NEPAL: PROJECT PROGRESS AND RESULTS
COUNTRY SITUATION

Child Survival

Nepal has been successful in achieving a dramatic reduction in child and infant mortality rates over the last decade. A national survey to monitor child health is completed every five years (2011, 2006, 2001). Child mortality has decreased from 91 deaths per 1,000 live births in 2001 to 54 deaths per 1,000 live births in 2011. Infant mortality has fallen from 64 deaths per 1,000 live births in 2001 to 46 deaths per 1,000 live births in 2011. Nepal is one of the few countries currently on track to achieve its Millennium Development Goal target for child mortality. Factors contributing to the reduction of under-five mortality include the successful implementation of community-based programs, particularly Vitamin A supplementation with de-worming for children, immunization, and community-based integrated management of childhood illness, such as treatment of diarrheal diseases and acute respiratory infections.

Stunting

With at least one third of all child deaths in Nepal attributable to undernutrition, further reductions in child mortality are unlikely without marked child nutrition improvements. Progress is being seen. The presence of community-based nutrition programs has helped contribute to a reduction in the rate of chronic malnutrition, or stunting, among young children in Nepal from 49% in 2006 to 41% in 2011.

Infant and young child feeding practices

One of the main reasons for protracted malnutrition is poor infant and young child feeding practices. There has been significant improvement in breastfeeding practices in Nepal, with early initiation of breastfeeding rising from 33% in 2006 to 45% in 2011 and exclusive breastfeeding rising from 53% in 2006 to 70% in 2011. However, only one in four children in Nepal are fed with all three optimal infant and young child feeding practices (minimum dietary diversity, required meal frequency and breastfeeding). Only about 60% of children aged six to seven months are provided with complementary foods and children are fed an average of only
1.2 meals per day. The foods provided to children are usually monotonous, low-energy, cereal porridges.

**Anemia**

While there has been a drastic reduction in the prevalence of anemia in children under five, which currently stands at 46%, among children under two it is as high as 70%. With the control of worm infections through de-worming during the biannual vitamin A capsule distribution, the majority of anemia cases among children in Nepal are mostly likely attributable to poor dietary intake.

**Diarrhea**

The already poor child nutrition situation is further aggravated by the occurrence of frequent infections in children such as diarrhea and pneumonia. Diarrhea is the second-leading cause of death among children under five in Nepal next to pneumonia. The average Nepali child has at least 1.7 diarrhea episodes per year. About 14% of all children under five, and one fourth of children aged six to 11 months, suffered from diarrhea during the two weeks prior to the 2011 National Demographic and Health Survey. Some 39% of children were treated with oral...

**Program Background**

Recognizing that home fortification could serve an important role in controlling multiple micronutrient deficiencies among Nepali children, and on the basis of the positive outcomes of a feasibility study, the Government of Nepal made the decision to pilot delivery of micronutrient supplementation linked with infant and young child feeding to children aged six months to less than two years in 2010.

The use of zinc along with oral rehydration salts for the treatment of diarrhea is a crucial component of the community-based integrated management of childhood illness approach in Nepal. Health institutions and Female Community Health Volunteers residing in each region of the country provide the treatment. However, although the use of zinc has been introduced throughout the country in a phased manner and promoted since 2005, its utilization for diarrhea management along with ORS has initially remained very low.

**PLANNED PROGRAM RESULTS**

**Micronutrient supplementation linked with infant and young children feeding community promotion**

The overall aim of this integrated initiative is to improve infant and young child feeding and
care practices to improve the micronutrient status - particularly zinc and iron - of young children. The program aims to increase mothers’ knowledge of key infant and young child feeding and care practices to ensure that more than 80 percent of children under two consume the micronutrient supplement appropriately.

Specific objectives:

- Pilot two delivery models in six districts to identify a cost-effective and efficient program design for national scale-up of integrated micronutrient supplementation and infant and young child feeding community promotion by middle of 2012.

- Support program expansion to 15 districts by the middle of 2012.

- Develop a national scale-up plan, including technical and management capacity building within the government, to ensure national rollout by 2016-17.

- Ensure that at least 80 percent of health service providers and communities are aware of micronutrient supplementation and optimal infant and young child feeding practices.

- Strengthen monitoring and evaluation of program effectiveness.

Zinc treatment for diarrhea

The overall goal of zinc treatment for diarrhea is to substantially reduce diarrhea-related illness and death in children under five through increased use of zinc tablets along with oral rehydration salts. This will contribute to further reduction of child mortality in Nepal and accelerate the attainment of Millennium Development Goal 4 on child mortality ahead of 2015.

Specific objectives:

- Support program review, including capacity-building efforts to enhance the skills of district staff, health workers and Female Community Health Volunteers for effective distribution and use of zinc tablets.

- Increase awareness of the importance of zinc tablet use among caregivers and communities.

- Strengthen supply and logistics management with the aim of preventing shortages and ensuring timely and adequate supplies of zinc tablets through government channels.

- Enhance monitoring and evaluation of program effectiveness.
RESULTS

Micronutrient supplementation and infant and young child feeding program successfully implemented in six districts

Based on the evidence of results generated by the micronutrient supplementation pilot, the Nepal Ministry of Health and Population has decided to expand the program to an additional nine districts during 2012, with UNICEF support. In 2013, the Ministry of Health and Population will include the program in its annual work plan and will begin to allocate its own national budget. UNICEF has been requested to assist with the development of a costed national scale-up plan, which is expected to be completed before the end of 2012.

Program outcomes at the household level

- Over 100,000 children have received micronutrient supplements

Based on health facility records as of April 2012, 101,838 children had received the micronutrient supplement. This included 93,379 children from rural areas and 8,459 children from urban areas.

- Over 70 percent of targeted children received the first micronutrient supplement dose and over 50 percent received the second dose

Based on internal monitoring data and external surveys, 73 percent of all targeted children across the six pilot districts received the first micronutrient supplement dose, 51 percent received the second dose and 19 percent received the third dose.

First dose coverage is high across all six districts irrespective of the distribution model, either health facility or Female Community Health Volunteers.

Second dose coverage rates were relatively high in Female Community Health Volunteers model districts (Rupendrahi – 81 percent, Gorkha – 62 percent and Palpa – 59 percent). By comparison, health facility model districts had lower second dose coverage (Rasuwa – 43 percent and Makwanpur – 24 percent), with the exception of Parsa (68 percent).

Similarly, third dose coverage in health facility model districts was generally very low (Rasuwa – 9 percent and Makwanpur – 7 percent) as compared to Female Community Health Volunteers model districts (Palpa – 40 percent).

- Micronutrient supplementation compliance rates of over 50 to 75 percent

Micronutrient supplementation compliance rates were measured in two ways. First, as part of program surveillance, households which had received the supplement were visited randomly. Compliance was defined as consumption of one micronutrient powder sachet in three days,
implying that if a household feeds one sachet to a child in three days, 60 sachets will be completed within 180 days. Compliance was measured as: Female Community Health Volunteers model districts – 87 percent, health facility model districts – 79 percent, and urban model areas – 76 per cent.

Second, it was measured by calculating the proportion of all households surveyed that had completed feeding 60 sachets within 60 to 180 days of receiving the supplement. Here compliance rates were also found to be higher in Female Community Health Volunteers model districts (66 percent) than in health facility model districts (53 percent) and urban model areas (51 percent).

A program evaluation report due by the end of 2012 will further triangulate coverage and compliance data from internal monitoring and external surveys to produce final results.

- Micronutrient supplement knowledge rates of approximately 75 percent overall, with just over 50 percent in urban areas

External coverage survey results show more than nine out of 10 respondents in Palpa and almost 75 percent of respondents in other pilot districts had heard of the micronutrient supplement. In urban areas, just over half of respondents had heard of it. These findings suggest that awareness-raising efforts have been effective in reaching a majority of the population, though with less success in urban areas. Also noteworthy was that more mothers had heard of the micronutrient supplement in the Female Community Health Volunteer delivery model (83 percent) as compared to the health facilities delivery model (79 percent).

Micronutrient supplements change the lives of children

Tansen Municipality 4, Palpa – Twenty-two-month-old Neha Soni was malnourished, weighing only six kilograms and unable to stand or talk. But after being fed micronutrient supplements, Neha’s health has significantly improved. Her grandmother remarks with wet eyes, “Micronutrient supplements have brought about many changes in my granddaughter. We never imagined that Neha would turn out to be who she is today. Micronutrients have given a new life to my grandchild.”

Neha Soni with her mother
Increasing program integration into the government health system at all key levels

Key program elements including supply monitoring, health facility reporting, and training, orientation and review are becoming increasingly integrated into the government health system.

- **Supply monitoring**

  Program staff have supported District Health Officers in micronutrient supplement supply monitoring at all levels of the primary health system in order to ensure adequate stocks. This has included supporting the demand for supplies from health facilities when stocks fall below the emergency order point. To this end, District Health Officers have circulated communication requesting that health facilities maintain authorized stock levels. Program surveillance data also indicate that most health facilities (94 percent) have maintained adequate micronutrient supplement storage conditions. The availability of behavior change communication materials (such as posters, brochures and reminder cards) at health facilities was also found to be either maintained, or in the process of being restocked. Program staff are currently working to strengthen the supply monitoring system to ensure sustainability and ownership by government health personnel.
Health facility reporting

Health facility reporting on the program is an important indicator of the extent to which it has been integrated into the existing health system. Results in this area include:

- Health Management Information System and Logistics Monitoring Information System forms are being revised to incorporate micronutrient supplementation and infant and young child feeding.

- Health facility staff have been trained on accurate micronutrient supplementation and supply reporting.

- Upward reporting on micronutrient supplementation from health facilities, through the various health system levels, to the Ministry of Health using the Health Management Information System has been actively monitored and encouraged through field visits, resulting in more complete monthly reporting across all six pilot districts.

- All health facilities have been requested to report regularly on their micronutrient supplement supply. Quarterly Logistics Monitoring Information System reporting is being followed as per the government system.

- Program surveillance data indicate that most health facilities have properly maintained micronutrient supplementation registers (84 percent) and that health facility reporting rates (90 per cent) are high and improving.

Training, orientation and review

Micronutrient supplementation and infant and young child feeding are being integrated into the health system’s regular nutrition training and orientation schedule and its review meetings, including Female Community Health Volunteers basic training and review sessions, District Health Office mid-year and quarterly review meetings, and specialized orientations on immunization and reporting. These opportunities help to create an environment where stakeholders understand the importance of the program and can gain technical knowledge and skills for delivering the services with maximum impact.
ZINC TREATMENT FOR DIARRHEA

Completion of strategic review on the use of zinc for diarrhea management

With support from IZA, the Government of Nepal, UNICEF and the Micronutrient Initiative, a detailed review of current zinc treatment for diarrhea policy, strategy and recent program implementation was completed. Facilitated by Dr. Charles Larson, MD, FRCP(C) from the University of British Columbia and Dr. Ang Tshering Sherpa (Lama) from the Nepal Medical College, the review identifies key gaps and provides clear recommendations for strengthening the program.

The review’s key findings and recommendations are:

Policy and regulatory environment

- Nepal was one of the first countries in the world to adopt hypo-osmolar oral rehydration salts and zinc treatment for childhood diarrhea as an official government policy. This was subsequently followed by the approval of a zinc dispersible tablet formulation and the classification of zinc as an essential drug. Unlike ORS, zinc has not been classified as an over-the-counter medication by Drug Standard Regulation of Nepal.

- It is strongly recommended that zinc be classified as an over-the-counter product or receive an over-the-counter waiver.

Public-private partnerships

- Efforts to scale-up zinc in management of diarrhea in Nepal are led by the Ministry of Health and Population’s Child Health Division with significant public-private collaboration and external funding support. External funding in support of ORS/zinc scale-up activities has come from USAID, UNICEF, International Zinc Association and the Micronutrient Initiative.

- A jointly agreed upon performance management framework is needed that clearly indicates role and responsibilities and what the anticipated outputs and outcomes will be over time.

- A better public–private partnership is required to create demand and increase coverage and utilization of zinc for diarrhea management.
Manufacturing, supplies and distribution

- As a result of the efforts of the USAID-funded POUZN Project, five private pharmaceutical companies are currently producing GMP quality dispersible zinc tablets in Nepal and are supplying private sector pharmacies and drug vendors.

- The Ministry of Health and Population has contracted National Health Care Pharmaceuticals, a private company, to procure six million blister packs of zinc (60 million tablets) over three years, from 2011-13, for public sector distribution. Private companies producing zinc, supply private sector pharmacies and drug vendor outlets.

- There is a need to prepare preferably integrated public and private sector business plans that are reviewed and revised annually. These should clearly stipulate the anticipated demand of zinc and ORS that is then matched with a business plan covering manufacturing, purchasing, supplies and distribution channels.

- Public sector delivery can be strengthened by: (i) enhancing knowledge and counseling skills of health workers and Female Community Health Volunteers through follow-up support; (ii) piloting of a zinc and ORS combo pack to increase coverage of zinc along with ORS; (iii) expanding the use of compliance cards to all districts to increase zinc supplementation compliance; (iv) piloting a zinc and ORS household distribution trial in a few districts; (v) re-evaluating procurement and distribution of metronidazole, an antibiotic used to treat intestinal parasites, to avoid its huge stock in health facilities; and (vi) strengthening the timely procurement and distribution of zinc at all levels.

- As zinc distribution through existing private sector outlets has been very limited, there is a need for a new paradigm. A social marketing campaign involving Nepal CRS Company should be strongly considered in view of its extensive network of ORS distribution throughout the country. Similarly, private practitioners including doctors, traditional service providers, and private pharmacists should be oriented about zinc supplementation along with ORS for treatment of childhood diarrhea.

Behaviour change communication

- Lack of awareness among caregivers has been a primary barrier behind the low coverage of zinc treatment for childhood diarrhea. With the objective of developing a behaviour change communication plan and communication materials for promotion of zinc and ORS for treatment of childhood diarrhea, UNICEF and the Micronutrient Initiative have provided support to conduct formative research.

- There is an urgent need to implement a comprehensive behaviour change communication plan based on the formative research for promotion of ORS and zinc treatment for childhood diarrhea.
Recording/reporting and monitoring and evaluation

- The Ministry of Health and Population’s Health Management Information System has incorporated information on ORS and zinc distribution through health facilities and Female Community Health Volunteers. For recording and reporting, there is only one column for both ORS and zinc.

- Several zinc-program-specific evaluations have been conducted to assess the effectiveness of the program in Nepal. Similarly, some other surveys such as the Nepal Demographic and Health Survey have incorporated zinc into the questionnaire since the program was launched in 2006. Some limitations of existing surveys in collecting complete information on the use of zinc supplementation have however been noted.

- The monitoring and evaluation of zinc and ORS programs can be strengthened by: (i) recording and reporting zinc and ORS in three possible distribution events – zinc alone, ORS alone, and zinc and ORS; (ii) monitoring zinc and ORS availability and sales among randomly selected private pharmacies and drug stores; (iii) putting in place a system to efficiently monitor demand, supplies and distribution outputs; (iv) reviewing the questionnaires of surveys that include zinc and ORS assessment to ensure adequate and proper collection of zinc and ORS data; and (v) conducting standardized and focused household coverage/awareness surveys on zinc and ORS on a regular basis.

Public sector supply chain management

- A sufficient quantity of zinc tablets are procured and supplied up to the district level, but then a bottleneck occurs there. Of the total national stock of zinc tablets (956,440) recorded in 2010-11, nearly 50 percent were found to be in districts stores, 38 percent in health facilities and 12 percent in regional medical stores. This has resulted in an incompatible push-and-pull system within the supply chain management. While zinc tablets are supplied from regional medical stores to district stores primarily on the basis of a push system, supply from the district health facility and from the health facility to the community is based on the pull system. The district stores do not supply commodities to the health facility unless they receive requests from the health facilities. There is less demand at the health facilities, which is mainly caused by less demand at the Female Community Health Volunteer level, which in turn is caused by a lack of awareness among caregivers about the zinc program. As there is less demand from health facilities for zinc tablets supplies from districts to these facilities are therefore limited, resulting in huge stock in the district stores.

- The Logistics Management Division monitors all drugs distributed at the district level through an electronic, web-based system, however this is not functioning properly in all districts. Lack of timely reporting, as well as incomplete and inconsistent reporting, has been found to be a major challenge in the Logistics Management Information System.
This situation calls for strengthening the supply chain management of zinc and ORS by:
(i) having the district health offices and health facilities follow the same procedure that is used at the central level for the quantification of zinc; (ii) reviewing the distribution mechanism (pull/push) within the districts to avoid over-stocking at district stores and to ensure adequate supply to the Female Community Health Volunteer level; (iii) improving supervision and monitoring at all levels and enhancing capacity of storekeepers; and (iv) adding a separate column in the ‘Jinshi’ registers for recording and reporting of expired commodities.

Completion of formative research study on zinc, and development of behaviour change communication plan and materials

UNICEF and the Micronutrient Initiative supported Nepal's Ministry of Health and Population, Child Health Division to conduct a formative research study on zinc. The study examined key barriers behind the low utilization of zinc along with oral rehydration salts for diarrhea treatment and evaluated existing behavior change communication approaches. Informed by the research findings, a comprehensive behavior change communication strategy has been proposed and communication materials have been revised, developed and tested.

Interestingly, the research found no cultural barriers in any ethnic group behind low utilization of zinc along with ORS. Key reasons identified for low zinc usage included: general lack of awareness about zinc; low awareness, especially among mothers, that Female Community Health Volunteers are equipped with diarrhea medicines and capable of treating diarrhea with zinc; inconsistent zinc supply at health facilities; no specific training on zinc for health workers; no knowledge about the benefits of zinc among pharmacists; and low recommendation of zinc by private pharmacies. The proposed behaviour change communication plan includes tailored messaging for primary and secondary target groups, maximum use of local FM radio stations, and extensive collaboration with local health and community actors, each with specific communications roles and corresponding training.
ACTIVITIES

Micronutrient supplementation and infant and young child feeding program

National consensus-building on program development and resource leveraging

UNICEF has been providing stewardship and technical support to the Government of Nepal for advocacy and stakeholder consultations to build national consensus on major nutrition interventions, including the micronutrient supplementation and infant and young child feeding pilot program and the development of a multi-sectoral nutrition plan.

UNICEF advocacy and technical support has helped create the Ministry of Health and Population’s nutrition technical committee (NUTEC). The committee provides technical guidance to the Government of Nepal on the development of key nutrition policies and strategic plans, and coordinates essential nutrition activities through the health sector, supported by key development partners.

Under NUTEC, a working group for infant and young child feeding and anemia control has been formed, including the Health Ministry, UNICEF, the Micronutrient Initiative, Helen Keller International, Save the Children International, the World Food Programme, and research and NGO partners. The group has supported the development of a comprehensive infant and young child feeding strategy, including micronutrient supplementation, and an integrated anemia control plan. It has also provided guidance for the overall implementation of the pilot program and the development of the national scale-up plan. In addition, the task force has reviewed existing behavior change communication training and materials, and program monitoring, recording and reporting practices, which are all being revised based on the review and ongoing pilot program experience.

There has been intensive engagement with government policymakers and external nutrition development partners, such as the European Union, World Bank, and British, American and Australian development agencies, to leverage resources for the government’s program scale-up. The recent review of the Nepal Health Sector Plan has recommended micronutrient supplementation linked with infant and young child feeding, and zinc treatment for diarrhea, for national scale-up. In addition, the recently approved national multi-sectoral nutrition plan has included both interventions as important components.

Around US$4 million has been leveraged from various donors for the program scale-up phase. The Government of Nepal has agreed to absorb the costs of the initial six districts from 2013 onward and to gradually take over the programming cost and supplies through the Health Sector Wide Approach. During the interim period, UNICEF is providing support to the government to expand the micronutrient supplementation and infant and young child feeding program to nine additional districts during 2012 and to ensure full integration of the program into the routine health care system.
Pilot program design, implementation and gradual expansion

UNICEF provided financial and technical support to the Government of Nepal to pilot the program in six districts, with the support of implementing NGO partner MaxPro, following the time frame outlined here. MaxPro was first contracted in May 2010 to initiate implementation of the pilot. Based on its satisfactory performance, this contract was renewed in April 2011.

Pilot program implementation time frame

<table>
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<tr>
<th>District</th>
<th>Time Frame</th>
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<tbody>
<tr>
<td>Makawanpur</td>
<td>May 2010 - June 2012</td>
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<tr>
<td>Palpa</td>
<td>June 2010 - June 2012</td>
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<tr>
<td>Rasuwa</td>
<td>September 2010 - June 2012</td>
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<tr>
<td>Gorkha</td>
<td>January 2011 - June 2012</td>
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<tr>
<td>Rupandehi</td>
<td>May 2011 - September 2012</td>
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<tr>
<td>Parsa</td>
<td>May 2011 - September 2012</td>
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Key program implementation activities included:

- Strengthening capacity of community health workers and volunteers on infant and young child feeding, micronutrient supplementation and counseling
- Facilitating and overseeing the management of training at various levels in coordination with health offices across all pilot districts
- Providing support to the Government of Nepal for logistics, management and supply to help ensure timely delivery of micronutrient supplements to community-level health care providers
- Providing support to the Government of Nepal on supervision and monitoring of planned activities, including planning and review processes at the program implementation sites
- Maintaining a surveillance database system for quality data reporting
- Timely recording and reporting of pilot program progress
- Providing timely feedback on program activities and taking corrective action as needed

In March 2012, based on the encouraging outcome of the pilot program, the Government of Nepal decided to expand the program to an additional nine districts and requested technical and financial support from UNICEF. UNICEF has updated the program training and behavior change communication materials based on the pilot experience and these materials will be used in the nine new districts.
The first six pilot districts are being handed over to the Government of Nepal, which has decided to include the programming cost for these districts in their regular budget. For a smooth transition and sustainability, UNICEF is providing minimal support until the districts fully assume the program responsibilities. The Government of Nepal is aiming to scale-up the program to all 75 districts in the country by 2016-17.

Transfer of program knowledge and counseling skills to government health workers and volunteers

A total of 10,731 personnel, including 4,184 Female Community Health Volunteers, 1,844 health workers, 4,574 influential community members and 129 municipal staff have been trained as part of three levels of capacity-building sessions across the six districts of the pilot program. Capacity-building activities aim to help stakeholders understand the importance of the program and gain the technical knowledge and skills to deliver the services to ensure maximum program impact.

Key trainings have included a series of two-day district orientation and planning meetings, two-day orientation meetings for health facilities, and four-day community-level trainings. On the last day of each community-level training, Female Community Health Volunteers conducted a mothers’ group meeting as part of their orientation. A total of 3311 mothers’ group meetings were conducted in this way involving 88,956 mothers. In the three Female Community Health Volunteer model districts, 29,202 children (63 percent of the total target children in the three districts) received micronutrient supplement through these meetings.

Ongoing facilitation and capacity building through government health structure coordination meetings

Program team members used ongoing coordination meetings with government health staff to support them in managing the program, and to facilitate effective program recording, reporting and integration into the existing health system. The program team participated in 226 meetings with District Health Offices to support program coordination and monitoring; 210 sub-district meetings; 626 meetings with health facilities; and 61 meetings with urban municipality structures. These activities enabled improvements in program supervision, supply and logistic plans, social mobilization, refresher trainings, and consistent Health Management Information System and Logistics Monitoring Information System reporting.
Ongoing interventions in Female Community Health Volunteers and mothers’ groups meetings

Given the pivotal role Female Community Health Volunteers play in counseling caregivers on optimal infant and young child feeding and micronutrient supplementation, program team members intervened during Female Community Health Volunteers review meetings and mothers’ group meetings. The program team was involved in 406 Female Community Health Volunteers meetings, attended by 4,911 volunteers and health workers, and 535 mothers’ group meetings, attended by 7,777 participants. These activities enabled improvements in nutrition counseling, community feedback and action to address emerging issues, and integration of infant and young child feeding and micronutrient supplementation into mothers’ group meetings regular agendas.

Social mobilization and awareness-raising to influence nutrition practices

Social mobilization and communication activities were carried out to create awareness on infant and young child feeding and micronutrient supplementation, to bring about positive changes in nutrition practices and to create demand for micronutrient supplements among caregivers. Changing behaviours of target communities requires frequent contact with them and those who influence their behaviours, with some focused, specific and actionable communication messages.

A total of 1,182 community mobilization activities have been carried out, reaching 50,382 people. These included coordination meetings and integration of program messages into the regular activities of 596 community-based organizations, 68 government line agencies, 388 schools and 21 pharmacies.
The program team also utilized major community events and gatherings such as Vitamin A Days, Breastfeeding Week, Children’s Day rallies, health exhibitions, Teej celebrations, literacy campaigns and volleyball competitions to promote program messages. About 93 such events were used to reach over 6,040 people.

Communications materials, including counseling aids, flip charts, brochures, posters and bill boards were developed and distributed widely to support program activities. Micronutrient supplement-branded bags and wall clocks were distributed to health facilities and community organizations to increase visibility and mobilize support. In Makawanpur, Palpa and Rasuwa, micronutrient supplement billboards have been installed at 238 key prominent sites.

Radio spots have been developed and aired frequently on FM radio. Talk radio programs were also used as an opportunity to discuss the benefits of optimal infant and young child feeding practices and the use of micronutrient supplements for child survival, growth and development.
Supply and logistics management of micronutrient supplement and behaviour change communication materials at all key levels of the health system

As per the program implementation plan, micronutrient supplement procurement, distribution and stock management were supported by UNICEF in close coordination with the Government of Nepal’s Health Supply System.

During the reporting period, micronutrient supplements were procured from DSM, an international company, with UNICEF taking sole responsibility for the procurement process. To ensure timely procurement, the implementing NGO partner liaised closely with UNICEF, the Ministry of Health's Child Health Division and the government's Logistics Management Division to finalize the estimated requirements and distribution plan. Once the supplement was received at the central level, the program team facilitated its distribution to the districts and further down to health facilities and Female Community Health Volunteers as per the distribution plan. Intensive efforts were made at each level to ensure adequate stock, proper storage, accurate recording and reporting, establishment of effective procedures, and integration into government logistics and reporting systems. The responsibility for distributing supplies to the district and community levels will gradually be transferred to the Government of Nepal. As of April 2012, 409,414 boxes of micronutrient supplement, each containing 30 one-gram sachets, have been distributed to the respective district health offices across all six districts.

A wide range of behaviour change communication materials were also provided to district health offices and then supplied to the community level along with the micronutrient supplies. Stock inventories and a demand system were maintained to support the ongoing replenishment of materials as needed.

Monitoring and supervision

Monitoring and supervision activities were conducted to identify problems and barriers at various levels of program implementation and to take corrective and supportive steps to address constraints in a timely manner. Monitoring and supervision were carried out jointly by UNICEF, the implementing partner MaxPro, and the government health system.
The implementing partner collected internal process monitoring data, and this was complemented by external surveys at different time periods based on a protocol developed jointly by the Centers for Disease Control and Prevention (CDC) and UNICEF.

In each pilot district, a surveillance system was established to track program performance, document the implementation process and identify bottlenecks. As of April 2012, around 7,667 households had been visited as part of this internal surveillance. Household monitoring helped to identify problems and follow-up with corrective measures to convince many of the non-user households to resume feeding micronutrient supplements to their eligible children. In many cases, these household visits served as useful reminders for caregivers to pick up the next dose. Similarly, 2,328 Female Community Health Volunteers were interviewed as part of internal process monitoring, representing 54 percent of the total Female Community Health Volunteer population in the six districts. Health facilities were visited 2,250 times, resulting in proper recording and reporting practices and strengthened systems for demanding micronutrient supplement along with their regular supplies. Consolidated surveillance data from these sources was compiled and analyzed at the central level with joint technical support from CDC and UNICEF.

Trainings at all key levels were monitored and supervised by district field teams or government health staff. Key government officials from the central level were also present during critical training periods to monitor effectiveness.

Supervision, field monitoring and reporting during the pilot phase were carried out using the existing government infrastructure, thereby enhancing local government staff ownership of the program. Government officials from the Child Health Division and district health offices frequently visited program sites to supervise and monitor ongoing activities. A monitoring checklist on micronutrient supplementation was developed by the program team and is awaiting implementation as part of the government system.

The program was regularly visited and monitored by mission teams of national government officials, external development partners and UNICEF, along with district health and implementing staff. As of April 2012, a total of 479 external monitoring visits had been made.
Zinc treatment for diarrhea

Strategic review on the use of zinc for diarrhea management
With support from IZA, the Government of Nepal, UNICEF and the Micronutrient Initiative, a detailed review of current zinc treatment for diarrhea policy, strategy and recent program implementation was carried out. The review identifies key gaps and provides clear recommendations for strengthening the program. Facilitated by Dr. Charles Larson, MD, FRCP (C) from the University of British Columbia and Dr. Ang Tshering Sherpa (Lama) from the Nepal Medical College, the review’s main recommendations cover policy and regulatory environment; public-private partnerships; manufacturing, supplies and distribution; behaviour change communication; reporting, monitoring and evaluation; and public sector supply chain management.

Formative research study on zinc, and development of behaviour change communication plan and materials
UNICEF and the Micronutrient Initiative supported Nepal’s Ministry of Health and Population, Child Health Division to conduct a formative research study on zinc. The study examined key barriers behind the low utilization of zinc along with oral rehydration salts for diarrhea treatment and evaluated existing behaviour change communication approaches. Informed by the research findings, a comprehensive behaviour change communication strategy has been proposed and communication materials have been revised, developed and tested.

Research activities were carried out in four key stages:

- Determining local terms, concepts and practices related to diarrhea and its management - Research was carried out to assess the knowledge and practices related to diarrhea management among four major groups: Dalits, Brahman/Chhetri, Janjati/Others and Muslims. Existing materials on zinc and oral rehydration salts for treatment of childhood diarrhea were tested in 12 districts where the population of these ethnic groups was highest. In each district, key informant interviews and in-depth interviews were conducted with mothers, health workers, Female Community Health Volunteers and pharmacists. Three focus group discussions were conducted with mothers, fathers and grandmothers of children under five with recent episodes of diarrhea.

- Development of a behaviour change communication plan – A stakeholder workshop was organized to share the findings from the first stage, gather inputs on proposed changes to the behaviour change communication materials and strategy, and to draft a behaviour change communication plan. Stakeholders from the National Health Education, Information and Communication Centre, UNICEF, Micronutrient Initiative and other zinc program partners participated in the workshop.
• **Development/revision of existing behaviour change communication materials** – An additional workshop was organized in which the revised behaviour change communication materials and plan were shared with these stakeholders for their further comments, based on which the tools were revised.

• **Pre-testing of behaviour change materials** – The study team pre-tested the behaviour change communication materials in urban and rural centres of six to eight districts with similar respondents as in the first stage.

**CONSTRAINTS AND LESSONS LEARNED**

**Micronutrient supplementation and infant and young child feeding program**

**Government health systems level**

• Despite interventions during coordination meetings, some health facilities have not regularly submitted monthly Health Management Information System and quarterly Logistics Monitoring Information System program reports. District Coordinators are still involved in facilitating and coordinating at health facilities and at district level to strengthen regular program reporting and micronutrient supplement demand and supply.

• There is demand among health facility staff and female community health volunteers for review meetings two times a year, and plans are under way to integrate micronutrient supplementation into the government reviews. Most of the female community health volunteers have requested snacks and incentives for their services and female community health volunteers in urban areas have been requesting incentives to work on a regular basis. The Ministry of Health's Child Health Division is advocating and developing a female community health volunteer incentives package.

• Difficulty in reporting on coverage data from urban areas has resulted in under-reporting and therefore data showing low coverage. No proper reporting system has yet been established in urban areas and, at present, reporting there is mostly done on an ad hoc basis.

• An integrated program monitoring and supervision checklist has been developed, but has not yet been integrated into the government system.
Household level

- For effective behaviour change, mothers and key community influencers need to comprehend the importance of optimal micronutrient supplementation and infant and young child feeding practices for their children's health and well-being. Social mobilization and dissemination of core messages need to reach a high proportion of households and communities in order to reinforce mothers’ sustained positive behaviours.

- A variety of radio jingles need to be developed and aired to communicate program messages encouraging family and community members to support mothers in feeding their children optimally. Advocacy through schools and networking with community-based organizations has proven effective in promoting micronutrient supplementation messages, but these need to be continued.

- Mothers and caregivers are hindered by various external factors. Some, for example, have reported being too busy at their work and often forgetting to feed their children the micronutrient supplement on a regular basis.

Zinc treatment for diarrhea

- The importance of zinc for diarrhea treatment is still a new concept to many parents in Nepal. Intensive behaviour change communication activities need to be conducted to increase coverage.

- There are still reports of zinc being out of stock in many health institutions and districts. There is a need to build the capacity of government counterparts to review the supply plan and enhance the procurement and distribution system.

- Considering that many people go to private pharmacies and drug retail shops to treat diarrhea, there is a need to provide orientation to these private pharmacists and retailers to increase zinc coverage.

- Since female community health volunteers and mothers groups are the major source of information at the community level, there is a need to develop refresher programs for them in order to encourage their engagement in stronger advocacy.

- There is a need to increase monitoring and supportive supervision from central and district health levels to health facilities and female community health volunteers.
FUTURE WORK PLAN

UNICEF will continue to assist the Government of Nepal to expand the micronutrient supplementation and infant and young child feeding initiative, with a greater focus on behaviour change, and to strengthen the use of zinc for the treatment of diarrhea. Through IZA funding support, UNICEF will support these activities:

Micronutrient supplementation and infant and young child feeding program expansion

- **July 2012**: Formulation of national micronutrient supplementation and infant and young child feeding scale-up plan with process monitoring components.

- **August 2012**: Finalization of national maternal and infant and young child feeding strategy.

- **October 2012**: Completion of the micronutrient supplementation and infant and young child feeding program in six districts.

- **October 2012**: Expansion of the micronutrient supplementation and infant and young child feeding program in nine more districts, with a focus on behaviour change communication to change mothers’/caregivers’ behaviour on breastfeeding and infant and young child feeding practices.

- **December 2012**: Impact evaluation baseline survey carried out in the nine expansion districts.

- **End of 2012**: Gradual transfer of micronutrient supplementation and infant and young child feeding program responsibility to the Government of Nepal’s Ministry of Health and Population.

- Updating/revising recording and reporting formats, reminder cards and other materials for the program expansion.

- Revision of the program communication plan including effective message delivery on micronutrient supplementation, zinc and infant and young child feeding.

- Planning for social mobilization activities in the program’s strategic plan.

- Advocacy and review meetings to ensure government funding for the micronutrient supplementation and infant and young child feeding program.
A HEALTHIER LITTLE GIRL, THANKS TO MICRONUTRIENT SUPPLEMENTATION

Like most women in her community, Laxmi Bashyal prevails daily over adverse circumstances, doing household chores, managing livestock and working on her farm. Laxmi’s responsibilities include taking care of all eight members of her household alone, as her husband works abroad to provide a better future for their family. They own a decent house in Yamgha Village Development Committee in Palpa district.

Laxmi’s daughter, Deepika, a cheerful little 19-month-old girl, was born at home. Home deliveries are common in the hilly areas of Palpa where the distance to the health facility is far. Little did the family realize the unforeseen circumstances, when at her sixth month Deepika was diagnosed with pneumonia, the leading cause of childhood deaths worldwide.

It all started with a normal cough, chills and fever for two to three days. Deepika was weak, thin and fatigued. The condition worsened as she started breathing rapidly with grunting or wheezing sounds.

Laxmi was quick to consult with the Female Community Health Volunteer for primary treatment, but the initial treatment did not seem to have much of an effect. So the FCHV recommended she go to the hospital for further treatment. Mother and daughter have since paid several visits to the Mission Hospital in Tansen, the district headquarters.

Strengthening the use of zinc for diarrhea treatment

- Finalize the behaviour change communication plan for promoting the use of zinc for diarrhea treatment and support implementation of the plan.

- Support the government in implementing zinc intensification activities.

- Identify low coverage/compliance districts and conduct targeted behaviour change activities.

- Support youth mobilization activities, including the mobilization of radio listeners’ groups and youth clubs, for promoting the use of zinc.

- Support the strengthening of logistics systems for oral rehydration salts and zinc.

- Advocacy and orientation to ensure private sector involvement in the promotion of zinc.
It was at the hospital where Laxmi was advised to feed her child with micronutrient supplementation. She wasted no time in going to the FCHV’s house where she received 60 sachets of micronutrient supplement and valuable advice on infant and young child feeding practices.

The introduction of micronutrient supplement was a key turning point in Deepika’s young life, as her mother became more attentive to her feeding and care. Laxmi had never had time to take part in the Mothers’ Group meetings the Female Community Health Volunteer organized because she was occupied with her own work. However, at the FCHV’s house she received some valuable counselling. Laxmi realized how much better she could be feeding and caring for her daughter and for the first time she began feeding Deepika more healthily, mixing her morning meal with micronutrient supplement every day.

Laxmi is literate and was able to read the brochure which provided important information on the micronutrient supplement. During this time, she worked on her farm less and gave other family members more responsibility.

Since that fateful event at her eighth month, there has been no turning back for Deepika and her mother. Slowly Deepika began to recuperate and her pneumonia symptoms began to subside. She became stronger, healthier, more active and back to her cheerful self.

Laxmi Bashyal continues to breastfeed her child, along with an array of nutritious complementary foods including rice, cereals, vegetables, beans, animal milk and porridge four times a day to fulfil her growth requirements. Deepika now weighs 10 kilograms and is two feet tall, which complies perfectly with growth reference standards.

Laxmi is very grateful to her FCHV and doctor, and for the micronutrient supplement, which she believes has saved her from a great misfortune. Laxmi says that she has been inspired to encourage other eligible mothers to take up the micronutrient supplement for their children. Today, Deepika has completed her second dose and is on the verge of taking up her third.