



Primitive Falasha clay sculpture indicating severe nutritional drain of mother – pregnancy, breastfeeding and care for weaning of child on her back.

Yngve Hofvander

50 years of Ethio-Swedish Collaboration in child health and nutrition

A chronicle with recollections and personal experiences

50 years of Ethio-Swedish Collaboration in child health and nutrition

THE ETHIO-SWEDISH PEDIATRIC CLINIC (ESPC)

AND

THE ETHIOPIAN NUTRITION INSTITUTE (ENI)

A chronicle with recollections and personal experiences

Yngve Hofvander

Professor Emeritus

Former Head International Child Health

Uppsala University, Sweden

July 2010



This document has been financed by the Swedish International Development Cooperation Agency, Sida. Sida does not necessarily share the views expressed in this material. Responsibility for its contents rests entirely with the author.

Published by: Sida, 2010

Copyright: Yngve Hofvander

Photos: With a few exeptions, Yngve Hofvander

Printed by: Citat/Edita, 2010

Art.no: SIDA61350en

This publication can be downloaded/ordered from www.sida.se/publications

Table of Contents

Foreword	7
1. Execuctive summary of the 50 years of activities	9
1.1 Methods and acknowledgements	10
1.2 Background to the Ethio-Swedish collaboration	11
2. The Ethio-Swedish Pediatric Clinic – ESPC	12
2.1 How the ESPC was started	12
2.2 The inauguration	13
2.3 The first phase – establishing the ESPC and its management routines. Starting child health centers	15
The organization of the daily work during the first few years	15
2.4 “Under three – Under tree” child health center	17
2.5 The second phase – ESPC integrated in the Addis Ababa University	19
2.6 ESPC moving to the Black Lion Hospital	19
2.7 The third phase – Research at the ESPC	20
2.8 Sida support coming to an end	20
2.9 ESPC today	20
2.10 Summary and conclusions	21
3. The Children’s Nutrition Unit (CNU) – the Ethiopian Nutrition Institute (ENI) – the Ethiopian Health and Nutrition Research Institute (EHNRI)	22
3.1 Background	22
3.2 The setting up of the ENI	23
3.3 The aims of the operation	23
3.4 Phase one	24
3.4.1 Base line studies of the health and nutrition status of children	24
3.4.2 Other initial studies	26
3.4.3 Fasting	26
3.4.4 High iron intake in the diet	26
3.4.5 Maternal nutrition	27
3.4.6 Protein-energy malnutrition (PEM) and brain growth	28
3.4.7 Physical work capacity in children, shoe factory workers and air force cadets	28
3.4.8 Food composition tables for use in Ethiopia	28
3.5 Phase 2 – From fact finding to implementation	29
3.5.1 The development of FAFFA	29
3.5.2 The present composition of FAFFA	30
3.5.3 FAFFA put on the market	30
3.5.4 A new factory	31
3.5.5 FAFFA to-day	31
3.5.6 Nutrition education	32
3.5.7 Famine	32

3.6	Phase 3 – Special research and training activity	34
3.6.1	WHO Collaborative study on breast feeding	34
3.6.2	Iodine deficiency and the program against goiter.....	35
3.6.3	Vitamin A deficiency and the program for its eradication	35
3.6.4	Information and training	35
3.6.5	Research cooperation with the University	36
3.6.6	International seminars	36
3.6.7	The CNU series and its follow up.....	36
3.6.8	Publications of monographs and similar using experiences from the ENI	37
3.7	The transfer of ENI to the Pasteur institute.....	37
3.7.1	The ENI looking forward	37
3.7.2	The transfer of the ENI to the “Pasteur Institute”, now to be included in the EHNRI.....	37
3.7.3	A move to reorganize the EHNRI	38
3.7.4	Summary and conclusions	38
	References	40
	Annex 1	41
	Annex 2	42
	Annex 3	43
	Annex 4	43
	Annex 5	44

Foreword

The Swedish development cooperation with Ethiopia goes back to mid 1950-ies. However, the links between our two countries date back much longer. Swedish missionaries started to build schools and health clinics in Ethiopia 150 years ago.

Sida has a long tradition supporting the education and health sector, which we still do. Two important projects were initiated 50 years ago. The country's first hospital for children, the Ethio-Swedish Pediatric Clinic, ESPC, was established 1957 and five years later the Ethiopian Nutrition Institute, ENI was established in 1962.

The nutrition programme involved a wide range of research into causes and mitigation of malnutrition as well as development of supplementary feeding for children. ENI developed a nutritious porridge, "FAFFA" ("grow strong and healthy") based on locally available ingredients, which became a nation-wide success and is still produced today and particularly for use in famines and in times of disaster. At this time the importance of raising productivity in agriculture and animal husbandry became increasingly clear. The integrated rural development project, Chilalo Agriculture Development Unit, CADU, started in 1966 with Sida support.

This presentation of recollection and personal experiences from the ESPC and ENI is made by Professor Emeritus Yngve Hofvander. He was working as a pediatrician at ESPC (1958–1962) and as Director for ENI (1965–1967). Professor Hofvander has been called "the father of FAFFA".

The aim of this chronicle is also to illustrate if the Sida financed projects had played a role in the establishment of improved child health care in the country. Sida supported ESPC 1957–1974 and the ENI, 1962–1992. They are both still up and running, today without Swedish support.

*Abdi Foum
Country Director
Team Ethiopia/Sida
Addis Ababa*

1. Executive summary of the 50 years of activities

Fifty years ago when ESPC and ENI were founded the population was only about 25 million (including Eritrea) as against the present more than 80 million, putting a great strain on the social service sector.

The links between Ethiopia and Sweden has a long tradition dating back nearly 150 years when the first missionaries started to establish schools and clinics in areas where there were no such government facilities.

The **ESPC** and the **ENI** were established in 1957 and 1962, respectively, and came to be starting points and models concerning the care of sick and malnourished children as well as the mapping of the health and nutrition profiles of children in different parts and cultures in the country.

The first half of this period was based on an Ethio-Swedish cooperation while the second half has been an entirely Ethiopian enterprise.

The ESPC developed treatment schemes for the most common diseases and different kinds of malnutrition but also embarked on an external preventive child health program encompassing vaccinations, treatment of common minor illnesses and health education.

After about 10 years, ESPC became part of the Medical faculty of the Addis Ababa University and developed training programs for medical students, adapted to the child health situation in the country. Within short also a stimulating research program was developed and a multitude of studies were initiated and later published, mainly in Ethiopian medical journals, thereby serving as a basis for continuing education of the medical profession.

In 1974 the ESPC was moved to and included in the Black Lion Hospital.

The last few decades the ESPC has no longer any links with Sweden.

The **ENI** devoted its first 6 years to problem identification, making base line surveys in many different areas in the country, representing different life styles and economic conditions and developing the basis for the future FAFFA program.

The second period was devoted to applications of the experiences gained, to develop information and training programs and to making further field research. Also the ENI developed the basis for a full scale production of FAFFA. The ENI published the quite unique Ethiopian Food Tables (4 books) comprising the results of analysis of food items and food as eaten from different parts of the country.

The third ENI period stressed a consolidation of the started programs and activities with much focus on community intervention programs including such during periods of famine.

A large number of scientific investigations were made and published in the “CNU series”. Examples of this is a study on the effects of the

iron overload in the tef diet, comparison between privileged and non-privileged children concerning their growth, effects on the brain growth of severe malnutrition, the prevalence of iodine deficiency et cetera.

One of the most spectacular elements in the ENI story is the further development of the weaning food **FAFFA**, meant for the period ½–3 years – now a large factory producing some 10.000 tons annually, employing more than 300 workers and actively contributing in the alleviations of the effects of the famines.

In my opinion, the 50 years of existence of the two institutions, is that they have served a very good purpose for the benefit of the country's children and for the benefit of those who are raising and caring for these children.

1.1 METHODS AND ACKNOWLEDGEMENTS

At the outset I have spent very much time in going over all correspondence between Sida and the projects (and vice versa) at the Swedish National Archives at Arninge outside Stockholm as well as at the Uppsala University archives. This search has also included all available scientific publications regarding the projects and all annual reports.

Further I have contacted and interviewed the following who have been employed in or been engaged in the projects: Professor Yngve Larsson, Professor Göran Sterky, Professor Mehari Gebre-Medhin, Professor Bo Wickström, dr Roland Eksmyr, PhD, Professor Demissie Habte, Woizero Abeba Gobazie, MSc, Dr Biruk Zewdie (orthopedic surgeon at the present Army Hospital, previous ESPC and ENI) and Dr Catherine Hamlin (Head, Fistula Hospital). From those mentioned I have got a wealth of information for which I am very grateful.

I have also visited the Lideta MCH clinic, previously headed by Dr Ulla Larsson for many years. Further I have visited the Addis Cardiac Center (Head Dr Fikru Maru, MD), an exemplary clinic with a few lying in beds and which is working in close collaboration with S:t Göran Hospital in Stockholm, making quite advanced cardiac interventions.

Finally I have made visits to and interviews with a large number of staff at the different projects. These are mentioned in the text – but should never-the-less be thanked also here for their willingness to convey much valuable information about their projects!

Yngve Hofvander

1.2 BACKGROUND TO THE ETHIO-SWEDISH COLLABORATION

Ethio-Swedish collaboration began in 1883 when the first Swedish missionaries landed in Massawa. Their first focus was on education and health care in areas where there were no government schools or hospitals. It was for the missionaries a dangerous life – during the first few years no less than 75% of them died.

In 1904 the first Swedish missionary reached Addis Ababa and started a school and a medical clinic.

Emperor Haile Selassie visited Sweden in 1924, the Crown Prince Gustaf Adolf visited Ethiopia in 1935 and the present King of Sweden, Carl XVI Gustaf paid a visit in 1970.

During these exchanges of visits, The Emperor opened for Swedish assistance and co-operation in many different fields. In the 1930s and the 1940s many Swedes were recruited by the Ethiopian government – army officers, air force officers, police officers, medical staff, teaching staff, lawyers, telecommunication technicians et cetera.

After the 2nd WW, when a Swedish diplomatic mission was established in Addis Ababa (in 1946) and the present Swedish embassy residence was built as a gift from the Emperor, the number of Swedes increased to several hundreds, engaged in various projects and missions.

Thus the Institute of Building Technology was constructed in 1954, the Ethio-Swedish Pediatric Clinic (ESPC) in 1957 and the Ethiopian Nutrition Institute (ENI) in 1962. By 1958 the number of Swedes had increased to more than 500.

In the 1970s and 1980s followed the building of a total of more than 6 000 primary schools throughout the country. Another large enterprise was an integrated rural development program, CADU, with center in Asella, starting in 1966.

In recent decades the emphasis has shifted from project support to program support with full Ethiopian responsibility and with only a little more than a hundred Swedes living in the country. (Ref 1)

Different missionary societies have played an important role especially in the rural health service and still do. A large number of small clinics run by nurses and midwives are still in operation and so is the well functioning hospital in Lekemte.

2. The Ethio-Swedish Pediatric Clinic – ESPC

2.1 HOW THE ESPC WAS STARTED

By the time ESPC was being planned there was no specific pediatric service or training anywhere in the country. Sweden on the other hand had a long tradition of child health, as a matter of fact dating back to the 18th century when the great pediatrician Nils Rosén von Rosenstein edited his famous book “Diseases of children and their remedies”, the first textbook of its kind which was translated to no less than 11 European languages (Ref 2).

It was considered appropriate to propose a cooperation program in this field. The principle adviser to the Ministry of Health, Dr Frida Hylander, however, was hesitant and instead proposed assistance in rural health service. In the short perspective this was certainly a good idea but as it turned out, child health including training and research in this field has been more rewarding.

The Central Committee, CK – one of the forerunners to Sida – was given the responsibility to plan and organize from the Swedish side the building of the hospital, the equipment set up, the recruitment of staff and their training and to provide the major part of the budget.

CHILDREN PLAYING
OUTSIDE THE TSAHAI
HOSPITAL (LEFT) THE
ESPC (CENTRE) AND
ENI (RIGHT).



The design of the ESPC was modeled after the pediatric dept of Eskilstuna county hospital Sweden, not far from Stockholm, with two wards and a modest Outpatient department (OPD) aimed at taking care of 10–15 outpatients daily. This was however a grave miscalculation – the number of OPD patients as it turned out was within short more than 100 patients daily.



FIVE ETHIOPIAN NURSES HAD BEEN SENT TO THE SWEDISH RED CROSS NURSING SCHOOL IN STOCKHOLM FOR 2-3 YEARS "POST-GRADUATE" TRAINING – AND RETURNED WELL FIT AND SWEDISH SPEAKING. THEY THEREBY BECAME THE BACK BONE FOR THE FUTURE DEVELOPMENT OF ESPC.



PROFESSOR EDGAR MANNHEIMER WAS RECRUITED AS HEAD OF THE MISSION. HE WAS FAMOUS PEDIATRIC CARDIOLOGIST AND HAD EDITED SEVERAL BOOKS ON CHILD BEHAVIOR. HE WAS TO BECOME AN EXCELLENT LEADER. HERE WITH OUR EXCELLENT AND EFFICIENT MATRON, MARGIT PHILLIS.

Bengt Strindberg was number two, also a pediatric cardiologist while number three was the undersigned. In addition to this, there were two senior Swedish pediatric nurses and one lab-nurse.

2.2 THE INAUGURATION

The inauguration in November 1958 of the ESPC became a most spectacular event. The Swedish Prince Bertil, son of the King Gustaf VI Adolf, had been invited to represent the Swedish government and made great success thanks to his easy and polite manners.

Prince Bertil laid a wreath at the monument of the Unknown Soldier, visited the Swedish projects and presided along with the Emperor during the formalities during the inauguration. The national anthems were played and the Emperor and Prince Bertil gave appropriate inauguration speeches, the children in the hospital were visited (and behaving extremely well as if they never had been sick), their diagnosis and treatment were explained, there was much photographing – and finally champagne was offered.

RED CROSS NURSES,
TRAINED IN SWEDEN
TOASTING AT THE INAUGURATION OF ESPC

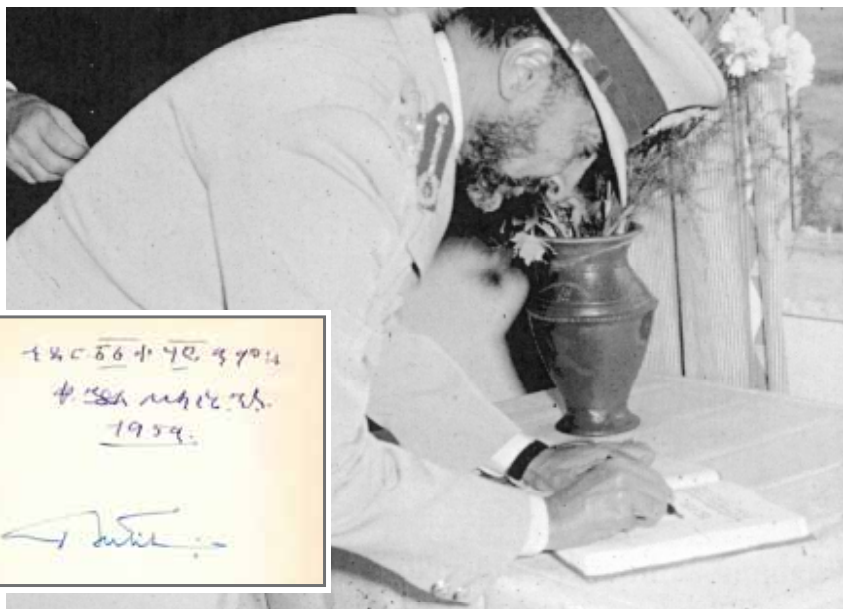


Also the doctors villas were inspected and signatures written in guest books. It was a great relief when the inauguration was coming to an end and had turned out well for all parties. There had been a slight drizzling rain – but according to Ethiopian saying this should mean future luck.

THE EMPEROR AND
PRINCE BERTIL INTRO-
DUCED TO THE ESPC
STAFF AT THE INAUGU-
RATION BY PROFESSOR
MANNHEIMER



THE EMPEROR AND
PRINCE BERTIL SIGN-
ING MY GUESTBOOK
AND WISHING US GOOD
LUCK IN OUR WORK
FOR CHILDREN



2.3 THE FIRST PHASE – ESTABLISHING THE ESPC AND ITS MANAGEMENT ROUTINES. STARTING CHILD HEALTH CENTERS

The organization of the daily work during the first few years

Within short it became well known that sick children were well cared for the ESPC and at a cheap prize (1 Birr per visit) and we were becoming overwhelmed by outpatients.

After the morning round (8–9 am), a most hectic consultation session started, lasting up to 1 pm. During the first 1–2 years we were only 2 doctors but soon this increased to 4–5. The daily number of OPD patients amounted to some 50–150. The Ethiopian and Swedish nurses working in pairs made a first screening as to the severity of the child's condition and thereafter lined up the mother and the child to the doctor. All communication was in English (with translation by the assisting dresser).

The great majority of the children (most of them aged $\frac{1}{2}$ –3 years) were suffering from diarrheal disease (DD) with dehydration, respiratory infection, skininfection, infections in the mouth after traditional operation – and more or less all had a moderate malnutrition, some however more pronounced (marasmus or kwashiorkor).

It was soon realized that the treatment had to be strictly rationalized. Thus most children with DD and dehydration often to a degree of unconsciousness had to be rehydrated quickly. To give subcutaneous fluids, which we had learnt from textbooks, was useless. Instead intravenous fluid was given very rapidly after an intravenous cut down. If the child was not in shock we started to give intra-abdominal fluid (usually Ringer's solution) – a thick needle inserted 2–3 cm above the umbilicus and the fluid given (about 400–500 ml warm fluid) in 20 ml portions. Usually within 30 minutes the child woke up and oral fluid could be continued, along with instructions to the mother. Later we tried to resort to oral rehydration (and iv for the shocked children). (See Fig).



SEVERLY DYHYDRATED CHILD WITH SUNKEN EYES, DRY MUCOUS MEMBRANES AND ONLY LITTLE URINE. WITHIN HALF AN HOUR THIS CHILD WAS CONSCIOUS AND SITTING UP AFTER REHYDRATION

A large part of the children with respiratory infection were given five long acting penicillin injections – a most popular treatment – people loved “morpheas”.

Acute OPD lumbar puncture was made daily on several high febrile children without real signs of meningitis – to make sure they did not have an early meningitis. Palpation per rectum was frequently made on children with DD to inspect the stool for mucous and blood (suspect dysentery or intususception).

X-ray screening of the lungs was frequently practiced on children with several weeks of coughing, low grade fever and emaciation – to rule out TB.

Occasionally children with smallpox were mixed up into the crowd at OPD causing great stir (and vaccination of staff and of contacts if found).

Much effort was devoted to instruct the parents about the danger of the commonly practiced traditional operations – cutting of the uvula, extraction of the canine teeth, circumcision of both boys and girls and burning of the skin over the abdomen, the chest, round the eyes and ears, if aching or being inflamed.

The afternoons were dedicated to so called “1st class patients” at OPD (paying 5 Birr as against 1 Birr in the morning) and attendance to the admitted children (45 beds, always fully occupied). The parents usually did not stay with their children, as was the custom these days, but came on visiting hours.

For the severely apathetic malnourished children with no appetite we had developed a high calorie, high protein fluid food which was given by gastric tube, usually with considerable success.

There was often problem with convincing the parents to have the children stay long enough to fulfill the treatment – e g TB cases. Quite often the sick children were taken home too early (to die).

The first five years the mortality for in-patients was constantly 23% – and only slowly this rate decreased in spite of very competent staff and good resources. Thus 50 years later, by the year 2008 (at the Black Lion Hospital) it is 11, 5%, indicating that admitted children are still indeed very sick.

The ESPC continued to attract large numbers of patients. Thus in 1965 there were 66 000 outpatients, increasing to 100 000 in 1970, nearly all in the age groups ½-3 years. Half of those suffered from malnutrition (were less than 80% of the weight for age standard) and about 10% had a severe form of PEM (less than 60% of standard).



PRESIDENT NKRUMA
FROM GHANA VISITING

But ESPC attracted not only patients, but also visitors – some years up to 900, which consumed much time. The visitors included all the way from Heads of States (e g King Hussein of Jordan, King Olaf of Norway, Mr Nkruma, the President of Ghana, President Kenyatta of Kenya), Sida delegations, parliament delegations and individuals.

The imperial court involved the ESPC when a grand son of Haile Selassie should be operated for appendicitis. The whole hospital was turned more or less upside down and the Emperor himself attended the operation in the theatre fully dressed in surgical sterile outfits. The operation made by dr Asrat went, however, well.

2.4 “UNDER THREE – UNDER TREE” CHILD HEALTH CENTER

Based on a model from Kampala in Uganda, ESPC started an outdoor Child health center in 1960/61. It was intended for small children (“Under three”) and mothers with such children were invited to school yards in the vicinity of their homes (where the examination could take place “Under tree”) to have them examined and treated for minor illnesses, vaccinated (BCG, Triple, smallpox). A week’s ration of Dried Skim Milk, DSM (about 300 gram), was distributed and the mother was invited to a health education talk. Within short about 20 000 children were registered. Most certainly this work was useful and beneficial, particularly the part dealing with vaccination and health talks.

“UNDER THREE UNDER TREE” – HEALTH EDUCATION SESSION



However, we started to have some doubts whether the DSM really made something good – was it sold, was it displacing breast feeding, was it dispersed in the family, was it diluted too much and with filthy water? After about 1½ years UNICEF stopped providing the DSM and thereby the mothers lost interest and the program was terminated (Ref 3).

After a few years the Swedish Save the Children financed the building and running of the Lideta MCH clinic, not far from the ESPC. This center, under dr Ulla Larsson, became very popular and soon attracted large numbers of expecting mothers and pre-school children. It also attended to normal deliveries.

In recent years the Lideta Clinic is supported by the Government and also by Rotary International and is used for training of medical students from the University.

DISTRIBUTION OF DSM – THE FINAL “POST” IN THE “UNDER TREE UNDER THREE” SESSION



2.5 THE SECOND PHASE – ESPC INTEGRATED IN THE ADDIS ABABA UNIVERSITY

In the early 1960s two Rockefeller commissions investigated the prerequisites for the starting of a medical faculty in the Addis Ababa University. At that time there were a total of some 370 doctors in the country (30 Ethiopians) i.e. there were 1/70 000 inhabitants (in Sweden at that time 1/900, presently about 1/300).

In 1966 a Dept of Pediatrics was created in the Faculty of Medicine. Professor Yngve Larsson who was now director of the ESPC (after the untimely death of professor Edgar Mannheimer in 1965, See Annex 5) should be given credit for organizing this pediatric training and designing its content, making it applicable to the health and disease situation in the country and also for setting the standard which aimed at being comparable to international standard.

As a start 20 students were admitted, out of which 10 had a background as Health Officers, graduated from the school of public health in Gondar. They were now to be upgraded – one year preclinical and two years clinical studies (three years for the non-HO). Internship was to be one year out of which 12 weeks should be for pediatrics.

In the midst of 1967 the ESPC was extended to accommodate this increased need for medical training. By that time the number of visits to the OPD was about 100 000 patients annually. There was about 1 500 admissions yearly out of which about 20% died. Thus for the training in pediatrics/child health, ESPC constituted and still constitutes a formidable field for gaining experience.

2.6 ESPC MOVING TO THE BLACK LION HOSPITAL

The Black Lion Hospital, located just across the road to the Swedish Embassy, is a ten storey building constructed in the early 1960s as a gift from the former Yugoslavia to Ethiopia. The gift, however, did not include the necessary equipment so the building remained unused for a long time.

In 1975 the whole ESPC – patients, equipment, personnel, everything – was acutely moved to the Black Lion hospital, in tens of army lorries.

2.7 THE THIRD PHASE – RESEARCH AT THE ESPC

Like in most teaching tertiary university hospitals, research is next to mandatory and, in a modest scale, part of the medical training. It was therefore logical as part of the development of the ESPC to embark on a more systematic research program. A number of studies had been published already from the early 1960s (e.g. regarding the child health centers activities, or as case reports or as contribution in national and international seminars and similar).

An impressive documentation of the research ambitions and achievements is to be found in a special supplement on child health edited by Professor Göran Sterky (Ref 4). No less than eighteen of the then active doctors at ESPC were authors of nine original articles and another five articles on views and reviews.

It is especially commendable that these medical journals thereby will serve also as a sort of continuing education. It is not possible here to list all research publications. But it is apparent that the late 1960s and early 1970s were most active periods. See Annex 2.

2.8 SIDA SUPPORT COMING TO AN END

As from 1975 the Sida support to ESPC came to an end. The Sida project support was succeeded by so called sector program support – in this case to the subsector Maternal and Child health and Family Planning.

2.9 ESPC TODAY

The present director, Professor Bogale Worku, maintains that the move to the Black Lion Hospital did not disrupt the pediatric work to any noticeable extent.

Addis Ababa has in recent decades got an enormous influx of migrants from rural areas.

The disease pattern is said to have remained basically as it has been during the last few decades, although the HIV/AIDS and different types of cancer are new on the arena compared to in the 1960–1980s. The pattern of infectious diseases and malnutrition is said to remain where it used to be and was explained to be due to the fact that the hospital is still being more as a primary level hospital than the 3rd level referral hospital as it should be.

A site visit to the Black Lion Hospital was and is a traumatic experience (even to me who have visited a large number of similar hospitals in a variety of different countries). There must have been nearly a thousand people in and immediately around the hospital, sitting, lying, sleeping, walking around in corridors, stairs etc. and with no lifts functioning. It must be impossible to keep these premises tidy, and the risk of cross infections must be imminent.

The ESPC is now called the Pediatric Department of the Black Lion Hospital and is installed at the 7th floor. It has 100 beds for neonatal care and for other patients. The obstetric department has about

4 000 deliveries annually. The OPD is located at the bottom floor and is flooded with patients. The dept has many doctors of which 15 are regularly employed pediatricians, 30 are residents and 25 are interns – a total of some 70 doctors. This should be compared to the 1960 situation with 3–4 doctors, 50 beds and an OPD with some 60 000 annual visits.

2.10 SUMMARY AND CONCLUSIONS

It must be stressed again that the present report is not to be seen as an evaluation but just as a chronicle of 50 years history of two projects.

The ESPC was provided from Sida, Sweden, with a multitude of resources in terms of qualified child health personnel, of much useful equipment, of international contacts, of personal experience in training, medical education and research. Of great importance in this process was undoubtedly the influx of newly graduated doctors from the American University in Beirut, and of well trained Ethiopian nurses from the Red Cross School of Nursing in Stockholm.

It was very fortunate that ESPC was able to attract these well trained medical personnel which thereby got a most useful continuous education and research training in the ESPC atmosphere. This showed up when some of them started to contribute as teachers in the medical faculty and also contribute in the research program, and in due time take over leading positions, when the Sida support was terminated after about 20 years.

It is indeed remarkable that ESPC has survived the remaining about 30 years of this 50 years period. A traumatic transportation of the whole hospital to Black Lion, the strain of the political unrest and the period of “Red terror”, the war with Eritrea, several outbursts of drought and ensuing famines and uncontrolled population increase and urbanization.

Thus for the training in pediatrics/child health, ESPC constituted and still constitutes a formidable field for gaining experience.

Over the years and not least during the last couple of decades an enormous expansion of the medical schools has taken place. Presently there are ten medical schools in Ethiopia.

This means that for the moment about 1 000 doctors are graduated annually and within about 2–3 years this will have increased to some 2 000. (Annex 4)

However, according to Professor Bogale at the Black Lion Hospital about 50 percent or more of these doctors will soon emigrate to USA or to Europe.

I was made to understand that the international contacts and collaboration was more sparse now than was desired. It was hoped that a new line of teaching and research cooperation could be opened to a Swedish institution for the benefit of both.

Credit should be given to Sida and its forerunners and to the Ethiopian Ministry of Health for the positive spirit in which the cooperation was working during the first half of the 50 years and which continued during the ensuing years.

As a final conclusion it is obvious from the above that the original intention with support in the field of child health has been fulfilled and more than fulfilled in spite of many problems.

3. The Children's Nutrition Unit (CNU) – the Ethiopian Nutrition Institute (ENI) – the Ethiopian Health and Nutrition Research Institute (EHNRI)

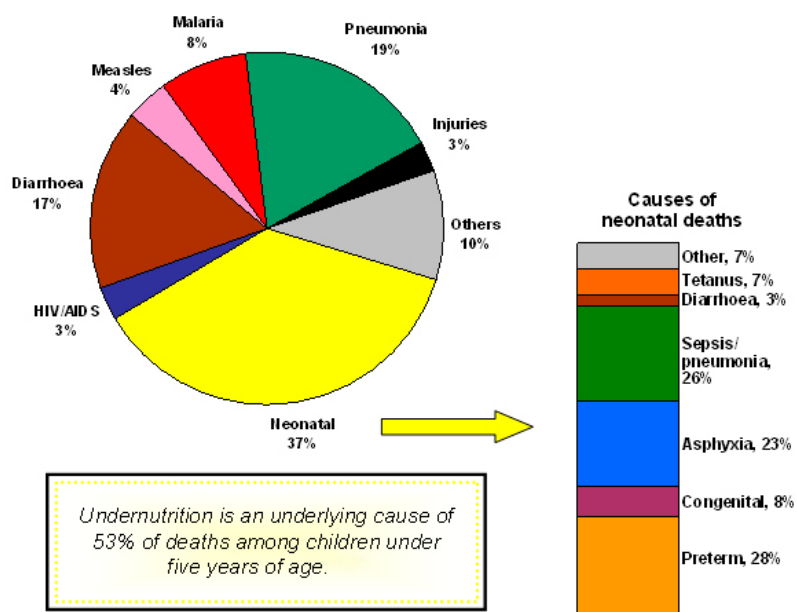
3.1 BACKGROUND

Already in the 1950s a group of Swedish scientists had been interested in and worked on problems related to child nutrition. In 1961 a proposal was forwarded to the forerunner of Sida (CK) concerning the establishment of a project in the field of nutrition in Ethiopia. This led to an agreement signed by the two governments in 1962, confirming the establishment of the Children's Nutrition Unit, CNU. In 1968 the name was changed to Ethiopian Nutrition Institute, ENI. As from now on in this chronicle the acronym ENI will be used.

Nutrition covers a wide field ranging from production, storage, distribution and preparation of food in the community and in the family, to consumption, digestion and metabolism of food in the individual and the effect it may have on the individual and the effect this has on disease, health, well-being and capacity to work. Nutrition programs therefore involve a great number of specialties ranging from agriculture, animal husbandry, fishing, economic planning and industry, to biochemistry, clinical medicine, public health and the social and

DISTRIBUTION OF MORTALITY IN CHILDREN UNDER FIVE YEARS. NEONATAL ILLNESSES DIARRHOEA, RESPIRATORY INFECTIONS DOMINATE WITH MALNUTRITION AS A VERY COMMON UNDERLYING CONDITION

Major causes of death among children under 5 years of age and neonates in the world, 2000-2003



behavior sciences, education, community development and information. To this should be added the complicated cultural and economic pattern of a country like Ethiopia with different climate, soils and traditional practices in various regions which have brought about a variety of systems for the production, distribution and consumption of goods – and the complexity of nutritional problems becomes apparent.

The high rate of morbidity and mortality among children in developing countries including in Ethiopia is therefore – directly or indirectly – related to a multitude of nutritional factors. A high proportion of the common childhood diseases have under nutrition as a part component.

3.2 THE SETTING UP OF THE ENI

A scientific advisory group with a broad representation was formulated, see Annex 3.

A good cooperation was established with representatives of the Ethiopian government and in particular with the former Minister of Public Health, HE Mr Abebe Retta (executed during the Derg regime) and the principle adviser to the MoH, Dr Fride Hylander.

The base laboratory and head quarter was established close to the Tsahai hospital and the adjacent ESPC. The premises comprised 26 rooms and additional storage rooms in the basement for storage of food samples. A few years later an additional building was erected and included an experimental kitchen, rooms for metabolic studies, rooms for experiment with and production of a supplementary weaning food and not least to house a Health Education Department.

The Swedish staff consisted initially of one senior biochemist, one senior pediatrician, one junior physician, one social anthropologist, one nutritionist, one qualified nurse, one laboratory technologist and one food technologist.

Ethiopian counterparts were initially agriculturist, biochemist and nutritionist. Within short several other Ethiopian staff was recruited.

A number of other nutrition institutes had been established after WW II and to some extent could serve as models for ENI. Professor Bo Vahlquist had a wide field of international contacts particularly within the UN system – e g he was member of the UN Protein Advisory Group from which many useful experiences were disseminated. Thus e g the INCAP in Guatemala was – and is – an advanced centre in which a local processed weaning food had been developed, INCA-PARINA. This was to be a model for the Ethiopian weaning food, which was to be called FAFFA. Other nutrition centers – in Iran, Egypt, Algeria, and India – had developed similar weaning foods.

3.3 THE AIMS OF THE OPERATION

Basically 5 major aims were stated

1. To conduct national health and nutrition surveys focusing on selected groups of children as a basis for future implementation programs
2. To conduct detailed analysis of the food consumed
3. To embark on an enrichment program with special emphasis on locally available indigenous foodstuffs



THE MINISTER OF
PUBLIC HEALTH
HE MR ABEBE RETTA
WAS EXECUTED
DURING THE REVOLU-
TION 1975

4. To make an evaluation of the physical fitness in relation to nutritional status.
5. To participate in nutrition teaching at various levels

In the following the action related to these aims will be described.

3.4 PHASE ONE

3.4.1 Base line studies of the health and nutrition status of children

In 1958 the US based ICNND (Interdepartmental Committee for Nutrition and National Defense) (Ref 5) made a large national survey of the health and nutrition situation in Ethiopia. This was one of some 20 similar national surveys conducted in Central and South America and in Africa. These surveys were nationwide, not focused particularly on children, conducted with great efficiency and with vast amounts of resources.

As for the children in the Ethiopian ICNND study the following brief conclusions were made.

1. Malnutrition – clinically diagnosed and as measured anthropometrically – was widespread, mainly in moderate forms.
2. Skin infections were very common indicating a poor hygiene.
3. Goiter was common (mainly in school children and in adult females)
4. Rickets was common
5. Clinical signs of vitamin A deficiency were not uncommon

The ICNND concluded that follow up studies focusing directly on children would be important and that alleviating programs should be started.

As to the ENIs own field surveys, a number of field stations and field centers were established after careful socio-anthropological and medical reconnaissance in order to cover as large a part of different living conditions as possible.

Thus two field centers (Ijaje and Addis Ababa) which were visited frequently for longitudinal studies and for FAFFA testing (see below) were established and three field stations (in Tigre, Aroussi and Sidamo) which were visited only once every six month. It was estimated that these areas would represent the living conditions of more than half the Ethiopian population (then about 20 million).

The results of the studies were compiled by Professor Bo Vahlquist (Ref6) – an invaluable document and the only one of its kind as it represents the growth and health status of young children 0–10 years at that time (and probably many years thereafter).

A total of 1737 statistically carefully selected children 0–10 years were included. The five areas had widely different housing, dietary pattern including breast feeding, agriculture etc.

At birth there were insignificant difference between the Ethiopian and Swedish children in terms of weight and height. However, within months, the Ethiopian children started to lag behind and continued to grow at about 80% of privileged Ethiopian children indicating that

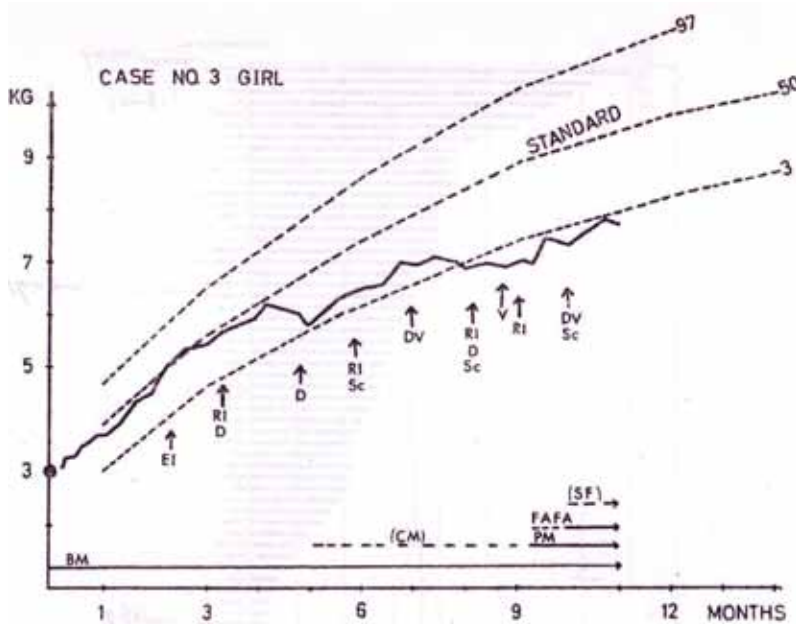
HAPPY BOY FROM IJAJE
AFTER MALNUTRITION
REHABILITATION



the difference was due more to environmental than to genetic factors.

This is illustrated clearly in a separate study in Ijaje (Ref 7) in which children were under close observation weekly for one year.

During the first half year when the child got breast milk only, the weight followed closely the “standard”, and there were no infections. These started to be frequent after ½ year and the growth slowed down. There was no catch up growth during the next 10 years in unprivileged children. (See Fig. below)



WEIGHT DEVELOPMENT DURING THE FIRST YEAR OF A RURAL GIRL. SHE WAS BREASTFED FOR NEARLY ONE YEAR BUT ENTIRELY SO FOR FIVE MONTHS, DURING WHICH TIME SHE HAD ONLY TWO INFECTIONS AND HER WEIGHT DEVELOPMENT WAS FULLY COMPARABLE TO THAT OF PRIVILEGED CHILDREN. THEREAFTER FREQUENT INFECTIONS AND CONSEQUENTLY WEIGHT FALTERING

The head size was not inferior to that of Swedish children and the brain size which was slightly shrunk as a result of severe malnutrition returned to normal at recovery. (Ref 8).

The skin fold thickness on the upper arm, however, was only about 50% of the Swedish standard in all locations, indicating a considerable wasting. The clinical examination revealed a high frequency of scabies, skin infection and eye infection.

A high rate of goiter was found, e g in Ijaje about 1/4–1/3 of 10 years old children had goiter, mainly of moderate size.

Corresponding to the high rate of infections the sedimentation rate was elevated in practically all children while there was a low rate of anemia.

Rickets was common in all locations in children below two years (24–65%) mainly due to the fact that children are concealed from being exposed to the sun which is considered dangerous (evil eye!)

In spite of a very low intake of vitamin A and C there were very few clinical signs of these diseases in any location.

Thus there were striking differences between the socio-economically unprivileged children in this study and privileged children in Addis Ababa (and Sweden (Ref 10).

The findings in this comprehensive study became useful for a later “area adapted”



YOUNG WOMAN WITH LARGE IODINE DEFICIENCY GOITER WHICH WAS “BEAUTIFIED” BY AN INTRICATE TATTOO

action program aimed at alleviating the plights of the non-privileged children.

3.4.2 Other initial studies

A number of other initial studies were conducted with focus on dietary habits and intake and on the habits of religious fasting and its consequences as part of the baseline research program. These will be briefly summarized.

3.4.3 Fasting

One such study was made among the Arsi galla (Ref 11, 12). Most of them were Moslem, had a subsistence economy, had very primitive housing, many food items were tabooed (e.g. fish, egg, birds, heart, tongue, front leg etc). The new born were given butter and cow's milk spitted into the mouth of the child (9 times for boys and 7 times for girls) to grease the intestines. The breast fed children were weaned before 6 months and given cow's milk which resulted in frequent infections and malnutrition.

Pregnant and lactating mothers and sick people as well as children below 7 years were "in principle" exempt from fasting. But in a study focusing on school children, it appeared that in rural areas about 90% observed the fasting rules, even those under seven years. The caloric value of the diet for children was 20% lower during the fasting days.

3.4.4 High iron intake in the diet

The ICNND study in 1959 (Ref 5) had disclosed a very high dietary intake of iron apparently originating from the staple tef and had recommended further investigations.

To that end extensive hematological studies were conducted (Ref 13). It was found that a standard "injera wot" diet for adults contained 300–500 mg iron or about 20 times more than recommended allowances. Most of this iron was apparently to be found on the tef as contamination during the threshing procedure but still the remaining iron in the tef represented about 3–4 times more than that in wheat.





HARVESTING AND
THRESHING OF THE
STABLE GRAIN TEF
WHICH FINALLY WAS
BAKED IN TO A SOUR
BREAD, INJERA

The iron stores in the body e.g. in the bone marrow showed an iron overload which was increasing with age. Also it was found that iron deficiency anemia was uncommon although there were other types of anemia mainly due to chronic infections and malnutrition.

3.4.5 Maternal nutrition

Another baseline study on maternal nutrition showed that non-privileged pregnant mothers had a dietary intake considerably below recommended level of that of privileged mothers and that the weight gain during pregnancy was far below expectation, indicating maternal malnutrition.

As a result there was very little further weight increase after gestational week 34–35 with a resulting lower mean birth weight compared to that of privileged mothers.

Vitamin A levels in the fetuses were significantly lower than in Swedish fetuses. The same low vitamin A levels were found in non-privileged mothers' breastmilk. (Ref 14).

3.4.6 Protein-energy malnutrition (PEM) and brain growth

As a considerable number of young children in Ethiopia are suffering from severe PEM (marasmus and kwashiorkor) it was deemed important to study the influence that these condition might have on the brain growth.

Head circumference, trans illumination, echo vetriculography and motor nerve conduction velocity were studies on privileged children and on severely marasmic and kwashiorkor children. A very modest shrinking of the brain substance could be found on these which, however, normalized very quickly when the children recovered (Ref 8).

3.4.7 Physical work capacity in children, shoe factory workers and air force cadets

Making use of bicycle ergometry and dynamometry the working capacity of the mentioned subjects were studied. The values achieved were lower than in Swedish age mates as calculated per capita but not in relation to body weight. It was concluded that in spite of very inadequate diets the achievements were on the whole reasonably good.

3.4.8 Food composition tables for use in Ethiopia

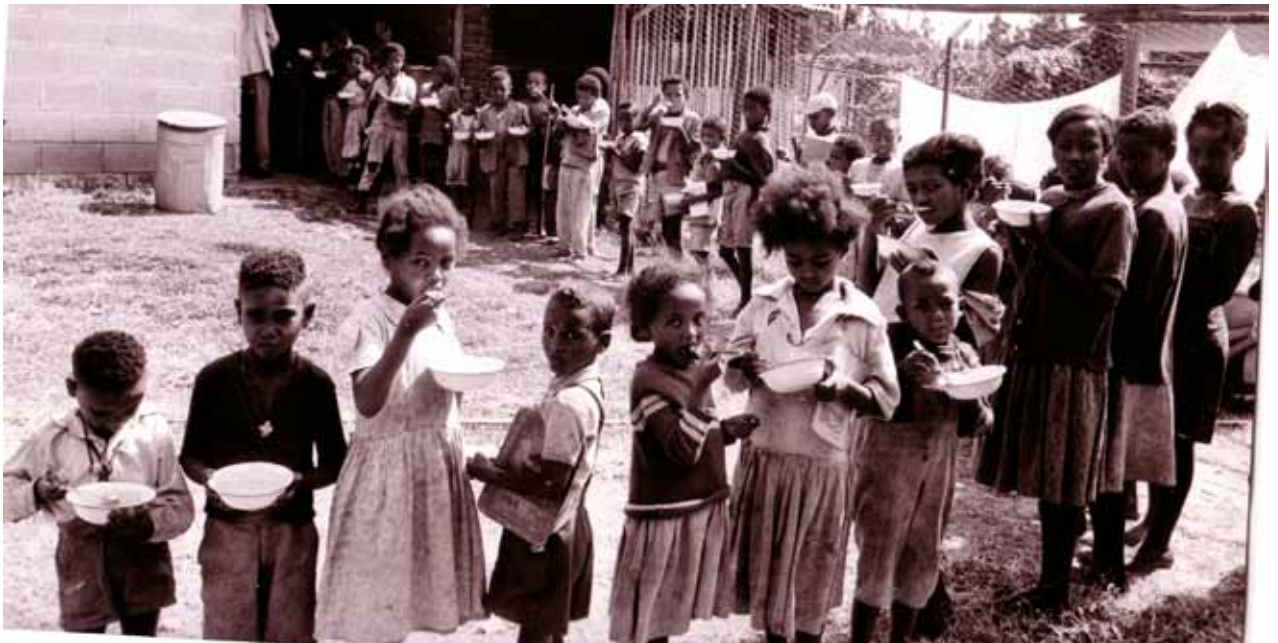
Among the aims of the ENI was the task of establishing Ethiopian Food Tables. This would include all food items available at Ethiopian markets. Like other similar food tables it should include all the major nutrients. This was indeed a formidable task with which the ENI laboratory was engaged during many years (up to 1997), analyzing the material including “food as eaten” which was brought from field surveys, markets and homes.

This work which is now finalized has resulted in 4 books, each one packed with extremely important facts and information. Mrs Abeba Gobazie, MPH, who was co-director at the ENI/EHNRI for several years, was responsible for the organization of the lab-work and for the editing and printing of book 3 and 4, while book 1 and 2 were completed already in the 1960s. These Food Tables are indeed of high international standard. (Ref 9).

3.5 PHASE 2 – FROM FACT FINDING TO IMPLEMENTATION

3.5.1 The development of FAFFA

There is no sharp line separating the initial fact finding period from that of implementation. There must for obvious reasons be considerable overlapping. One such feature is the development of a supplementary food which came to be called FAFFA (in the following spelled with capital letters to underline its importance).



There were several forerunners in other countries (e g in India, Algeria, and Guatemala). The undersigned got a possibility to study the development, testing and marketing of the Guatemalan variety, called INCAPARINA (after the nutrition institute INCAP and HARINA which is the Spanish word for flour). Many of the steps in its development which were logical could be adopted in the development of the forthcoming FAFFA, namely

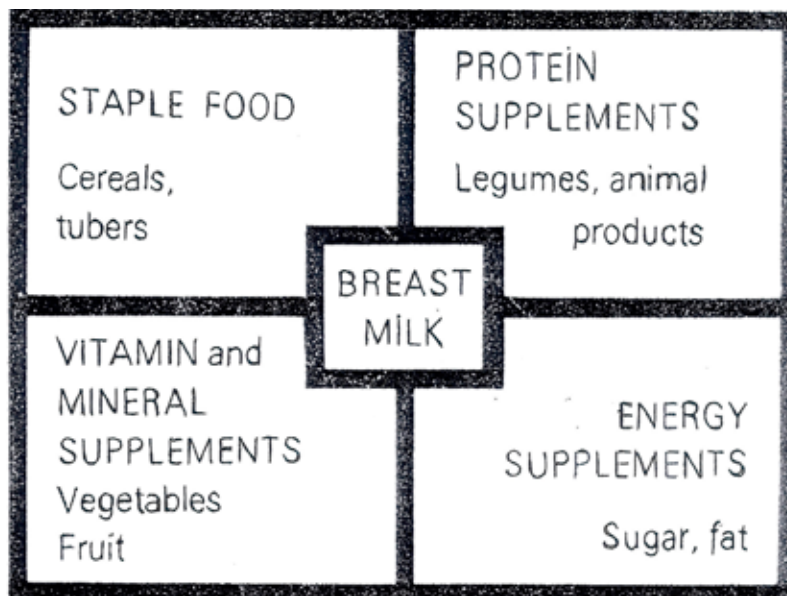
FAFFA SCHOOL LUNCH
IN IJAJI

- Formulation of a recipe
- Rat tests, tests on adults
- Tests on our own children and later orphanage children
- Tests on village children
- Commercial tests
- Finally full scale tests on the market.

This may seem simple but was indeed a complicated and lengthy process which took the better part of a couple of years.

THE PRINCIPLE WEAN-
ING FOOD COMPOSI-
TION ("THE WEANING
FOOD SQUARE") THAT
SHOULD BE USED BOTH
FOR COMMERCIAL AND
FOR HOME MADE
WEANING FOOD

The basic principle composition for such a supplementary food is seen in



It was the intention to have tef as the prestigious staple ingredient but tef had to be exchanged to wheat as tef is too hydrophilic, attracts too much water, making the resulting porridge far too thin and bulky. Peas was tried as a protein supplement but caused too much flatulence and had to be changed to dried skim milk and/ or soy bean flour. Several varieties of the recipe were tried before the final recipe was fixed.

3.5.2 The present composition of FAFFA

- Wheat flour
- Dried skim milk powder/ DSM
- Soya flour
- Sugar
- Vitamin and mineral mix

The addition when cooking this porridge of a small amount of butter or oil was always advised to make a necessary increase in the energy value and thereby also prevent the high protein part to be used as energy.

3.5.3 FAFFA put on the market

FAFFA was distributed (free of charge) as school lunch for two years to an area in Addis Ababa, in Ijaje (to 600 children) and in an adjacent village, Backo (150 children). In these sites the FAFFA was very well accepted and appreciated.

After two years there was a decrease in the goiter rate in Ijaje from 30 to 4% and in Backo from 53 to 12%, i.e. a most remarkable result, apparently due to the content of iodine in the salt.

In the same two year study (212 children below 11 years in Ijaje provided with daily rations of FAFFA) there was a marked reduction of clinical signs of malnutrition, reduction in the prevalence of skin infections and diarrheal disease, a slight improvement in the weight for age and in the arm circumference and the subcutaneous

fat layer. Not all this improvement could be attributed to FAFFA but was apparently the result of a combination of the nourishing porridge and health education.

Thus there was an appreciable average improvement in the children's general nutritional status, presumably the result of better nutrition and less infections (Ref 15).

3.5.4 A new factory

In the early 1970s it became obvious that the production of FAFFA would have to need bigger localities if the demand should be met. By that time famines had started to be rampant. But it was not until 1984 that the present large factory was completed – initially with economic assistance from Sida for machinery, buildings and training of personnel.

As from 1992 the FAFFA factory was detached from the MoH. It became an independent entity, and since 6 years it is a private enterprise with about 50 million Birr as capital.

3.5.5 FAFFA to-day

In the beginning, the production totaled some 400 tons per year. The total is now up to 10 000 tones per year if need be. Usually there are three work shifts (6 days a week) which may be reduced to two shifts if and when the need is less, i.e. if there is no ongoing famine. The total number of staff is presently some 320 persons.

The factory has now diversified its production although the name FAFFA is still protected and apparently used as lead name also for other products. The product FAFFA and its more refined pre-cooked variety, CERIFAM, account for only some 5% of the total production. The remaining is e.g. FAMIX, meant mainly for adults in which the wheat is exchanged for maize which is much cheaper. This has been much used in famine relief.

The cost of FAFFA is for 500 gram 7.5 Birr and for CERIFAM 10 Birr. Presently 1 Birr is about 0.60 SEK and the daily salary of a common worker is 5–10 Birr. Thus, even if the FAFFA price is seemingly low, there are complaints that it is too costly.

About 5% of the total production is commercial, the rest is purchased by WFP, UNICEF or by different NGOs and delivered in bulk. On our inspection round we noticed a huge pile of sacks on which was printed "Famix, a gift from the Red Cross in Japan".

From the beginning ENI was anxious to underline in marketing of FAFFA that it was meant for basically healthy children, avoiding that it should get an image of food for the poor or malnourished. It was marketed as "FAFFA is good for all children, for YOUR child!"

It was with great satisfaction that I now visited the very well kept factory. It was exceedingly clean, the staff well dressed and orderly, there were "No smoking" signs everywhere and the products stacked in sacks in an organized way.



THE FACTORY WAS
METICULOUSLY CLEAN
AND ORGANIZED

THE TECHNICAL
MANAGER WAS VERY
PROUD OF "HIS"
FACTORY



The technical manager had been working at the ENI already in the 1960s-70s and was more than proud to demonstrate one of ENIs “star achievements”.

3.5.6 Nutrition education

As was mentioned earlier, a vast number of educational materials – pamphlets, booklets etc – mainly in Amharic were produced starting in the middle of the 1960s. This was distributed to schools, to nursing schools, to health centers and to the general public. Attempts were made to adapt the text and the illustrations to the everyday life of people. Over the years, a large number of “spots” in the radio were also aired, focusing on dietary information and advice for the infant and pre-school age groups.

A special health and nutrition education section of ENI was organized, aimed at health centers in both urban and rural areas. This turned out to be an appreciated activity, although quite demanding in terms of staff, logistics and budget but was deemed to pay off well (see further below).

3.5.7 Famine

During the beginning of the 1970s the political, economical and social life in Ethiopia was getting into turmoil. In September 1974 the Emperor was removed from his palace and placed in prison where he died one year later. A Marxist-Leninist revolution started, led by Major Mengestu Haile Mariam.

In these years a drought due to poor rainfall had caused a widespread famine, affecting large parts of the Sahel and in to the north-east of Ethiopia, mainly Eritrea, Tigre and Wollo but also in areas bordering Somalia

ENI studies earlier in these areas had shown an energy intake for children above three years and of adults, of 95% of FAO/WHO recommendation during harvest time, decreasing to 55%

during the hungry season. Thus already in “peace time” there was a silent starvation situation.

The outright famine from the beginning of 1973 was causing a massive movement of thousands of people to leave their areas in search for food and water. This precarious situation was concealed by the authorities.

Shelters were, however, erected by the Relief and Rehabilitation Center, which at times harbored up to 80,000 people. Enormous amounts of food were successively brought in from the US and countries in Europe, often at the dismay of the Revolutionaries (Ref 16).

In this work ENI participated by providing many hundreds of tons of FAFFA and soy- wheat -blend for the infants and young children and in organizing the distribution of food as well as in organizing and running emergency feeding centers of small children.

Basically 3 approaches were adopted in organizing a feeding program (Ref 16).

1. General feeding scheme, catering to adults and children over 5 years and whose nutritional condition was satisfactory, providing as basis 400–500 g flour, enough for 2 meals daily.
2. Supplementary feeding scheme for pre-school children, pregnant and lactating mothers as well as for children recovering from malnutrition. The FAFFA production was increased rapidly and reached more than 10 000 tons per year. ENI also provided a new product – Soy-Wheat-Non-fat milk and a vitamin mix, (SWM) – with a production of 1 500 tons per year. Both these products were used extensively
3. Intensive feeding scheme for severely malnourished children using milk based high energy mixtures, provided in quantities corresponding to about 1% of the grain supplied.

In addition, the government gave order of a massive transfer of tens of thousands of people from the affected drought areas and the famine camps to the south-western part of the country (Sida-mo) where the conditions would be more favorable for subsistence. The army was mobilized to organize and carry through this enormous migration which however seemingly could be made reasonably smooth although with much individual suffering and many lost lives. ENI was periodically also involved in catering for these migrants.

3.6 PHASE 3 – SPECIAL RESEARCH AND TRAINING ACTIVITY

OUTDOOR LAB WORK
IS ALSO POSSIBLE



3.6.1 WHO Collaborative study on breast feeding

Ethiopia/ENI became partner in a nine country collaborative study on breast feeding (which also included Sweden) to make in-depth and extensive studies on factors affecting breast feeding including its effect on reproduction and the nutrition contents of breast milk. This was organized by WHO/Geneva.

It was a most prestigious task, the study extended over many years and has now been completed and is published (Ref 17).

That ENI was selected was thanks to the fact that ENI was considered by WHO sufficiently competent and experienced. Other nutrition centers selected (apart from International child health unit, ICH, in Uppsala where the undersigned was principle investigator) were nutrition and public health centers in Guatemala, Chile, Zaire, Nigeria, Hungary, India and the Philippines. The ENI accomplished the assignment in an excellent way.

EXTENDED BREAST-
FEEDING MAY PREVENT
MANY INFECTIONS



3.6.2 Iodine deficiency and the program against goiter

As has been reported earlier in this paper goiter was and is a very common deficiency disease in most parts of the country. The Ethiopian health and nutrition research institute, EHNRI (see below; The transfer of ENI) had made extensive nationwide surveys in recent years (Ref 18) focusing on this deficiency disease and been able to confirm earlier studies all the way from the ICN-ND studies in late 1950s. Presently on an average about 40% of the adult population has a goiter, in some areas extending up to 90% (Ref 18).

Iodine is available in the salt which is found in the Afar depression, also called the Danakil desert. This is a large depression, some 100 meter below sea level, which is located between the central mountainous areas and the Red sea in the North East of the country. The depression is covered by a thick layer of salt – from a distance this looks like a snow field.

UNICEF had donated machinery for manufacturing this salt. However, the local government did not easily accept the “harvesting” of the salt which was considered as “belonging to them” and it took several years before an agreement could be reached (i.e. 2008) on the utilization of this extremely valuable raw material. Within short this iodized salt will be distributed nationwide as the only permitted salt.

The introduction of this new salt took place in nearby Makalle in the presence of national media and of high ranking ministerial personnel to underline this important step. The EHNRI will continue to follow up implementation of this iodization program.

3.6.3 Vitamin A deficiency and the program for its eradication

In previous national surveys including those conducted by the then ENI it was found that vitamin A deficiency was a common disease although the clinical manifestations such as those in the eyes were not very obvious. However, subclinical deficiency might be causing a lowered threshold for acquiring common infections.

EHNRI has now in recent years participated in and supervised a Vitamin A distribution and control program. Through the rural health system down to the health posts- each responsible for some 5 000 children – each preschool child should be getting a Vitamin A capsule every 6 months (donated by the UNICEF). This is a major program which may put a strain on the rural health service but even if it is not possible to reach a hundred percent coverage it certainly is serving a good purpose.

3.6.4 Information and training

Woiz Abeba Gobazie, MSc, who built up and very energetically pursued the information and training program at ENI and who was deputy director during one period in the 1980s, produced a considerable number of manuals, guides, guidelines and instructions regarding appropriate infant and young child feeding according to the principle “teaching the teachers”. This included also guidelines for hospital feeding including such for diabetes patients and malnourished infants admitted to hospital but the main focus was on ordinary home feeding of young children using

ingredients available on the market and in the kitchen garden, if any. Those available seem to still be useful and used. The material is written both in English and in Amharic.

The teaching and information division was quite active with various training programs for thousands of development worker from different countries, organizing radio and TV programs, writing articles in mass media and producing vast amounts of information and educational material. E.g. crash training programs were organized for home economic students (who had completed 12th grade), these later to be dispatched to the new settlement areas, mainly in the South and West Ethiopia for helping to organize feeding programs and similar. These were apparently a much appreciated activity.

3.6.5 Research cooperation with the University

Research is mainly taking place on an ad hoc basis and is not a regular feature or program. The same is true with contacts and cooperation with foreign universities e.g. that in Manitoba Canada or with international organizations.

3.6.6 International seminars

During the first 10 years ENI organized and hosted several important seminars with participation of a great number of leading personalities in the field of nutrition in Africa and in other continents. The aim was to discuss current nutritional items but also to put the ENI on the map. The experiences gained from these seminars were very good both for the ongoing programs but also for stimulation of the staff.

The programs included

1. In 1967 a seminar on “Supplementary food programs for high ranking Ethiopian officials and with international representation”
2. In 1969 the EMRO/WHO/ENI organized a seminar on “Nutrition problems in the weaning period”
3. In 1971 the Dag Hammarskjöld Foundation organized a seminar on “Nutrition – A priority in African development” Part in Uppsala and part at ENI

3.6.7 The CNU series and its follow up

A large number of publications were produced during the first 10–15 years, both original articles and overviews for various journals, partly overlapping each other. By the time when the Sida support to ENI had stopped the numbers amounted to more than a hundred.

There was no follow up of this series after the Sida support ceased. However, there is a wealth of publications from the EHNRI although most of them stem from other departments than the nutrition unit. Thus, a total of 288 publications, are listed in good order for the period 1977–2006, a large part published in Ethiopian journals. After 1975 there were comparatively few publications from the Nutrition Unit proper.

3.6.8 Publications of monographs and similar using experiences

from the ENI

In addition to publications which have been mentioned above some monographs and books could also be added and in which ENI experiences have been included. See Annex 3.

3.7 THE TRANSFER OF ENI TO THE PASTEUR INSTITUTE

3.7.1 The ENI looking forward

Professor Bo Vahlquist, chairman of the scientific advisory group made regular visits to ENI and MoH about the ENI program and the continuation of the Sida supported collaboration. In his report from 1973 he made a summary of what ENI had done in the past of being in the forefront of international development in the nutrition field. Further he outlined his ideas about how he envisaged the future for ENI. However, intervening events in the 1970–80s made these plans difficult to realize. Political unrest leading to the “Red Terror”, extensive famines, the untimely death of professor Bo Vahlquist who was the driving force in the Scientific advisory group – all this necessitated a re-thinking and a reorientation of the ENI work. This included also the absorption of ENI into the Ethiopian Health and Nutrition Research Institute, EHNRI.

3.7.2 The transfer of the ENI to the “Pasteur Institute”, now to be included in the EHNRI

The transfer of the ENI to the premises of the Pasteur Institute had been discussed for many years but took shape 1983–84 when the army needed the localities of both ESPC and ENI.

Both the scientific advisory group and those responsible at the ENI proper were very much against such a move mainly because the ENI would be incorporated in a very large institute with many widely different activities and aims and thereby lose its identity and possibilities for separate budget and aim.

The previous ENI became part of the Ethiopian Health and Nutrition Research Institute, EHNRI – one little part of the big conglomerate with HIV studies in one end and vaccine production in the other and would have great difficulties to fight for a fair part of the total budget.

The Institute is responsible directly under the Minister of Public Health. The present director since five years is Woizero Tsahainesh Messele, PhD, microbiologist who got her PhD after studies in Lund University, Sweden. Her no 2, Dr Cherinet Abuye, PhD, is Head of the Dept of Nutrition and Food Science Research, corresponding to the previous ENI.

There is a total of some 500 staff at the whole Institute out of which some 15 have a PhD degree. It was, however, pointed out that there were great difficulties to retain the qualified staff for some longer time due to poor salaries and poor advancement possibilities.

Out of a considerable number of tasks which the EHNRI has undertaken in recent years the ones of national importance were

those directed against goiter and vitamin A deficiency. (see above)

3.7.3 A move to reorganize the EHNRI

As has been mentioned, voices have been raised to warn against the inclusion of the then ENI into a large conglomerate of separate departments not actually dealing with nutrition.

To that end a few concerned researchers and former staff members of the then ENI – among them Woiz Ababa Gobazie – has now taken the initiative to suggest to the MoH that the ENI should be organized as an autonomous institute directly under the MoH and serve as its technical arm on all matters related to Food and Nutrition.

It will be seen that thereby the ENI would return to the functions, position and status that it used to have in the early decades.

The above suggestions are presently being considered by authorities concerned.

3.7.4 Summary and conclusions

About 50 years have thus elapsed since the start of CNU/ENI. During the first about 20 years there was a close Ethio-Swedish collaboration while during the remaining years the Institute has been fully Ethiopianized and subject to a major reorganization. Thus during the initial two decades there was a strong external support in terms of research and administration as well as of economic support and a rewarding introduction into the international arena.

Nutrition with all its many facets was in a way new and was not comparable to the medical sciences in which there started to be built up well trained cadres and experience.

It has to be realized that building up a nutrition institute from scratch was a formidable task which took many years. It also took many years before a group of Ethiopian doctors, biochemists, educating specialists and similar could start to take over major functions of the Institute.

What have further hampered the development of the Institute are several intervening and disturbing factors, the most important ones being

- The political unrest, the “Red terror” and the general uncertainty as to personal safety, difficulties in domestic and international travels and similar
- The repeated droughts and ensuing famines which consumed at large part of the Institutes resources and energy
- The break up from the original premises and transfer to a site and into an organization which nobody really wanted.
- The reduction of the ENI in this new large conglomerate to a modest department with limited possibilities to make itself heard and to obtain a fair share of the total budget
- The loss in the midst of all this of the strong intellectual and economic support from the Swedish part in the collaboration program
- The difficulties to retain high educated staff due to limited sal-

aries and difficulties in advancement (a problem most probably shared also with other departments!)

In spite of all this and seen in its totality it should be stressed that the ENI has been a quite successful institute and in particular in the first few decades for reasons discussed earlier but also in recent years and in comparison with other similar institutes. A considerable number of research inputs and other achievements have been made and which have left behind important imprints for the future.

The formulation and development of FAFFA and its followers are but one such example but also other important elements such as the creation of 4 books on Ethiopian Food Tables should be mentioned as well as the large numbers of studies on Ethiopian foods and food habits and the sources and effects of the high iron intake with the food. Also the assistance in the implementation of the national iodized salt program and the national vitamin A will certainly be of considerable future importance.

Finally the intense focusing on health and nutrition, on information and education which has continued over several decades has no doubt helped to raise the awareness for the importance of the many facets of nutrition.

References

1. 50 year of partnership against poverty, Sida, 2004
2. The diseases of children and their remedies. N Rosén von Rosenstein. Johnson reprint corp New York, 1977
3. A survey of 3000 children attending the mobile health center, Addis Ababa. Y Hofvander. Ethiopian Medical Journal Vol 1, No 3, Jan 1963
4. Child health in Ethiopia. Special issue on child health. G Sterky (edit). Eth Med J Vol 11, No 1, Jan 1973
5. Ethiopian nutrition survey, ICNND. Interdepartmental Committee on Nutrition and National Defense, 1959
6. Anthropometric, clinical and biochemical studies of children from five different regions in Ethiopia. B Vahlquist. Monograph No 24 J Trop Ped and Envir Child Health, Sept 1972
7. A trial to change infant feeding practices in an Ethiopian village. R Eksmyr. Stenciled report, ENI, 1969
8. Brain growth and motor nerve conduction velocity in children with protein-calorie malnutrition. G Engsner. Acta Univ Upsaliensis, 1974
9. Food composition tables for use in Ethiopia Part I-IV. ENI, 1968–1997
10. Anthropometry in Ethiopian private school children. R Eksmyr. Nutr Metabolism 13:7–20, 1971
11. Nutritional studies among the Arsi galla. R Selinus, A Gobazie, KE Knutsson, B Vahlquist. Am J Clin Nutr 24, 365, 1971
12. Early weaning among the Arsi galla. KE Knutsson, T Mellbin. J Trop Ped 15, 40, 1969
13. Hematological investigations in Ethiopia with special reference to a high iron intake. Y Hofvander. Acta Med Scand Suppl 494, 1968
14. Maternal nutrition and its effect on the offspring. M Gebre-Medhin. Uppsala University dissertation, 1977
15. An applied nutrition program in an Ethiopian rural community. Y Hofvander, R Eksmyr. Am J Clin Nutr 24 May, 578–591, 1971
16. Famine in Ethiopia. M Gebre-Medhin. Monograph No 48. Envir child health, Feb 1977
17. Contemporary patterns of breast-feeding. Report of WHO Collaboration Study on breast-feeding. WHO, Geneva, 1981
18. National study on the prevalence of goiter. ENI, 2003
19. The State of the World's Children. UNICEF, 2009
20. Ethiopic demographic and health survey. Central statistical office, Addis Ababa, 2005
21. Manual on feeding infants and young children. M Cameron, Y Hofvander. Oxford publ, 1983
22. Nutrition, a priority in African development. B Vahlquist (edit). The Hammarsskjöld Foundation, 1972
23. Appropriate timing for complementary feeding of the breast-fed child. A review B Underwood, Y Hofvander. Acta ped. scand suppl. 294, 1982

Annex 1

Basic health indicators, Ethiopia (Ref 19)

From UNICEF: The state of the world's children. (Figures may be from 2006–2008)	
Population	81 million
Urban pop	16%
GNI/ capita	180 USD
Under-5-mortal-rate, 1990–2006 (per 1000 live born)	204–123
Infant mortality rate, 1990–2000 (per 1000 live born)	122–77
Total fertility rate. Number children born by mother 15–45 yrs	5.4
Measles vaccination	63%
Prev HIV in 15–24 yrs, pregn women, Addis Ababa	11.5%
Prim school attend, boys – girls	45 – 45%
Sec school attend, boys – girls	30 – 23%

A national demographic health survey in Ethiopia made in 2005 (Ref 20) may complement the mentioned figures. E g :

- The total fertility rate in urban areas is much lower than in rural areas 2.4 vs 6.0
- Adults with no education was for women 66%, for men 43%
- Delivery by health professionals 5.4%
- Female circumcision 15–19 years 62%, for 45– 49% 81% (urban women: 69%, Somali women 97%)
- Respiratory infection in children last 2 weeks 13%
- Diarrheal disease in children last 2 weeks 18%

These studies and figures reinforce the impression that the health situation is quite poor, that traditional operations flourish, that the literacy rate still is low and that qualified health service still leaves much to be desired.

As is also seen the GNI is very low, 180 USD/capita, the population growth is 2.9% which means that the population will double in 20 years, the total fertility rate is double that of developing country average. In spite of a high child death rate this will cause a rapid population growth. Comparing Ethiopia with the group of other developing countries (n = 150) yields an equally unfavorable picture.

Annex 2

ESPC

The succession of directors at the ESPC

There have been a total of 10 directors at the ESPC up to now – see below

Edgar Mannheimer	1958–65
Yngve Larsson	1965–70
Göran Sterky	1970–72
Demissie Habte	1973–83
Nebiat Tafera	1984–92
Hagos Beyene	1993–96
Abubecker Bear	1997–2000
Sileski Lulseged	2000–02
Omha Mekasha	2003–05
Bogale Worku	2006–ongoing

Thus there have been three Swedish and seven Ethiopian Directors, i.e. 14 vs. 38 years of the 52 years that ESPC has been in existence. The longest directorship was held by Professor Demissie Habte, 10 years, a most able pediatrician who later became internationally much active and respected and head of the famous cholera research institute in Dacca, Bangladesh.

Examples of published medical articles (ESPC)

- Anthropometry in underprivileged children
- Significance of MCH services in Ethiopia
- Congenital syphilis
- Burkett's lymphoma
- Lactose intolerance
- Intrauterine growth charts in Ethiopia
- School health services
- Accidents and poisoning in urban children
- Treatment of post polio paralysis
- Severe rickets
- Ascaris and malnutrition

A list of publications from the ESPC and the Dept Pediatrics Faculty of Medicine during the period 1957–1973, i.e. 16 years, states no less than fifty-nine articles. Forty-two of those were published in the Ethiopian Medical Journal – i.e. for domestic use.

In the midst of the 1970s – although there was political unrest and the Derg was imposing severe restrictions – there continued to be an active research climate, much thanks to Professor Demissie Habte and his successor Professor Nebiat Taferra, both well trained.

After 1975 about 200 articles was said to have been published, most of them in Ethiopian medical journals. No lists of these were available, however.

Annex 3

ENI

ENI, Scientific advisory group

Professor Bo Vahlquist (chairman), pediatrician

Professor Olle Mellander, biochemist

Professor Gunnar Ågren, biochemist

Ass professor Gunnar Almgård, Agriculturist

At a later stage other professionals were added including Professor Karl-Erik Knutson socio-anthropologist and Professor Bo Wickström economist as well as the undersigned Professor Yngve Hofvander, pediatrician.

Publications of monographs and similar using experiences from the ENI

- Bo Wickström: Marketing of protein rich foods in developing countries, 1971
- Margaret Cameron and Yngve Hofvander: Manual on feeding infants and young children, 1983 (Ref 21).
- Bo Vahlquist (edit): Nutrition as a priority in African development 1972 (Ref 22)
- Barbara Underwood and Yngve Hofvander: Appropriate timing for complementary feeding of the breast-fed infant. (Ref 23)

Annex 4

Medical schools in Ethiopia, 2010

Addis Ababa University

Gondar University

Jimma University

Alemaya University

Bahar Dar University

Makalle University

Awassa University

Adama University

Arba Minch University

Wollega University

Annex 5

IN MEMORIAM

Professor Edgar Mannheimer in memoriam

Professor Edgar Mannheimer was director of the ESPC during the years 1958–1965. He often used his excellent talents when dealing with representatives of the imperial court, with government representatives, with Sida representatives and with his staff. He had a humanistic disposition and a cultivated background.

In March 1965 he was to accompany a group of senior pediatricians and obstetricians from many countries to Kampala in Uganda after they had had a period of visits, seminars and lectures in Uppsala and at ESPC.

Suddenly while travelling on a dusty road the minibus was overtaken by another car, too near, and turned over and all passengers were thrown out through the open roof of the car. Edgar Mannheimer died instantly while others were injured.

He was laid to rest during a ceremony attended by a large number of relatives, friends, co-workers and by representatives of the Imperial court at the cemetery at Gulale in Addis Ababa. It was a great loss of a great man.

Professor Bo Vahlquist in memoriam

Repeatedly in this Chronicle reference has been made to the contributions made by Professor Bo Vahlquist and to his leading role in the planning and realization of the ENI project. Already at an early stage he demonstrated his talents and ideas and how he could draw from his international contacts and experience.

Over and over again he spent working periods at the ENI when there were good opportunities to discuss the past and the future of the ENI program.

In 1978 he died in the disease he himself was a specialist in, leukemia. It was a very great loss to all his co-workers and not least to all those who were and had been working to create the ENI. He was a great man and his achievements for the sake of children will certainly be remembered.

