



# **DAIRY DIRECTIVE PROJECT**

## **Semi Annual Progress Report**

**June - November 2002**

**Submitted to**

**USAID Global Bureau**

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## TABLE OF CONTENTS

<b>PROJECT HIGHLIGHTS .....</b>	<b>3</b>
<b>I. INTRODUCTION .....</b>	<b>5</b>
<b>II. CONTEXT: MALNUTRITION IN EGYPT .....</b>	<b>5</b>
<b>III. END-OF-PROJECT STATUS .....</b>	<b>6</b>
<b>IV. PROJECT COMPONENTS.....</b>	<b>6</b>
A. TRAINING ACTIVITIES.....	6
1. Approach.....	6
2. Methodology .....	7
3. Targets .....	7
4. Achievements .....	8
B. PUBLIC AWARENESS CAMPAIGN.....	10
1. Approach.....	10
2. Methodology .....	11
3. Targets .....	11
4. Achievements .....	12
a. TV .....	12
b. Radio .....	12
c. Video Production .....	13
d. Printed Materials .....	13
C. TECHNICAL ASSISTANCE SERVICES.....	14
D. DAIRY DIRECTIVE PROJECT STRATEGIC AND ANNUAL PLAN RETREAT .....	14
<b>V. MONITORING AND EVALUATION.....</b>	<b>14</b>
A. SMALLHOLDERS IMPACT ASSESSMENT .....	15
Data Collection Methodology .....	16
B. MILK CONSUMPTION IMPACT ASSESSMENT .....	17
C. TECHNICAL ASSISTANCE ASSESSMENT .....	18
<b>VI. PLANNED ACTIVITIES FOR THE NEXT PERIOD (DECEMBER 2002-MAY 2003) .....</b>	<b>18</b>
<b>ANNEX I: DAIRY DIRECTIVE PROJECT RECOMMENDATIONS.....</b>	<b>20</b>
<b>ANNEX II: DDP SUCCESS STORY.....</b>	<b>21</b>
War Against Unsafe Milk.....	21

## Executive Summary

The Dairy Directive Project (DDP) continues to make significant contributions to the goal of increasing the availability of safe, hygienic processed dairy products in Egypt. Highlights of these activities during the period June to November 2002 include:

- 1,627 smallholder families have adopted over 10 of the 12 DDP recommendations, representing 81% of DDP's total 2,000 families target (based on a random sample of 3,193 families.)
- Milk demand increased in DDP's target governorates, by as much as 47% in the two governorates of Assiut and Sohag.
- Prices of milk and dairy products increased by 25% due to increased demand
- One dairy plant, Siclam, received HACCP certification.
- Five dairy plants (out of eight targeted for this period) adopted hygiene and sanitation techniques that comply with HACCP requirements

The following activities took place during the period of June-November, 2002:

- Six training activities (100% of the target) were provided for 129 Ministry of Health (MOH) female Health Extension Agents (97% of the annual target) throughout DDP's six target Upper Egypt governorates.
- 387 village meetings were conducted for 6,338 mothers and pregnant women (316% of the target.) DDP project staff provided follow-up to the women in 107 of these meetings
- Approximately 2,300 families received on-on-one visits from HEAs, engaging in knowledge transfer on dairy hygiene and nutrition topics, during the past six months (115% of the projected target for this period.)
- Three promotional TV spots were produced and broadcast on all eight Egyptian television channels (150% of the target.) The in-kind value of **1,406** minutes of free air time to date amounts to \$1,762,370; during this semi annual period, the value amounted to \$440,595.
- 2,000 copies of a brochure promoting the consumption of milk, entitled *Milk: Food, Remedy, and Prevention* were produced and disseminated by DDP (100% of the target.) The copies were distributed during training courses and village meetings, as well as at health centers and doctors' offices.
- An ongoing DDP campaign continued to encourage daily and weekly newspapers to write articles on milk's importance for the various target groups. To date, 34 articles have been produced and published in major periodicals – 14 during this reporting period – at no charge to DDP.

- Two five-episode entertaining radio dramas, with crucial parts of the plot promoting safe, sanitary dairy products, were produced by DDP and broadcast on the main national station at no charge during June and July 2002.
- One U.S. volunteer consultant carried out a technical assistance assignment at three dairy processing plants (100% of the target) to promote HACCP techniques for safer dairy products.

## I. Introduction

DDP aims to decrease the rate of malnutrition, miscarriage and infant/child mortality by increasing the availability of safe, hygienically processed dairy products throughout Egypt. DDP's strategy for achieving this aim engages five target categories of Egyptian society—Ministry of Health (MOH) Health Extension Workers (HEAs); Smallholder Farmers; Physicians; Mass Media; and the Private Sector—in six target governorates—Giza, Fayoum, Beni Suef, Minya, Sohag and Assiut. DDP's strategy is to create a base of MOH extension agents who, after project completion, will have gained the capacity to continue teaching smallholder farmers how to produce and handle clean, hygienic milk and dairy products and promote the importance of dairy nutrition. Through the HEAs, DDP targets pregnant women, nursing mothers and mothers of young children in a nationwide public awareness campaign on the benefits of dairy nutrition, while utilizing the mass media to disseminate this message to half the Egyptian population through television, radio, video and print media. In the six DDP target governorates, DDP also trains MOH physicians as well as private gynecologists and pediatricians on the importance of hygienic dairy products in the diets of vulnerable groups, enlisting these physicians to convey this message to their patients at MOH health centers and private offices and clinics. Finally, DDP provides technical assistance to commercial dairy processors in order to modernize and enhance the production capabilities of the Egyptian dairy industry for the domestic and export markets. This is accomplished by facilitating close collaboration between the national producer and processor associations; providing dairy processing specialists for targeted technology transfer, and conducting U.S. Study tours to expose Egyptian dairy processors to modern processing equipment and marketing techniques, providing them the opportunity to adopt and/or purchase improved technologies, equipment, and practices.

## II. Context: Malnutrition in Egypt

Children are a top priority in this Egypt. Egypt was one of the first 20 countries worldwide to ratify the *Convention on the Rights of the Child* and one of the initiator countries for the 1990 World Summit for Children. Egypt passed a *Comprehensive Childhood Law* in 1996 and incorporated a child component in its current five-year plan (1997-2002). The *Decade for the Protection of the Egyptian Child*, launched by President Hosni Mubarak, was also extended for a second term covering the period to 2010.

According to *The State of the World's Children 2000* published by UNICEF, 6.9% of the nearly 1.8 million children that were born in Egypt in 2000 (120,000) will die before the age of five. Most of these children, 5.1% (92,000) of all births, died before the age of one. The main causes of infant and child mortality are diarrhea and respiratory infections compounded by low birth weight. Ten percent of Egypt's children will be born underweight and 25% will be *stunted*<sup>1</sup> by the age of five due to malnutrition. Stunting is a stop or hindrance in growth or development. It is considered the best indicator to assess the nutritional status of a community

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<sup>1</sup> Stunting occurs as result of long-term childhood malnutrition. A child is considered stunted if he/she is more than two standard deviations of height for age Z-score for the population.

because it results from repeated nutritional insults (damage or injury to tissues or organs of the body.) These insults are not only caused by low caloric intake, but also by unbalanced diet, health conditions or lack of information.

According to UNICEF, more than 35% of Egypt's children are malnourished. Protein-energy malnutrition (PEM), which weakens children's ability to resist infectious diseases and also affects their body, mental and cognitive development, continues to affect a *significant proportion* of children in Egypt. This makes milk and dairy products a basic and widespread available solution at the grass-roots level.

### **III. End-of-Project Status**

As a result of DDP activities, rural smallholders will have a more plentiful supply of safe, healthy milk for their families. Livestock smallholders will learn how to milk their animals hygienically and handle dairy products properly. This will help reduce infant/child mortality, miscarriage, and malnutrition rates. Clean and safe dairy products will be better known, preferred and consumed in urban and rural areas as a result of DDP's awareness campaign.

Availability of safe milk and hygienically-produced dairy products in the market will be increased. There will also be an increase in consumer demand for these products. An ongoing dialogue between associations of processors and producers will be encouraged and supported by DDP in order to promote the dairy industry as a whole. Finally, increased trade with the U.S. will be generated through the purchase of processing equipment and supplies.

### **IV. Project Components**

#### ***A. Training Activities***

##### ***1. Approach***

One objective of the Dairy Directive Project (DDP) is the creation of a strongly motivated core group of Ministry of Health (MOH) Health Extension Agents (HEAs) who, after the termination of DDP, will continue efforts to teach smallholder livestock farmers how to produce and handle clean, hygienic milk and dairy products and to promote the role of dairy products in nutrition. DDP's target smallholder families are located in six governorates of Upper Egypt – Giza, Fayoum, Bani Suif, Minya, Sohag and Assiut. Another objective is to target women in a nationwide public awareness campaign on the benefits of dairy nutrition for children, pregnant women and nursing mothers. The final DDP objective is to target 50% of the entire Egyptian population (about 30 million men, women and children), exposing this entire subset of the population to DDP's messages.

DDP's training approach depends on providing continuous Training-of-Trainers (TOT) activities to enhance HEAs' capabilities to work with rural families. HEAs live side-by-side with the smallholders in the same villages. They have access to women smallholder farmers and a platform to discuss family planning and other family health matters. DDP uses these HEAs to achieve a sustainable public health approach within the village. This approach

provides an opportunity for trained HEAs to disseminate the knowledge they have gained from their training to their target groups. DDP's strategy incorporates periodic follow-up by Health Educators, their supervisors and DDP staff. HEA trainings and meetings provide an opportunity for exchange of experiences communicating with rural families, and for HEAs to share solutions for common problems they confront and update their knowledge by receiving training in new subjects.

## 2. Methodology

### Tool Box Technique

Training programs incorporate provision of technical information with extension communication techniques. Effective delivery of messages to target groups requires strong communication methods. DDP therefore focuses on providing HEAs with a *tool box* consisting of various communication tools. For example, the *pregnant women tool box* includes: (1) a poster showing the importance of milk for pregnant women; (2) a record cassette of the five-part radio series; and (3) a brochure entitled *A Message to the Pregnant Woman*. All these *tools* address the same subject. The reasoning for this is to build on the complementarity of these tools. This toolbox allows HEAs to be flexible as educators and to be able to communicate with rural smallholders in a variety of situations.

### Training-of-Trainers

DDP, in cooperation with the Ministry of Health, implements Training-of-Trainers (TOT) activities to provide MOH staff – doctors, HEAs and Food Safety Extension Agents, as well as private doctors who own or work in private clinics – with complete information on hygienic and safe milk production, handling and consumption. As DDP's *key information disseminators*, HEAs represent the prime institutional source of health and nutrition information for the rural population. Their role is vital to DDP's success and impacts on all its activities.

DDP arranges TOT activities for HEAs focusing on:

- Dairy hygiene practices that prevent milk-borne diseases,
- Adoption of non-traditional methods and practices for milking and production of milk products, and
- Role of dairy products in neo-natal, infant and child nutrition.

Training activities focus on reaching smallholders in the target rural areas within DDP's six target governorates. DDP also conducts follow-up visits to ensure that the trained MOH extension workers have delivered the planned recommended messages to their target smallholder communities and to measure the rates at which the improved practices are being adopted.

## 3. Targets

Two thousand livestock smallholder families will adopt improved livestock handling practices after attending village meetings, through one-on-one home visits and after having been exposed to the various DDP public awareness activities, such as radio and TV spots, posters, and brochures. DDP has been increasingly aggressive in ensuring that these crucial messages are communicated to as many of the target vulnerable groups as it has the capacity

to reach, mobilizing all of the project's and staff's resources to find new ways of disseminating the message as broadly as possible.

DDP selects and trains HEAs from eight selected villages annually in each of the six target governorates. Twenty-two HEAs are selected from each governorate, for a total of 132 HEAs each year. Each HEA is to deliver messages and technical information to an average of 35 smallholders. HEAs disseminate the messages using a variety of communication tools through village meetings, direct contacts with smallholder families and during home visits. This is in addition to regular family visits to the health clinic units in the selected villages.

#### **4. Achievements**

During the past six months, DDP conducted the following types of training activities:

- Child nutrition programs
- Manufacturing home dairy products.

During July and August, the *Nutrition Programs for Children* training activity was introduced to HEAs in the six targeted governorates. The two-day program consisted of one day of training in communication/presentation skills and one day of nutrition training for vulnerable groups (pregnant women, nursing mothers, and mothers during their weaning period.) The training topics covered nutritional needs for children, the content of a balanced meal, and nutritional habit correction.

The *Manufacturing Safe and Hygienic Home Dairy Products* training activity was conducted for HEAs in five governorates.<sup>2</sup> The purpose of this one-day course was to enable HEAs to train smallholders to manufacture milk products at home to: (a) increase milk consumption; (b) reduce usage of raw milk (all dairy products used to be from raw milk); and (c) increase income through sale of these products in the local markets.

A two-day *Processing and Presentation* course presented the technical aspects of dairy manufacturing and processing the first day and exposed trainees to presentation skills the second day. They also watched the DDP-produced film *World of Milk* (a 17-minute production promoting the consumption of milk and dairy products for children, which communicates educational themes through devices such as puppet cows, folkloric and original songs, in order to convey respect for the target rural areas while introducing innovative ideas) and received advice on how to present and use the film to maximize its impact with children.

DDP's dairy processing activities are the subject of two smallholder success stories. The first involves a smallholder in Fayoum governorate who bought a milk separator, made milk products such as white cheese and yogurt and sold these products to shops in her area. The second describes a smallholder who obtained a loan from the Social Fund for Development (the Egyptian loan funding entity) to start a small enterprise which has become a model for her neighbors.

DDP's training activities in the past six months can be summarized as follows:

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<sup>2</sup> Minya's HEAs will join next year's round of training in manufacturing home dairy products

**Health Educator Agents (HEAs)<sup>3</sup> Training Activities**

Governorate	Number of Activities	No. of Trainees <sup>4</sup>
Giza	2	23
Fayoum	2	24
Bani Suif	2	20
Minya	1	19
Assiut	2	25
Sohag	2	18
<b>Total</b>	<b>11</b>	<b>129</b>

**Lessons Learned**

In the course of implementing the above activities, DDP staff learned important lessons that will strengthen implementation in the future:

- Focus on the importance of food safety with an indirect message such as providing HEAs with recipes to prepare meals, using hygienic boiled milk.
- Address the importance of milk as part of nutrition education for children, immediately after mothers listen to the DDP-produced radio series. Link HEAs with children in kindergartens to convey nutritional messages to children by showing the *World of Milk* video, and by group singing of the film's popular musical songs that contain nutritional information.

**The Twelve Recommendations**

The Dairy Directive Project is committed to promoting hygienic dairy practices with smallholders. DDP summarized these practices in **12 main recommendations** involving milking practices, milk handling and boiling, in addition to animal handling procedures. (See Annex 1.) The recommendations include udder washing, barn cleanliness, and proper milk heat treatment.

By the end of the project, DDP aims to convince 2,000 families to adopt these 12 practices after attending village meetings and participating in different project activities. To date, trained HEAs conducted 387 village meetings in the targeted villages introducing milk hygiene and consumption.

Of the 387 village meetings, DDP followed up 107 of them and met with women farmers who attended these meetings. Over 6,000 pregnant and nursing women attended the village meetings, as follows:

<sup>3</sup> Includes 12 Food Safety Extension Agents from Minya and Bani Suif

<sup>4</sup> Average number is 22 Health Extension Agents per governorate

***Village Meetings Conducted***

<b>Governorate</b>	<b>Number of Meetings</b>	<b>Number of Attendees *</b>	<b>No. of Follow-up Meetings with DDP Staff</b>
Giza	94	1,504	19
Fayoum	53	848	12
Bani Suif	30	487	11
Minya	50	775	23
Assiut	67	1,206	24
Sohag	92	1,518	18
<b>Total</b>	<b>387</b>	<b>6,338</b>	<b>107</b>

\* The average number of attendees per meeting is 16 women farmers/smallholders

In addition to the regular village meetings, the HEAs conducted children's film showings of DDP's movie, *World of Milk*, at 324 kindergartens and elementary schools. These showings involved 6,804 children. Children, teachers and kindergarten principals reacted positively to the movie. The targeted 2,000 families are being reached through the various DDP activities, such as radio and TV spots, posters and other techniques. DDP will ensure that messages will be transferred to as many as the project can afford in order to widen the beneficiaries' base of smallholders.

***Lessons Learned***

- Benefits of bringing Health Educators to DDP's Planning Retreat for MOH national, governorate and village level staff: (i) This facilitated project work, enhanced the staff's enthusiasm and loyalty. (ii) HEAs were involved in evaluating and planning for the project's 2003 activities. (iii) They were able to exchange and share firsthand experiences and success stories. (iv) Their active participation helped to strengthen relations between project staff at all levels.

***B. Public Awareness Campaign***

***1. Approach***

Through its ongoing media campaign -- television, radio, video and print media -- DDP provides information to the public on the nutritive value of consuming processed (safe) dairy products compared to *fresh* unprocessed products. This awareness campaign aims to balance the increased exposure of children and family members to low nutritive value foods through television commercials and other media.

## 2. Methodology

The media is one of the strongest means to communicate and effect dramatic changes in human behavior. The recognized strength of mass media tools is based on a brief, simple message, and its easy absorption by target audiences. Mass media can reach the recipients where they live and work. The language of the message can make an indelible impact when it addresses the specific characteristics of the target audience. Thus, DDP bases its campaign on various types of media to achieve:

- First – Increase awareness to *trigger consumer interest*.
- Second - Lead the consumer to *assess and try* the advertised product, and
- Final phase – Consumer is convinced and *adopts the product*.

The DDP *Public Awareness Activity* relies on TV and radio broadcasts, newspaper and magazine articles in combination with printed material such as posters and brochures. These are all designed specifically for smallholder target groups, produced by DDP and distributed through HEAs, doctors and community leaders. All of the TV and radio broadcast time is contributed free (amounting to 1,406 minutes, with a value of **\$1,762,370**, to date). Strong support and follow-up is also consistently provided by MOH

**Posters:** DDP uses its posters -- an attractive picture and a brief message about milk's importance that is easily comprehensible to rural smallholder farmers – as a communication tool. Posters are distributed and displayed in village health centers and clinics, district hospitals and during village meetings. Posters are considered to be one of the most effective communication tools in raising people's awareness on a specific subject, as a single image and motto are easily fixed in people's memories.

**Brochures:** After raising consumer awareness through the mass media, more detailed information on the campaign message is needed. Most people need to be convinced by substantial information before deciding to change long-held habits and practices. This information can be obtained through a variety of educational information tools, one of which is a simple brochure that contains basic technical information needed to convince the reader to adopt a new practice. Such brochures create increased interest and desire to test the new practice -- in DDP's case, increasing consumption of dairy products by vulnerable groups.

**Radio and TV:** Another means used by DDP to reach its target beneficiaries is to inform HEAs, during their TOT activities, of scheduled public awareness broadcasts and spot advertisements. With this timing of information, HEAs are able to promote and vastly increase listenership. In addition to promoting listenership, HEAs ensure that the messages are being heeded and adopted by providing follow-up on scheduled broadcasts and spots, discussing and promoting the concepts that were broadcast with rural women in village meetings, health centers and home visits.

## 3. Targets

DDP aims to target 50% of the Egyptian public (approximately 30 million men, women and children) through its public awareness campaign, and is committed to ensuring that the DDP message reaches the targeted groups in a systematic and sustained manner.

#### 4. Achievements

##### a. TV

- DDP produced and arranged for the airing of five different TV broadcast spots aimed at different target groups such as pregnant women, nursing mothers, children and youth. These spots emphasized the importance of hygienic and safely prepared milk for health. Total time broadcast (through July 17<sup>th</sup>) was 1,406 minutes on the eight Egyptian TV channels (according to the Government of Egypt (GOE) Monitoring and Planning Division's report to MOH and DDP.) The estimated cost for the broadcast time to date, which was free of charge for DDP, is \$1,762,370 at the current devalued exchange rate (L.E. 7, 930,666.)

DDP staff actively lobbied the Upper Egypt local TV channels (Channel 7 and 8) in addition to the two main *national* TV channels (Channel 1 and 2), to encourage and persuade women's special interest programs to include dairy hygiene messages in their programs. The estimated TV audience to date is 20 million.

##### b. Radio

- DDP persuaded radio stations to broadcast messages (at no cost to DDP) at appropriate and prime times on different aspects of the importance of hygienic milk to the various target groups.
- Using broadcasts on the National Youth and Sports station, DDP introduced a **radio contest** on the theme of hygienic milk. Prizes in the form of a box of assorted dairy products (cheeses, flavored milk and yogurt, which are *contributed by the dairy processors*) were distributed to winners who were asked to collect them at DDP's Cairo office. There they have an opportunity to meet with DDP staff and learn more about the project. To date, there have been seven winners.
- From June 1-6, a DDP-produced radio serial called ***Love Always Wins*** was broadcast free for five consecutive days on the national channel. This series involves two university Agriculture graduates who decide to start a milk processing plant in their village to provide a source of income to support their married life. As it is essential that the milk collected for the plant's activities be clean, the serial provides livestock smallholder audiences with information on proper milking procedures and the correct handling of milk in addition to raising awareness about the new pasteurization law.

***Dreams of HEND and Marawan*** was the second radio serial produced by DDP during this six-month period. The plot involves two engaged university graduates who decide to start an agribusiness manufacturing small-scale dairy processing equipment. This series emphasizes information on sound nutrition for pregnant, lactating women and infants which is transmitted to the village women by HEND, who is a Health Educator, and her colleagues.

Free broadcasts of the five-episode radio series began on June 26<sup>th</sup>. The estimated radio audience was 15 million.

### ***Lessons Learned***

- Drama is a compelling indirect method to transfer information. HEAs told DDP during their training programs that they like this method and can use the radio series to conduct more than one training session covering multiple subjects. As a result, DDP provides HEAs with tapes to help diffuse DDP's messages to women in the target area.

### ***c. Video Production***

During July 2002, DDP produced a child-oriented video with many catchy songs featuring a well-known film actress. The 16-minute video, entitled *World of Milk*, aims to encourage children to like milk and dairy products. The video shows how milk is produced in a hygienic way. The plot involves a group of children going on a trip to a farm and a dairy processing plant to see how milk is being handled. It also shows the various techniques of milking.

Each of the trained HEAs, in addition to the Health Department office in each governorate, received a copy of this film. To date, this video has been shown to 6,804 children in 138 kindergartens and elementary schools in the six target governorates.

### ***d. Printed Materials***

#### ***1. Posters:***

During the past six months, DDP reprinted one of its original four posters that focus on the importance of milk to children and pregnant women. All posters were originally well-received by the target groups at the village level. Posters are used to attract people's attention to the goal of the campaign to assist, in conjunction with other communication tools, to:

- heighten awareness of target groups of the importance of milk and other dairy products, and
- encourage them to adopt the habit of consumption of dairy products.

### ***Lessons Learned***

- Conducting pre-publication surveys with HEAs and rural women in the DDP target area for printed extension materials, such as posters and brochures, enables DDP to test first for target group reaction and to modify accordingly to increase assurance that the message is appropriate in design and content for rural people.

## **2. Brochures:**

DDP produced and distributed 2,000 copies of a brochure on ***Milk: Food, Remedy, and Prevention***. The brochure's message simplifies milk's composition, milk heat treatment, milk products and their nutritional value, and how milk cures and prevents several diseases. It aids in promoting increased interest and creates desire to test the new practice -- increased consumption of dairy products.

### **C. Technical Assistance Services**

To ensure integration of the milk chain, DDP provides technical assistance on Hazard Analysis and Critical Control Point (HACCP) concepts to selected Egyptian processors. HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product. For successful implementation of a HACCP plan, management must be strongly committed to the HACCP concept. A firm commitment to HACCP by top management provides company employees with a sense of the importance of producing safe food.

During September 2002, DDP provided one volunteer expert assignment that assisted three dairy processors. The main recommendations focused on input analysis, input stores cleanliness, and setting restrictions on employees' movement in and out of production areas, to guarantee products' safety.

### **D. Dairy Directive Project Strategic and Annual Plan Retreat**

DDP conducted its second retreat from September 11-13, 2002 for 18 participants from the Ministry of Health (MOH). Categories of participants included Health Educators, Managers of Preventative Medicine, Managers and Department Heads from the Ministry's head office in Cairo and from all governorates participating in DDP.

## **V. Monitoring and Evaluation**

### ***Baseline Data for Impact Assessment***

Due to the Government of Egypt's (GOE) efforts, the mortality rate declined from 9.2 per thousand in 1986/87 to about 6.3 per thousand in 2000/01<sup>5</sup>. The percentage of *stunting* decreased to 19 percent for under-five year old children. The 2001/02 plan aims to decrease the mortality rate to about 5.5 per thousand, thus bringing the normal growth rate to about 18 percent in 2001/02.

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<sup>5</sup> Stunting occurs as result of long-term childhood malnutrition. A child is considered stunted if he/she is more than two standard deviations of height for age Z-score for the population.

<sup>6</sup> <http://www.sis.gov.eg/yb2001f/ehhtml/ch13.htm>

This significant impact is due to the increase in the standard of living and the GOE's efforts in providing pure potable water and sanitation. This is in addition to the effective health programs and media and instruction campaigns on health care implemented by the GOE and other entities. However, there has not been much attention to nutrition education. This is the *niche* that DDP has made significant efforts to fill.

DDP has made a concerted effort over the past months to identify baseline indicators to use to measure impact. Despite much effort, this has so far not been successful. In order to obtain child malnutrition and survival status data by governorate to measure impact, the Dairy Directive Project staff contacted several entities in Egypt, i.e. National Nutrition Institute, Healthy Mother/Healthy Child Results Package Project (USAID-funded project), the Ministry of Health Statistical Department, UNICEF's child nutrition programs, and the Population Council which conducts the Health Demographic Surveys (DHS.) DDP staff visited the Food and Agriculture Organization (FAO) and learned that the FAO malnutrition survey in the Middle East region did not include Egypt. None of the previously mentioned organizations have current statistics on either child mortality or child malnutrition data disaggregated by Upper/Lower Egypt or by governorate.

Due to the multiple causes of child mortality and morbidity, available statistics do not indicate an accurate percentage due to malnutrition or to specific water-borne diseases as a cause of death. Available statistics at the local health center or the village level were too general and non-descriptive. It was not possible to obtain data at the local, district or even governorate level on the incidence of malnutrition and water-borne diseases. We have consulted with several national and international agencies for advice on how to measure impact of DDP activities without success. Since DDP has limited manpower and financial resources, conducting a separate assessment, requiring the collection of baseline data and measuring it, would be beyond the available budget. It is also extremely difficult for DDP staff to arrange for *before and after* laboratory tests in order to determine the impact of the adoption of improved sanitary or nutrition practices. DDP exhausted its efforts to find low-cost impact measurement tools. Therefore, DDP will seek anecdotal documentation of its impact in helping to reduce malnutrition, child mortality and morbidity through interviews with smallholders and health centers' staff.

#### ***A. Smallholders Impact Assessment***

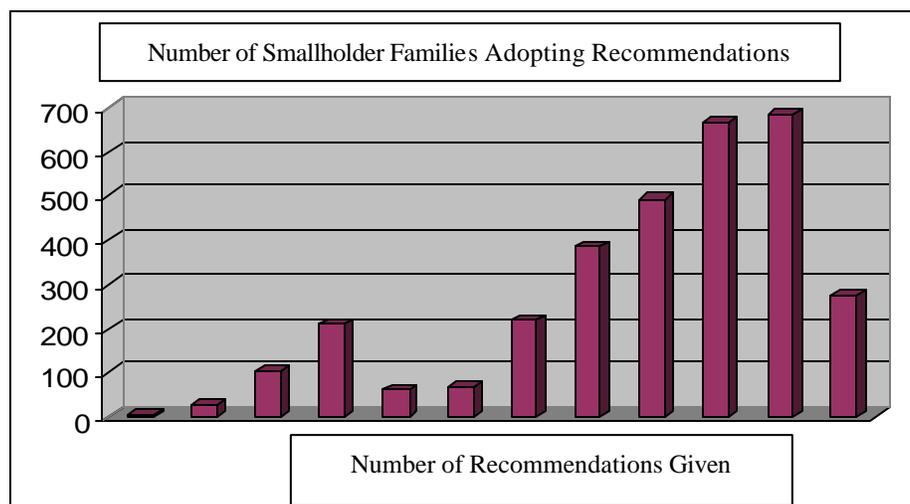
During the last semi-annual period, DDP staff and HEAs carried out a mid-term impact study to assess the application and adoption of milk hygiene practices in the six governorates in the project's work area. Close to 3,200 women -- those who attended one or more village meeting(s) -- were randomly selected and interviewed.

The overall results of the study showed that 87.6% (of those that own milking animals) have adopted seven recommendations or more (out of twelve milking practices and handling recommendations, see Annex I) and 14.6% are applying six recommendations or less (of this group, 80% or 318 were not smallholders, but were milk consumers and could only adopt a maximum of three sanitary and hygiene milk handling practices -- as the other nine recommendations deal with livestock milking and handling practices.)

The average percentage for the adopted recommendations regarding family nutrition and milk handling and safety can be summarized as follows:

### Adoption of Recommendations

Number of Recommendations Adopted	Number of Women Smallholders	%
1	5	0.15
2	26	0.81
3	103	3.22
4	209	6.54
5	60	1.87
6	67	2.09
7	217	6.79
8	386	12.08
9	493	15.44
10	666	20.85
11	685	21.45
12	276	8.64
<b>Total</b>	<b>3,193</b>	<b>100</b>



The recommendation with the highest rate of adoption (99.8%) by smallholders was *cleaning the milker's hands before milking*. This was closely followed by *cleaning the barn* (98.6%), *sterilizing the milking container* (97.1%), and *cleaning and drying the cow's udder* (96.2 %). These results are particularly impressive, in view of the fact that all the respondents were female livestock farmers, who are often less educated and less aware of new practices than the non-agricultural population. In providing them with improved technologies and motivating them to change their practices, DDP feels it has demonstrated that new methods are practical and inexpensive.

### Data Collection Methodology

Dairy Directive Project selected two Health Educators, from each of the six targeted governorates, and trained them to conduct interviews and to monitor the adoption of the recommendations. To determine the extent of actual adoption of its *twelve key recommendations* (see section III), DDP designed a questionnaire, which was administered by its specially trained Ministry of Health, Health Education Agents (HEAs.) Interviews and

data collection started shortly after HEAs received training on how to conduct the study. Under the supervision of DDP staff, Health Educators had two weeks to collect data and return it to DDP for processing. DDP staff verified data through random visits to the interviewed families.

HEAs asked the smallholder women farmers who attended DDP's village meetings through direct and indirect questions, what measures they use to milk their animals. In the course of the interview, HEAs asked which recommendations were adopted. If during the interview, a smallholder forgot to mention a recommendation, the HEA was to remind her about it by asking a direct question as to whether that specific recommendation was being applied or not.

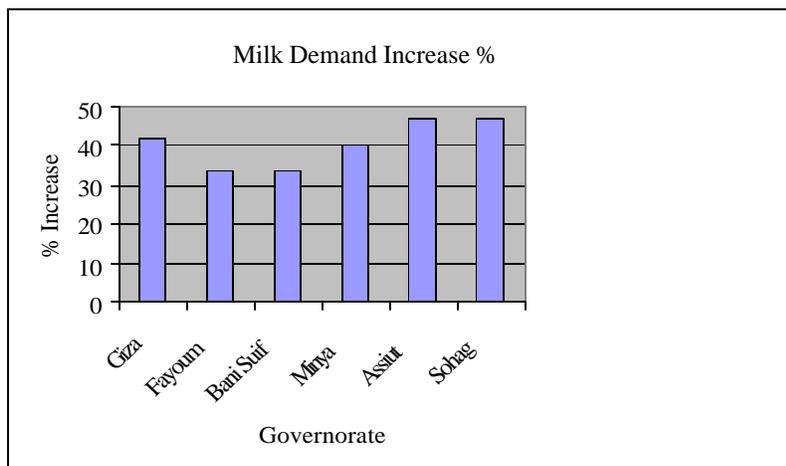
Delivering messages is not the ultimate goal for DDP; the goal is adopting the content of the message. Therefore, DDP designed a follow-up format that includes the main recommendations given in its training activities to HEAs, such as proper milking procedures, milk handling and safety, and human nutrition. DDP staff closely followed up on numerous village meetings conducted by HEAs in the field to ensure that messages were properly disseminated. DDP's follow-up survey verified that the recommendations were followed and adopted.

### ***B. Milk Consumption Impact Assessment***

Regarding unpackaged (*loose*) milk consumption, DDP staff randomly visited 30 milk shops in the six governorates (three in Bani Suif, three in Fayoum, seven in Minya, eight in Assiut, six in Sohag and three in Giza) in order to obtain data on milk consumption. All shops reported a significant increase in the consumption of milk and dairy products ranging between 32 to 35% in both Bani Suif and Fayoum, and about 40% in Minya. Assiut and Sohag had the biggest sales increase, 47%, and prices increased by 25% due to the increased demand. In Giza, the demand for milk and its products increased by 42%.

***Milk Sales Increase in the Target Governorates***

<b>Governorate</b>	<b>Number of Milk Shops Visited</b>	<b>Milk Demand Increase %</b>
Giza	3	42
Fayoum	3	33.5
Bani Suif	3	33.5
Minya	3	40
Assiut	8	47
Sohag	6	47



As part of the same assessment, DDP staff made visits to 18 grocery stores (three in each governorate), that sell packed milk (powdered, pasteurized and UHT.) Packed liquid milk sales in Assiut and Sohag showed an increase of 22%, an increase of 17 to 19% in Giza and Minya, and an increase of 14% in both Fayoum and Bani Suif. Powdered milk sales increased 38% in Assiut and Sohag, 28% in Minya, 13% in Fayoum, 17% in Bani Suif, and 11% in Giza. The demand is increasing daily.

A study by MEMRB (an international research organization) reported that liquid milk consumption increased from 7,968 tons of UHT milk in June 2001 to 11,340 tons in June 2002, representing an increase of 29.8%. Fresh milk (pasteurized) sales increased from 184,000 liters of milk to 630,000 liters -- an increase of 70.7% within the same period.

	June 2001 tons	June 2002 tons	% Increase
Ultra Heat Treated (UHT) Milk	7,968	11,340	29.8
Pasteurized	184.3	630.4	70.7

As a result of the increased demand for milk, and after one year of DDP work in the dairy processing sector, the price gap between commercially packaged milk and loose milk has been reduced from 59% to 35%. The end-of-project target is 30%.

### ***C. Technical Assistance Assessment***

DDP began providing technical assistance to eight dairy processors in early 2002. Out of the four technical assistance consultant assignments, each dairy processor received at least two experts. All four assignments focused on hygiene and product safety through control measures. Directly after the visits, all eight of the assisted processors began to adopt techniques that comply with HACCP requirements. i.e. putting screening on the windows, improving cleanliness of input stores, and setting restrictions on employees' movement in and out of production areas.

Siclam, one of the dairy processors, was visited by Dr. Atta Baroudi, DDP volunteer consultant. He convinced the company's management to comply with HACCP. Siclam received HACCP certification in September 2002. This means that more clean and safe milk exists in Egyptian markets. DDP will continue its technical assistance efforts with the other companies to encourage them to obtain the same certificate to produce higher quality dairy products.

## **VI. Planned Activities for the Next Period (December 2002-May 2003)**

During the next six-month period:

- 24 new villages will be selected in the six DDP governorates.
- 114 new HEAs will be selected and trained.

- Hygienic practices for milking and the preparation of dairy products will be adopted by at least 800 targeted farmers, and
- Five additional dairy processors will receive DDP technical assistance.

In addition, the following training and media activities will take place:

***Training Activities:***

- Six hygienic milk practices activities for smallholders will be conducted.
- Six training courses on adoption of non-traditional methods and practices for milking and production of milk products will be conducted.
- Six training courses on the role of dairy products for neo-natal infants, children and pregnant and nursing mothers will be given.

***Media Activities:***

**A. Printed Materials**

- A brochure on proper milking practices for women smallholders will be produced.
- One poster on milk's importance for infants and children will be produced.

**B. Radio Coverage**

- DDP's two previously produced episodes will be rebroadcast.

**C. TV Coverage**

- Four new TV spots will be produced and broadcast.

**D. Video Production**

- A fifteen-minute film on proper milking procedures will be produced

**E. Newspaper Coverage**

- Publication of articles in daily and weekly papers will be promoted (a minimum of 25 articles.)

## **ANNEX I: Dairy Directive Project Recommendations**

DDP provided smallholders with *twelve recommendations* that are summarized as follows:

1. Clean the barn prior to milking.
2. Wash the milkers' hands prior to milking.
3. Wash and dry the udder prior to milking.
4. Clean and dry the milk container prior to milking.
5. Check and throw away the first few drops of milk Do not add them to the rest of the milk.
6. Avoid over-stretching the animal's teat during milking.
7. Use a clean light net to strain the raw milk while pouring it from the milking container to the boiling container.
8. Boil milk instead of serving raw.
9. Boil milk properly (from 7 to 10 minutes) and then immerse in cold water.
10. Serve milk regularly to the children in the household.
11. Introduce milk to pregnant and nursing women as part of their diet.
12. Manufacture dairy products from heat-treated milk.

## **ANNEX II: DDP Success Story**

### ***War Against Unsafe Milk***

The main objective of the Dairy Directive Project (DDP) in Egypt is for smallholder families in Upper Egypt, and the Egyptian population in general, to increase consumption of safe hygienic milk and its products. DDP staff faced a challenge in dealing with smallholders' traditional beliefs and their practices of consuming milk. A further challenge was to convince rural people that it was unsafe to use milk in making cheese without first boiling it. Such practices are prevalent among smallholder families in all the geographic areas where DDP carries out its project. But there is progress. DDP's most recent survey of over 3,000 families in its six governorates indicates that 100% of families now heat-treat their milk, 97% of them boil it correctly (boiling for 7 – 10 minutes) and 30% make cheese from properly boiled milk.

In these areas, some smallholders still drink raw milk, without heat treatment, because they believe that the best milk is the milk they get directly from the lactating animal. They believe if they boil milk, a large portion of it will evaporate and it will also have a scorched flavor. Smallholders, who make tasty local cheese, never boil the milk used in cheese production because they believe that boiling causes the formation of clots that make the milk inappropriate for processing. The cheese would not be appealing or it would be the consistency of whey.

To address this problem, DDP offered Health Education Agents (HEAs) – who also did not believe milk products could be made from boiled milk – practical training in how to produce home made dairy products from heat-treated milk. In addition to making them aware of the diseases transferred in raw milk, the HEAs also observed the processing, participated in it and tasted the final product. As a result of this training, the HEAs became enthusiastic about spreading this information among villagers. Many success stories have been documented from their efforts, including the following:

**Inas Kamel**, Health Educator in El Fant village in Beni Suif governorate, told of a village woman who boiled milk but did not boil it properly (seven to ten minutes), instead warming it before giving it to her children for breakfast. The woman then boiled the leftover milk correctly for herself. Her children got sick from food poisoning, and she didn't. She realized that the HEA was right and that the boiled milk was the reason. The woman is now using this good example to persuade other people.

**Hanaa Ahmed Hassnein**, Health Educator working in Koom El Mansoura village in Assiut governorate, was the first woman in her village to boil milk she uses to make cheese. This was as a result of DDP's campaign on the importance of using safe and hygienic milk to ensure food safety. She started to make homemade cheese out of boiled milk and gained a good reputation for producing tasty cheese. Village women approached her and asked: "Why is your cheese so tasty? Do you get it from a factory?" She told them: "No, DDP gave me practical training on safe ways to produce cheese and I adopted their recommended methods which result in such tasty cheese." The village women were convinced and went home to apply what they saw.

DDP's activities not only had positive health results; they also were the catalyst for an employment opportunity. In El Eallam village in Fayoum governorate the Health Educator **Afaf Abdullah** met with a poor village woman who was looking for a way to help support her family. Afaf suggested that she start a small cheese making business. The woman said: "How can I do that? Can I afford to start a project?" Afaf answered: "It won't cost much and I can provide you with detailed information on how to start a small project." As a result, the woman bought a milk separator and started the first steps in her business. She now uses clean, hygienic milk to produce high quality cheese for her business.

DDP's war against unsafe milk continues. The impact will not only affect health and nutrition, but it could also have a positive impact on income.