other and their village. This outward-turning that gave people a new sense of collectivity. Thus, this study has implications, not only for nutrition projects, but for many types of development projects which introduce change and innovations at the community level.

Under the overall rubric of care, Tulimbe provided some model characteristics for nutrition projects because of its efforts to use existing knowledge and resources. The experience of Tulimbe illustrates that food is central to family life in Malawi, and that programmes to improve the quality of the diet may have a significant impact on communities. Many nutrition projects focus on new crops or income generating activities with the hope that the diet will somehow improve at the same time. There is no precedence in Malawi for a project which instructs people to process and prepare their everyday foods in ways which are mindful of traditional techniques and ingredients. This project showed that people can make and initiate changes in their lives more quickly if those changes are based on familiar and indigenous beliefs and resources. The success of Tulimbe lay in staff's approach to intervening in people's diets, and people's willingness to change their dietary habits. Using ordinary foods and cooking methods as a basis for intervention understated the innovative aspects of the project. People could see that following the dietary strategies was well within their range of experience and ability. By learning to use familiar food resources in ways which improved the health of their children, women and men became more confident in their parenting roles, and as a result more willing to take on other roles in the community. Practising the new dietary techniques became a source of pride and social prestige for individual families and the communities at large. They were inspired to try new things, knowing that because they had succeeded in meeting the project's expectations, they would also be able to achieve in other areas of their lives.

Tulimbe Nutrition Project contributes to our knowledge about the rewarding, but complex challenge of working with rural communities for change. As a case, this study confirms much of the literature on community development and behavioural change with regard to the factors which make change possible. As well, Tulimbe attempted to implement and document various programme elements which are usually paid lip service in policy documents, but rarely carried out effectively. Some of these programme elements are building on people's strengths and knowledge; community participation in programme planning; and involvement of both women and men in working toward improved family nutrition. There is much potential to build on these elements, but they must be explored and uncovered within the context of the new project. During the formative research stage, programme staff discovered that the basis for community solidarity was in religious and cultural unity. Apart from religious

and cultural events, however, there was little impetus to move forward with development activities. During the process of the project—with the election of leaders, in the formation of groups, in the promotion of micronutrient-rich foods and ways to process and prepare these foods--people started to discover their potential within the context of the child nutrition project. They had a new perspective on what it means to be a spouse, a parent, a neighbour, and a community within the context of the project. This study's exploration of how the issue of nutrition became contextualised and transposed within the community is significant. Change is described subjectively and qualitatively, not only with easily identifiable and quantitative indicators. For example, what this study says about men and their concern for their wives and families is positive and fresh. It opens the way for programmers to be more creative in their programming with families, and gives us hope that men and women can work together for change if they are unified on the issues that matter to them.

The story of Tulimbe Nutrition Project also brings out some important points about doing educational and scientific research, or community-based research in general. Rural people in communities are not willing to engage in activities with outsiders unless they are convinced of their benefits. This is why all the research that was accomplished, whether by collecting information from focus groups or by measuring a child's weight and height, was put into the context of providing a learning opportunity or an essential service. Learning opportunities were grounded in familiar and meaningful contexts--in indigenous knowledge and practices, local food resources, arts, crafts, language, music and dancing. Community members felt honoured by programme staff's respect of their ways, and came to expect if not insist, that staff listen to them and follow their instructions for subsequent stages of the project. If communities in developing countries make these demands from researchers and research projects, the prominence of participatory, or at least subject-centred methodologies will increase, and research institutes will have to accept new ways of doing science with people, especially the rural poor. Tulimbe attempted to show how action-research can be more action-oriented than research-oriented. Participants at the district and community levels saw the project within its "action" context, and appreciated its potential to change their lives, or at least the lives of their children.

Because all the research was accomplished through the programme planning cycle--formative, baseline, planning, implementation, evaluation--there was an emphasis on making each stage a learning process and an opportunity for capacity building for all participants. This study shows how a more conscious application of learning can take place throughout the programme cycle, especially at the formative and evaluation stages. Most studies emphasise educational events in the implementation stage only, and the other stages, although they may take up much of people's time, are not seen as opportunities for learning or self-evaluation. There is considerable rhetoric in community development literature about including the community in all phases of the programme planning cycle; however, there are few case studies to illustrate how this is accomplished. Although Tulimbe was not completely successful on all counts, at least this study documents community members' contributions at the various stages.

Finally, what is confirmed in the experience of Tulimbe is that the process aspects of the project--relationships, communication, leadership, participation, management, education--are crucial to the success of a project. Project content, inputs and material resources are inconsequential to project effectiveness. In fact, material resources may cause irreparable harm or confusion if decisions about the type of incentives and how they are distributed are not sanctioned by the community. The issue is not "what" is done, but "how" is it accomplished. Tulimbe's co-investigator, Dr. Beatrice Mtimuni, told me a story of her experience visiting the Iringa project in Tanzania. Iringa is known as one of the most successful nutrition improvement programmes in Africa. When asked of her impressions of nutritional innovation and change, she said that they were not as evident to her as the spirit of the people who had been encouraged and challenged by their involvement in the project. Thus, the achievements in community development and capacity building were more significant than nutritional change because they led to other changes beyond nutritional ones. The people were inspired with a new vision, and could work out their own plans for development. I believe that Nsanyira and Mchisa have been similarly challenged with the Tulimbe adage, "let us be strong."

NEW UNDERSTANDINGS AND RECOMMENDATIONS

The body of the thesis concentrated on the evaluation of changes in participation, gender relations and dietary behaviour. These were the three salient issues which I originally planned to address. However, during the summative evaluation, project participants were asked to be critical of the project, and to identify the reasons why some people spoke against the project or refused to participate. This feedback offered valuable insights about what projects could do to avoid alienating some groups of people in the community. It also provided clues about what measures could be taken to ensure that the project's messages would continue to be practised. I draw from these community-level insights and describe what I see as optimal conditions for a national programme on dietary change. What follows are discussions of some of the outstanding issues which have to be addressed in the long term for the promotion of community-based nutrition projects on a wider scale.

TARGETING AND INCLUSION

One issue that did not make sense to community members nor to government officials, was the target group. The group of children from ages 3-7 were targeted, instead of the group recognised as the most vulnerable—those from 0-5. For the purposes of the nutrition evaluation study, the project had to target children who were out of the breast feeding stage, so that their food intake could be monitored. Parents felt badly that their babies did not receive the attention they needed. The project tried to compensate for this fact when it welcomed babies to its clinics, and mothers were grateful when they were not turned away from demonstrations where they learned how to make porridges which were suitable for weaning babies.

Although 3-7 year-old children were targeted for nutrition improvement, women were primarily targeted for nutrition education. Men were involved in the project in various ways and had access to some of the information. However, men did not feel comfortable attending the demonstrations, where they would have learned more. Because of lack of time, programme staff were not able to offer men their own instructional sessions. One male programme staff member insisted in hindsight, that the project should have arranged for these sessions on

weekends at the beginning of the intervention period. He said that men "love" to discuss health and nutrition issues, and would have welcomed the opportunity to do so in groups. An exploration of men's involvement in the project revealed that gender relations cannot be reduced to polarities, and that development programmers must re-think their application of feminist analysis to Women in Development project in Africa. Working towards a family-focussed approach worked well within the context of Tulimbe Nutrition Project.

At least men were somewhat engaged in the project, but there are other groups--youth and children--which were not targeted for education at all. There were only limited opportunities for involvement: young unmarried people participated in the logo contest, the poster-making workshop, and in some drama performances. They joined in with interest and enthusiasm, yet the project could offer them no more. Small children attended most events with their mothers as observers or as taste-testers. At demonstrations, each mother was accompanied by two children on average, yet there were no special programmes for them. After attending a workshop on "Child-to-Child" methodology, staff realised the potential for youth to care for their younger siblings and to introduce healthier practices to the household. Both children and youth had so much to give the project, and in turn their parents, siblings and friends. Unfortunately, project constraints—lack of time and personnel--dictated against the specific targeting of children and youth.

Pratt and Pratt (1987) in their article on communicating nutrition information in Sub-Saharan Africa, present a model based on sex- and age-based discussion groups. They include an adolescent group, but Tulimbe staff would also recommend a children's group. During festivals, cursory observations show that children and youths make up half of the community's population. With a life expectancy of 41 years, children and youth, who are usually ignored in development programming, should be secondary target groups, especially for health and nutrition projects. This was a limitation to both the study and the project's success, because various groups excluded from project activities and benefits. The voices of the children, youth and elderly were marginalised and excluded. If all groups had had "official" roles to play in Tulimbe's activities, perhaps there would have been fewer conflicts or misunderstandings about the purpose of the project.

Not all community members understood what Tulimbe was and what it was doing in their villages. As a result, there were a number of people—mostly older women past their child-bearing years especially in Mchisa village--who instilled fear in people and deterred them from participating in project activities. These people had little influence in the community, but through their spreading of inaccurate and even harmful rumours, they made known their resistance to intervention and change. These vocal resisters gave evidence of the varied and unexpressed tensions which existed in the community. They were the project's critics and although some of their tactics were unfair, they represented a marginalised segment of society which spoke some truth about being excluded from the process of change. Because the project targeted only families with 3-7 year-old children, many families were left out and not provided with inputs or education. Others, who were targeted, had unfavourable experiences with the project—usually a disagreement with a group leader--and quit participating.

Those who spoke against the project incited community members by their criticism of the project's collection of biochemical samples required to determine nutritional status. They spread various rumours, saying that the cutting of children's hair would cause diseases, and that the new project vehicle was purchased through the sale of their children's collected blood. They inspired fear by telling their neighbours that the project staff would remove their teeth, since they had already taken their hair and blood. During a visit from an international crop research team, a rumour was spread that the four white men came to steal four hearts. These scandalous stories represented people's resistance to the invasiveness of the nutrition evaluation methods. Indeed, there was a collective fear that taking hair, saliva and blood samples would somehow harm the children of the communities.

During the final evaluation, when project participants were asked about the reasons why some community members said such derogatory things about the project, they said that the families who did not participate felt left out and needed someone to pull them in. Others said that their reasons were the same as those who do not practice child spacing, i.e. they were confused about project goals, not well-informed, and could not see any benefit to their participation. Project staff and community leaders were persuaded, if not forced, to make adjustments to programme plans when their critics became vocal and exerted their influence on project participants. We perceived them as project "detractors," but they were really the

project's overseers. Although they were expressed from the margins, their concerns about exclusion and miscommunication were valid.

SUPPORTING LEADERSHIP

Because of the tendency for misunderstandings about the project to occur, building capacity and improving communication was a priority for the project. Two types of capacity building took place: skills training and leadership development. Training and leadership development was provided for staff, government officers and field staff, and community leaders.

Although some levels of government staff receive in-service training regularly, often district-level officers are not provided with sufficient professional development opportunities to meet the demands of changing trends. One member of the District Consultative Committee was due to retire from his government position when he attended the first two project workshops on Participatory Rural Appraisal (PRA). Later he secured a position with a local NGO, even though there were many applicants. He told me that he believed that he got the job because he was able to incorporate PRA principles into the context of his interview presentation. Field staff, some of whom have few qualifications, are rarely eligible for further training. When, the project sent the Farm Home Assistant to a workshop on soybean utilisation, she was overjoyed with the opportunity, for even though she had served at her post for many years, she had received no new training since college. According to their responses during the summative evaluation, most government officers and field staff believe that, because of their involvement with the project, they are more confident in their jobs. Since they were able to participate in Tulimbe's project cycle, they learned more about planning and evaluation. One principal officer from ministry headquarters in Lilongwe told me that his officer in Mangochi showed more interest and initiative during regional meetings. Being involved in Tulimbe helped officers to look at their work in communities with a different perspective, and for the first time, many were challenged to involve rural people in their work, rather than simply provide services. Since there were twelve officers from three departments, they found strength in the collective experience of working with Tulimbe, and were able to influence the orientation of other district activities.

From evaluating the learning experiences of government officers and field staff, it was evident that other groups, apart from community members, had needs which should be recognised by programme planners. District officers and government field staff all had specific expectations about how they would benefit from the project. Most of all, they wanted their existing work to be recognised, appreciated and supported within the context of new programmes. Most projects assume that government staff are willing and able to be "partners" for change, when many are beleaguered with work-related and personal limitations. If projects have goals for human resource development, proposals should include plans for providing support to all project participants. Support does not always have to be material, but also may exist in other forms, such as providing training opportunities, facilitating multi-sectoral co-operation, and recognising the value of existing work.

The needs of leaders in the communities were different from those of government officers. Tulimbe programme staff, with the assistance of the existing leadership structure in the communities, held elections for project leaders. It was clear from the outset that depending only on the village headman and his councillors for support would not be sufficient. Most often these traditional leaders were older men, who were busy with the obligations of their positions. Existing voluntary organisations, such as the Health and Agricultural Clubs, were also busy with their own activities. The election of leaders in 1995 was not a case of "citizen participation overplanned" (Benjamin and Demarest, 1984)--new leaders were necessary. Without volunteer leaders in the communities, the project would not have been viable. Community leadership was essential, and much time was spent consulting and planning with group leaders about how the project should proceed, and how to solve problems as they occurred. The project's leadership structure was effective for the most part, but because it was elected and not traditional, there were some misunderstandings and some abuses of power.

Project group leaders' commitment to the project's goals was a factor in how effectively community members were able to participate and learn. They were expected to mobilise people in a short period of time, and thus, their visibility and status rose quickly. Inevitably, some leaders took advantage of their roles to favour or discriminate against certain members of their groups. Some leaders also neglected their duties to such an extent that their groups missed out on important project activities because they had not been informed about them. Some leaders

in Mchisa seemed to be taking advantage of their positions for personal gain, and at the same time not doing their jobs in promoting the project.

Elections were held for group leaders because the project supported the idea of revolving leadership within a new democratic context, imitating the new national election process. Initially, group leaders knew that their terms would last only six months, but because the intervention began one year after they were elected, programme staff felt that they should at least be a part of the programme they had been anticipating. At the same time, programme staff were reluctant to bring up the idea of elections with leaders because they were afraid that the former and newly elected leaders would conflict—therefore, there was no support for revolving leadership. Leaders refused to surrender their positions, even if the members of their groups were clearly against them. When some group leaders complained about their colleagues' inability to work effectively, a meeting was called with all group leaders to advise them of the possibility of new elections, at least for those who seemed to have opted out of their responsibilities. When confronted with the prospect of losing their positions, all group leaders agreed that they would continue and improve their performances. Programme staff did not want to force the issue, afraid of the consequences. Thus, after eighteen months, the leaders remained the same, and the project's goal of sharing leadership within the context of a democratic society was not met.

The major reason for the leaders' refusal to relinquish their positions was their expectation of rewards. Paying group leaders a salary was not possible because many more people than the elected leaders made contributions to the project, such as the village headmen, health club members, and demonstration group leaders. To pay everyone on the basis of their voluntary contributions to the project would have been an all-consuming activity, and one which would have caused much disharmony within the communities. As well, I did not want people to think that their participation in community development or self-help projects would always be subsidised. Female leaders, took me aside during discussions about rewards, and said that they were happy to volunteer without any payment whatsoever, because they enjoyed the experience of learning and being involved in such a project. However, male leaders especially, felt that they were being mocked by community members for doing volunteer work without being paid. Long cites this same problem in his work with AIDS volunteers (1995:

4,6). Volunteers may enjoy and obtain great satisfaction from their work, but because of the community's negative perceptions of volunteerism, volunteers believe that they should be able to show tangible gains from their work. As well, because they were aware that government officers were given honoraria for their work in the project, they also believed that the project should give them rewards as a show of good faith. Kelly and Armstrong remark on this dilemma:

> The FSDP worked, however, on the principle that projects should not offer "handouts," but rather foster a self-sustaining form of development, based on indigenous skills, knowledge and resources. While this is a laudable ideal, it means that local people see a staff which is (relatively) well-paid and equipped with vehicles and computers, but which cannot provide them with the material infrastructure, capital or income for their communities. (1996: 251)

Eventually the staff did agree to provide some reward in recognition of the volunteer work group leaders did for the project.

In 1996, during the time of the intervention, group leaders complained that the amount of time they spent to co-ordinate project activities took away from time on their fields. They requested that the project, instead of paying them cash for their services, provide them with inputs for their cotton crops. By achieving good cotton yields, they would be able to earn money to compensate themselves for their time spent working with the project, and not earning income from other sources. This arrangement was seen by programme staff as reasonable and well-deserved. Three types of pesticides were purchased for each leader at a cost of about $30. Ironically, when the inputs packages were distributed, the same people who ridiculed the leaders for volunteering, criticised them for being paid, saying that they were being bribed to force families to give their children's blood. Community members had difficulty reconciling the idea that ordinary people like them, without ties to traditional leadership, could hold such positions and gain both material and non-material rewards. However, if the leadership had rotated as planned, every six months, the issues of rewards and special privileges would not have been so prominent, and community members would have felt that they had more control over their democratic process.

CONTRIBUTING MATERIALLY TO COMMUNITIES

Although leaders were given material rewards in the form of inputs for cotton, there were also several types of incentives and inputs given to community members who participated in the project. Seeds and seedlings were given to all project participants, and a solar dryer, oil press and oven were given to each community. Not having the expertise in agriculture nor appropriate technologies, programme staff depended on other agencies for their expertise. However, staff were not advised correctly in many cases, and this reflected badly on the project's intentions. Staff were advised to purchase the wrong variety of sunflower seed, a type that was not suited for pressing into oil, but instead for confections. Tulimbe was also convinced by a government technology research centre that its staff could fabricate two working screw presses in two weeks time. The contract was signed in July, 1996, and by the time I left in April, 1997, the presses were still not working because of serious design faults. Tulimbe was initially so proud of the fact that it had installed new technologies in the communities; however, the technical support was not adequate, and the sunflower oil press project was an unmitigated disaster to the disappointment of the communities and field staff alike. Similarly, most of the pawpaw trees that were planted in one community were found to be infertile. Replacements had to be found, but the delivery did not take place until one year after the first batch of trees was delivered. Fortunately, there was some success with the soybeans and solar dryers; however, the other problems were reminiscent of classic failures in development projects, even though every effort was made to rectify them.

Apart from inputs, people also received various incentives for participating in the project's activities. For example, at the end of the intervention, a festival was held at which all participants were rewarded for their performances with bars of soap, biscuits or sweets. At that occasion, the village headman was presented with a bottle of cooking oil for all his co-operation during the four-month programme. After the performances, there was a "lucky dip" for all the children in the community. However, what ensued instead was a swarm of children, and a quick departure was required. Later, staff were told that this reckless gift giving was wrong. First of all, only families who participated in the project should be rewarded, and secondly only children should be the recipients of project incentives. Thus, it was wrong for the project to

give the village headman a bottle of oil. Following the advice of the community members and leaders, instead of the lucky dip, there was an organised distribution of plastic plates. Staff accompanied by me, went to each group's meeting place, where representatives from each family gathered to receive plates for children who were registered with the project. In this way, the larger community would see participating families rewarded.

Tulimbe programme staff saw no problem in rewarding community leaders who sacrificed so much for the project. In fact, from my experiences in other African countries, it would have been a great insult not to give something to the village headman at such an occasion because giving gifts is a customary requirement. Nonetheless, the people believed that the project would show more consistency in its reward system if no adults were seen to benefit directly from the project. Thus, staff were in a quandary about how to show appreciation to leaders on the one hand, and how not to be seen as showing favouritism on the other. The whole issue of project incentives had the potential to cause jealousy and conflict.

Hirschmann (1990) in his article about agriculture inputs for smallholder farmers, says that "the incentive package must make sense" (1990: 486). Hirschmann's adage helps to explain why people had a negative reaction to project gifts and rewards--they did not make sense to them. In hindsight, the incentive which would have made the most sense is a micro-credit programme, organised so that families would be able to maintain their food supply. Since both 1997 and 1998 harvests were poor as a result of weather conditions, people experienced severe shortages of food. The weather is not something the project could have predicted, but since drought in Malawi appeared to have been a tendency in the 1990's, compensation for food shortages should have been built into the programme. Zeitlin maintains that when resources fall below a certain level, participants will be unable to implement what they have learned during the nutrition education programme, even if they are convinced of the efficacy of the new dietary practices (1988: 25-26). According to the summative evaluation, because of food and cash shortage, people's inability to practice what they learned during the intervention is a source of frustration and feelings of failure. The issue of food shortage, common to low-income or resource-poor families, has led to the recommendation by Wright et al., that food-based programmes are most effective if they combine nutrition education, economic incentive and convenient availability of food (1982: 107).

Burkey (1993) also recommends that all community development projects, not only food-based programmes, should have credit and savings components because the poor have no alternatives in a money-economy but to participate in it. A good example of a programme with economic incentives is "Credit with Education," devised by the U.S.-based organisation, Freedom from Hunger. The Credit with Education model includes both small loans and nutrition education within the context of women's "solidarity" groups. A case study from the Credit with Education programme in Ghana proves that the children of participating women benefit from more healthy feeding practices (MkNelly, 1997). During a meeting in 1996 to decide the joint Government of Malawi and UNICEF strategy on "care and nutrition," UNICEF's Deputy Representative explained that the inclusion of credit as a component of the strategy was debated because many other agencies offer credit programmes. However, after assessing the factors impinging on family food insecurity in Malawi, the credit component was seen as essential (UNICEF, 1996).

One small credit group was formed in each community by the Community Development Assistants as part of a larger district project. These groups were so small that they had little impact on their communities. Although the project was not equipped to start a credit programme, with some foresight it would have been feasible. One government officer noted during the evaluation, that food-based projects seem to be dependent on the climatic conditions which determine whether people can grow enough food. In order to mitigate harsh climate conditions and for people to fully participate, nutrition projects may have to rely on income generating programming as the only incentive that "makes sense."

ENSURING SUSTAINABILITY

Having the necessary available food resources is the most significant factor affecting the sustainability of Tulimbe's dietary diversification and modification programme. However, there are other conditions which also affect sustainability. The issue of sustainability refers to whether the changes introduced by Tulimbe will be able to continue in the project communities without the presence of programme staff. For those critiquing development projects, this is always a prominent question: "what will happen after you leave?" The cynical response is that

everything will go back to the way it was. However, when this question was asked of all those interviewed during the summative evaluation, the response was positive. Government field staff said that they would be able to continue with most project activities, such as community mobilisation, health and nutrition education, and working with community leaders.

Msuya (1996) states that most projects do not meet their objectives and are not sustainable because they lack a clear conceptual framework and qualified staff for community-based projects; do not adhere to strict targeting strategies; and fail to involve community members in the planning stage. He believes that most nutrition projects are not perceived by community members as useful or beneficial, and are therefore not worth continuing. Since I was aware of the potential of nutrition projects to fail, I strove to address Msuya's issues in the lead time that I had for planning and consultation. Even by addressing Msuya's potential pitfalls, Tulimbe's sustainability was threatened because it tried to introduce too many new things in too short a period of time. Because the project was designed to show impact in one year, there was an expectation that there would be changes, both in child feeding behaviour and in the biochemical status of the targeted children. In order to achieve these changes, many aspects of the programme had to be put into place quickly. Indeed community members were bombarded with project activities for at least one year, such that the social pressure to participate was irresistible. Oshaug says that "short-lived interventions may produce measurable results, but new behaviours are fragile and can rapidly disappear" (1996: 25). In order to demonstrate improvements in the nutritional status of a large population, Smith (1997) says that programmes may need to run for at least six years. If this is the case, Tulimbe communities were under pressure to achieve in one year what would normally have taken several.

According to recent reports about the communities, even though project staff have left, activities initiated by Tulimbe are still continuing. During a recent personal communication with Sieglinde Snapp (March, 1998), the crop scientist supervising the ICRISAT trials, she reviewed with me her previous week's visit to Tulimbe communities. Farmers had, on their own initiative, multiplied and circulated new varieties of drought resistant seeds in the community. She noted that people were eager to try the new short-duration varieties and to change some of their farming practices. The level of farmer input and enthusiasm was

something she had not expected, and she attributed this to the empowerment process which Tulimbe had initiated. She also said that people were trying to make new decisions about the goats in their communities. Because goats are not penned nor controlled, people are not able to have home gardens because the goats of their neighbours eat the plants. With the new and closer-to-home legume and nut plots, people need a goat-free environment. The issue of the goat problem was such a sensitive issue that Snapp observed people arguing and raising their voices, even as they walked past each other in her presence. I recall that the problem of goat control came up during PRA activities in 1995, and yet it had not been resolved during the formal project period. Finally, people were taking the issue into their own hands and resolving it because they realised that the goats were a significant impediment to their ability to grow a variety of foods in their backyards.

Implied in Snapp's observations about people's initiatives, is that Tulimbe's primary focus was not dietary change, as much as it was encouraging people to promote change in themselves and their communities. She said that at the beginning of 1998 the people experienced food shortage, and after realising that no food aid would be forthcoming, they were eager to work on their own options for emergency food supplies. Dei says that the development agenda should be "defined, motivated and controlled by the rural population itself when faced with stressful conditions" (1993: 106). It is incumbent on programme planners to build into projects processes which foster self-reliance so that communities can define and control their own development, including their own food security and nutrition issues.

In a nutrition education project in Mali, process goals, such as "community empowerment," "NGO leadership and self-determination," "consensus in program objectives," and "sustainability" were given priority over the project's research agenda, which was to show the impact of nutrition education (Parvanta et al., 1997: 275). Nutrition interventions with a process-focussed context, rather than a results- or research-focussed context, belong within a new paradigm in which people are encouraged to be actors in their own development (Smitasiri, 1994: 2). Because Tulimbe's strengths were in its interpersonal approaches at all levels of interaction, whether it be with government officials or community members, its focus on the human factors of the work were the most positive aspects of the project, and the ones which sustained the project after programme staff left. Even in the face of lack of support and

resource constraints, government field staff and community leaders strive to continue to meet the aims of Tulimbe. As a result of this type of process-focussed development, engaging with community members in a dietary change project may have many spill-over effects into other areas of their lives. However, for Tulimbe communities, the spill-over effects did not overshadow the impact of nutrition education which was evident in people's changed dietary behaviours.

During the summative evaluation, the women said that they would be able to continue with the project's dietary strategies because they were able to use existing food resources, and needed little extra money to make the recipes. There was nothing preventing them from continuing to follow the project's recommendations, because many of the project's ideas were labour saving and more fuel efficient. They became accustomed to making the recipes, and felt that they would eventually become incorporated into normal everyday meal preparations. Their observations agree with Smitasiri's, of a food-based project in Thailand:

> The availability of the food would likely lead to the continuation of its consumption. The major indication . . . was the fact that community members had already internalised many of the project's nutrition and health concepts. They observed that even where the actual knowledge declined, the community continued the required behaviors. (1994: 14)

In reference to the new cultivars, such as soybeans, community members said that they had started their own seed multiplication activities because "soya" was in demand. There were reminders of the project everywhere--new crops in the fields, new foods in people's kitchens, and new equipment in the community. They said that they "could not forget" the project's significance in their lives. People said that they would continue to practice all the new strategies because they "wanted to," and they believed that by so doing, they were "improving their lives" and "progressing in their development." Group leaders, although they were concerned about not having continued support from project staff, felt that not only could they continue their work, but that they could be more pro-active in the future about involving the community in urgent issues.

As noted above, the ability of communities to continue practising Tulimbe's strategies may be simply a matter of people having enough food--and the peace of mind that comes from being food secure--to do so. The will to continue to practice the dietary strategies remains in

the communities, but people's desire to provide optimal nutrition for their children is continually frustrated by food insecurity and economic instability. In October 1998, Malawi's currency was devalued by half. This fact, coupled with another poor harvest, will create an almost untenable situation for families during the month's before the next harvest in 1999. Conclusions from Hussain and Kvale's (1996) study of the sustainability of a nutrition education programme to prevent night blindness in Bangladesh revealed that although consumption of vitamin A-rich foods caused an improvement in nutrition status during the three-year intervention period, there was a significant decline in nutrition status--worse than before the intervention--in the years following. This situation was explained by a declining socio-economic environment which affected household income and parents' ability to purchase the necessary foods. With no programme in place to mitigate the effects of these external factors, nutrition projects which depend on a positive socio-economic environment may not be sustainable. Thus, the issues of staff presence and programme momentum may not be as important for sustainability as is the availability of food resources.

EXPLORING REPLICABILITY

Food availability notwithstanding, the question of replicability remains. Austin and Zeitlin make the following observation in their conclusion to *Nutrition Intervention in Developing Countries,*

> The best documented and most effective interventions have always been directed by strong leaders who were deeply committed, professionally competent, and innovative. These efforts have generally been smaller, pilot projects. This raises an important issue: whether such undertakings can be expanded to a larger scale and still be effective (1981b: 143).

If food-based strategies, rather than supplementation or fortification, are the most feasible and sustainable option for improving micronutrient status at the community level, then exploring the replicability of Tulimbe or projects like it, is a worthwhile pursuit. Having people use their own knowledge and resources as the basis for dietary change is a strategy which should be promoted throughout countries, like Malawi, in which traditional dietary practices have been

undermined. Beginning in 1996, Tulimbe started negotiations with a large NGO in Mangochi with the hope that the organisation would take over from the existing project and replicate it within the district. Immediately, a representative from the organisation identified Tulimbe as a "Mercedes Benz" model project, and questioned its replicability. Her point was valid. We were only working in two communities, and yet there were five degree-qualified home economists. The ratio of programme staff to families was 1:80. Tulimbe's incentive programme was generous, and its contact with the community frequent. Because of the emphasis on human resource development, constant attention was paid to issues of human relations, making the issue of replicability a costly one because of the staff demands.

Clark, referring to a similar type of project using adult education methodology in primary health care, says, "There is a belief among a significant number of observers that it is not possible to structure and to deliver, on a wide scale, cost-effective adult education of the kind I've been discussing" (1980: 68). She believes that the effectiveness of such a programme comes from its process, which is essential to primary health care, or community development of any kind. From the feedback given in the summative evaluation, both project and government staff saw the community mobilisation process, not the technical aspects of the project, as the basis for replicability. Government officers cited the process-oriented actions that they had learned from Tulimbe and had already taken to other communities, such as promoting participatory approaches and community-led initiatives. Field staff believed that training and social marketing activities should be expanded and intensified in all the villages in which they work. Thus the quandary--can results by replicated without replicating the ratio of participants to staff and inputs, and how many short-cuts can be taken before results suffer?

In 1997, under the auspices of a multi-lateral funder, I had an opportunity to work on the proposal for district-wide replication of Tulimbe with the Executive Director of a large NGO. When together we reviewed the process of Tulimbe's success, the E.D. remarked on the fact that the project was almost completely dependent on human resource development--capacity building, leadership training and nutrition education. Compared to the significant human resources which were required to facilitate behavioural change, few material inputs were necessary. In calculating the number of staff required to cover a district and maintain close community relations, the proposed budget swelled to 1.5 million dollars. When I submitted this

proposal to the funder, it was promptly sent back because the staff costs were two-thirds of the budget, when only less than half was acceptable. In bringing the budget down to one million dollars, the ratio for coverage was estimated at one staff member for a cluster of twenty villages. No doubt, the success of such a project would be dependent on the development and effectiveness of community leadership because, according to the model, staff presence in villages would be limited by high costs.

The high cost of human resource development has been noted by Pant et al. (1996) in their comparison between nutrition education approaches and supplementation projects. In Nepal, supplementation was evaluated as cost-effective in the short term. However, in the long term, nutrition education was more expensive, but paradoxically more cost-effective because it was proven more effective in reducing the risk of mortality. The majority of its costs did not involve material resources, but instead costs for training, supervision and logistical support for field staff, and teaching aids. If Pant et al.'s conclusions about the human resource demands of nutrition education are valid for Malawi, then the proposed 1.5 million dollar budget for staffing a district-wide programme was not unrealistic, even though it may not be feasible. The efficacy of a quality nutrition education programme is not replaced by a vitamin capsule, although it may be enhanced by it. Even with the costs involved in staffing for a nutrition education programme, there is little logic to abandoning nutrition education in favour of the more cost-effective supplementation strategy.

From observation and from hearing the testimonies of the women and men who participated in the project, it is clear that malnourished children are much happier when they are fed a tastier and more nutritious porridge by parents who take an avid interest in their feeding. Nutrition education programmes which have such a positive effect on family and community relations are worth replicating. Pelletier et al., point out that,

> the planning and evaluation of projects for nutritional improvement should proceed on the basis of better knowledge concerning the mechanisms by which project 'inputs' are likely to be translated . . . into behavioural and biological change among different categories of household members. This suggestion has important implications for the types of methodologies, training and institutional arrangements required to improve project planning . . . . (1991: 139)

This evaluation of Tulimbe Nutrition Project identifies and illustrates the project "inputs"—philosophy, educational methodology, approaches to community development, respect for indigenous knowledge and local resources--which are worth replicating for behavioural change. Attig and others, who were eager to share the experience of their unique food-based project in Thailand, stress that the process, not the product, should be transferred (1994: 2). Programme staff attempted to publicise the Tulimbe process through various high-profile workshops, seminars, radio programs and newsletters. Since Tulimbe's intervention in Mangochi, many organisations in Malawi have received funds for community-based nutrition projects, and most desire to replicate some aspect of Tulimbe. Up to the present day, all four programme staff members continue to provide training to these organisations as consultants or staff. Although Tulimbe's strategies for dietary change may not be followed systemically or consistently, through its publicity and example, the project has generated great interest in the potential of nutrition education, and dietary diversification and modification.

SECURING POLITICAL COMMITMENT

Even if various agencies engage in nutrition education and dietary change projects, these efforts will have little effect on the overall child nutrition situation in Malawi unless they are recognised by government and supported by policies. According to the findings of the Fifth International Conference of the International Nutrition Planner Forum, the most crucial element of successful community nutrition programmes is political commitment (INPF, 1990). Tulimbe tried to achieve some measure of political commitment when it gained the support of nutritionists and health education specialists at national and district levels. However, these government officials do not need to be convinced of the national urgency of nutrition issues. Instead, high-ranking politicians and policy-makers need to understand the importance of food-based strategies for child development and national development. According to Zeitlin, "high-level policy-makers tend to have little faith in the power of nutrition education" (1988: 21), and the processes thereof which make nutrition education effective and meaningful. Instead, she says policy-makers focus on the structural causes of malnutrition, such as lack of food, income and health services. Without consideration for feeding practices, programmes focus on food

security, income generation, and access to health services with limited success in achieving their goal of nutritional improvement. The earlier cited fact about Malawi's worsening nutrition status proves that structural approaches have not been effective. The challenge is to convince policy-makers to adjust their perceptions of malnutrition.

Smitasiri, writing out of his own experience in Thailand, sums up the challenge of nutrition education: "Nutrition education is thus no longer just imparting information, or bombarding people with nutrition messages, but getting people--everyone from target villagers to national policy makers--to do something differently in order to improve nutrition" (1997: 53). Without knowing the statistics and implications of child malnutrition, politicians will not do things differently. This is why, in 1996, UNICEF in Malawi, invited the MPs to a special workshop on nutrition issues. At the time UNICEF was a major advocate with the Ministry of Health, for the regulation of the importation of salt and salt iodination. Because of their efforts in lobbying the government, new bills were passed. Similar efforts should be taken to increase policy-makers' understanding of the cost-effectiveness of food-based strategies, particularly the types and quantities of required micronutrient-rich foods, and the land and inputs required to grow them (Trowbridge et al., 1993: 785). With the National Plan of Action on Nutrition (Malawi, 1996b) as a guide, and within the contexts of both food security and child health, new policies should be formulated toward empowering people in their efforts to use food-based strategies to combat malnutrition.

In order to fulfil their aims, bills and policies should be linked with programme implementation. The basic infrastructures for the promotion of food-based strategies are the community-based programmes of multi-sectoral field staff (Health, Agriculture, Community Services) and teachers (in schools, adult literacy programmes). The sustainability of any food-based programme depends on its becoming a co-ordinated focus and integral part of these community and district development activities. Thus, new plans and programmes should "fit" into these existing infrastructures--organisational patterns, routines and resources--so they become sustainable from an institutional standpoint (Attig et al., 1994: 2, 10-11).

The philosophy and approach to food-based strategies should be consistent from national to field levels, so that national campaigns match the messages and activities promoted by field staff (Colle, 1988: 41). To maintain consistency, the integration of food-based

strategies into yearly plans of work should come as a directive from ministry headquarters, and be supported by regional and district offices. In order for a multi-sectoral effort to be effective, nutrition education messages should be disseminated through all the sectors' communication channels (Quinn et al., 1990: 147). Furthermore, at the Extension Planning Area level, field staff should be involved in discussions of how to orient and implement program activities within their own contexts and settings (Smitasiri et al., 1992: 200). Thus, in consultation with field staff and community leaders, national programme directives would be adapted for implementation. Rody calls this a transactional model, not "bottom up," but a different type of "top down," in which the "high level of program administration sets up a cycle which leads to increased power at the mid- and lower-program levels and community/citizen levels" (1988: 138). The human resource development requirements are significant for mid- and lower- level staff who would be responsible for bringing creativity to the planning and implementation of a nutrition programme (Smitasiri, 1997: 59). However, within a growing democratic society, community leaders and members should also be encouraged to participate and assist field staff in this process for change.

Within the context of Malawi, what is required is a mass campaign to encourage people to work together for change. The Tulimbe experience has shown that social pressure works positively in communities to change health- and nutrition-related behaviour. The process of replication would be easier for field staff to manage if there was a long-term national social marketing campaign advocating nutritional change in families and communities. This would give them the impetus and the credibility to promote new dietary behaviours. When the Nsanyira band went to perform in Monkey Bay, 60 kms from Mangochi, they sang their songs about soaking and fermenting maize flour only to have people in the marketplace laugh at them. Of course, there was no context for people to understand Tulimbe's dietary strategies--they were strange concepts. However, if there had been a national radio or poster campaign promoting these strategies, the people in the marketplace would have listened to the band with respect. Another band participating in the festival sung about the use of condoms, and since there was an existing comprehensive campaign for condom use, the content of its songs was accepted. Mass appeal for condoms had been created by messages coming from authority figures, radio programming and jingles, and a variety of social marketing techniques.

Malawi's post-colonial experience in mass mobilisation was one in which people were conscripted and forced to participate in activities, not for the greater good of their communities, but for the Malawi Congress Party and its president. MCP representatives in each village used coercive tactics to maintain social control (Kaspin, 1995: 603). Many people complied with the expectations of the MCP under duress, but many found meaning and purpose in compliance. Since the end of the MCP regime, a short-lived campaign for mass mobilisation took place, its aim being to encourage people to vote in the democratic elections. Voter turn-out was successful, despite the fact that an election was a challenge to the permanency of the much-feared MCP. What this suggests is that campaigns for mass mobilisation in Malawi, whether long-term or short-term, are effective and can be used to influence people's behaviour.

Apart from the social marketing programme targeted at condom use and the health promotion campaign on HIV/AIDS prevention, Malawi has not experienced the power of mass mobilisation campaigns which have as their purpose people's participation in a movement for the greater good of society. Both Nigeria and Ghana, as examples, have been under the influence of a series of national campaigns with titles such as "War Against Indiscipline," in which people feel obligated to engage in certain activities and behaviours which are of collective benefit, such as self-help, sanitation and family planning (Filson, 1991). These kinds of campaigns rely heavily on rallies and promotion through the media. Government field staff and community leaders are challenged through these campaigns to meet quotas and show evidence of improvement in specified areas. Such campaigns are not oriented to the individual, as is the Malawi campaign for condom use, but to groups and communities within the context of national solidarity. In Malawi, people feel left out of the process of modernisation and are waiting for change. Already, in and around the Tulimbe project area, people are trying new recipes and planting new crops because they want to develop as many coping mechanisms as possible for dealing with poverty and hunger. People want innovative alternatives to meet their basic needs and to fulfil some of their hopes and dreams. There is a need to fill the vacuum left by the former regime. Thus, a mobilisation campaign with clear goals for people to meet in their communities would provide the impetus for combating malnutrition on a country-wide scale.

The experience of Tulimbe has shown that a food-based project based on sound dietary strategies can make a difference in children's health status, and in a relatively short period of time. Tulimbe is worthy of replication in Malawi, and in surrounding countries, but in order to replicate such a project on a wider scale, there must be political will to do so. This involves efforts by both government and non-government agencies to recognise that nutrition issues deserve priority consideration in national policy and programme strategies. Programmers need to depend on both political support for the institutionalisation of nutrition improvement programmes, and on mass mobilisation which includes the promotion of dietary strategies to combat child malnutrition. Widespread support for food-based programmes will ensure an economy of scale for effective replication of Tulimbe's approaches and techniques.

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APPENDIX 1

Knowledge, Attitudes and Practices (KAP) Questionnaire

Tulimbe Malawi Otago Nutrition Project
Knowledge, Attitudes and Practices Questionnaire

Date (dd/mm/yy)[__ __/__ __/__ __] Interviewer: [_____]
Village[_____] Household: [__ __ __]
Name:[_____] ID Number [__ __ __ __ __ __ __]

General Education

1. How can you tell if a child is healthy?
Mukhonza kumudziwa bwanji mwana wa umoyo wabwino?
Mpaka am'manyilire uli mwanache dyakwete umi wambone?

[ ] happy [ ] plays [ ] well fed [ ] good appetite
[ ] healthy hair [ ] eyes bright [ ] healthy body [ ] no oedema
[ ] active [ ] not thin [ ] no diarrhea [ ] other (specify)
[ ] don't know [_____]

2. What does a malnourished child look like?
Kodi mwana wosowa chakudya m'nthupi amaoneka bwanji?
Ana mwanache dyakusowa yakulya m'chilu akusaonekag'a uli?

[ ]not well fed [ ]pale eyes [ ]stomach protrudes [ ]refuses to eat
[ ]looks thin [ ]unhappy [ ]cries a lot [ ]other (specify)
[ ]does not grow [ ]always sick [ ]hair not healthy [_____]
[ ]swollen legs [ ]won't play with friends [ ]don't know

3. How can you help your child grow healthy?
Kodi mungachite chani kuti mwana wanu akhale ndi umoyo wabwino?
Ana mpaka ankamuchisye mwanache dyawo uli kuti akole umi wambone?

[ ] child should eat well [ ] ensure child has supper [ ]bedrest
[ ] be free from diseases [ ] have clean water [ ]other (specify)
[ ] balanced diet [ ] enough food
[ ] parents practice child spacing [ ]mother attends clinic [_____]
[ ] don't know

4. How often do you attend meetings or activities about your children's health?
Kodi mumakhala nawo pa misonkhano kapena zochitika zina zokhudza umoyo wa ana? Kangati?
Ana akusatamag'a nawo pa misongano kapena itendo ine-ni-ine yakuzana ni umi wa wanache wawo? Kalingwa?

[ ] once per week [ ] once per month [ ] once every few months [ ] never
[ ] other (specify)
[_____]

5. What type of activities do you attend about your children's health?
Ndi zochitachita zanji zomwe mumakhala nawo zokhuzana ndi umoyo wa ana?
Ana induchi yakusatendag'a nawo yakuza umi wa wanache?

[ ] under 5 clinic [ ] scale [ ] other (specify)[_____]
[ ] "doctor's" meetings clinical officer, HSA etc [ ] project meetings
[ ] megulu [ ] not applicable

Micronutrients

6. Have you ever heard about vitamin A? Munayamba mwamvapo za Vitamin A? Ana wapikanedyepo ya Vitamin A?
[ ] yes [ ] no

7. What do you think vitamin A does for your body?
Kodi mukuganiza kuti Vitamin A imathandiza chani m'nthupi?
Ana akug'anisya kuti vitamin A dyikusatendag'a chi m'chilu mwamundu?

[ ] good growth	[ ] makes a person strong	[ ] keep satisfied
[ ] tikhute	[ ] prevents oedema	[ ] other (specify)
[ ] helps a person to see	[ ] protects a person from disease	[_____]
		[ ] don't know

8. What problems do you think a person with vitamin A deficiency have?
Ndi mavuto otani angapezeke kwa munthu wosowa Vitamin A?
Mundu dyangali Vitamin A mpaka akole mavuto g'achi?

[ ]night blindness	[ ]not strong	[ ]anemia	[ ]other (specify)
[ ]bad skin	[ ]always sick	[ ]oedema	[_____]
[ ]weakness	[ ]loss of appetite	[ ] blood increases	[ ]don't know

9. What do you think a person can do to prevent vitamin A deficiency?
Kodi munthu angatani podziteteza kuti m'nthupi mwake musamasowe Vitamin A?
Ana akug'anisya kuti mundu mpaka atende uli kuti akasowag'a Vitamin A mchilu mwakwe?

[ ]vitamin pills from hospital	[ ]eat fruit	[ ]other (specify)[_____]
[ ]eat from 3 food groups	[ ]avoid contaminated food	[ ]nothing
[ ]eat enough foods	[ ]sunbathe	[ ]don't know

10. Where is vitamin A found? Kodi Vitamin A amapezeka kuti?
Ana Vitamin A akusasimanikag'a muchichi?

[ ]pills, syrups
[ ]food
[ ]mgaiwa
[ ]**dark leafy vegetables**

[ ]bononge	[ ]pulses leaves	[ ]chinese cabbage
[ ]cassava leaves	[ ]potato leaves	[ ]mustard (mpiru)
[ ]pumpkin leaves	[ ]rape	[ ] other (specify)[_____]

[ ]**yellow, orange, green fruits and vegetables**

[ ]pumpkins	[ ]mangoes	[ ]yellow food	[ ]sweet potatoes
[ ]carrots	[ ]pawpaws	[ ]bananas	[ ]fruits

[ ]**other foods**

[ ]groundnuts	[ ]fish	[ ]soya	[ ]meat and eggs
[ ]phala	[ ]beans	[ ]other (specify) [_____]	[ ]don't know

11 Have you ever heard about iron in food?
Kumbali ya zakudya, munayamba mwamvapo za Iron?
Ku yakulya wapikanedyepo ya Iron?
[ ]yes [ ]no

12. What do you think iron does for your body?
Kodi mukuganiza kuti Iron amathandiza chani m'nthupi la munthu?
Ana akug'anisya kuti Iron akusatendag'a chichi mchilu mwa mundu?

[ ]adds blood to body
[ ]helps a person grow
[ ]makes a person strong
[ ]prevents a person from getting diseases
[ ]other (specify)[_____]
[ ]don't know

13. What problems do you think a person not having enough blood/iron deficiency have?
Ndi mavuto anji omwe munthu opanda magazi/ osowa Iron angakhale nawo?
Mavuto g'achi g'impaka mundu dyangali miyasi /Iron ag'apate?

[ ]weakness/can'twork
[ ]tired
[ ]pale skin
[ ]swelling/oedema
[ ]thin
[ ]sick often
[ ]heart beats faster chizungulire
[ ]other [_____]
[ ]don't know

14. What do you think a person can do to prevent iron deficiency/having thin blood?
Kodi mukuganiza kuti munthu angachite chani kuti apewe kuchepa kwa magazi mthupi?
Ana akug'anisya kuti mundu mpaka atende uli kuti akasowa miyasi mchilu?

[ ]vitamin pills from hospital
[ ]eat from 3 food groups
[ ]eat fruits & vegetables
[ ]Sobo
[ ]soya
[ ]other [_____]
[ ]pawpaw
[ ]beans
[ ]hospital

15. Where do you think iron is found? Kodi mukuganiza kuti Iron amapezeka kuti?
Ana akug'anisya kuti Iron akusasimanikwa muchichi?

[ ]food
[ ]phala
[ ]tomato
[ ]dark green leafy vegetables
[ ]whole grains (mgaiwa)
[ ]beans
[ ]fruits
[ ]meat, fish, eggs
[ ]pills/syrup
[ ]Sobo
[ ]other [_____]
[ ]don't know

Preparation, processing and preservation

16. How can a person prepare foods so they contain/don't lose more vitamins?
Kodi mungakonze bwanji chakudya kuti chikhale ndi maVitamin ambiri?
Ana mundu mpaka alinganye chamtulu yakulya kuti ikole ma Vitamin g'edyinji?

[ ]avoid overcooking
[ ]ziphye
[ ]don't use too much water for vegetables
[ ]don't add soda
[ ]eat food while hot
[ ]don't cut into small pieces
[ ]soaking
[ ]combine grains and beans and nut flour
[ ]germination
[ ]fermentation
[ ]cook with oil oil rich foods
[ ]other [_____]
[ ]don't know

17. Do you ever ferment flour?

[ ] yes
[ ]no

18. Why do you use fermented flour?

[ ]healthier
[ ]told to do it
[ ]taste
[ ]other [_____]
[ ]don't know

Why do you not use fermented flour?

[ ]time consuming
[ ]taste
[ ]too many steps
[ ]too much work
[ ]don't know how
[ ]told not to do it
[ ]never tried before
[ ]against tradition
[ ]other [_____]
[ ]don't know

19. In what foods do you use fermented flour?

[ ]nsima
[ ]phala
[ ]other [_____]
[ ]don't use

20. Do you ever use chimera ? Kodi mumagwiritsa ntchito chimera?
Ana akusakamulisya masengo chilungo?
[ ]yes [ ]no

21. Why do you use chimera? Why do you not use chimera?
Chifukwa chani? Lig'ongo chil? Chifukwa chani? Lig'ongo chi?

[ ]healthier	[ ]stops open bowels	[ ]time consuming	[ ]told not to do it
[ ]told to do it	[ ]thins porridge	[ ]taste	[ ]never tried before
[ ]taste	[ ]helps fermentation	[ ]too many steps	[ ]against tradition
[ ]mawere easy to pound	[ ]other [_____]	[ ]too much work	[ ]other [_____]
	[ ]don't know	[ ]don't know how	[ ]don't know

22. In what foods do you use chimera? Mumagwiritsa ntchito chimera mu zakudya zanji?
Akusakamulisya masengo chilungo mu yakulya yachi?
[ ]tobwa [ ]mahewu [ ]other [_____]
[ ]phala [ ]mowa [ ]don't use

23. How often do you use chimera? Mumagwiritsa ntchito kangati?
Akusakamulisya masengo kalingwa?
[ ]daily [ ]certain seasons [ ]hot [ ] cold [ ]other [_____]
[ ]weekly [ ]certain occasions [ ]wedding [ ]initiation [ ]other [_____]
[ ]monthly [ ]rarely [ ]never

24. Do you ever make thobwa? Kodi mumaphika thobwa? Ana akusaterekag'a utobwa?
[ ] yes [ ]no

25. How often do you make thobwa? Nanga mumaphika kangati? Akusaterekag'a kalingwa?
[ ]daily [ ]certain seasons [ ]hot [ ] cold [ ]other [_____]
[ ]weekly [ ]certain occasions [ ]wedding [ ]initiation [ ]other [_____]
[ ]monthly [ ]rarely
[ ]never

26. Who in your family drinks thobwa? M'banja mwanu ndani amamwa thobwa?
Mwiwasa mwawo wani wakusamwag'a utobwa?
[ ]adult men [ ]adult women [ ]children [ ]all members [ ]no one

27. What age do your children start drinking thobwa?
Kodi ana anu amayamba kumwa thobwa ali ndi miyezi ingati?
Ana wanache wawo akusatanda kumwa utobwa ali ni miyesi dyiringwa?
[ ]birth - 4 months [ ]4 - 12 months [ ]over a year [ ]don't drink

28. Do you soak whole maize kernals (not until it germinates)? Kodi mumaviika chimanga?
Ana akusalowekag'a imanga ?
[ ]yes [ ]no

29. Why do you use soaked maize? Why do you not use soaked maize?
Chifukwa chani? Lig'ongo chi? Chifukwa chani? Lig'ongo chi?

[ ]healthier	[ ]other [_____]	[ ]time consuming	[ ]told not to do it
[ ]told to do it	[ ]don't know	[ ]taste	[ ]never tried before
[ ]taste		[ ]too many steps	[ ]against tradition
[ ]ufa softer		[ ]too much work	[ ]other [_____]
[ ]remove medicine		[ ]don't know how	[ ]don't know

30. In what foods do you use soaked maize kernals?
Chimanga choviikachi mumachigwiritsa ntchito mu zakudya zanji?
Imanga yeloweche akusaitumaga pakulinganya yakulya yachi?

[ ]phala [ ]flour ufa [ ]mankhwala [ ]don't use
[ ]nsima [ ]flour mgaiwa [ ]thobwa [ ]other [_____]

31. How often do you use soaked maize kernals? Mumachigwiritsa ntchito kangati?
Akusachikamulisya masengo kalingwa?

[ ]daily [ ]certain seasons [ ]hot [ ] cold [ ]other [_____]
[ ]weekly [ ]certain occasions [ ]wedding [ ]initiation [ ]other [_____]
[ ]monthly [ ]rarely
[ ]never

32. Do you soak maize flour? Kodi mumaviika ufa kuti muphikire?
Akusalowekag'a utandi mkinatereche yakulya ine yakwe?

[ ]yes [ ]no

33. Why do you use soaked maize flour? Why do you not use soaked maize flour?

Chifukwa chani? Lig'ongo chi?	Chifukwa chani?	Lig'ongo chi?
[ ]healthier	[ ]time consuming	[ ]told not to do it
[ ]told to do it	[ ]taste	[ ]never tried before
[ ]taste	[ ]too many steps	[ ]against tradition
[ ]other [_____]	[ ]too much work	[ ]other [_____]
[ ]don't know	[ ]don't know how	[ ]don't know

34. In what foods do you use the soaked maize flour?
Ufa woviikawu, mumawugwiritsa ntchito mu zakudya zanji?
Utandi welowechewu akusaterechera chichi?

[ ]phala [ ]nsima [ ]other [_____] [ ]don't use

35. How often do you use soaked maize flour? Mumawugwiritsa ntchito kangati?
Akusaukamulisya masengo kalingwa?

[ ]daily [ ]certain seasons [ ]hot [ ] cold [ ]other [_____]
[ ]weekly [ ]certain occasions [ ]wedding [ ]initiation [ ]other [_____]
[ ]monthly [ ]rarely
[ ]never

36. Do you soak beans before cooking? Kodi mumaviika nyemba musanaphike?
Ana akusalowekag'a mbwanda nkinatereche?

[ ]yes [ ]no

37. Why do you soak beans? Why do you not soak beans?

Chifukwa chani? Lig'ongo chi?		Chifukwa chani?	Lig'ongo chi?
[ ]healthier		[ ]time consuming	[ ]told not to do it
[ ] reduce cooking time	save firewood	[ ]taste	[ ]never tried before
[ ]told to do it		[ ]too many steps	[ ]against tradition
[ ]taste		[ ]too much work	
[ ]don't know	[ ]other [_____]	[ ]don't know how	[ ]don't know

38. Do you dry fruits for preservation? Kodi mumafutsa zipatso?
Ana akusatendag'a chauya cha ipaso?

[ ]yes [ ]no go to questions 44

type	cook	don't cook	dry on mat	solar dryer	store how long	use in home	sell

39. Do you dry vegetables for preservation? Kodi mumafutsa masamba?
Ana akusateuyag'a liponda?

[ ]yes [ ]no go to questions 45

type	cook	don't cook	dry on mat	solar dryer	store how long	use in home	sell

Eating New Foods/ Dietary Modification Diversification

40. In the past two years have you introduced new crops in your gardens?
Pazaka ziwiri zapitazo mwadzalapo mbeu yomwe simunadzalepo mbuyomo?
Muyaka iwiri ipiteyi, apandirepo mbedyu siukunapandag'a munyumamu?

[ ]yes [ ]no

if yes, which ones if no, why not

[ ]soya [ ]groundnuts [ ]don't know [ ]not enough security
[ ]sunflower [ ]vegetables [ ]no money [ ]didn't know how
[ ]sorghum [ ]fruits, ie pawpaw [ ]seeds not available to eat/use
[ ]millet [ ]other [_____] [ ]not enough space [ ]other [_____]

41. Do you know how to prepare soya? Kodi mumadziwa kakonzedwe ka soya?
Ana akusamanyirirag'a kulinganya kwa soya?

[ ]yes [ ]no go to questions 50

42. How do you prepare it? Mumakhonza bwanji? Akusalinganyaga/kutereka uli?

[ ]soy milk [ ]pound to flour [ ]boil [ ] fry
[ ]phala [ ]roast [ ]african cake [ ]other (specify)
[ ]nsima [ ]snack [ ]add flour to ndiwo

43. Where did you get the soya seeds? Kodi soya mumampeza bwanji? Soya akusampata uli?

[ ]from last year's harvest [ ]purchased from Tulimbe [ ]ADMARC [ ]any private seller [ ]other [_____]

44. How often do you prepare soya? Nanga mumadya kangati?
Nambi akusalyag'a kalingwa?

[ ]daily [ ]certain seasons [ ]hot [ ] cold [ ]other [_____]
[ ]weekly [ ]certain occasions [ ]wedding [ ]initiation [ ]other [_____]
[ ]monthly [ ]rarely
[ ]never

45. Did you plant sunflower seeds this year?
[ ]yes [ ]no

46. Do you prepare sunflower seeds?
Kodi mumadziwa kakonzedwe/ kagwiritsidwe ntchito ka mpendadzuwa?
Ana akusamanyilirag'a kulinganya/kukamulisya masengo kwa mpendasuwa?
[ ]yes [ ]no go to questions 54

47. How do use sunflower seeds? Nanga mpendadzuwa mumapangira chani?
Mpendasuwa akusatenda nawo chichi?

[ ]as seasoning to vegetables [ ]dehusk, roast and pound [ ]extract oil [ ]roast & eat [ ]other (specify) [_____]

48. Where did you get them? Mumapeza bwanji mpendadzuwa?
Akusaupata uli mpendasuwa?

[ ]from last year's harvest [ ]purchased from Tulimbe [ ]ADMARC [ ]any private seller [ ]other [_____]

49. How often do you prepare sunflower seeds? Mumagwiritsa ntchito kangati mpendadzuwa?
Akusakamulisya masengo mpendasuwa?

[ ]daily [ ]certain seasons [ ]hot [ ] cold [ ]other (specify)
[ ]weekly [ ]certain occasions [ ]wedding [ ]initiation [ ]other
[ ]monthly [ ]rarely
[ ]never

50. Do you eat pawpaw? Kodi mumadya mapapaya? Akusalyag'a mapapaya?
[ ]yes [ ]no go to questions 57

51. Where do you get it? Mumawapeza bwanji? Akusagadyig'ala kwapi?

[ ]grew them [ ]market [ ]vendors [ ]other [_____]
[ ]relatives [ ]gifts

52. What do you know about pawpaws? Mumadziwa chani za papaya?
Asamanyiriraga chichi ya lipapaya?

[ ]nothing [ ]helps to add blood [ ]prevent constipation
[ ]are nutritious [ ]helps digestion [ ]protect from disease [ ]other (specify)
[ ]have vitamins [ ]makes healthy bodies [ ]part of fruit food group [_____]

53. Do you eat the following fruits: Kodi zipatso izi muli nazo: Ana akwete ipaso ayi:
[ ]yes [ ]no go to questions 58

	don't have	grow	buy	eat as snack	eat with meal	sell
lemons						
limes						
oranges						
tangerines						
grapefruits						

54. Do you use the following foods: Kodi mumagwiritsa ntchito:
Akusakamulisya masengo:

any fish [ ]yes [ ]no - if no, go to ne xt item
how? **why?**
[ ]ndiwo [ ]nutritious [ ]told to do it [ ]don't know
[ ]add to phala [ ]taste [ ]other [_____]

groundnut flour [ ]yes [ ]no - if no, go to ne xt item
how? **why?**
[ ]add to phala [ ]nutritious [ ]helps with growth [ ]child strength
[ ]add to relish [ ]taste [ ]other [_____] [ ]has vitamins
[ ]thendo [ ]told to do it [ ]don't know
[ ]other [_____] [ ]adds blood

eggs [ ]yes [ ]no - if no, go to ne xt item
how? **why?**
[ ]ndiwo
[ ]add to phala [ ]nutritious [ ]helps with growth
[ ]boiled [ ]taste [ ]other [_____]
[ ]fried [ ]told to do it [ ]don't know
[ ]other [_____] [ ]calcium for teething children

55. Do you use cooking oil to prepare food?
Kodi mumagwiritsa ntchito mafuta ophikira, pophika zakudya zanu?
Ana akusatag'ag'a mauta muyakulya yawo?
[ ]yes [ ]no, go to question 60

how often? kalingwa?
[ ]daily [ ]weekly [ ]monthly [ ]rarely [ ]don't use

which type? mtunduchi?
[ ]made (type) [ ]purchased [ ]other (specify) [ ]don't use
[_____] [_____]

Household Consumption

56. What do you feed your children when they have diarrhea?
Mumawadyetsa chani ana anu, akamatsegula m'mimba?
Mwanache ali mkuugula m'matumbo, akusamlisyaga chichi?

[ ]fluids given [ ]food and fluids [ ]breastmilk only [ ]don't know
[ ]kalungolikoko [ ]fermented food manyamunya [ ]breastmilk withdrawn
[ ]food given [ ]food withdrawn [ ]phala

57. Do you think some family members need more food than others?
Kodi mukuganiza kuti m'banja mwanumo alipo anthu ena omwe angafunike kumadya chakudya chambiri kuposa ena?
Ana akuganisya kuti mwiwasa muno, pana wandu wane wakusasosekwaga kulyaga kwedyinji kupunda wane?

[ ]yes [ ]no, go to next question

if yes, name member and reason

Family member	Reason			get more food
[ ]children <5 years	[ ]growing	[ ] won't get sick	[ ]other [_____]	[ ]yes [ ]no
[ ]school age children	[ ]growing	[ ] won't get sick	[ ]other [_____]	[ ]yes [ ]no
[ ]pregnant and bf women	[ ]have healthy baby	[ ]won't get sick	[ ]other [_____]	[ ]yes [ ]no
[ ]adult men	[ ]won't get sick	[ ]other [_____]		[ ]yes [ ]no
[ ]people that work hard	[ ]so can work hard	[ ]won't get sick	[ ]other [_____]	[ ]yes [ ]no
[ ]elderly	[ ]stay healthy	[ ]other [_____]		[ ]yes [ ]no
[ ]other [_____]				[ ]yes [ ]no

58. What do you do to ensure that these family members are given more food?
Mumatani pofuna kuonetsetsa kuti anthu amenewo akupezadi chakudya chokwanira?
Akusatendagachi kuti were wanduwo akupatadi yakulya yakwanira?

[ ]cook separately for them [ ]have specific meal time [ ]other [_____]
[ ]some members go without [ ]give them their own plate [ ]not applicable

59. Have your children eaten food prepared with oil during the last two weeks?
Ana anu adyapo chakudya chophikidwa ndi mafuta,milungu iwiri yathayi?
Milungu dyiwiri dyipitedyi, mwanache dyawo alire yakulye yetadye mauta?

[ ]yes [ ]no [ ]don't know [ ]not applicable

60. During the last two weeks did your child eat any of the following food?
M'milungu iwiri yapitayi mwana wanu wadyapo zakudya izi?
Milungu dyiwiri dyipitedyi, mwanache dyawo alire yakulya ayi?

[ ]bonongwe	[ ]pulses leaves	[ ]chinese cabbage	
[ ]cassava leaves	[ ]potato leaves	[ ]mustard (mpiru)	
[ ]pumpkin leaves	[ ]rape	[ ]fish	
[ ]pumpkins	[ ]mangoes	[ ]yellow food	[ ]sweet potatoes
[ ]carrots	[ ]pawpaws	[ ]bananas	
[ ]groundnuts	[ ]meat and eggs	[ ] other [_____]	

61. During the last two weeks, did you do any of the following ways of preparing foods?
Pamilungu iwiri yapitayi mwagwiritsapo ntchitozina mwa njira izi pokonza chakudya?
Milungu dyiwiri dyipitedyi, aterechepo yakulya kamulisya matala aga?

[ ]avoid overcooking	[ ]germination	[ ]fermentation	[ ]soaking
[ ]don't use too much water for vegetables	[ ]combine grains with beans/groundnut flour	[ ]cook with oil & oil rich foods	[ ]other [_____]
[ ]didn't use soda	[ ]covered food		[ ]don't know

Thank you! Zikomo!

APPENDIX 2

Socio-Economic Status (SES) Questionnaire

Tulimbe - Malawi Otago Nutrition Project

Socio Demographic Questionnaire

Village [_____] Household [_ _ _]

Date (dd/mm/yy) [_ _/_ _/_ _] Interviewer [_____]

Name [_____ _____] ID Number [_ _ _ _ _ _ _ _]

Child's Name[_____ _____] ID Number [_ _ _ _ _ _ _ _]

DOB (dd/mm/yy) [_ _/_ _/_ _] Sex [_] Source: [ ]memory [ ]clinic card [ ]other

Child's Name[_____ _____] ID Number [_ _ _ _ _ _ _ _]

DOB (dd/mm/yy) [_ _/_ _/_ _] Sex [_] Source: [ ]memory [ ]clinic card [ ]other

Child's Name[_____ _____] ID Number [_ _ _ _ _ _ _ _]

DOB (dd/mm/yy) [_ _/_ _/_ _] Sex [_] Source: [ ]memory [ ]clinic card [ ]other

1. How many people usually live in this household?
Ndi anthu angati amene amakhala m'nyumba muno?
Wandu walingwa wakusatama m'nyumba adyino? [_____] people

2. Head of household: Mutu wa banja ndi ndani?
[ ]husband [ ]woman [ ]grandparent [ ]uncle/aunt [ ] other specify

3. What is the main occupation of the head of household? Nanga amagwira n'tchito yanji?
[ ]farming (owner operated) [ ]ganyu labour non agricult [ ]other (specify)
[ ]tenant [ ]paid employment other [ ]none
[ ]ganyu labour agriculture [ ]self employed not farming

4. What level of education did he/she reach ? Nanga sukulu yao analekeza pati?
Nambi sukulu walechesye kalasi chi?
[ ]Standard 1 = S1 [ ]Form 1 = F1 [ ]University = U1
Standard 2 = S2 etc Form 2 = F2 etc [ ]none = 99

5. List names of household members
Tchulani maina a anthu ena amene amakhala m'nyumbamu.
Atupe mena g'a wandu wosope wakusatama m'nyumba adyino?

name	relation	sex	age	education	marital status
	[ ]	[ ]	[__ __]	[ ]	[ ]
	[ ]	[ ]	[__ __]	[ ]	[ ]
	[ ]	[ ]	[__ __]	[ ]	[ ]
	[ ]	[ ]	[__ __]	[ ]	[ ]
	[ ]	[ ]	[__ __]	[ ]	[ ]
	[ ]	[ ]	[__ __]	[ ]	[ ]
	[ ]	[ ]	[__ __]	[ ]	[ ]

Relation	Education	Marital Status
head	none	never married
wife/husband	now in school	married
son/daughter	highest level attended	wife of polygamist
father/mother	literacy training	separated/divorced
grandchild	standard I-V	widowed
other relatives	standard VI-VIII	husband working elsewhere
resident labourer	Form I-II	
non relative	Form III-IV	
	above secondary	
	other	

6. Religion of household members
Kodi anthu a m'nyumbamu amapemphera zipembedzo zanji?
Ana wandu wa m'nyumba muno akusapopela yalichi chi?

[ ]Muslim [ ]Catholic [ ]Protestant
[ ]Other (specify) [ ]no affiliation [ ]missing/not applicable

7. What is the main source of drinking water for members of your household at this time?
Kodi pa nthawi ino, madzi okumwa mumakatunga kuti?
Mesi g'akumwa akusateka kwapi?

[ ]public tap [ ]well/spring protected [ ]river/stream [ ]piped in dwelling
[ ]borehole [ ]well/spring unprotected [ ]lake/dam [ ]other (specify)

8. Is it treated water / Chilipo chimene mumawachita madziwa asanamwedwe?
Ana ipali yakusag'atenda mesigo mkinig'amwedwe?

[ ] yes [ ] no

9. If yes, which method? Mumawachita chani ? Akusag'atendag'a chi?

[ ]chlorine [ ]boiled [ ]purification [ ]other (specify)

10. How far is this source from your dwelling?
Kodi komwe mumatunga madzi ndi kutali bwanji ndi nyumba yanu?
Kwakusateka mesi kutaliche uli ni kunyumba kuno?

[ ]on premises [ ]100 - <500m [ ]> 1-2 km [ ]> 3 km
[ ] less than 100 m [ ]500 m to 1 km [ ]> 2 -3 km [ ]don't know
[ ]not applicable

11. What kind of toilet facility does your household use?
Kodi chimbudzi chamu ndi cha mtundu wanji?
Chimbusi chakusakamulisya masengo cha mtundu uli?

[ ]traditional pit latrine [ ]VIP latrine [ ]Flush to septic tank
[ ]latrine with sanplat [ ]Flush to sewage system [ ]no facility go to q13

12. How far is the toilet facility from your dwelling?
Kodi chimbuzichi chili kutali bwanji ndi nyumba yanu ?
Chimbusichi chitalichire uli ni nyumba dyino?

[ ]in dwelling [ ]<50m away [ ]50m or more away [ ]don't know

13. Of what material is your house made of? Kodi nyumba yanu inakonzedwa ndi chani?
Ana nyumba dyawo wadyilinganyisye ni chichi?

walls/lipupa	[ ]mud	[ ]sundried brick	[ ]fire brick	[ ]other specify
roof/msakasa	[ ]thatch	[ ]tin	[ ]tile	[ ]other
windows	[ ]none	[ ]screen	[ ]wood	[ ]other
mawindo	[ ]open	[ ]glass		specify

14. When do you usually wash your hands?

[ ]before meals [ ]after meals [ ]before and after [ ]other specify

15. What is the major primary source of health care for the household?
Mukadwala, chithandizo mumapeza kuti?
Pati alwasile, akusapata kwapi chikamuchisyo ?

[ ]modern medical care [ ]traditional doctor [ ]spiritual healer [ ]other (specify)

Household level Livestock: **ID Number [_ _ _ _ _ _ _]**

16. Do you have any livestock? Kodi muli ndi ziweto? Ana akwete ilango?
[ ] yes [ ]no go to question 18

17. if yes, which ziweto zanji? ilango yachi?

	[ ]cow	[ ]goat	[ ]chicken	[ ]sheep	[ ]pig	[ ]other
how many						
zingati?						

ilingwa?

Household Level Dimba :

18. Are you cultivating an off season dimba garden yes no
Kodi muli ndi dimba lomwe mumalima nthawi ya chilimwe?
Ana akwete litimbe lyakusalima m'chawu?
[ ]yes [ ]no go to question 20

19.Which crops will be harvested from the dimba? Mumadzala chani ku dimbako?
Akusapanda chichi kumatimbe kwawo?
[ ]maize [ ]tubers [ ]vegetables [ ]other (specify)

20. Approximately how much land do you have under dimba (in HA) [_ _] HA
Dimba lanu ndilalikulu bwanji (muma Hekitala)
Litimbe lyawo lyalikulungwa uli? (m'ma Hekitala)

21. How much do you expect to harvest (in kg)
Mukuyembekeza kuti mudzakolola zambiri bwanji (muma kg)
Akwembechera g'oola indu yedyinji uli? (m'ma kilog'alamu) [_ _ _]kg

22. Where has this week's food come from?
Chakudya chomwe mwadya mulungu uno mwachipeza bwanji?
Yakulya yalire mlungu awuno ityochere/ayipatire kwapi?
[ ]garden [ ]receiving after working [ ]other (specify)
[ ]buying or free

Strategies followed by households to acquire food

23. Has your staple food run out Chimanga chanu chilipo kapena chinatha?
Imanga yawo imasire kapena ipali?
[ ]yes [ ]no

24. Is the food you have now enough to last til next harvest?
Ngati chilipo chikwanira mpaka kukolola?
Nag'a ipali, chhiikwane mpaka liwachi?
[ ]yes [ ]no

25. in how many days will your food run out?
Ngati sichikwana mpaka kukolola, chikwanira miyezi ingati?
Nag'angiikwanampakag'oola,chiimalempakaliwachi?
[ ]1 [ ]5 [ ]10 [ ]15 [ ]20 [ ]25 [ ]30 [ ]45 [ ]60 [ ]75 [ ] 90 [ ]105
[ ]120 [ ]150 [ ] don't know

Household Income and Coping Strategies

26. In the past month, which strategies has this houshold employed in order to feed all its members:
Kodi mwezi wathawu,banja lino mwakhala mukutani kuti mudzidya chakudya?
Mwesi umasilewu, yalulya ayipatiledye chamtuli?
[ ]a. consuming household production
[ ]b. consuming family's fish catches
[ ]c. consuming household livestock
[ ]d. money or food from ganyu or estate work
[ ]e. participation in food for work
[ ]f. selling livestock
[ ]g. selling vegetables
[ ]h. selling handcrafts/pottery
[ ]i. selling fish or exchanging it for stapel food
[ ]j. selling other food produce or exchanging it for staple food
[ ]k. selling firewood/charcoal
[ ]l. selling corncakes
[ ]m. selling locally brewed beer
[ ]n. other business ventures
[ ]o. decreasing number of meals consumed
[ ]p. eating wild foods not traditionally used in daily diet
[ ]q. consuming chitibu/nantibule/matindin (or premature harvest)
[ ]r. consuming seed
[ ]s. borrow money or food to be repaid (from people or institutions)
[ ]t. money or food gifts (+ meal sharing) from husb/rel/friends
[ ]u. food gifts from GOM/relief organizations/churches
[ ]v. selling liquid assets/household goods
[ ]w. hiring out assets
[ ]x. other
[ ]y. other

Thank you! Zikomo!

APPENDIX 3

Key Informant Interview Schedules

August 1995

KEY INFORMANT GUIDE

GENERAL QUESTIONS

Is the population changing? How? What are the signs or effects?

What are the most common health problem and their causes?

Are these health problems specific to a certain sex or age group?

What are the most important things affecting people's health? (i.e. what needs to change?)

Where do people go for help if they are sick?

What do people do if they want to prevent their children from becoming sick?

If there are problem with certain issues, who do you go to in order to solve these issues? i.e. land, disease outbreak.

What are the main problems of the village?

What are you most proud of in your village?

KEY INFORMANTS

TRADITIONAL BIRTH ATTENDANTS

HEALTH SURVEILLANCE OFFICERS

HEALTH CLUB

What role does a TBA play in the village?

How many children are born per year?

Where do women give birth?

Is there a difference in the number of girls being born compared to the number of boys?

How many children have been vaccinated, and against what diseases?

How many deaths are there in a year?

What are the main causes of death?

Which age group is most affected by death?

Are there ways we can prevent some of these deaths?

KEY INFORMANTS

FARM ASSISTANTS

AGRICULTURAL CLUB

How many people own land?

How is land distributed?

Does the land provide enough food?

Are artificial fertilizers and agro-chemicals used to increase farm production?

What other efforts are being made to increase production?

How are crops and food stored?

Is there much damage or loss? Why?

How many people are underweight and show signs of malnourished children?

KEY INFORMANTS

PARTY LEADERS

How many deaths are there in a year?

What are the main causes of death?

Which age group is most affected by death?

Are there ways we can prevent some of these deaths?

Is (multi-partyism) (democracy) (freedom of speech) affecting your village? How? i.e. an increase in mobilization or self-help activities.

KEY INFORMANTS

INITIATION LEADERS
TEACHERS
HSAs

What is the process of initiation, i.e. what does it mean?

Has its meaning or its process changed over the years? Why have these changes occured?

Does Islam have any influence on initiation?

What role does initiation play in this society? or
What would happen if someone was not initiated?

How does initation prepare someone for adulthood?

APPENDIX 4

Focus Group Discussion Guides

TULIMBE NUTRITION PROJECT

FOCUS GROUP DISCUSSIONS

ETHNOGRAPHIC DESCRIPTIONS OF DAILY LIFE

ANSWERED BY GROUPS OF MEN AND WOMEN

August, 1995
Discussion #1 -- BREASTFEEDING AND COMPLEMENTARY FEEDING

1. How do you feel about breastfeeding?

2. Do you think breastfeeding is important? Why?

3. How long do women breastfeed each child?

4. How do they decide when to stop?

5. Do the mother eat anything special when she is breastfeeding?

   a. Or before the baby is born?
   b. Does she like to eat more than usual?

6. Do women have to take special care of their breasts after the baby is born?

7. Do men have any influence on the length of time a woman breastfeeds?

8. What do you think is the best length of time to breastfeed so the child will be healthy? Would you want your wife to breastfeed longer?

9. Do you think men could help women breastfeed longer?

10. Does breastfeeding give men more responsibility? OR Do men have more work to do when women are breastfeeding?

11. Does breastfeeding interfere with sex?

12. Do women ever have problems with their breast? If so, what do they do to get better?

13. Who teaches women how to breastfeed, or helps them if they need advice?

14. Is it important to give solid foods to a child who is breastfeeding? At what age?

15. What kind of food do you give to babies? At what time of the day do they get fed solid food?

16. Does the food you give babies from rainy season to dry season?

17. What is the best kind of solid food to give babies?

18. Do women approach you to ask for extra food for the children who are breastfeeding? What response do you give?

19. What are the effects of breastfeeding?

20. How can you tell if a toddler is healthy? What do they look like?

*****

September, 1995
Discussion #2 -- INTRA-HOUSEHOLD FOOD ALLOCATION

1. What meals did your family eat yesterday?

   Men
   Women
   Older Children
   Younger Children

2. What meals did/will you family eat today?

   Men
   Women
   Older Children
   Younger Children

3. Who prepares the food?

   a. Who assists in its preparation?

4. How many times a day do you usually eat?

   Adults
   Children
   According to season

5. Do children eat at the same time as we do?

   a. What time do men eat?
   b. Women?
   c. Older children?
   d. Toddlers?

6. Do family members eat from the same or separate plates?

   a. Which family members eat from the same plates?

7. Who eats the largest portions?

8. Who eats the best portions of food? (define what these are)

9. When meat, fish, or poultry is eaten, who eats what parts?

10. Can a child eat enough at one time to be satisfied like his father?

11. Can a child eat enough to grow well if he/she only eats once or twice a day?

*****

September, 1995
Discussion #3 -- FAMILY RESOURCES

1. Is there anything we can do to get more food for the family to eat?

2. How much food do you store for the year?

   a. How much do you use for family consumption?
   b. How much do you sell?
   c. Could we store food in better ways?

3. What food do you buy?

   a. Where do you buy your foodstuffs?
   b. How much money do you spend on food per week?

4. If you have cash, what other items do you spend money on?

   a. Would it be possible to spend more money on food for the children?

5. Are we using the available resources to produce enough food?

   a. Are you using all your land?
   b. Are you using the services of agricultural extension workers?
   c. Are there credit programmes you could join?
   d. Where do you get your seeds and/or fertilizer?
      i. Are there programmes within which you could procure these inputs more easily?
   e. Do you use family or hired labour on your farms?
      i. if you need extra labour, how do you organize to get it?

6. Is there anything else we women/men can do to produce more food?

   a. to earn more money?

7. What kinds of income generating activities are you engaged in?

   a. What kinds of income generating activities could you do?

8. What can we do to lighten our workload?

   a. What can women/men do to help each other?

9. Where do you get firewood or fuel to cook with?

   a. How far do you travel to get firewood?
   b. How much time does one trip take?
   c. How many times a week do you travel to get firewood?
   d. Of the firewood you collect, how much is used for your household, and how much for sale?
   e. Where do you sell firewood?
   f. Who in the family collects firewood, and who sells it?
   g. How can we save fuel?
   h. How can we get our fuel more easily?

10. How many times do you cook per day?

   a. When do you eat left-overs?
   b. Who in the family eats left-overs?
   c. When are left-overs eaten: same day, next day?
   d. What kind of fireplace do you use to cook?
   d. How can we save cooking time?
   f. How can we save fuel?

*****

October, 1995
Discussion #4 -- BALANCING CHILD CARE WITH WORK

1. Do we have enough time for doing everything that we want?

   a. What would you want to do that you do not have time to do?
   b. What do you do from the time you get up in the morning until the time you go to bed?
   c. How much time does each of these activities take?
   d. Do you have enough time for feeding your children?

2. What do you do to stop/prevent your child from crying?

3. Can you tell the well-fed children from those who are not well-fed.

   a. How do they differ?

4. How many times do you feed your children?

a. Do you have specific times set aside for feeding your children?

5. What problems can be avoided by feeding your child properly?

6. Do you take your children to the hospital when they get sick?

a. How many times over a period of two years would you take the child to hospital?
b. How do you get there?
c. How much does it cost for transport and other expenses, i.e. what other expenses might occur?
d. When you get there, how long do you have to wait before you are satisfied with the treatment you receive?
e. What types of treatment do the doctors at the hospital recommend?
f. Do the doctors tell you to do something special when you go home with the child?
g. What are the most common diagnoses given to children who visit the hospital?

7. Do you take your children to the under-five clinic?

a. How often?
b. Where do you go for under-five clinic?
c. Do all the children in the village have health cards?

8. Who else do you consult when your child is sick?

9. If you go to the farm or market with your children, what do you do to make sure they have something to eat at noon?

a. If you take food with you, what type of food do you take?
b. How do you carry the food?
c. If you buy food in the market, what kind of food do you buy?
d. How do you know it is clean?

10. Who looks after the child when you are away?

a. Is there anything you do to make sure the child-minders realize the importance of feeding the child properly?

11. If we have worked hard all day, we may feel very tired and cook late in the evening. By then, the children have gone to sleep. What can we do to ensure that children are fed before they sleep?

*****

October, 1995
Discussion #5 -- LOSS OF APPETITE AND CHILD ILLNESS

1. What problems do you face when feeding children who are breastfeeding?

   a. What are the causes of those problems?
   b. What are the solutions to those problems?

2. What problems do you face when feeding toddlers?

   a. What are the causes of those problems?
   b. What are the solutions to those problems?

3. What are the most common children's diseases?

   a. Do you give your children food when they are sick?
   b. If yes, describe the illness and the corresponding foods given?
   c. What do you do to make sure the sick child eats?

APPENDIX 5

Timeline

1994 TIMELINE

ACTIVITY	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Networking		UNICEF, Ministries of Health, Agriculture, Bunda College of Agriculture,	National workshops on micronutrient messages and channels	
Coordination	Arrival in Malawi			Managed hospital project for Prof. Gibson's student

1995 TIMELINE

ACTIVITY	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Networking	Prof Gibson gives seminar at UNICEF	Attend meetings for National Plan of Action on Nutrition	Solicit letters of support from Ministries				Host dinner for NPAN Task Force					
Coordination	Host Prof. Gibson	Move into new quarters	Write funding proposals to OMNI and UNICEF	LEAVE	Host Toronto-based nutritionist for four months	Mtg with Food/Nut Officer, ADD	Census-taking in two villages; Bunda student hired	Identification of Target Families; Verification, University grad hired; driver hired	Micronut Initiative grant budget prepared	2nd University grad hired; move into new quarters	Visit from UNICEF staff; UNICEF funds received	Narrative and budget reports
Collaboration	Teaching at Home Economics Dept, University (8 months)								Seminar on M&E for District Implementation Team		Staff visit to Lungwene Child Survival Project	
Formative Research								Focus group discussions, Key informants interviews, PRA activities	Focus group discussions	Focus group discussions		
District Consultative Committee						Mtg #1	Mtgs 2 & 3	Mtg #4				

1995 TIMELINE cont'd

ACTIVITY	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Workshops								#1 Orientation to Project Goals and PRA Meth.	#2 PRA Field Exercise in Collected Spatial Data	#3 Target Group Identification	#4 Drama Training	#5 Crop Production Management
Community Events							Intro. of Project				Drama Perform.	
Agricultural Programme												Seed & Seedling Distribution
Appropriate Tech. Programme								1 solar dryer built				

1996 TIMELINE

ACTIVITY	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Networking	Visit ministry, NGO and University reps	CARITAS staff visit	Prof. Gibson gives seminar			Tulimbe in Malawi Gender Directory			Canadian doctors with CPAR visit			
Coordination	Canadian Nutritionist arrives, orientation, University grad leaves for CARITAS sponsored M.Sc. programme	U/T Masters student arrives for 4 months, University grad hired, Workshop planning & logistics	Host Prof. Gibson; Assist in writing questionnaires	LEAVE	Report on U/T student's performance	Plan hiring of staff for intervention Narrative and budget reports to funders;	Review programme with Food & Nutrition Officer, Machinga ADD	Workshop planning & logistics	Staff orientation and training; programme planning	Supervise programme staff; hire new drivers; arrange for payment and pick-up of new vehicle	Mtgs with Profs Gibson and Hambidge, Supervise programme staff; Assist nutritionist with mobilization	Visit from Co-Investigator and Head, Home Ec, University; Narrative and budget reports; Staff evaluation

1996 TIMELINE cont'd

ACTIVITY	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Collaboration	Facilitate CPAR workshop on planning, Attend mtg to decide on GOM/ UNICEF Nutrition and Care Program					Community Services holds small business workshop for women in Tulimbe communities; Band invited to perform at College of Medicine	Visit from World Vision's MICAH Director	Facilitate CPAR workshop on evaluation	Facilitate seminar on talking about AIDS for medical students	Visit from UNICEF staff; Visit from ICRISAT staff; Mtgs with Save the Children, Write chapter for MICAH Guide	Assessment of manage-ment/ farmer relations, Smallholder Sugar Authority, Facilitate Save the Children workshop on comm. mobilization	
Staff Prof. Development				Soybean Workshop/ CARITAS				Visit MIRTDC food-processing workshop				
Project Promotion				Saturday Special Radio Show	Newsletter, No. 1							Band plays at Monkey Bay Festival
District. Consultative Committee		Mtg #5						Mtg #6		Mtg #7		
Comm. Leaders Meetings						Interim Evaluations			Festival Planning	Visual Artists Mtg	Bnefing on ICRISAT trials	Distribution of incentives
Community Events			Logo Contest	Radio Listening Event			Drama Perform		Opening of Mchisa Mosque, Football game with staff	Festivals	Initiation ceremonies	Festivals

1996 TIMELINE cont'd

ACTIVITY	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Appropriate Tech Programme				Tulmbe assessed for UNICEF oil press trial (unsuccessful)			Negotiate with MIRTDC for solar dryer and oil press		Solar dryer experiments	Solar dyers installed in communities	Oil presses installed and tried	
Dietary Programme										Sm. Group Demos—2 sets	Sm. Group Demos—1 set, Home Visits—1 set	Home Visits—1 set
Nutrition Monitoring				KAP & SES	KAP & SES	Dietary Recalls	Anthropometrics	Biochemical Measurements			Dietary Recalls/ Morbidity	Dietary Recalls/ Morbidity

1997 TIMELINE

ACTIVITY	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Coordination	Assist with anthropometric measurements, plan summative evaluation	Assist with anthropometric measurements; plan summative evaluation; staff member dies	Assist with morbidity measurements	Hand-over, departure	Wrote proposal to replicate project at district-wide level, sponsored by UNICEF	Narrative and budget reports						
Collaboration	Demo to Brethren in Christ World Mission, Mangochi, Medical students dialogue with group leaders; Staff facilitate soya workshop for Int'l Eye Foundation	Mediation at Smallholder Sugar Authority , Demos at Ngapani Estate, Common-wealth, Development Corporation	Mediation at Smallholder Sugar Authority	Visit from UNICEF Resident Reps, and members of UNICEF Exec Board; Field visit by College of Medicine students		Facilitated two sessions on gender and participation for MICAH workshop, Mississauga						
Staff Prof. Development			Visit to Permaculture Network gardens	Child-to-Child workshop								
National Promotion	Newsletter #2			10 radio spots recorded in communities								
District. Cons. Committee			Mtg #8									
Comm. Leaders Meetings	Discussion of conflict. bet. Health Club and Group Leaders	Discussion of participation in nutrition measurements										
Community Events	Video taping of festival			Mchusa f-ball team plays as Tulimbe team								
Agricultural Programme	ICRISAT groundnut trials		ICRISAT monitoring visit									
Appropriate Tech Programme		Oil Press trials	Oil Press design alterations									
Nutrition Monitoring	Anthropo-metrics/ Morbidity	Anthropo-metrics/ Morbidity	Morbidity	Morbidity								
Summative Evaluation			All activities									

APPENDIX 6

Demonstration Record Forms

DEMONSTRATON RECORD FORM--Follow-up to Workshop #9

Date:
Village:
Group: **Sub-Group #**

1.How many women are present?

2. How many men attended the demonstrations?

3. How many children attended the demonstrations?

4.Taste testing

	Kalungolikoko	Soaked Flour	Rosalind	Soaked Maize
Preparation Time				
Cooking Time				
Easy/difficult to make				
Do you like it				
Cost				
Easy to find ingredients				
Will children like it				

5. Which ones will people adopt?

6. Why?

7. General observations/ comments from the clients

8. Problems / suggestions noted by clients

9. Problems / suggestions noted by staff.

TULIMBE NUTRITION PROJECT

Follow up to meal planning workshop

PLANNING--October 18, 1996

For sub group leaders

1. They should soak beans night before the demonstrations. (The beans to be provided by the project)

2. Have ready enough fire wood, plates, pots and water for the demonstrations.

DEMONSTRATIONS--October 21-24, 1996

Messages to emphasize on.

1. Before we start teaching, the aphuzitsi will make sure that a **pot of beans is cooking** on the fire. Explain the **rationale behind soaking beans** i.e. making vitamins in beans more available to their bodies and minimizing cooking time.

2. Give a lecture on **vitamin A, Iron and helper foods**. Give as many examples of foods with these Vitamins and helper foods.

Teaching aids: Posters from group leaders and real foods that have these Vitamins.

3. **Meal frequency.** Emphasize that children should be given food **5-6 times a day** i.e. including snacks. (Snacks between meals and citrus with meals).

PHALA MEALS (at least once a day)

4. Demonstrate the **cooking of porridge** and add to it cooking **oil, banana and roasted g/nut powder or kalungolikoko.**

5. *Distribution of posters.*

MAIN MEALS (twice a day)

6. **Cook vegetables with a small amount of water and for a short time.**

7. Prepare nsima, vegetables, usipa and eggs with your sub groups.

7. **Show them the portion sizes and meal combinations**

1 piece of nsima to usipa half the size of the nsima.

1 piece of nsima to usipa quarter the size of the nsima and vegetables also quarter size of nsima.

1 piece of nsima to one whole egg with tomato sauce.

1 piece of nsima to beans half the size of nsima.

1 piece of nsima to an equal portion size of vegetables.

SNACKS (two or three times a day)

pawpaw, mangoes, maposa, kalongonda, zitumbua, bwemba, thobwa

DEMONSTRATION RECORD FORM--Follow-up to Workshop 10

DATE: **TIME:** Start Finish
VILLAGE:
GROUP: **SUB-GROUP :**
TEACHER:
ATTENDANCE:
WOMEN **MEN** **CHILDREN**

RECORD RESPONSES TO THE FOLLOWING (gather these by observing reactions and asking questions):

1. PEOPLES' KNOWLEDGE, ATTITUDE AND USE OF VITAMIN A-RICH FOODS:

feasibility of adoption: high low / # of likely adoptors:

2. PEOPLES' KNOWLEDGE, ATTITUDE AND USE OF IRON-RICH FOODS:

feasibility of adoption: high low / # of likely adoptors:

3. PEOPLES' KNOWLEDGE, ATTITUDE AND USE OF HELPER FOODS:

feasibility of adoption: high low / # of likely adoptors:

4. PEOPLES' KNOWLEDGE, ATTITUDE AND PRACTICE OF FREQUENT MEALS FOR CHILDREN:

feasibility of adoption: high low / # of likely adoptors:

5. PEOPLES' KNOWLEDGE, ATTITUDE AND PRACTICE OF ADDING MN-RICH FOODS TO PHALA:

6. PEOPLES' KNOWLEDGE, ATTITUDE AND PRACTICE OF SOAKING BEANS:

feasibility of adoption: high low / # of likely adoptors:

7. PEOPLES' KNOWLEDGE, ATTITUDE AND PRACTICE OF COOKING VEGETABLES:

feasibility of adoption: high low / # of likely adoptors:

8. PEOPLES' KNOWLEDGE, ATTITUDE AND PRACTICE OF PORTION SIZES:

feasibility of adoption: high low / # of likely adoptors:

9. PEOPLES' KNOWLEDGE, ATTITUDE AND PRACTICE OF COMBINATIONS:

feasibility of adoption: high low / # of likely adoptors:

10. PEOPLES' KNOWLEDGE, ATTITUDE AND PRACTICE OF GIVING FREQUENT SNACKS TO CHILDREN:

feasibility of adoption: high low # of likely adult adoptors

Review of Meal planning Demonstrations.

Date
Village Group
Teacher
Sub-group Leader
Attendance: No of women No of men No of children
Time started Time finish

Kits includes the following: Pumpkin leaves, bean leaves, pawpaw, egg, cooking oil, Usipa, g/nut powder, Mango, Malambe, Citrus.

Questions for review (Use kits to help remind people)
Record responses and number of people.

1. How should you cook vegetables?

2. How should you cook beans?

3. Can you identify foods with:
Vitamin A

Iron

Helper foods

4. For how many times a day should you feed your children?

5. Do you give your children separate plate?

6. Do you combine different foods in your children's meals?

7. What type of snacks do you give your children? How many times a day?

DISCUSSION QUESTIONS ON MAIZE PROCESING

1. How many people are using :

	No of pple	Reason for no adoption	Reason for adoption
Kalungolikoko			
Soaked Maize			
Soaked flour			
Rosalind's			

Rationale

We visited you in your homes to find out if you remember what you were taught during the last two demonstrations and if you are practicing it.

We found out that some of you are doing it and that is good, but some of you are have forgotten how to do it, so we have come to remind you. So that everybody can be doing it.

These foods are good for the whole family but they are especially good for the children because they help the children to grow healthier.

Some of these foods may not be liked by adults, but you should still prepare them for children.

Fermentation Discussion Questions

Record responses and number of people.

1. Do you ferment flour?

2. Do you know anyone who does?

3. Why do you think they do that?

4. Which of these two do you think is likely to bring germs: sweet or sour things?

5. Which of these is likely to keep longer?

Explain the advantages: - reduce diarrhea pathogens(fermented phala destroys germs which cause diarrhea)
- increases keeping quality

Step by step instructions for demonstration:

1. Start preparing the relish (vegetables and Usipa) for use with fermented and soaked nsima.
2. Explain the process for Rosalind's recipe (use recipe booklet). *Sub-group leaders should have soaked flour for two days, and added chimera before soaking, and thobwa the following day.*
3. Leave it boiling on the fire
4. Prepare the nsimas (keep some porridge for tasting).
5. Before serving Rosalind's, add groundnuts and oil to two differerent pots so that the flavours meld in. Add bananas the third plate of Rosalind's recipe.
6. All the phalas, including Rosalind's, should be served together.
7. The nsimas are served last with ndiwo.

Taste testing on fermentation

	Rosalinds	**Ferment-ed Phala**	**Ferment-ed Nsima**	**Soaked Flour for Phala**	**Soaked Flour for Nsima**
Prepara-tion time					
Cooking time					
Easy/ difficult to make					
Do your children it?					

APPENDIX 7

Home Visit Record Forms

Guide for household visits.

Introductions: Introduce yourself to the client.

Rationale: want to visit you in your homes so that we can see if you remember what we taught you.

1. What do you remember from the first demonstration?

	frequency of use	Why not using others
Use of chimera (chilungo)		
Soaking flour		
soaking maize flour		
Rosalinds		

2. What do you remember from the second demonstration?

Vitamin A, what it does and its deficiency symptoms
Iron what it does and its deficiencies

Helper foods and what it does

Soaking beans frequency and the advantages

Cooking vegetables amount of water and cooking time

Portion size and combinations (Proportion of ndiwo to nsima)

Frequency (How many times a day should you feed your child)
Porridge (What do you add to you porridge)

REVIEW OF MEAL PLANNING AND MAIZE PROCESSING

Date
Village
Teacher
Client

We have learnt different ways of processing maize, which of these do you remember and are practising

	Adoption	Reason for no adoption
Kalungolikoko		
Soaked Maize		
Soaked flour		
Fermented Flour		
Rosalind's		

We also learnt different ways of preparing food, do you remember them?

Adding things to phala		
Soaking beans		

Feeding Children

On feeding children what have you learned?

1. How many times a day?

2. Separate plate?

	What it does	Foods rich in
Vitamin A		
Iron		
Helper		

APPENDIX 8

Activity Log

TULIMBE NUTRITION PROJECT

ALL-PURPOSE ACTIVITY RECORD FORM

DATE: _____

PLACE: _____

TIME (START TO FINISH): _____

RECORDER: _____

FACILITATOR/SPOKESPERSON: _____

STAFF MEMBERS INVOLVED: _____

CLIENTS INVOLVED: _____

MATERIALS/AIDS USED: _____

OBJECTIVE/PURPOSE: _____

_____

PROCESS (HOW THE ACTIVITY WAS ACCOMPLISHED):

RESULTS OR FINDINGS:

PROBLEMS/SUGGESTIONS NOTED BY CLIENTS:

PROBLEMS/SUGGESTIONS NOTED BY STAFF:

PARTICIPATION/EMPOWERMENT SCALE (HOW DID THE ACTIVITY BRING CLIENTS CLOSER TO SELF-RELIANCE)?

INTERVENTION FORM 1

APPENDIX 9

Summative Evaluation Instruments

CLUBS/GROUP LEADERS
Project Group Leaders, Health Clubs, Agriculture Clubs
Men and Women Separately

Date: Village: Recorder:

COMMUNITY CHANGE

What does the project mean to people, i.e. what signficance does it have in their lives?

Do you think people have really changed their dietary practices according to what the project taught them?

What do you think impelled people to adopt the new practices recommended by the project?

Do you see any changes in the community which may be attributed to the presence of the project (apart from the obvious changes brought about by the intervention)?
(i.e. enhanced community identity, pride)

Has the project helped the community to become more cohesive on issues of health and nutrition?

Will the project live to remind people of its presence in the village and its goals? What will help people be mindful of the project, even when the staff are gone?

Do you think that some aspects of people's lives have improved due to the project's presence in the village?

What efforts will people make to ensure that the process of change will continue?

Does the community have plans to contact outside agencies for further assistance with plans for development?

INDIVIDUAL CHANGE

Has the presence of the project improved your knowledge about health and nutrition issues?
What are the most important things you have learned?

Has the project given you new status and recognition in the community?

As a group leader, do you think that you've become more effective as a leader in the community, on other issues, apart from project issues?

What role do you see yourself having in the community when the project phases out?

When the project phases out, do you think that people will still regard you as leaders and take advice from you?

Do you think you have enough information and skills to be able to continue instructing people about good health and nutrition?

What is the most important thing you learned about yourself throughout your involvement in the project?

Apart from the technical things you have learned, how has the project changed you as an individual?

Has your role within the project changed the way you think of life in general?

What new visions/ideas do you have for your community?

Since the project began, you've had contact with new people from the project and from other organizations. What effect have these new contacts had on your life?

Do you have ideas about how to improve your life?
(i.e. new business ideas, further schooling)

PROJECT EVALUATION

The project used a number of methods in order to disseminate its messages (small group demonstrations, home visits, visual aids, festivals). Which methods did you feel were the most effective/had the most impact on people?

What do you think were the greatest accomplishments of the project?

What were the biggest disappointments of the project?

Which factors can you attribute to the problems the project had in getting optimal cooperation from the people?

Which factors can you attribute to the problems the project had in achieving dietary change in all the target families?

Which things do you feel the project should have done better?

FOCUS GROUP DISCUSSION GUIDES FOR SMALL GROUPS
MOTHERS

PARTICIPATION

1. What project activities did you participate in?

2. What project activities did your husband participate in?

3. Apart from the fact that the project has tried to help children, what other factors made your family participate in the project's activities?

4. How has the project and its activities affected your community?
(i.e. has the project brought about a sense of unity of purpose in the community?)

5. Some people do not have children or do not have children in the target group. They participated anyway. Why do you think that is so?
(probe for internal (community) and external (project staff) pressures)

6. How do you view your relationship with project staff?
(i.e. how did it affect your life, your ability to practice new methods of food processing and preparation?)

7. Before the project came, there were no group/sub-group leaders.
Have group/sub-group leaders been helpful to you?
7a. Have group/sub-group leaders been of benefit to the community in general?
7b. Have you seen changes in your community as a result of group leaders' involvement with the project?

8. Do you think it was a good idea to sub-divide the larger groups into sub-groups?
8a. Why?
8b. What impact did sub-groups have in your neighbourhood?
(i.e. facilitating participation, more effective learning setting, competition)

PARENTING

9. How did you plan for your children's nutritional needs on a daily basis before the project?
9a. How do you plan for your child's daily nutritional needs now?
9b. How do you account for this change in your behaviour as a parent?

10. As a parent, do you feel more confident about knowing what to do if your child gets sick?
(i.e. probe for before and after scenarios; for connections between nutrition and health)

11. If your child gets sick, do you have a better understanding of why this is so?
(i.e. probe for before and after examples; for connections between nutrition and health)

12. Do you feel differently about yourself as a person, since the project became a part of your life?
12a. What changes have you seen in yourself?
(i.e. self-confidence, ability to speak out, better relationship with spouse)

13. Do you feel more confident in your role as mother/father?

14. Do you feel that child nutrition is an issue of concern for men?

15. Do you discuss project activities with your spouse?

16. Has your family's experience in the project affected your relationship with your spouse?

17. Do you think your spouse could have been more involved in the project than they were?
17a. How?

18. Has your family's experience in the project affected your relationship with your children?

19. Of all the new things you've learned/practiced, which ones does your spouse most enjoy or approve of?

EVALUATION

20. You have friends and relatives who do not live in your community.
Did you talk about the project with these people?
20a. What was their reaction to what you had to say?
(i.e. have they changed their practices?)
20b. Has your relationship with these people changed?
(i.e. do they have more respect for you or see you as more knowledgable)

21. What was your favourite part of the project?

22. What things do you think the project should have done better?
(i.e. organization, leadership, demonstrations, timing, time)

23. For what reasons do some people still resist the project's

activities?

24. How will you ensure that your family benefits from what the project has to offer?

FOCUS GROUP DISCUSSION GUIDES FOR SMALL GROUPS
FATHERS

PARTICIPATION

1. Of all the new things the project has introduced, which have you observed your wife doing?

2. What project activities do you participate in?

3. Apart from the fact that the project has tried to help children, what other factors made your family participate in the project's activities?

4. How has the project and its activities affected your community?
(i.e. has the project brought about a sense of unity of purpose in the community?)

5. Some people do not have children or do not have children in the target group. They participated anyway. Why do you think that is so?
(probe for internal (community) and external (project staff) pressures)

6. Before the project came, there were no group/sub-group leaders.
6a. Have group/sub-group leaders been helpful to you?
6b. Have group/sub-group leaders been of benefit to the community in general?
6c. Have you seen changes in your community as a result of group leaders' involvement with the project?

7. Do you think it was a good idea to sub-divide the larger groups into sub-groups?
7a. Why?
7b. What impact did sub-groups have in your neighbourhood?
(i.e. facilitating participation, more effective learning setting, competition)

PARENTING

8. How did you plan for your children's nutritional needs on a daily basis before the project?
8a. How do you plan for your child's daily nutritional needs now?
8b. How do you account for this change in your behaviour as a parent?

9. As a parent, do you feel more confident about knowing what to do if your child gets sick?
(i.e. probe for before and after scenarios; for connections

between nutrition and health)

10. If your child gets sick, do you have a better understanding of why this is so?
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17. Has your family's experience in the project affected your relationship with your children?

18. Of all the new things you've learned/practiced, which ones does your spouse most enjoy or approve of?

EVALUATION

19. You have friends and relatives who do not live in your community.
19a. Did you talk about the project with these people?
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21. What things do you think the project should have done better?
(i.e. organization, leadership, demonstrations, timing, time)

22. For what reasons do some people still resist the project's activities?

23. How will you ensure that your family benefits from what the project has to offer?

KEY INFORMANT INTERVIEWS

Eric: Village Headman, Councillors, Party Leaders, Teachers, Religious Leaders; Carol: TBAs

DATE:

PERSON INTERVIEWED:

VILLAGE:

1. In the past year, what are the major changes you'veseen in the community? (cues: health (morbidity, mortality), economic, leadership, pride, recognition)

2. Has the community made any plans to improve itself? (cues: have you heard people talking about or organizing for improvements, i.e. new buildings, institutions/organizations, self-help projects, IGAs)

3. a) Do you see a change in individuals?
i.e. are people more or less satisfied with their situations?
are people more or less hopeful about their situations?
do people see ways to solve their own problems?

b) Do you see a change in the community as a whole?

4. How do you think the Tulimbe Nutrition Project has affected your community?
(cues: nutrition, health, self-confidence, new ideas)

5. In what capacity were you involved or kept up to date with project activities?

6. What do you think the project should have done better?

TULIMBE NUTRITION PROJECT
QUESTIONNAIRE FOR KEY INFORMANTS IN SURROUNDING VILLAGES

Name and/or Position of Key Informant:

Village:

Date:

Interviewer:

1. *Have you heard about Tulimbe Nutrition Project?*

2. *How did you hear about it, i.e. who told you about it?*

3. *What does Tulimbe Nutrition Project do? What do you know about it?*

4. *Have you noticed any changes/differences in the communities participating in Tulimbe? What are they?*

5. *Are people in your communities doing any of the things that they learned about from people involved in the project? Give examples.*

6. *Why do you think people in your community have taken some of the ideas from Tulimbe?*

Nancy M. Drost, M.A., M.Sc.
Sr. Research Coordinator
Tulimbe Nutrition Project
Box 636
Mangochi
Phone: 584-546
Fax: 585-696

April 7, 1997

Dear

RE: PROJECT EVALUATION

The project, as it is presently funded, will be over in September. However, because of personal obligations, I am leaving on April 28. I would therefore humbly request you to assist me by being interviewed as part of the project evaluation. Your feedback is very important to other projects, and to the progress of development.

The feedback from your interview will assist me in writing new project proposals to sustain and replicate this project. Last week we had a visit by members of UNICEF's Executive Board, and by Natalie Hahn, the Country Representative. This visit occurred at the site of the oil press in Mchisa village. It was a momentous occasion, and Natalie Hahn had requested that before I leave Malawi, I write another funding proposal with her assistance to continue our work. Evidently, our accomplishments have made a great impression.

Thus, it is important to receive your honest views about the project, and about your involvement. All views are welcome—especially critical ones.

I hope that I will have the opportunity to see all of you before I leave. However, I will give you my address in Canada at this time, since my last few weeks will be busy ones indeed. My address is 23-25 Valleyview Rd., Kitchener, Ontario, Canada, N2E 1L5.

I hope to stay in touch, and I hope to be in Malawi again, perhaps after a year. Your warm friendship and support have been a source of strength to me, and I will miss Mangochi and all my friends here. I wish all the best to you, as you continue your work in Mangochi for the betterment of the lives of the Malawian people.

Yours,

Nancy M. Drost

TULIMBE NUTRITION PROJECT

INTERVIEW SCHEDULE FOR FIELD STAFF

Name of field staff:

Name of interviewer:

Date:

1. How do you think Tulimbe has affected Nasenga EPA?

2. Do you see any changes in the community which may be attributed to the presence of the project (apart from the obvious changes brought on by the intervention)? i.e. unity/pride in community, people easier to work with, more receptive.

3. What do you think impelled people to adopt the new practices recommended by the project?

4. How do you think the different types of leadership (group leaders, sub-group leaders) initiated by the project, has affected the communities?

5. What kinds of questions/issues/concerns/complaints have community members brought to you about the project?

6. What are the major things you have learned from your involvement in the project?

7. Apart from the technical things you have learned, how has the project changed you as an individual?

8. As a field worker, do you think you have become more effective in your work since your involvement with the project? Explain.

9. Do you have enough skills and information to be able to continue instructing people about good health and nutrition? What more would you need?

10. Have you shared what you have learned with your fellow field staff who are not involved with the project? Give examples.

11. Has your involvement with the project given you some ideas for improving your work in general? What new ideas do you have which you would like to implement?

12. Were there activities with which you could/would have liked to have been involved, but did not/were not given the opportunity? Explain.

13. What are the project's biggest disappointments in your opinion, from your standpoint?

14. What are the project's biggest accomplishments?

15. What do you think the project should have done better?

16. What efforts will you make to ensure that the process of change continues in Nasenga?

COMMENTS:

Nancy M. Drost, M.A., M.Sc.
Sr. Research Coordinator
Tulimbe Nutrition Project
Box 636
Mangochi
Phone: 584-546
Fax: 585-696

April 7, 1997

Dear Chanda,

RE: PROJECT EVALUATION

At our last consultative meeting on March 21, we discussed the fact that the project, as it is presently funded, will be over in September. However, because of personal obligations, I am leaving on April 28. I would therefore humbly request you to assist me by filling out the enclosed questionnaire. Your feedback is very important to other projects, and to the progress of development.

By filling out the questionnaire, you will assist me in writing new project proposals to sustain and replicate this project. During our last meeting, I told you about the possibility of a visit by members of UNICEF's Executive Board, and by Natalie Hahn, the Country Representative herself. This visit occurred last Thursday at the site of the oil press in Mchisa village. It was a momentous occasion, and Natalie Hahn had requested that before I leave Malawi, I write another funding proposal with her assistance to continue our work. Evidently, our accomplishments have made a great impression.

Thus, it is important to receive your honest views about the project, about your involvement, and the involvement of your field staff. I will leave it up to you if you want to put your name on the questionnaire. All views are welcome—especially critical ones.
I would ask you to return this questionnaire to the project offices by *April 14, 1997.*

I hope that I will have the opportunity to see all of you before I leave. However, I will give you my address in Canada at this time, since my last few weeks will be busy ones indeed. My address is 23-25 Valleyview Rd., Kitchener, Ontario, Canada, N2E 1L5.

I hope to stay in touch, and I hope to be in Malawi again, perhaps after a year. Your warm friendship and support have been a source of strength to me, and I will miss Mangochi and all my friends here. I wish all the best to you, as you continue your work in Mangochi for the betterment of the lives of the Malawian people.

Yours,

TULIMBE NUTRITION PROJECT

QUESTIONNAIRE FOR SR. OFFICERS
WITH LONG STANDING ON DISTRICT CONSULTATIVE COMMITTEE

Please answer the questions in the space provided. If you require more space, please use the back of sheet, noting the number of the question. Thank you very much for your time.

1. As a consultative committee member, what role(s) did you play?

2. As a consultative committee member, in which activities did you participate?

3. Did you feel that the project used your expertise as much as it could have? Why or why not?

4. How do you evaluate the function of the consultative committee? i.e. is it a worthwhile committee?

5. How do you evaluate the accomplishments of the consultative committee? i.e. did it do what it was supposed to?

6. How does Tulimbe's consultative committee compare to other committees upon which you have been asked to serve?

7. Have you noticed any change in field staff since they became involved with the project?

8. Have you received any feedback from field staff about their involvement with Tulimbe? i.e. what effect has it had, if any, on their work, and their knowledge and skills?

9. Are there special skills field staff have acquired by their involvement with Tulimbe that differentiate them from those not involved with Tulimbe?

10. What roles/activities did you think field staff will maintain in communities once Tulimbe phases out?

11. Have field staff complained to you about Tulimbe? i.e. what is the nature of their complaints?

12. How do you assess Tulimbe's approach to communities?

13. How do you assess Tulimbe's food-based approach to combatting malnutrition?

14. Have you made observations about Tulimbe's communities before the project, and at this point in time?

15. In your opinion, has Tulimbe Nutrition Project achieved its goals?

16. In which areas has the project succeeded?

17. In which areas could the project have improved?

18. If the project was to be replicated, what would you recommend be maintained?

19. If the project was to be replicated, what would you recommend be deleted?

20. What is the most important thing the project has achieved?

21. What new things have you learned throughout your involvement with Tulimbe Nutrition Project? i.e. knowledge, skills & processes (relating to your work in general)

22. What effect has your involvement with Tulimbe had on your work performance?

23. What effect has your involvement with Tulimbe had on how you view your work?

24. What kind of recognition does Tulimbe have in your department?

25. Do Tulimbe or Tulimbe's approaches/programmes have any special consideration in your future programming?

26. Have colleagues in other departments in Mangochi, or in other parts of the country asked you about your experience with Tulimbe? Please cite examples.

27. How does Tulimbe compare with other projects in which you have been involved?

TULIMBE NUTRITION PROJECT

QUALITATIVE EVALUATION

QUESTIONNAIRE FOR RESEARCH ASSISTANTS
EMPLOYED WITH THE PROJECT FOR MORE THAN ONE YEAR

1. Of all the messages communicated during the life of the project, which do you think had the most impact? Why?

2. Of all the recipes taught during the intervention, which do you think people will continue making? Why?

3. People say that the community is more unified. Do you believe this is so? Can you give examples of changes you yourself have seen in the community since you began working for the project?

4. People say that husbands and wives enjoy better relations and a higher regard for each other. Do you believe this is so? Can you give examples of changes you yourself have seen in married couples since you began working for the project?

5. You worked with group leaders closely. Make lists describing the characteristics of effective and non-effective leaders. Give an example of a group leader who made a personal sacrifice for the project. Give an example of a group leader who had a detrimental effect on the project.

6. Community members commented on the success of sub-group demonstrations. Describe your experience with sub-groups from your point of view as a teacher.

7. Home visits did not seem to make a great impression on community members. Why do you think this is so?

8. Some men said that they wanted to learn the same things their wives were learning. How do you think we could have addressed their concern: a) in the four months we had; b) if we could have had eight months. You are asked to devise brief programme plans.

9. Because of the expected shortage of maize people are afraid that they would not be able to practice the new dietary strategies. Is this true? What effect will the maize shortage have on the long-term sustainability of the project's goals?

10. In their evaluations, people asked for various incentives? Why do you think that they did this? Does this have any effect on their participation? Why or why not?

11. From the accounts given, there were a number of people who sought to sabotage the project by hurting its reputation, and frightening those who would participate. In your opinion, why did those people spread these rumours? Give a compound personality profile of people who do this, including their age, sex, status in the community, and their motives.

12. What factors made the intervention a success? Discuss according to the following elements: political commitment; community mobilization and participation; human resources development; targeting; monitoring, evaluation, and management information systems; replicability and sustainability. You may refer to the project in general, and to the specific programmes in which you were involved.

13. What factors made the intervention a failure? Discuss according to the same six elements and criteria listed above.

14. List the top three motivations of women who both participated in project activities, and showed support for the project in their community.

15. List the top three motivations of men who both participated in project activities, and showed support for the project in their community.

APPENDIX 10

Notes on Data Collection and Analysis

NOTES ON DATA COLLECTION AND ANALYSIS

As a programmer for non-formal education projects, I wrote this thesis from the understanding that Ed.D. candidates could base their theses on educational programmes which they themselves implement and evaluate. Effective implementation was my priority, and documenting the project within the framework of the programme planning cycle became the vehicle for my research. The research process occurred hand-in-hand with the natural programme iterations. It was "action research"—research which could quickly evoke change and at the same time be responsive to the reactions of the people and the environment. In the case of Tulimbe Nutrition Project, "action" took priority over "research," although within the context of educational action research, the two cannot be easily separated. Programming does entail formative research and evaluation research. Programming should ideally be iterative, and therefore embedded in the programme cycle are opportunities for adjustment which come out of a type of research which has a multitude of names, such as monitoring, self-evaluation, performance assessment, and so on. These exercises are rarely described as research, but as aspects of programming. However, by their inquisitive nature, they are research-oriented. Thus, the research exists within an "applied" rather than conventional or basic research design. Implied in an applied research design is the use of multiple methods and levels of analysis, which may seem imprecise, but nevertheless give direction to programming issues.

By virtue of the fact that the research related so closely to the programme, the thesis is organised in a slightly unconventional way. In each of the chapters in which results are presented, there are also aspects of literature, methodology, process and analysis. An overview of the project's objectives and activities is given in Chapter Three, and the research methods are described within the context of project stages. However, each chapter also describes how the various methods were employed along with the results. Because there was little differentiation between programmatic strategies and research methods, the significance of each action, whether research- or action-oriented, took on different meanings.

For instance, in Chapter Five, I talk about the advantages and disadvantages of gathering information in small groups versus from individuals in their homes. We thought that individual

attention would make people feel special, but in fact it had the opposite effect. People felt threatened by individual visits. Thus, in the context of the project, the significance of one simple research method, such as the closed-ended individual interview, has a whole range of interpretations. Most of these interpretations were concerned with human interactions, such as who is included and who is excluded, and from these came a variety of suspicions and second-guessing by both the respondent, her husband, children and neighbours. This information about home visits is relevant to the whole issue of participation and learning, and to a discussion about the reliability of research methods. The significance of the home visit campaigns was discovered only during the summative evaluation in answer to questions about relationships between staff and community members. Since data will not be volunteered in just any setting or human configuration, methods must be chosen which are appropriate for the community context. If the researcher puts the participants first and intends to accomplish research in ordinary everyday settings, conventions relating to specific methods must be weighed carefully and their significance to the community determined.

Other conventions were also challenged in the Tulimbe research setting. Pre-testing questionnaires would have been difficult, because the only people available to pre-test it would have been part of one of the groups we planned to interview. Thus, as we debriefed each group interview, we did make some adjustments in the interview guide. I did not participate in any of the interviews, just as I did not participate in any of the programme delivery components. My role was to facilitate the debriefing exercises with staff in which we discussed and recorded all the material in English. The issue of language was handled through discussion of semantics and back translation. I believe that by discussing each question and answer, and issues of process, misinterpretation, and bias, we were able to achieve a more accurate portrayal of what people said than would direct translation. The reason for this is that direct translation does not always give way to direct meaning. Without a discussion of meaning and context, translations from tape recordings may be more of a limitation than an advantage. Most of our daily debriefings also included discussions of how to avoid leading questions and bias. The research assistants became skilled facilitators beginning with the formative exercises in 1995 and ending with the summative exercises in 1997.

What is recognised as research and recorded as data depends on the formality of the situation. However, doing research with rural people means that researchers and scientists have to acknowledge indigenous processes of learning and knowing. They also have to take opportunities to learn from rural people as they carry out their daily activities and engage in spontaneous interactions. The research experience—both formal and informal interactions—are recorded, recalled, analysed, and finally selected to illustrate aspects of the three central themes.

I had attempted at the beginning of my data analysis to depict the data in ways which incorporated all the information collected. When it was presented qualitatively in paragraphs, it was repetitive and detracted from the energy of the project. Moreover, most attempts at quantitative presentations seemed inappropriate for the relatively small sample sizes. For example, most of the research activities were held in groups, making them difficult to depict in table form. The reason they were held in groups was because this was a natural and normal way for people to interact.

On the other hand, my inability to present the KAP (Knowledge, Attitudes and Practices survey) data, which would have been useful, stems from the fact that, although I contributed much of the content of the questionnaire, I did not supervise the collection of the data because all responsibilities for collecting quantitative data were given to the nutritionist. After reviewing both data sets, I found that when I looked at the results for each question, there were not consistent numbers of respondents. Thus, I used only the questions on knowledge, and noted the obvious trend in the difference between men's and women's responses at the beginning and at the end of the project. I could have presented the results from those few knowledge questions in a table, but found the description just as useful.

Data gleaned from both formative and summative group interviews are used throughout the whole work because they are relevant to all of the issues discussed in the thesis Information from the summative evaluation is comprehensively presented, but not all in the same place. As I say on page 22, the information gathered during the summative evaluation allowed people to identify their "general impressions" and observations of the project, and helped the staff tremendously in interpreting some of the events and reactions people had had during the intervention period. The summative evaluation shaped this thesis because of the interesting general perspective and

categories people identified as being important to them. Up to that time, our attention was focused on delivery of the programme and monitoring trial and adoption using small, quantitative surveys about specific facts or practices. The summative evaluation shaped this thesis because of the interesting general perspectives and categories people identified as being important for project success and failure.

When I talk about change described "subjectively and qualitatively" (p. 198), I refer to people's own descriptions of how their lives have changed. I am not referring to my own analysis, but to the admissions of community members who described how their lives had changed. These were indicators which were "painstakingly" identified by individuals who shared intimate details about their lives, details which were "not easily identifiable," nor could have been predicted or preordained. Their self-revelations were unforeseen. For example, what moved me most was how men talked about their roles as husbands and fathers, and how surprised they were at the changes that occurred when they were compelled to examine issues of child feeding and parenting. But equally moving were the spontaneous reflections by community women and field staff, as they described how their feelings about themselves and those around them changed. Because of the nature of these revelations, it would be difficult to decribe them objectively or quantitatively without losing most of their meaning. They were not easily identifiable by project staff, and if not for the anecdotal--the little stories that people told us--we would have never known about the deep and complex emotions which were inspired by their involvement in the project. It is the anecdotal aspect of this thesis that allows it to cover so much ground, and makes this report come alive as a story of two communities' struggle to combat malnutrition and enter a new era in their own development.