

# Nutrition Audit Report for Malawi

Maximizing the Quality of Scaling up  
Nutrition Programmes (MQSUN)

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# Acronyms

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ARV	antiretroviral drug
BCC	behaviour change communication
CHW	community health worker
DFID	Department for International Development
DNHA	Department of Nutrition, HIV and AIDS
DHMT	District Health Management Team
DHS	Demographic and Health Survey
DMOE	District Ministry of Education
DONUT	Donor Group on Nutrition
ECD	early childhood development
ENA	Essential Nutrition Action
HSSP	Health Sector Strategic Plan
ITN	insecticide-treated net
IYCN	Infant & Young Child Nutrition Project
MDG	Millennium Development Goal
MGDS II	Malawi Growth and Development Strategy II
MUAC	mid-upper-arm circumference
MVAC	Malawi Vulnerability Assessment Committee
OPC	Office of the President and Cabinet

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Finally, our sincere gratitude goes to the Office of the President and Cabinet (OPC)/Department of Nutrition, HIV and AIDS (DNHA) for their continued interest in nutrition programming, policy guidance, and direction.

## Executive summary

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A nutrition audit for DFID Malawi was conducted by PATH between June and July 2012. The objectives of the audit were:

- To assess and identify the extent to which current DFID Malawi's activities and programmes already make a contribution to the reduction of undernutrition in Malawi (policy and operations).
- To assess the potential for scaling up DFID Malawi's existing programmes to make a contribution to reduction of undernutrition in Malawi; practical and costed recommendations of amending existing programmes to be more nutrition-specific or sensitive, and advise how to incorporate potential scaling-up opportunities.
- To assess the feasibility (and estimate the cost/benefit in nutrition terms) of integrating nutrition outcomes into the design of new DFID Malawi programmes.
- To identify appropriate nutrition-specific and nutrition-sensitive indicators (and the source of baseline/monitoring data) that can usefully be integrated into existing programmes.

This paper presents the findings of the assessment and looks at the extent to which current DFID Malawi programmes and activities already make a contribution to the reduction of undernutrition, the potential for scaling up the existing programmes to contribute to the reduction of undernutrition, and an assessment of the feasibility of integrating nutrition outcomes into the new DFID Malawi programmes. Suggestions for nutrition-specific and nutrition-sensitive indicators that could be integrated into the existing Malawi programmes are also included.

## Conclusion summary

All current DFID programmes, with the possible exceptions of the governance and security and wealth-creation programmes, were found to have an effect on addressing the nutritional status of women and children. That being said, one can define a causal pathway from these programmes to nutrition under certain circumstances. Based on an analysis of gaps in current nutrition programming in Malawi, we have proposed six interventions which can be integrated into current DFID Malawi programmes:

- Increase diet diversification through kitchen gardens and behaviour change communication (BCC) on feeding practices.
- Improve nutrition surveillance system established to ensure quality measurement, efficient data collection, recording, and management.
- Increase integration of infant and young child nutrition (IYCN) services into early childhood development (ECD) centre activities.
- Increase awareness and skills of community leaders and community health workers (CHWs) in optimal infant feeding and nutrition within the context of HIV.
- Increase awareness on benefits of iron supplementation amongst pregnant women.
- Improve hygiene and sanitation practices in beneficiary primary schools and communities.

# Introduction

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## Background

The problem of malnutrition in Malawi is widespread and endemic. According to the Malawi Demographic and Health Survey (DHS), almost half (47 percent) of the children under the age of five have chronic malnutrition or are stunted, which, coupled with the high prevalence of micronutrient deficiency disorders such as anaemia and vitamin-A deficiency and HIV/AIDS, poses a major challenge to the attainment of the Millennium Development Goals (MDGs) and the Malawi Growth and Development Strategy. The Malawi Growth and Development Strategy II (MGDS II) 2011–2016 outlines the country's medium-term objectives of poverty reduction through sustainable economic growth, social development, reduced vulnerabilities, and improved governance. The Government of Malawi sees the fight against HIV/AIDS and malnutrition as a priority for human development and the achievement of the MDGs.

In recent years, Malawi has made considerable gains in child survival and maternal health, which have translated into a drop in the number of underweight children, but almost no improvement in chronic malnutrition or stunting. The average rate of stunting in sub-Saharan Africa is 40 percent, which means that Malawi has one of the highest rates of stunting on the continent.

Similarly, gains in economic growth and food security have so far not resulted in significant reduction in stunting. Malawi still faces a number of challenges, resulting from the underlying causes of undernutrition, which include low household incomes, poor child feeding and care practices, and inadequate education and lack of knowledge, which leads to poor food processing and utilisation. In addition, cultural beliefs which hinder women and children from eating some high-nutritive-value foods, such as eggs during pregnancy, are also a challenge.

The majority of children under five years old in Malawi are anaemic, which in early childhood is a major factor in compromised cognitive development, associated with losses of up to eight Intelligence Quotient points (Office of the President and Cabinet [OPC], 2006). According to the National Micronutrient Surveys of 2001 and 2009, the percentage of children under five with anaemia dropped from 80 percent to 52 percent respectively—which is still an alarming figure. This improvement can partly be attributed to the large-scale malaria programme, notably the distribution of insecticide-treated nets (ITNs) and de-worming.

In women of reproductive age, anaemia is a major cause of maternal mortality and is also associated with low birth weight, fatigue, and reduced productivity. Over the past decade, the percentage of anaemic women (aged 15–49 years) has declined from 47 percent in 2001 to 44 percent in 2004 and 29 percent in 2010 (DHS 2001, 2004, 2010). This improvement can partly be attributed to the distribution of iron folic-acid tablets and the large-scale malaria programme, notably the distribution of ITNs and de-worming.

The effect of malnutrition in undermining child survival, growth, and development is well-documented in *The Lancet* series on undernutrition, which is the single major cause of child mortality (Black et al, 2008). It also increases the risk of child death from other diseases. Malnutrition before and during pregnancy increases the risk of maternal morbidity and mortality and may lead to impaired foetal physical and mental growth. Maternal malnutrition and malnutrition that occurs during the first two years of child's life may have irreversible deleterious effects on the physical and mental development of affected children. Such children may fail to reach their potential physical growth and intellectual ability, which reduces their productivity in future and potential gains to the individual, family, community, and the nation.

# The UK position paper on undernutrition

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The UK position paper of September 2011 on undernutrition, *Scaling up Nutrition*, outlines two targets that need to be achieved.

1. Scaling up nutrition-specific interventions to address immediate causes of undernutrition because they are the best value for money. The 13 proven interventions, which include preventing and treating vitamin and mineral deficiency and providing support to breastfeeding if delivered at scale, could reduce stunting by one-third globally. Through these interventions, more adolescent girls, pregnant women, and children under five years of age will be reached.
2. Because nutrition-specific interventions will reduce global stunting by only one-third, the remaining two-thirds will need to be tackled through nutrition-sensitive strategies. The latter would involve adjusting and re-designing programmes across sectors, including agriculture, environment, health, and cash transfer programmes, to ensure that they are able to improve the nutritional status of adolescent girls, pregnant women, and children under five years of age.

This audit has been aligned to the UK position paper on undernutrition.

## Methodology and approach

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The review was undertaken in three phases. **Phase One** involved reviewing key background documents which were made available by DFID Malawi. **Phase Two** involved a more detailed review of documents, meeting with DFID teams leaders/advisers/programme managers, and meeting with government stakeholders and Donor Group on Nutrition (DONUT) members. An analysis of DFID Malawi's business cases, programme portfolio, and log frames were also conducted. These were followed by a short office workshop with teams to present the proposed recommendations for DFID's consideration. **Phase Three** involved the writing of the final report.

## Map of current DFID Malawi programmes against sectors relevant to nutrition

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The UNICEF conceptual framework for malnutrition was used as the basis for analysing the root causes of malnutrition in Malawi, as well as for mapping the DFID Malawi programmes against relevant nutrition topics.

The UNICEF conceptual framework analysing causes of malnutrition in three levels:

**Basic:** These include potential resources, environment, and social and economic policies which affect the control of resources (economic, organisational, and human) and their quality and quantity.

**Underlying cause:**

- Inadequate services, such as water/sanitation and health services.
- Inadequate maternal and child care practices.
- Food security and access to food.

**Immediate cause:**

- Disease.
- Poor food/nutrient intake.

The causes of malnutrition in Malawi as they relates to the UNICEF conceptual framework in Malawi can be summarised as follows:

**Basic causes:**

- Poverty, which leads to lack of income for income-generating activities to help diversify diets through consumption of more nutritious foods—either through sale or through agriculture. In the case of Malawi, more than half of the population lives below the official poverty line—a figure that is likely to increase based on recent increases in the price of fuel and the steep devaluation of the Malawian Kwacha.
- High illiteracy levels, especially in older women, which lead to high unemployment and lack of knowledge of good nutrition practices. For example, amongst women over 40, less than half are literate; however, amongst men of the same age group, the figure is only around 20 percent (Malawi DHS, 2010).

**Underlying causes:**

- Low availability and access to food in terms of quality, quantity, and diversity. The Malawi Vulnerability Assessment Committee (MVAC) estimates that over 1.6 million people in Malawi are likely to suffer from food insecurity in 2012 and 2013.
- Low availability and access to optimal health services.
- Poor hygiene and sanitation (i.e., lack of access to safe water and sanitary facilities)—which is manifested in the fact that only eight percent of households in Malawi have access to improved sanitation facilities (Malawi DHS, 2010).
- Poor maternal and child care practices (lack of knowledge for optimal maternal and child feeding practices, as well as prevailing cultural practices which lead to unequal intra-household food distribution).

**Immediate causes:**

- Sub-optimal intake of foods in both quality and quantity—e.g., only 19 percent of children 6–23 months are fed a minimum acceptable diet (Malawi DHS, 2010).
- Frequent episodes of diseases like diarrhoea, malaria, and pneumonia, which lead to poor appetite and low absorption of nutrients—thereby precipitating malnutrition. According to the 2010 DHS, nearly 18 percent of children had diarrhoea in the two weeks before the survey, whilst nearly 7 percent had symptoms of acute respiratory infection.

A child with poor nutritional status is highly susceptible to frequent illnesses due to an impaired immune system, which reduces child survival and impairs physical and mental development—leading to poor educational outcomes. A child who is frequently ill does not grow well due to sub-optimal feeding and reduction in absorption of nutrients. Therefore, there is a vicious cycle of

repeated infections/illnesses and poor nutrition. Stunting that occurs before the age of two leads to significant physical and mental damage that may be irreversible, even if their nutritional status improves later in their life.

Poor nutritional status also affects pregnancy outcomes. Poor nutrition during pregnancy reduces physical development that may lead to miscarriages, low birth weight, or worse—stillbirths, perinatal death, and irreversible damage to the unborn child. Low birthweight babies have a high risk of frequent infections and deaths.

The DFID Malawi programme focuses on several thematic areas. Currently, DFID Malawi does not implement any nutrition-specific interventions. However, as the following section will demonstrate, current DFID Malawi programmes do have an impact on nutrition.

## **Community resilience and adaptation strengthening**

The main purpose of this DFID thematic area is to increase the resilience of 1.2 million people in five disaster-prone districts to climate change and variability. Proposed interventions include crop diversification, community seed bank and storage facilities, water and sanitation programmes, village savings and loans associations, and community-based early warning systems. There are four main objectives: namely, implementation of community-based adaptation activities, strengthening information sharing on disaster risk reduction and climate adaptation, strengthening the MVAC to develop an early warning system for such slow-onset disasters as food insecurity, and strengthening disaster risk reduction and climate change/variability programmes of key government institutions and departments.

The above interventions may be construed as nutrition-sensitive interventions that address some of the basic and underlying causes of malnutrition. Humanitarian crises and changes in climactic conditions may disrupt food supply chains, destroy crops, or ruin food stocks. Improving the resilience of communities to respond to humanitarian crises and climate variability and change ensures that communities are—amongst other things—food secure and have access to nutritious food. Resilience is particularly important in agrarian countries such as Malawi, where agriculture is mostly dependent on rains and crops may fail in the aftermath of a poor rainy season. Establishing resilience to such shocks thereby leads to improved nutritional status of vulnerable groups such as women and children under five.

## **Agriculture**

The main purpose of this DFID programming area is to improve agriculture production and productivity, particularly of staple crops, therefore enabling Malawi to grow enough food to feed itself. The agriculture programme also expects spill-over benefits vis-à-vis improved nutritional status of beneficiary populations, increased economic growth, and resilience to climate change/variability. Some salient activities of the agriculture programme include: boosting maize yields by the use of high-yielding maize seeds, providing 350,000 households (including 30 percent headed by women) with high-yielding maize and legume seeds, supporting 2,000 farmers (including 50 percent women) to earn additional income via dairy farming, contributing to the national farming subsidy scheme, and training 90,000 farmers (including one-third women) to adopt sustainable agricultural practices.

In general, it is known that agricultural growth is important for reducing stunting at the aggregate level. Therefore, DFID's current agriculture programmes are nutrition-sensitive in nature, addressing some of the basic and underlying causes of malnutrition. Nonetheless, the evidence for showing the impact of agricultural programmes on nutrition is weak. A DFID review of interventions aiming at increasing

income and improving the diet of rural people concluded that agriculture interventions improve the production of nutritious food amongst poor households, but the review could not identify a direct impact on the nutritional status of children, as most studies were too small to detect an impact (Masset et al, 2011) That being said, by ensuring that agriculture practices are sustainable, increasing uptake of fertilisers and improved seeds/stocks of staples such as maize and legumes, and expanding livestock-rearing activities such as rearing of dairy cattle, one may conclude that communities will be able to have access to nutritious foods.

## Education

Education is a key DFID programming area. Currently, DFID funds two major programmes: Keeping Girls in School and the Malawi Education Sector Reform Programme. The former programme seeks to provide incentives for girls to remain and move up to secondary school. The second programme has a variety of objectives, including training 16,000 new primary school teachers, constructing/repairing 2,000 primary school classrooms, ensuring gender parity in schools, and directly supporting primary schools via small grants.

Extending gender parity and providing incentives for girls to remain in school are two nutrition-sensitive interventions addressing a basic cause for malnutrition. These are the two education interventions with the most likelihood of having an effect on the nutritional status of women and children. Particularly, when girls remain in school, they are less likely to get married and become pregnant when they are adolescents. Mothers who become pregnant when they are adolescents often give birth to children of low birth weight (Friede et al, 1987). Children who are born with low birth weight can potentially suffer from deleterious developmental outcomes in later life—including stunting.

## Health and HIV

DFID Malawi supports the National AIDS Commission in the areas of prevention of new HIV infections; BCC; policy and advocacy; access to testing, counselling, and treatment; and provision of HIV commodities. Specific activities include creating and distributing 120,000 copies of communications materials, counselling and testing 32,778 women for HIV, providing antiretroviral drugs (ARVs) to 3,933 pregnant, HIV-positive women, and training 180 community leaders in communicating messages related to HIV.

Preventing HIV transmission through behaviour change, counselling, and testing women, and increasing ARV coverage are nutrition-sensitive interventions that address both underlying and immediate causes of malnutrition. People infected with HIV are more likely to be malnourished because of several factors. These include reduced intake of food due to sores in the mouth and alimentary canal; fatigue and depression having a negative effect on appetite; poor absorption of nutrients due to opportunistic infections, including intestinal parasites and diarrhoea; and increased energy needs (as much as 30 percent over normal energy needs) that are often difficult to meet. Therefore, prevention of HIV infections will result in lower levels of malnutrition. If HIV-positive women are provided with ARVs, they will likely have a better appetite and absorb nutrients from the food that they eat. Moreover, being on ARVs will reduce the chances of women and children being infected with opportunistic infections, which will also result in improved nutritional status. Additionally, pregnant women receiving counselling are more likely to take actions that will prevent mother-to-child transmission of HIV.

## Family planning

DFID's family planning mandate seeks to increase the coverage of modern family planning methods in Malawi—especially amongst poor, rural, and young women. Specific activities and targets include reaching 225,000 women with additional family planning interventions, preventing 4,460 maternal deaths, and targeting 145,000 deliveries by a skilled birth attendant.

Supporting family planning through delaying the age of first pregnancy, increasing spacing between births, and reducing total number of pregnancies is a nutrition-sensitive intervention that addresses some of the underlying causes of malnutrition in several ways. Mothers who delay their first pregnancy allow their uteri to develop sufficiently, thereby allowing optimal *in utero* growth and development of the unborn child. Mothers who become pregnant when they are adolescents often give birth to children of low birth weight (Friede et al, 1987). Children who are born with low birth weight can potentially suffer from deleterious developmental outcomes in later life—including stunting. Mothers who are unable to space their pregnancies are also more likely to terminate breastfeeding early—thereby resulting in such nutritional conditions as stunting (Huffman). Additionally, repeated pregnancies wear down mothers and make mothers feel that they cannot sustain breastfeeding for the prescribed duration. Additionally, the programme provides opportunities for improving the iron supplementation of pregnant and lactating women. Moreover, when mothers breastfeed exclusively, they are able to delay pregnancy by the lactational amenorrhoea method—which is a natural means of family planning. Most importantly, when mothers are able to limit the total number of children by planning their pregnancies, there are fewer mouths to feed—thereby ensuring better nutrition in the family.

## Water and sanitation

In Malawi, DFID anticipates investing a significant amount of money in the provision of safe water and improved sanitation. These interventions are nutrition-sensitive, addressing both underlying and immediate causes of malnutrition. Hygiene and sanitation play a major role in the prevention of malnutrition. Frequent and prolonged episodes of diarrhoeal disease—often caused by poor hygiene and sanitation—are strongly related to stunting in children in developing countries (Checkley et al, 2008). A multi-country study that was done in 1996 on water, waste, and well-being, showed that improved sanitation is associated with a reduction in height deficit in the range of 22–53 percent for urban children and 4–37 percent for rural children (Esrey, 1996). Hygiene interventions (hand-washing, water treatment, health education, and sanitation) have been estimated to contribute to a three percent reduction in stunting (based on the impact of diarrhoea prevalence and the link between diarrhoea and stunting). Good hygiene and sanitation and clean water also reduce the incidence of other water-borne diseases, such as typhoid and bacterial and protozoal infections. Repeated episodes of these infections result in poor absorption of nutrients—thereby precipitating malnutrition. Furthermore, improved access to water and sanitation facilities frees up more time for caregivers to provide child health and nutrition care for children under five years of age.

## Health Sector Strategic Plan (HSSP)

DFID's support to the Malawi HSSP involves a sector-wide approach to reduce maternal mortality and under-five mortality, as well as to improve health facility service delivery. An important component of DFID's support to the HSSP is averting 91,000 under-five deaths and around 6,000 maternal deaths. The results of this support attributed to DFID—given that DFID Malawi is providing 6.4 percent of the total HSSP budget—include treating 267,000 children under five for pneumonia, bringing 27,000 adults on

anti-retroviral drugs by 2015, treating 4,000 people for tuberculosis, ensuring 145,000 deliveries are attended by a skilled health worker, fully immunising 151,000 children, treating 1.64 million children for malaria, distributing 661,000 bed nets, and creating 23,000 additional family planning users.

Whilst there are no standalone nutrition interventions at present, any health systems-level effort to reduce maternal and under-five mortality and improve service delivery at facilities will have implications on the nutritional status of women and children by addressing the underlying and immediate causes of malnutrition. For instance, reducing maternal mortality will ensure that infants receive optimal nutrition during the crucial first two years of life. On the other hand, preventing under-five mortality through provision of improved services, such as de-worming and immunisations, would have implications on the nutritional status of children, as children who are less prone to infections are able to absorb nutrients more effectively. On the other hand, children who are well-nourished have a stronger immune system that assists in fighting against infections. Therefore, a health systems-level effort at improving the health of women and children will assist in breaking the vicious cycle of malnutrition and infection.

## **Governance and security**

The governance and security thematic area has three nutrition-sensitive interventions that address the basic causes of malnutrition, safety, security, and access to justice, economic governance and anti-corruption, and accountability and empowerment. The causal pathway from these three pathways to improved nutrition is probably not as clearly defined as the previous causal pathways. However, one can surmise that through improved safety and access to justice, increased quality of primary justice for women, and informed police response to women and children, women would be more empowered to care for themselves and for their children, thereby indirectly resulting in their improved nutritional status. Additionally, improved public financial management and anti-corruption efforts would possibly ensure that nutrition-sensitive and nutrition-specific public services meant for women and children are delivered more effectively and reach a greater number of beneficiaries. Lastly, empowering citizens, especially women and girls, to hold the government accountable would result in improved safety and access to justice and reduction in corruption—all of which would indirectly lead to reduction of malnutrition in women and children.

## **Wealth creation**

The wealth creation thematic area contains two potentially nutrition-sensitive interventions that address the basic causes of malnutrition—access to finance and private-sector development. Improving access to financial services for poor rural and urban people and spurring private-sector development play important roles in addressing malnutrition, since these interventions enable poor people to access nutritious food and other nutrition-sensitive interventions such as improved water and sanitation and education. Improving access to finance for small-holder farms allows farmers to obtain credit for improving their agriculture practices by adopting sustainable agricultural practices, purchasing fertilisers and improved seeds, and expanding livestock rearing—all of which have an impact on improving the nutritional status of women and children. Improving access to finance for microenterprises and small enterprises and encouraging private-sector development ensure that these businesses are able to offer employment to vulnerable groups, as well as possibly process agricultural products and produce nutritious foodstuffs—all of which have indirect and direct impacts on improving the nutritional status of women and children.

## **Overall assessment of impact on nutrition**

In conclusion, all current DFID programmes have an impact on nutritional status, although the causal pathways are very different and are not direct. Given the complex aetiology of malnutrition that includes both sociological/environmental and health-related factors, interventions that address any of the basic, underlying, or immediate causes of malnutrition will have some impact on the nutritional status of vulnerable groups, such as women and children. However, since DFID Malawi does not currently support standalone nutrition interventions, it may be difficult to measure the impact of current DFID Malawi programmes on reducing malnutrition in women and children. When an intervention affects food intake or health status directly, and the outcome is directly related to that intervention, it is possible to measure a direct impact. For example, if vitamin-A supplements are given to children, and their vitamin-A status improves, one may draw an association between vitamin-A supplementation and improvement in vitamin-A status. However, since a programme broadly affects household food diversification, measuring and attributing an impact on a specific outcome, such as vitamin-A status, requires a control group to judge that the programme was responsible for the change and not a concurrent, independent event.

When the causal pathway between the intervention and the outcome is not direct/clear and/or when there are multiple interventions (not necessarily all DFID interventions) that could all have an effect on the same outcome, the effects of each intervention cannot be evaluated separately—unless there is a control group for comparison. Indicators of nutritional status, such as the prevalence of stunting, underweight, wasting, and vitamin-A deficiency, are, to an extent, composite indices of national health and development, and changes cannot easily be attributed to one programme alone.

That being said, to reiterate, current DFID programmes do have an impact on improving the nutritional status of women and children (notwithstanding the absence of a standalone nutrition intervention), as will be made clear in the following results framework. The links between the wealth creation and governance and security programmes with nutrition are perhaps the most tenuous; however, one may define a causal pathway to nutrition under certain circumstances.

## Results framework for current DFID Malawi programmes

Programming area	Interventions	Causal pathway to nutrition	Nutritional outcomes
Community resilience and adaptation strengthening	<p>Diversification of crops</p> <p>Establishment of early warning systems (esp. for food insecurity)</p> <p>Creating village savings and loans associations</p> <p>Setting up community seed/grain banks and storage facilities</p>	Resilience reduces market and environmental shocks—thereby improving overall food security	Improved household food security and possible impact on energy and micronutrient requirements
Agriculture	<p>Increasing production of staples</p> <p>Subsidising agriculture (esp. through provision of high-yielding maize and legume seeds)</p> <p>Supporting sustainable conservation agriculture</p> <p>Increasing coverage of dairy farming</p>	Ensuring sustainable agriculture practices, increased uptake of fertiliser and improved seeds/stocks, and expanding livestock-rearing activities increase access to nutritious foods—thereby improving overall food security	Increased production and consumption of micronutrient-rich foods
Education	<p>Extension of gender parity upwards to primary grade 8 and secondary form 2</p> <p>More incentives in place for girls to remain in school and move up to secondary school</p>	Keeping girls in school through the secondary level reduces likelihood of early marriage and/or adolescent pregnancy—both having implications on nutritional status of children	Reduced incidence of low birth weight
Health and HIV	<p>Behaviour change through various channels</p> <p>Counselling and HIV testing of pregnant women</p> <p>Increased coverage of ARVs</p>	<p>HIV-positive individuals are more susceptible to malnutrition; therefore, prevention of HIV transmission reduces malnutrition</p> <p>Counselling mothers during pregnancy reduces mother-to-child transmission of HIV and improves optimal breastfeeding</p>	<p>Reduction of HIV prevalence</p> <p>Improved nutrition and survival of HIV-exposed infants</p>

Programming area	Interventions	Causal pathway to nutrition	Nutritional outcomes
		Increasing ARV coverage allows HIV-positive individuals (esp. women and children) to better absorb nutrients—thereby reducing malnutrition	Weight gain in HIV-positive individuals on ARVs
Family planning	Increased coverage of modern contraceptive methods  Skilled attendants at birth	Delaying first pregnancy reduces low birth weight—which has implications for nutritional status  Spacing births allows mothers to care better for children—including continuing breastfeeding  Fewer children in a family has implications for household food security	Reduced incidence of low birth weight  Higher rates of exclusive breastfeeding  Improved iron status  Improved household food security
HSSP	Maternal and child health through support to the 2011–2015 Malawi Health Sector Support Plan to reduce maternal mortality, under-five mortality, and to improve health facility service delivery	Reduction of maternal mortality will ensure that infants receive optimal nutrition during the crucial first two years of life  Preventing under-five mortality through services like de-worming and immunisations would allow children to absorb nutrients more effectively—thereby reducing malnutrition	Higher rates of exclusive breastfeeding  Lower incidence of infections in children manifesting in reduced stunting
Water and sanitation	Improved health outcomes through increased access to safe drinking water and basic sanitation  Increased sustainable access to safe water and basic sanitation	Improved hygiene and sanitation result in reduction of episodes of infection—resulting in improved absorption of nutrients and consequent decrease in malnutrition  More time is spent by caregivers of children under five for child care and nutrition when safe water is available	Lower incidence of infections in children manifesting in reduced stunting  Improved care practices by caregivers

<b>Programming area</b>	<b>Interventions</b>	<b>Causal pathway to nutrition</b>	<b>Nutritional outcomes</b>
Wealth creation	<p>Access to finance</p> <p>Private-sector development</p>	<p>Improved access to finance allows vulnerable families and small-holder farms to obtain credit for agriculture—which has implications for improved food security</p> <p>Private-sector development allows these entities to offer employment to vulnerable groups, as well as possibly process agricultural products and produce nutritious foodstuffs—all of which have implications for improved food security</p>	<p>Increased production and consumption of nutritious foods</p> <p>Improved household food security</p>
Governance and security	<p>Safety, security, and access to justice</p> <p>Economic governance and anti-corruption</p> <p>Accountability and empowerment</p>	<p>Empowerment of women allows them to care for themselves and for their children—thereby indirectly resulting in improved nutritional status</p> <p>Improved public financial management and anti-corruption efforts would possibly ensure nutrition-sensitive and nutrition-specific public services meant for women and children are delivered more effectively and reach a greater number of beneficiaries</p>	<p>Increased production and consumption of nutritious foods</p> <p>Improved household food security</p>

# Feasibility analysis for scaling up and integration of nutrition outcomes

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## Background

In a bid to assess potential for scaling up and feasibility of integration of nutrition outcomes in existing programmes, we analysed existing DFID programmes and current resources. It is within this context that a series of interventions that can be couched within existing/planned DFID programmes have been proposed, mainly around the development of training curricula, training, production and dissemination of BCC materials, and mass communication campaigns. These interventions would be designed around the gaps in current nutrition programming in Malawi—as reflected in discussions with DFID, the DONUT group, and governmental stakeholders; as well as from a survey of the literature. Gaps that were identified include poor micronutrient status in both women and children under five, sub-optimal infant feeding practices (including both breastfeeding and complementary feeding), lack of dietary diversity, poor sanitation and hygiene practices, food insecurity, HIV-free survival of HIV-exposed children, and general poverty. We have tried to map the gaps to current/proposed DFID programmes and propose corresponding interventions to address these gaps via DFID programmes.

For each intervention, we have conducted a basic costing analysis that will enable DFID to obtain an idea of the costs of implementing the intervention, as well as insights into the number of beneficiaries (particularly women and children under five) reached via the intervention. Additionally, for each intervention, we have presented a risk assessment that considers developmental, political, financial, and operational risks that could get in the way of DFID interventions/programmes reaching intended beneficiaries and thereby prevent DFID from obtaining value for money. The following is the risk modelling matrix that we have used for our assessment.

<b>Developmental risks</b>	<b>Political risks</b>	<b>Financial risks</b>	<b>Operational risks</b>
Unproven methodologies	Lack of political will	Misuse of funds	Implementation risks
Poor to moderate causal relationships between intervention and nutrition	Poor governance	Poor accounting	Security and safety
		Issues of procurement	Human resources

In addition to the costing analysis and risk assessment, we have included output and outcome indicators for each basket of nutrition interventions integrated into current DFID programmes.

# Recommendations

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The following are our recommended interventions integrated into the context of current DFID programmes.

## Agriculture

The consumption of micronutrient-rich fruits, vegetables, and animal-source foods increases dietary diversity and improved nutritional status of households including children 6–23 months. Malawi has adapted the six food groups from the World Health Organization’s eight food groups, namely; the staple of fruits, vegetables, food from animal sources, legumes, and fats. The most effective means of growing these crops is through kitchen gardens and rearing of small animals, since the crops will most likely be consumed in the house rather than be sold on the market. There is some evidence that home gardening can increase diversity of children’s diets and reduce micronutrient deficiencies (vitamin A and zinc), particularly in combination with nutrition education. There is little evidence for improvements in anaemia through vegetables alone in home gardens. In addition to the direct effect on reducing malnutrition in women and children, growing crops in home gardens (and more so in communal gardens) often has a spill-over effect in improving economic status of women, which in turn leads to improved nutritional status. If more crops are produced than can be consumed, excess produce may be sold for income generation. As has been mentioned before, women often spend the income on buying other foods, or pay for health care or education for their children.

DFID proposes to provide 350,000 households with affordable, high-quality seeds for legumes and maize. A series of nutrition-sensitive interventions is proposed to reach a subset of these households.

### Recommendation 1

**Objective:** Increased diet diversification through kitchen gardens and BCC on feeding practices.

- In addition to providing the DFID beneficiary households with high-quality seeds for staples, training will be provided on establishment and maintenance of kitchen gardens where micronutrient-rich foods, such as orange-flesh sweet potatoes and iron-rich green leafy vegetables, can be cultivated. Wherever possible, these households would also be provided with assistance regarding rearing small animals.
- In addition to the promotion of kitchen gardens, CHWs and savings and lending group leaders (where feasible) would be trained in broader infant and young child feeding practices and equipped to train beneficiary households on such additional topics as breastfeeding, responsive feeding, and feeding of the sick child. The CHWs can be trained using a curriculum recently developed by the Infant & Young Child Nutrition (IYCN) Project. The curriculum has been vetted and approved by the Government of Malawi. Trained CHWs will conduct group/household meetings and education sessions on utilisation of the produce from the gardens in preparing high-quality complementary foods for children and nutritious foods for older children and pregnant women. They will also provide counselling to mothers on breastfeeding and optimal infant and young child feeding practices. Savings and lending groups and farmers groups in beneficiary communities will receive additional education on infant and young child feeding practices as an integral component of the DFID assistance.

Results	Indicators	Baseline
<b>Outcome 1</b> Households cultivate kitchen gardens growing a minimum of five micronutrient-rich crops	Number of households with kitchen gardens [ <i>sensitive</i> ]	DFID
	Number of micronutrient-rich crops cultivated [ <i>sensitive</i> ]	DFID
<b>Output 1</b> Farmer groups are trained on how to establish kitchen gardens	Number of farmer groups trained on kitchen gardens [ <i>sensitive</i> ]	DFID
	Number of households trained on kitchen gardens [ <i>sensitive</i> ]	DFID
<b>Outcome 2</b> Households prepare diversified diets with micronutrient-rich foods, especially in preparation of complementary foods for children 6–23 months	Percentage of mothers in beneficiary households demonstrating correct preparation of diversified meals with micronutrient-rich foods for children 6–23 months [ <i>specific</i> ]	DFID
<b>Output 2</b> CHWs and savings and lending group leaders are trained on infant and young child feeding and utilisation of micronutrient-rich foods from kitchen gardens	Number of CHWs and savings and lending group leaders trained on infant and young child feeding [ <i>sensitive</i> ]	District Health Management Team (DHMT)
	Number of mothers trained on improved utilisation of micronutrient-rich foods and infant and young child feeding practices [ <i>specific</i> ]	DFID
	Number of community sensitisation meetings conducted by trained CHWs [ <i>sensitive</i> ]	DHMT

### Costing analysis

Previously, the IYCN Project in Malawi had estimated the cost of training CHWs, orienting supervisors/trainers, and orienting local authorities at roughly £48,000 per 300 workers trained. There would be additional costs of roughly £8,000 associated with printing and disseminating the IYCN training package. Assuming that each CHW reaches 50 households, DFID would therefore be able to provide this nutrition-sensitive basket of interventions for 15,000 households for an investment of £56,000. Of these 15,000 households, 4,500 should be women-headed households—per DFID’s mandate in agriculture. Assuming there is one child under five in each household, one may assume that DFID would be able to reach 15,000 children under five for every investment of £56,000. We wish to note that a CHW typically reaches more than 50 households. Our costing analysis is therefore fairly conservative, with the possibility that the intervention will have significantly more value-for-money for DFID than has been outlined in this analysis.

## Risk assessment

Developmental risks	Political risks	Financial risks	Operational risks
Moderate developmental risks, since the causal pathway between home gardens and improvement in nutritional status is often weak	Low political risks associated with lack of political will from the Government of Malawi in supporting part or the whole of the activity, as the activity would likely promote the cultivation and consumption of crops already common to Malawi	Low financial risks, since DFID can potentially use existing curricula	Moderate operational risks associated with the increased human and operational resources required for implementation

Our overall risk assessment for this activity is **low to moderate**.

## Community resilience and adaptation strengthening

DFID's support in community resilience includes strengthening the MVAC to develop an early warning system for slow-onset disasters such as food insecurity. A strong MVAC should cover routine nutrition surveillance which is sustainable and owned by government. Data from an effective nutrition surveillance programme will assist vulnerable districts government teams to more effectively plan and respond to malnutrition in communities. The literature review and discussions reveal that the Malawi OPC has initiated activities in collaboration with the European Union, UNICEF, and other stakeholders to establish a sustainable nutrition surveillance system in ten districts, of which two districts fall under the DFID community resilience project (Chiwawa and Dedza). This offers the opportunity for DFID to strengthen nutrition surveillance activities in the other three priority districts where the European Union is not intervening: Nsanje, Balaka, and Karonga. The main indicators will include under-five nutrition, nutrition of pregnant women, and household food security, and will follow trends in stunting, wasting, underweight, Food Stress Index, etc. The same children will be tracked throughout the course of the year.

### Recommendation 2

**Objective:** Improved nutrition surveillance system established, ensuring quality measurement, and efficient data collection, recording, and management.

- Main activities include training supervisors and other district-level implementation staff for the three districts, formalising the MVAC and setting up quarterly meetings, adapting training materials (which already exist for the European Union-funded activities through OPC/Department of Nutrition, HIV and AIDS [DNHA]), providing technical assistance to village health committee volunteers in data collection, and strengthening the capacity of district-level staff to ensure data quality and proper collation of data.
- The system will be integrated in each district's annual work plan and reports generated will be fed back into the plans. District managers will be supported to plan and implement district-level annual meetings to review data and plan activities in line with surveillance results.

Results	Indicators	Baseline
<b>Outcome 1</b> District teams conduct regular analysis, reporting, and dissemination of nutrition data from district nutrition surveillance system	Number of nutrition surveillance reports disseminated in a year [specific]	DHMT, MVAC
	Number of plans developed and implemented in line with surveillance report [specific]	DHMT, MVAC
<b>Output 1</b> District teams are trained on data collection, analysis, management, and use	Number of staff trained on surveillance data collection, analysis, management and use [specific]	DHMT, MVAC
	Number of required trained staff at post [specific]	DHMT, MVAC

### Costing analysis

Drawing on our costing experience from the IYCN Project from Malawi, we can estimate that £10,000 would be required to adapt existing training curricula being used in the European Union-funded surveillance activities. The cost of training village health committee members would be roughly £48,000 per 300 such members trained. The training costs would also include the cost of training district-level staff and supervisors. There would be additional costs of roughly £8,000 associated with printing and disseminating the training materials. Additional costs would include setting up quarterly MVAC meetings (£4,000), providing further technical assistance to village health committees for data collection (£48,000), and assisting district-level staff to ensure data quality during the compilation and analysis phase (£12,000). Therefore, for each district supported under MVAC, DFID would aim to invest £130,000. Since DFID would be supporting activities at the district level, one may argue that DFID would be able to reach every child under five in a particular district.

### Risk assessment

Developmental risks	Political risks	Financial risks	Operational risks
Low developmental risks, since surveillance/early warning is considered to be an effective intervention to detect food insecurity	Low political risks associated with lack of political will from the Government of Malawi in supporting part or the whole of the activity, as the MVAC is an existing institution	Low financial risks associated with mismanagement of funds, since most activities will be conducted under DFID's stewardship	Moderate operational risks associated with the increased human and operational resources required for implementation

Our overall risk assessment for this activity is **low**.

## Education

The current DFID mandate seeks to strengthen primary schools through a variety of mechanisms, including training new primary school teachers, providing direct grants to primary schools, and constructing or repairing primary school classrooms. However, since DFID wishes to reach children

under the age of five through nutrition-sensitive interventions, we propose that DFID’s education programme consider investing in ECD programmes, especially at the community level. The DFID education programme will therefore additionally target teachers at ECD centres to train them on nutrition-related topics—including infant and young child feeding, dietary diversity, responsive feeding, etc.

### Recommendation 3

**Objective:** Increased integration of infant and young child nutrition services into ECD centre activities.

- The ECD centre focal persons will be trained and equipped to disseminate infant and young child nutrition knowledge amongst parents of the children under their care and use this knowledge to improve the nutritional quality of foods usually provided at such ECD centres.
- ECD focal persons will also be trained to conduct nutritional screening of children using MUAC (mid-upper-arm circumference) tapes and visual cues such as oedema. Children identified to be malnourished will be referred to health and community facilities for treatment and support.
- DFID may consider provision of small grants to ECD centres to purchase fortified supplementary foods, vegetables, and fruits to complement the diets of children in these centres. The training curricula already developed by the IYCN Project could be adapted for the purpose of training teachers.

Results	Indicators	Baseline
<b>Outcome 1</b> Infant and young child nutrition integrated in the services of ECD centres	Number of ECD centres who have developed a programme on infant and young child nutrition <i>[sensitive]</i>  Number of infant and young child nutrition services implemented <i>[sensitive]</i>	DHMT, District Ministry of Education (DMOE)  DFID
<b>Output 1</b> ECD focal persons are trained in infant and young child nutrition	Number of ECD staff trained <i>[specific]</i>  Number of trained staff at post in ECD centres <i>[specific]</i>	DHMT, DMOE  DHMT, DMOE
<b>Output 2</b> ECD centres implement a minimum of core nutrition services	Number of ECD centres who implement core nutrition services <i>[sensitive]</i> : <ul style="list-style-type: none"> <li>• Nutrition screening with MUAC tapes</li> <li>• Nutrition counselling of caregivers of children under their care</li> <li>• Vitamin-A supplementation</li> <li>• Supplementation of diet of vulnerable children</li> </ul>	DFID

### Costing analysis

Using IYCN costing data from Malawi, we can estimate that £50,000 would be required to adapt and harmonise the existing training curricula for the context of training pre-primary/ECD teachers. The cost of training teachers and orienting supervisors/trainers would be roughly £40,000 per 300 teachers trained.

There would be additional costs of roughly £8,000 associated with printing and disseminating the adapted IYCN training package. We also propose that each teacher be provided with a small grant of £100 per year (i.e., £30,000 per 300 teachers), which could be used to occasionally purchase nutritious food for children under their care—in addition to defraying other operational expenses associated with taking care of these children.

Assuming that each pre-primary school/ECD teacher has 40 children under her/his care, DFID could potentially reach 12,000 children under five by investing £78,000 (plus the initial fixed cost of £50,000 needed to adapt the training package).

One caveat would be the fact that most children in pre-primary schools and ECD centres are likely to be older children (three to five years). Younger children may possibly be reached through household interventions mediated by CHWs—as discussed previously.

### Risk assessment

Developmental risks	Political risks	Financial risks	Operational risks
Moderate developmental risks, since the children being reached would tend to be in the age group 3–5 years—as opposed to younger children	Low political risks associated with lack of political will from the Government of Malawi in supporting part or the whole of the activity, as nutrition-sensitive activities are already taking place at the primary school level	Moderate financial risks associated with mismanagement of funds, since there is uncertainty in ensuring correct use of the small grants made to teachers	Moderate operational risks associated with the increased human and operational resources required for implementation

Our overall risk assessment for this activity is **moderate**.

## Health and HIV

The World Health Organization’s most recent guidelines (2010) on infant feeding in the context of HIV recommend that HIV-positive mothers breastfeed exclusively for the first six months, followed by complementary feeding along with breastfeeding for six months or longer—until the infant can be fed with a minimum acceptable diet. The risk of transmitting HIV to an infant through breastfeeding is significant; however, this risk is outweighed by the risk of the child dying from infections such as diarrhoea and acute respiratory infections as a result of improper infant feeding practices. In other words, the onus of the 2010 guidelines lies on increasing the chances of HIV-free survival of the infant—as opposed to only preventing the transmission of HIV.

DFID Malawi already has a mandate to develop 120,000 copies of targeted communications materials for HIV, train 180 community leaders, test 108,000 clients for HIV, counsel 32,778 pregnant women, and provide ARVs to 3,933 pregnant HIV-positive women. This offers the opportunity to increase the capacity of community leaders and health workers to provide to pregnant women appropriate support and counselling in infant feeding within the context of HIV.

## Recommendation 4

**Objective:** Increased awareness and skills of community leaders and CHWs in optimal infant feeding and nutrition within the context of HIV.

- The IYCN Project and other stakeholders in Malawi have worked in collaboration with the Ministry of Health to adapt World Health Organization materials and job aids on infant feeding in the context of HIV. These materials can be used to train both community leaders and CHWs in nutritional assessment, counselling, and support for pregnant women. The training will also focus on how to link HIV-positive pregnant and lactating women to food security initiatives such as supplementary feeding programmes.
- Communication materials, such as posters and brochures already developed in other countries, can be adapted for Malawi. These materials will focus on optimal infant feeding for HIV-exposed infants, as well as on nutrition of HIV-positive mothers (who have unique nutritional needs due to their HIV-positive status).

Results	Indicators	Baseline
<b>Outcome 1</b> Community support of pregnant women on optimal infant feeding and nutrition within the context of HIV is reflected in community plans and activities	Number of communities who establish plans on promotion of optimal infant feeding and nutrition (documented plans, activities, women's group meetings, etc.) [ <i>sensitive</i> ]	DHMT
<b>Output 1</b> Communication materials are adapted, developed, and distributed (job aids, take-home leaflets for pregnant women )	Number and type of materials developed [ <i>sensitive</i> ]  Number of materials distributed by target recipient [ <i>sensitive</i> ]  Number of pregnant women who receive materials [ <i>sensitive</i> ]	DFID  DFID  DHMT
<b>Output 2</b> Community leaders and CHWs are trained on infant feeding and nutrition within the context of HIV	Number of community leaders trained [ <i>sensitive</i> ]  Number of CHWs trained [ <i>sensitive</i> ]  Number of pregnant women reached with counselling sessions [ <i>sensitive</i> ]	DHMT  DHMT  DHMT

## Costing analysis

Using IYCN costing data from Malawi, we can estimate that £50,000 would be required to adapt and harmonise the existing training curricula for the context of training community leaders and health workers dealing with HIV-positive women. The cost of training these health workers and community leaders would be roughly £40,000 per 300 workers and 30 community leaders trained. There would be additional costs of roughly £8,000 associated with printing and disseminating materials. The cost of adapting a mass communication material, such as a brochure or poster, is estimated to be £10,000. Printing and dissemination costs would be roughly £1 per poster/brochure. Therefore, assuming that each health worker can counsel 50 pregnant women, by investing £123,000, DFID can reach 15,000 pregnant women

(including fixed costs of £50,000 for developing training materials and £10,000 for developing communication materials).

### Risk assessment

Developmental risks	Political risks	Financial risks	Operational risks
Low developmental risks, since the new infant feeding guidelines in the context of HIV have been validated by numerous country governments and institutions	Low political risks associated with lack of political will from the Government of Malawi as it has already adopted the new infant feeding guidelines	Low financial risks associated with mismanagement of funds, since most activities will be conducted under DFID's stewardship	Moderate operational risks associated with the increased human and operational resources required for implementation

Our overall risk assessment for this activity is **low**.

## Family planning and health

The mandate of DFID's family planning and health programme aims to increase coverage of modern methods of family planning—especially in young, poor, and rural women. In addition to providing modern methods of contraception, DFID aims to have 145,000 deliveries attended by skilled birth attendants—which will, in turn, reduce maternal deaths. This latter intervention provides an ideal vehicle for introducing an activity to increase uptake of iron-folic-acid tablets by pregnant women.

According to the Malawi 2010 DHS, antenatal care coverage is high, with only two percent of pregnant women not receiving any antenatal care whatsoever during their pregnancies. Of women attending antenatal care, over 91 percent received iron supplements via tablets or syrup. Iron is an essential micronutrient for pregnant women, since it prevents maternal anaemia—which in itself is a significant driver of maternal mortality and low birth weight. Whilst coverage of iron supplementation is widespread, there have been issues around compliance with iron-supplementation regimens. Ideally, pregnant women should be provided with iron supplementation by the beginning of the second trimester. Again, from the Malawi DHS, only 32 percent of women took iron supplements for over 90 days during their most recent pregnancy. Evidence from several countries suggests that the lack of compliance is strongly associated with the perceived side effects of iron supplementation—including nausea and dark-coloured stools. Therefore, it is critical to manage these side effects through behaviour change interventions and counselling delivered by CHWs.

### Recommendation 5

**Objective:** Increased awareness on benefits of iron supplementation amongst pregnant women.

- A component of DFID's family planning and health programme will focus on increased uptake of iron supplements during pregnancy. Behaviour change materials will be produced, targeting pregnant women and CHWs. CHWs will be trained on how to counsel women to manage the side effects of iron supplementation and ensure they are routinely taking their iron supplements.
- Radio spots will be aired on rural/community radios on the benefits of iron tablets.

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Results	Indicators	Baseline
<b>Outcome 1</b> Increased uptake of iron and folic-acid tablets amongst pregnant women in beneficiary communities	Proportion of pregnant women who adhere to 90 iron and folic-acid tablets [ <i>sensitive</i> ]	DHMT
<b>Output 1</b> Communication materials developed on iron and folic-acid tablets targeting pregnant women and CHWs (posters, leaflets, radio spots, training manual, etc.) based on knowledge, attitudes, and practices around iron and folic-acid tablets	Communication plan in place [ <i>sensitive</i> ]	DHMT
	Number of messages developed [ <i>sensitive</i> ]	DFID
	Number and types of materials developed and distributed [ <i>sensitive</i> ]	DFID
	Number of radio spots aired [ <i>sensitive</i> ]	DFID
	Number of pregnant women reached with messages [ <i>sensitive</i> ]	DHMT
<b>Output 2</b> CHWs and community leaders are trained on the benefits of iron supplementation and how to counsel pregnant women on management of side effects	Number of CHWs trained [ <i>sensitive</i> ]	DHMT
	Number of required trained CHWs at post [ <i>sensitive</i> ]	DHMT
	Number of counselling sessions held with pregnant women [ <i>sensitive</i> ]	DHMT
	Number of pregnant women reached with counselling sessions [ <i>sensitive</i> ]	DHMT

### Costing analysis

From IYCN costing experience, we estimate printing and dissemination costs would be roughly £1 per poster/brochure. The cost of training CHWs, orienting supervisors/trainers, and orienting local authorities would be roughly £10,000 per 300 workers trained. There would be additional costs of roughly £1,000 associated with printing and disseminating job aids for the 300 community workers. Please note that both these costing figures are significantly lower than the figures previously quoted for training and printing, since the previous training activities would include broader nutrition and infant and young child feeding activities—as opposed to this training activity, which would mainly encompass iron supplementation during pregnancy. Additionally, the training documents associated with the previous trainings included manuals, counselling cards, key message booklets, etc.; whilst the job aid for this present intervention would likely comprise a small set of counselling cards.

Therefore, assuming that each CHW is able to reach 50 women, DFID could potentially reach 15,000 pregnant women with messages on iron supplementation by investing £26,000. If there is further interest

on the part of DFID in investing in behaviour change around uptake of iron supplements during pregnancy, DFID may consider purchasing radio spots for relaying these messages. The cost of developing the technical content of a radio spot and producing it is roughly £6,000, whilst each spot costs approximately £50 to air. Therefore, by investing an additional £7,000, DFID can produce and air 20 radio spots with the potential to reach as many as 100,000 pregnant women.

### Risk assessment

Developmental risks	Political risks	Financial risks	Operational risks
Low developmental risks, since iron supplementation during pregnancy is an Essential Nutrition Action (ENA)	Low political risks associated with lack of political will from the Government of Malawi in supporting part or the whole of the activity, as iron supplementation during pregnancy comprises part of the Essential Health Package in the HSSP	Low financial risks associated with mismanagement of funds, since most activities will be conducted under DFID's stewardship	Moderate operational risks associated with the increased human and operational resources required for implementation

Our overall risk assessment for this activity is **low**.

## Water and sanitation

DFID has already committed funding for the provision of safe water and improved sanitation facilities. These interventions in themselves are nutrition-sensitive, since safe water and improved sanitation accompanied by appropriate hand-washing result in lower incidence of water-borne infections such as intestinal parasites and diarrhoea. As discussed previously, repeated episodes of infection result in poor absorption of nutrients—thereby further malnutrition. In order to break this vicious cycle, we propose that DFID include one more intervention in this programming area—namely, hand-washing. Having a comprehensive water, sanitation, and hygiene programme is particularly important in the case of Malawi. This concern is reflected in the fact that nearly 18 percent of children had diarrhoea in the two weeks prior to being surveyed in the 2010 DHS.

### Recommendation 6

**Objective:** Improved hygiene and sanitation practices in beneficiary primary schools and communities.

- Simple communication materials will be developed on hand-washing, such as pile-sorting cards and picture-discussion cards to be used for participatory teaching at the primary school level. Additional communication materials will focus on the benefits of improved water, sanitation, and hygiene practices—as well as their effect on improving nutritional status.
- Primary school teachers will be trained on how to provide hand-washing stations in primary schools.
- Primary school children will be trained on appropriate hand-washing and guided on how to take the learned behaviour back home and influence their mothers and other family members.
- In order to reinforce hand-washing and broader water, sanitation, and hygiene practices and interventions at the community level, hygiene clubs and committees will be established. In collaboration with District Environmental Health Officers, these committees/clubs will be trained

to sustain positive changes in behaviour (e.g., hand-washing, disposal of children’s faeces, etc.), as well as train community members to construct improved latrines, treat water before consumption, etc. In order to obtain optimal value-for-money, the programme will focus on communities and primary schools that are already benefiting from other assistance programmes focussing on nutrition-sensitive interventions.

<b>Results</b>	<b>Indicators</b>	<b>Baseline</b>
<b>Outcome 1</b> Beneficiary primary schools integrate core hygiene activities in their school programme (hand-washing corners, classroom sessions on hand-washing, etc.)	Number of schools demonstrating core hygiene activities programme (hand-washing corners, classroom sessions on hand-washing, etc.) [ <i>specific</i> ]	DHMT, DMOE
<b>Output 1</b> Participatory materials developed and distributed to primary schools	Number and type of participatory materials developed [ <i>specific</i> ]  Number of materials distributed to schools [ <i>specific</i> ]  Number of schools using participatory materials [ <i>specific</i> ]	DFID  DFID  DHMT, DMOE
<b>Output 2</b> Primary school teachers trained on hygiene and hand-washing	Number of primary school teachers trained [ <i>specific</i> ]  Number of trained teachers at post [ <i>specific</i> ]	DHMT, DMOE  DHMT, DMOE
<b>Outcome 2</b> Beneficiary communities institute hygiene clubs/committees to reinforce hand-washing and broader water, sanitation, and hygiene practices and interventions at the community level	Number of hygiene clubs/committees set up in communities [ <i>specific</i> ]	DHMT
<b>Output 1</b> Hygiene clubs/committees conduct community-based events on water, sanitation, and hygiene	Number of community-based events on water, sanitation, and hygiene conducted by hygiene clubs/committees [ <i>specific</i> ]  Number of community members attending the events [ <i>specific</i> ]	DHMT  DHMT

### Costing analysis

From IYCN costing experience, we estimate printing and dissemination costs of BCC materials would be roughly £1 per poster/brochure. The cost of instituting and training each hygiene club/committee would be approximately £1,000. The cost of orienting primary school teachers to hand-washing practices in school would be approximately £1,000 for every 300 teachers trained. Assuming each teacher can potentially reach 70 children, all of whom are from a locality/village with one hygiene club/committee, DFID can reach 70 children and their families through spill-over benefits by investing £2,070 (assuming one poster/brochure per child). The benefits are likely to be far greater in magnitude than described here,

since it is likely that many more households/children will come under the purview of one hygiene club/committee.

### Risk assessment

Developmental risks	Political risks	Financial risks	Operational risks
Low developmental risks, since the evidence of improved water, hygiene, and sanitation on reducing stunting is fairly robust	Low political risks associated with lack of political will from the Government of Malawi in supporting part or the whole of the activity, as improved water, hygiene, and sanitation forms part of the HSSP	Low financial risks associated with mismanagement of funds, since most activities will be conducted under DFID's stewardship	Moderate operational risks associated with the increased human and operational resources required for implementation

Our overall risk assessment for this activity is **low**.

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