Multi Sector Nutrition & Food Security (MSNFS) project

Contracting Authority: European Commission

Reference: EuropeAid /130566/C/ACT/KP – Lot 1

Contract number: DCI-FOOD2011264-328

Beneficiary of grant contract and implementing organisation:
Concern Worldwide

Project Dates: 1st Jan 2012 – 31st Dec 2014

Budget: 1,265,025 EURO

Target area: Singye and Kumchon counties, North Hwanghae Province, DPRK

End of Project Evaluation

Report Status: Final Version

November 2014

Prepared by Alan Etherington & Aranka Anema, PhD

This evaluation is supported and guided by the European Commission and presented by Alan Etherington & Aranka Anema. The report does not necessarily reflect the views and opinions of the European Commission

LIST OF TABLES

LIST OF ARONYMS

AAS - Academy of Agricultural Sciences
BOQ – Bill of Quantities
CBS- Central Bureau of Statistics
CFSAM- Crop and Food Security Assessment Mission
CPC – County People's Committee
CW – Concern Worldwide
DEWATS - Decentralized Wastewater Treatment System
EC - European Commission
FAO – Food and Agricultural Organization
FIM- Food, Income and Market
FSN - food security and nutrition
KWP-Korean Workers Party
MDG- Millennium Development Goal
MICS – Multiple Indicator Cluster Survey
MFA- Ministry of Foreign Affairs
MoA - Ministry of Agriculture
MSNFS - Multi Sector Nutrition & Food Security
MUAC - mid-upper arm circumference
NCC-National Coordinating Committee
NGO-non-governmental organization
PSD- Public Distribution System
RUTF - ready to use therapeutic foods
UNICEF- United Nations Children's Fund
VRI - Vegetable Research Institute
VIP – Ventilated Improved Pit (Latrine)
WASH-water, sanitation and hygiene
WFP- World Food Programme
WHO- World Health Organization

ACKNOWLEDGEMENTS

Many thanks to the international and national staff of CW / EUPS Unit 3 for their support and cooperation. Special mention to Mr. Bo Lager (Food Security), Mr. Thakur Shreshta (WASH), Mr. Yousaf Jogezi (Country Director) and Mrs. Kim Chun Ok. All opinions and any errors are the responsibility of the authors.

EXECUTIVE SUMMARY

Context: Several contextual factors characterize international cooperation in DPRK including, but not limited to: a centrally planned economy, government control over food systems and infrastructure; a highly stratified social structure and an inability of international agencies to have access to local communities for verification of project results.

Project Description and Expected Results: This project aims to improve the living conditions of vulnerable groups: infants and young children, pregnant and lactating mothers, the sick and elderly. The project has six expected results focused, respectively on: green house and fishpond food production; soybean and goat milk food production; public health, hygiene and sanitation; care environments and capacity building.

Evaluation Objectives and Mission: This end-of-project evaluation of European Union-support to Concern Worldwide aimed to assess project results achieved, the developmental process, cost-benefit and lessons learned. The evaluation was done by consultants Alan Etherington and Aranka Anema. Data collection methodology included focus groups discussions; field trips, stakeholder interviews; extensive project document and literature review; and verification of physical assets.

Evaluation Findings:

Project Relevance:

- National Government Priorities: CW DPRK's work is highly relevant to current food security and WASH needs in DPRK, as compared to priorities set out by the national Government in its 2012 National Nutrition Survey. Specifically, the greenhouses, goat farm, fish hatchery and soy factory supported by CW address the critical need for population-level availability of locally appropriate, nutrient-dense foods for children and pregnant/lactating women, and CW WASH activities address national priorities around addressing community-level risks of diarrhoea. In other projects CW's work supports DPRK's Environment Climate Change goals through flood mitigation initiatives and promotion of climate-resilient crops.
- Concern Worldwide Global Priorities: CW DPRK's project activities are fully aligned with CW's Global Strategic Plan (2011-2015), including focus on fostering institutional partnerships, and aligning with CW's six Strategic Goals (i.e. Increased focus on working in the poorest and most vulnerable places; emergency response; focus on hunger and health; addressing the root causes of extreme poverty; accountability and results; improving organizational effectiveness).
- Global Initiatives: In term of alignment with global priorities, CW's projects address priorities set forth in the UN Strategic Framework Agreement in DPRK (2011– 2015). They link to recommendations within 2012 United Nations Food and Agriculture (FAO) and World Food Programme (WFP) Crop and Food Security Assessment Mission (CFSAM) report for DPRK; and they align with select Millennium Development Goals (MDGs) (e.g. MDG 1, 4,6 and 7).
- Adequacy of baseline information and appropriateness of indicators: CW DPRK has drawn on several high-quality population-based surveys to contextualize nutrition risks and food security needs across DPRK, and to frame their program priorities. It additionally carried out a baseline survey in 2012 in Singye and Kumchon to fine-tune planning and to assess monitoring and evaluation project progress (i.e. outputs and results) against log frame

indicators. Some discrepancies exist between national and county-specific demographic estimates, which should have been explicitly addressed prior to project commencement and which may influence project coverage estimates.

Project Effectiveness:

- Project Outputs: This was a project with more than a dozen components. The target for all physical assets was met or exceeded. The project was completed ahead of schedule and below budget. Various modifications, discussed below, were made to the initial list of targets in response to political decisions, changes in costs and local circumstances, but these did not change the essence of the project and enhanced its effectiveness.
- Changes in Food Production & Processing: Comparing actual production data as provided to the Evaluation Team suggests that CW DPRK has supported significant increases in three of the agricultural products, namely of vegetables, soybeans and goat milk. Despite significant production increases, these are far short of meeting the year-round needs of all vulnerable groups in the two towns, indicating the need for many more of such facilities. Output data for vegetable production should be disaggregated by season to show enhanced project effect during winter months, which is the major benefit of greenhouse production. As fish require 3 years or more growth before they are consumed their change in production could not be estimated.

Project Efficiency:

- Project efficiency was impeded by the imposition of trade, banking, travel and other sanctions in March 2013 after a unanimous UN Security Council condemning underground nuclear tests. Despite these challenges, the MSFNS project was able to meet and exceed its target outputs, with a reduced expenditure. Estimates of the average per capita capital costs required to provide these foods are modest for yogurt, fish and soy and higher for vegetables; all would seem to provide good value.

Project Outcomes and Impacts:

- Feasibility of Outcome/Impact Evaluation: While CW DPRK can demonstrate significant project outputs associated with Expected Results (1-5), the organization is limited in its ability to assess project outcomes and impact. This is due to both political context of DPRK that prohibits meaningful communication between CW DPRK staff and beneficiaries, and due to challenges inherent in evaluating causation in programs given the inevitable presence of confounding factors.
- CW Evaluation Framework: CW DPRK's project log frame does not adequately distinguish between inputs (financial and in-kind), outputs, outcomes and impacts, and requires careful re-design based on global standards for result-based management promulgated by the Organisation for Economic Co-operation and Development (OECD).

Project Sustainability:

- Political: DPRK's political system offers both advantages and disadvantages in terms of project sustainability. Cons include centralized and tightly controlled decision-making by government limits CW DPRK's ability to engage in participatory decision-making at the community-level. Pros include full government ownership and support for project infrastructure and processes once they are constructed.
- Environmental: Environmental risks to sustainability in DPRK are significant and related to its topography, climate and climate change; they include: temperature extremes, severe droughts and flash floods. CW DPRK has demonstrated leadership in the area of disaster risk reduction (DRR), and aims to strengthen climate change adaptation and social protection through the development of sustainable community resilience strategies.

- Socio-cultural: CW DPRK's programs is sustainable from a socio-cultural perspective on several fronts including: selection of locally appropriate crop varieties that meet local populations dietary preferences; and promotion of hygiene practices in kindergartens through creation of animated booklets and sing-along-songs. One potential risk to the sustainability of CW DPRK projects relates to socio-cultural beliefs and practices around handling of human and animal faeces, and increase risks of diarrhoea and environmental enteropathy.
- Technological: CW DPRK has been experiencing logistic delays and complications related to procurement of a vehicle due 2013 UN Security Council- sanctions against DPRK. Until sanctions are lifted, the technological sustainability of programs in DPRK remains uncertain. The project included substantial capacity building by training workshops, exchange visits. In addition, technical support is available from experts based in various scientific centres and reachable by phone.
- Financial: Agricultural and WASH facilities constructed by CW should be financially sustainable if they are allocated sufficient resources by the CPC to cover operating and maintenance costs.

Implementation Process:

- Roles and Responsibilities: Although CW had no civil society partners, it has collaborated widely with many governmental agencies. This has built ownership and transparency. Each of these partnerships has clearly delineates roles and responsibilities, and divisions of labour. Opportunities exist for enhanced collaboration with EUPS Units for purposes of generating best practices unique to DPRK and knowledge transfer.

Conclusions and Lessons Learned: The project design demonstrates the integration of WASH, food and nutrition. Global knowledge has grown about the significance of environmental enteropathy as a factor that may constrain the impacts of nutrition and WASH interventions on child growth and health and its incorporation is one way in which programme design might be improved. This constitutes a tremendous opportunity for enhancing integration of WASH, food and nutrition.

Recommendations:

- **Inter-agency EUPS collaboration in DPRK:** Given that formal collaboration between international agencies is not encouraged, CW DPRK must continue to use informal ways to both support and learn from other EUPS Units'.
- **Increase capacity building exchanges**: Both CPC representatives and CW DPRK staff emphasized the tremendous value that capacity building exchanges have had for improving technical and managerial capacity in agricultural production. Future CW DPRK programming should continue to plan and budget for such exchange opportunities that allow staff from new projects to visit and learn from other longstanding project sites.
- **Development of Operational Manuals:** CW DPRK should work with national government authorities and universities in DPRK to develop agricultural production and processing manuals that will act to both harmonize and strengthen capacity and sustainability of technical and managerial know-how.
- **Development of Integrated WASH and nutrition program framework:** CW DPRK has been implementing two sector programmes: WASH and FIM. While there are strong theoretical synergies between WASH and FIM that can help stabilise food production, availability, access and safety, because these activities are taking place in geographically distinct locations within Counties they are not benefiting from the added benefit of an integrated approach that highlights the importance of environmental enteropathy.

- **Foster national and global partnerships with academic institutions:** so CW DPRK can remain current about new innovation relevant to programs (e.g. universities, technology, research.
- **Consider options for engaging in nutrition programming:** Given CW's international reputation in treatment of MAM and SAM, IYCF and other nutritional programming, as well as needs of women and children in DPRK as identified by the national survey, CW DPRK should consider options for how it can engage in nutrition programming within DPRK to more directly impact the health and nutrition of vulnerable populations.
- **Revise Monitoring and evaluation (M&E) framework**: CW DPRK's system M&E system should be re-designed to measure project performance with respect to clearly delineated expected outputs, outcomes, and impact. This should involve use and application of an RBM framework, drawing on best practices, guidelines and templates promulgated by the OECD.
- **Consolidation of DPRK Investment**: Consolidation of EU's investment in DPRK may enable EUPS Units to better negotiate with government authorities with an aim to gain access new areas of intervention and to openly partner with UN agencies.
- **Encourage Longer-Term Follow-up:** There are few or no opportunities for CW to follow-up on the results of projects once construction is completed. Lessons and insights that would make subsequent projects more effective are thus not available. In their negotiations with DPRK government, donors should argue for such access and provide resources for EUPS units to commission follow-up studies on earlier projects supported by each other. The IFRC and FAO/WFP have negotiated such follow-up on their projects.

1.0 INTRODUCTION

1.1 Project Context and Description

1.1. Project Context

DPRK is a unique country with many special characteristics that have major implications for most international cooperation projects and their assessments. The characteristics and challenges include:

- Access to user communities before and after the projects is carefully controlled and restricted to what the authorities can see are necessary to ensure the successful construction of new or rehabilitated facilities;
- All statistics and other information are provided by the local bureaucracies and no independent verification is permitted;
- As much as possible, skilled and un-skilled works is to be carried out by local personnel; (though some non-resident non-governmental organisations (NGOs) seem to send delegations of foreign volunteers that perform some tasks that are done by DPRK citizens in the Concern Worldwide (CW) projects; see for example, the web site of Christian Friends of Korea, which renovates and up-grades TB sanatoriums[1]
- Cooperation with international agencies undermines the self-reliance ethic of Juche and the demonstrated capacity of the Party and State to demonstrate it can meet the needs of citizens; the visibility of external inputs should be minimised;
- As a centrally planned economy, the production, distribution and consumption of many goods is, in theory, controlled by the State; citizens are provided with rations which guarantee them a minimum of basic foods, clothes, shelter and other items;
- The centrally planned food distribution system allocates daily rations to three major consumer groups: cooperative farmers, state workers (military, administration, teachers, health etc.) and others (classified as Public Distribution System (PDS) Dependants); daily allocations for this final group ranged between 400 and 150 grams per person per day during the four years 2007/8 to 2010/2011
- The FAO/WFP Assessment Mission of Crop and Food Security in 2011 noted: "The Mission observed immense logistical challenges for PDS and therefore expresses concerns about the timeliness and consistency of food distribution.
- "The nutrition situation has improved in recent years; however, rates of stunting remain high and micronutrient deficiencies are of particular concern."
- "Despite the improved harvest in 2012/13, the food security situation remains similar to previous years with most households having borderline and poor food consumption. (Adequate) Consumption of protein and oils remains an issue of concern" (1).
- All property is owned by the State and allocated by the Korean Workers Party (KWP); this includes factories, farms, greenhouses, dwellings, water and sanitation facilities;
- There is limited availability of construction materials such as cement, lumber and other items; most of these are allocated by official mechanisms to meet nationally sanctioned priorities, such as the military, food, energy, foreign-exchange producing items;

[1] http://cfk.org/missions/ **Technical trips** – CFK Teams are sent with specific projects to complete (e.g.) installing a water system at a health care centre, building a passive solar greenhouse, renovating a hospital operating suite, training health care personnel, etc.

- The major inputs from International cooperation projects are construction materials and transport; these must be carefully estimated and audited to ensure their use is not diverted to other purposes;
- In the absence of credible information about many aspects of DPRK, much of the external understanding of the country draws on the analysis of outsiders, which is often speculative and sometimes hostile;
- Drawing from such sources, it is believed that DPRK is rigidly stratified into three major classes defined by loyalty to the State and the Kim family – and grouped into the critical core, the wavering masses and the hostile / impure; in addition there are 51 sub-groups[2].
- Membership of the KWP, estimated at over 15% of the population, brings the possibility of upward social mobility and access to a relatively higher standard of living and to consumer goods.
- The labour force is estimated to be divided among 57% workers in state enterprises; 25% farmers and officials 17%; this latter group includes teachers, technicians and health care workers.
- Housing is an important area of inequality with housing allocated by rank; the project areas consist of small ground level dwellings with a small garden, all of which is cultivated; and high rise buildings 5 or more stories high; most dwellings, both urban and rural, appear to have two or three rooms;
- Most of the consumers of the new food production and sanitation facilities supported by the MSNFS project are probably the workers and peasants in the 'wavering masses'.
- Most of the 'hostile / impure' classes are thought to be located in areas that are inaccessible to foreigners where no cooperation project can be implemented.
- Very few disabled children and people are seen by visitors, other than military injured;
- Access to Pyongyang is restricted to a privileged elite; all projects of international cooperation are located outside the capital in rural areas and secondary towns;
- Tough sanctions on trade and currency movements were imposed on DPRK in 2006 and 2013 as a result of underground nuclear testing (2), requiring NGOs to seek out-of-country purchases and minimize their local expenditures .

On a more helpful note:

- There are very precise data on the number of dwellings and their location, the population, the layout of communities and population growth rates: these make it possible to estimate the numbers of people to be served now and in the future with accuracy;
- All pregnant women and new born infants are known to the authorities and included in ante-natal and post-natal programmes;
- The Peoples Committees are prepared to mobilise large work groups for labour intensive tasks such as construction or digging pipe trenches; though this is sometimes delayed if there are other competing needs for the workforce

[2] Marked for Life: Songbun, North Korea's Social Classification System, The Committee for Human Rights in North Korea, Washington DC, 2012, pgs. 106-114; this report estimates that there are approximately 3 million members of the KWP of which the majority are less than 35 years old; the elite core class also consists of another 3 million who are not KWP members but hold, or are eligible to hold, senior and sensitive positions; an estimated 55% of the population are 'wavering masses' and 20% are hostile/impure and only able to work in the most low-skilled or dangerous occupations;

- There are competent cadres of engineers and technicians, who can, with instruction and support, produce good building designs and supervise construction of facilities;
- There is an expanding number of licensed markets where local and imported goods are sold; Markets and informal mechanisms of bartering and other forms of exchange are believed to be of increasing importance for household access to food, particularly in urban areas.
- During the past decade, there have been visible signs of many more consumer goods –a wider variety of clothes, far more bicycles, more mobile phones and increasing numbers of small solar panels

1.1.2 Project Description

Overall Goal: To improve the living conditions of the social groups which continue to suffer most from the deterioration of the national socio-economic conditions in North Hwanghae Province, DPRK.

Specific objective: To stabilize food production and availability, improve access to & use of food and enhance people's nutritional status with complementary water, sanitation and hygiene (WASH) actions in urban and rural Singye and Kumchon Counties.

1.1.3 Main Expected Results

ER 1: Increased availability and production of food at household & social institutions from winter greenhouses and rehabilitated fishponds;
ER 2: Improved access to and use at household & social institutions of soybean and goats milk products in the diet;
ER 3: Improved public health & hygiene from WASH actions that enhance the provision of clean water supply;
ER 4: Improved care environment for especially women, children, the elderly & disabled;
ER 5: Improved technical and managerial capacity of stakeholders through technical training, in-country exchange visits and overseas study tours.

The project is being implemented on project sites in Kumchon town, Kumchon County and in Singye town, Singye County, North Hwanghae Province.

1.2 Evaluation Objectives

As agreed between the implementing organisation Concern Worldwide and the European Union (EU) an End of Project evaluation should be conducted in the last phase of project cycle. The objectives of the evaluation are:

1. To independently verify, analyse and assess the results (impact, outcomes and outputs) achieved.
2. To assess the development process, in relation to partnership, local ownership, gender aspects, environmental protection.
3. Cost-benefit analysis of the interventions.
4. Identify key lessons and to propose practical recommendations for follow-up actions

1.3 Evaluation Methodology

The evaluation methodology was based on the general framework provided in the Concern Worldwide Terms of Reference (**Annex A).** Information gathering was facilitated by the following activities:

- Focus groups discussion with Concern Worldwide expatriate and local staff in DPRK;
- A three day field trip to North Hwanghae (NH) Province (see **Annex B** for map of area of intervention) (October 27 - 29, 2014) during which the CW DPRK staff and the Evaluation Team:
    - Met with officials of the County Peoples Committee to have two presentations on the project activities, on the process followed and the status of the new facilities; the problems encountered and how they were overcome; recommendations for future projects
    - Visited all the new or rehabilitated food production and a few of the sanitation facilities to confirm their construction and observe their functioning;
    - Visited one school to see the a hygiene class demonstration and hand washing drill by young children;
- Stakeholder interviews: During their one-week stay in DPRK, the Team also met with two senior officials of the Academy of Agricultural Sciences (AAS) and Vegetable Research Institute (VRI), with staff from international agencies (FAO, WFP, UNICEF, OCHA/Resident Coordinator's Office,) and from the other EUPS Units (see **Annex C** for list of people interviewed / consulted, and **Annex D** for Interview Guide). Additional planned meetings with KECCA and other government officials were cancelled due to Ebola risks.
- A review of relevant CW project reports, national surveys, scientific studies and other documents on the project and on the food security and nutrition (FSN) and WASH sectors of DPRK (see **Annex E** for Literature Referenced);
- Verification of physical assets: In essence this is mainly a verification of physical assets, combined with observations of food production and the ability of other facilities to successfully operate as planned, as well as with discussions with authorities and Facility Managers. It cannot considered to be a complete assessment but it is as much as is normally possible for projects supported by international NGOs resident in DPRK.

There are significant limitations in the methodology. The assessment process is tightly controlled requiring advance notice of its purpose, itinerary and duration. The visitors are accompanied by local Party and security officials at all times who ensure that the visits are only to project locations and that photographs are taken only of project constructed facilities. They discourage or prohibit photographs of, for example, traditional latrines as well as people including children at schools, nurseries and kindergartens and of patients at clinics. Compared with similar assessments in other recipient countries, this may seem unreasonable, but from the perspective of the DPRK state, it has no control over how these images may be misused and DPRK does not enjoy favourable international media coverage. Most significantly, there is no credible way to independently verify the distribution or consumption of food produced by the new facilities and we must rely on the reported allocations as provided by officials. National data on the food security, nutrition and the health status of children are however available through surveys done collaboratively between DPRK and the FAO, WFP and UNICEF and selected findings from these sources have been included in our report

While our assessment focus is on the facilities, their uses and the users, the preoccupation of officials is on the constructed outputs and their appearance. During our field visit some facilities were visited where operations had been stopped and all raw materials removed; this was the case for the Composting Centre and two Solid Waste Collection Units. There is evidence of freshly painted components and recently affixed EU logos on doors and equipment.

1.4 Evaluation Team

The team leader was Alan Etherington who has three decades experience in the WASH sector, and has worked on both urban and rural projects in Asia and Africa as an evaluator, a project manager and a specialist in human resource development, maximizing the public health benefits, tariffs and financing, and other non-engineering aspects. He had visited DPRK six times since 2005 and had assessed CW's previous WASH programmes in 2010 and 2011.

Dr. Aranka Anema has a PhD in epidemiology from the University of British Columbia, Canada, and is a Research Fellow at Harvard Medical School in Boston, U.S. Dr. Anema specializes in programmatic and scientific evaluation of global food security and nutrition programs. She works as a management consultant and research scientist and has 10 years experience leading performance evaluations for multilateral and bilateral agencies, spanning operations in over 40 countries, with expertise in complex emergencies, rural sustainable development and urban food security issues

2.0 EVALUATION FINDINGS

2.1 Project Relevance

2.1.1 Coherence with DPRK context and government priorities

CW DPRK is implementing two programs in DPRK, focused on Food, Income and Market (FIM) and WASH, respectively. These programs aim to improve the overall living conditions of the vulnerable social groups in the country by increasing food production, food availability and food access, and by enhancing access to potable drinking water and basic sanitation. CW DPRK's work evolved from work it conducted in 1998 on request by the DPRK government during the famine (3). A comparison of CW DPRK programme activities against latest population-based survey data suggests that CW 's work is highly relevant to and coherent with current food security and WASH needs in DPRK.

A national survey was performed by the DPRK Central Bureau of Statistics in 2012 with technical support from WHO, UNICEF and WFP (4)[3]. The survey found that among children 0-59 months (n=8,040) the prevalence of chronic undernutrition (stunting) was 27.9%, signifying a 'medium' public health concern by WHO reference standards; the prevalence of anaemia among in the same age group was 28.7%; and dietary diversity was found to be concern with only

[3] This national survey utilized well validated and globally standardized survey and measurement tools were to collect information, including WHO 'Indicators for assessing infant and young child feeding practices (2010), FAO Guidelines for measuring household and individual dietary diversity (2007). Survey staff was highly trained (e.g. enumerators CBS and Institute of Child Nutrition; and physicians from DPRK Ministry of Public Health). Data collection mechanisms limited potential for introduction of measurement error and associated bias and are considered to be scientifically robust.

26.5 % of young children consuming diets that met minimum dietary standard of 4 out of 7 food groups. 24hr dietary-recall data demonstrated an overwhelmingly high proportion of food intake consisted of simple carbohydrates (89.1%) and limited consumption of protein-rich vegetables (28.1%), milk products (15.5%), eggs (12.6%) and meat (11.5%). The survey additionally highlighted that 23% of women of reproductive age (15-49 years) had mid-upper arm circumference (MUAC) scores <225mm, indicating underweight status and risk of low birth-weight babies according to global reference standards (5); the prevalence of anaemia was 26.9%; only half of women sampled met minimum dietary diversity consumption scores; and 73% were not accessing multi-micronutrient supplementation for at least 6 months during pregnancy. CW DPRK's food security activities – notably the greenhouses, goat farm, fish hatchery, soy factory – aim to address critical issue of population-level availability of locally appropriate, nutrient-dense foods for both children and pregnant/lactating women. Specifically, the greenhouses address the need for more high-nutrient vegetables, and the fish hatchery and goat farm address the need for protein. The appropriateness of CW DPRK's agricultural and livestock activities is further supported by findings from the 2012 United Nations Food and Agriculture (FAO) and World Food Programme (WFP) Crop and Food Security Assessment Mission (CFSAM), which emphasizes the need for sustained international support for increase production of protein commodities, such as soy bean and fish cultivation, to improve short and medium term food insecurity in DPRK (1).

Observational research elsewhere has shown that diarrhoea and malnutrition are bi-directionally linked. Numerous studies across Africa and Asia have found that poor nutritional status among children under the age of five years leads to increased risk of diarrhoeal episodes and adverse health outcomes (6-11). Conversely, diarrhoea has shown to lead to stunted growth. A meta-analysis pooling data from nine studies found that both cumulative incidence and longitudinal prevalence of diarrhoea (i.e. proportion of time spent ill with diarrhoea) had a significant 'dose–response' effect that increased stunting of children at 2 years, and catch-up growth could not make up for this deficit (12). The 2012 National Survey in DPRK reported that on average 8.5% of children (0-59 months) reported having diarrhoea in the past 14 days[4]. Prevalence of diarrhoea did not vary significantly by province, with highest levels reported at 12.0% in North Hamgyong province, and lowest at 7.0% in South Hwanghae province (4). CW DPRK's programmes in Singye and Kumchon Counties focus on improving sanitation environments & hygiene practices, and are directly relevant to addressing community-level risks of diarrhoea and adverse nutrition-related outcomes, including: construction of Decentralized Wastewater Treatment System (DEWATS) to enhance the management of black and grey water and the release of clean wastewater; communal and institutional and latrines to make disposal of human faeces a little safer (though raw faeces must still be moved by hand to compost piles or the fields) and reduce some of the risk of human contamination; solid waste management and organic composting centre; and hygiene behaviour among children training aims to promote safer food handling practices.

A comparison of CW DPRK's programme activities with official priorities demonstrates that CW activities are closely aligned with Governmental goals in areas of food security and water and sanitation (13). While the KWP has a 'military-first' songun policy, the Government promotes an 'agriculture-comes-first' policy to establish food supply self-sufficiency and stability within the country. Several aspects of CW DPRK's programmes are directly relevant to these agricultural policies including: the use of double-cropping as strategy for maximizing annual crop

[4] If we extrapolate this finding, we can reasonably assume that each child experiences 2 to 3 episodes of diarrhoea a year.

output (though the soil is generally depleted (14)); an emphasis on soybean farming; diversification of crop production; use of optimized seeds for crop production; improvement of soil fertilization practices; combination of crop and domestic stock breeding. In terms of environmental priorities, CW DPRK's work is relevant to the Ministry's emphasis on management of household water waste and environmental pollution as key areas for intervention, and specifically to the establishment of waste treatment and recycling systems to produce fertilizers. CW DPRK's program activities are additionally aligned with DPRK's National Coordinating Committee for Environment (NCCE) Climate Change strategy (15). Specifically, CW has built gabions to stabilise river banks and prevent land slides in the event of floods; further it is working closely with the Academy of Agricultural Sciences (AAS) to ensure the crop varieties selected for agricultural production in greenhouses are resilient to climate extremes.

2.1.2 Alignment with Concern Worldwide Strategic Plan

Project activities are fully aligned with CW's global strategic plan (2011-2015) (16), and particularly with Concern's commitment to addressing extreme poverty and help poorest and most vulnerable groups to build and improve their resources, and to reduce their vulnerability to shocks. However, it is important to note that, within the unique context of DPRK's highly socially stratified society, CW DPRK has almost no ability to confirm that its project are benefiting the vulnerable groups it is targeting.

CW DPRK's programme is aligned with Concern's focus on fostering institutional partnerships. CW DPRK works in close partnerships with government institutions such as the Ministry of Agriculture (MoA), Academy of Agricultural Sciences (AAS), Vegetable Research Institute (VRI), and Provincial and County People's Committees (PPCs and CPCs). The Evaluation Team's meeting with the government AAS confirmed that CW DPRK relations and reputation are strong with the DPRK government at the central, national level. During the field visits, the team also witnessed the long-standing and collaborative relationship CW DPRK staff had with local county experts and technicians, which was cited as a highly productive partnership by all parties. While CW is not allowed to engage in formal partnerships with international agencies, it has a close collaborative relationship with the six resident International Non Governmental Organisations (INGOs working as EUPS units) together with the UN organisations (FAO, UNDP, WFP). While attending the EUPS Unit monthly Food Security Meeting, the evaluation team observed CW DPRK making transparent and collaborative overtures to share data, information and latest scientific evidence that could be of value to all EUPS Units.

CW DPRK project are aligned with CW six Strategic Goals as follows:

- *Increased focus on working in the poorest and most vulnerable places:* Recent national food security survey identified that northern provinces of DPRK, and notably Ryanggang (39.6%), have the highest prevalence of stunting. While CW DPRK would prefer to focus its projects in these more poor and vulnerable areas, access to Northern DPRK is highly restricted for all agencies because of their sensitive nature. CW DPRK has therefore made the overall goal of the MSNFS project to "improve the living conditions of the social groups which continue to suffer most from the deterioration of the national socio-economic conditions in NH Province, DPRK" (17).
- *Emergency response*: CW DPRK has mainstreamed considerations for disaster risk response (DRR) throughout its FIM and WASH programmes, and has focused on trying to ensure regular crop, dairy and fish production through harsh winter months, floods and droughts. Further, CW DPRK has Plans to conduct capacity building in DRR approaches and measures (Activity 19) and national-level workshops (Activity 21) (17).

CW DPRK is now improving its capacity in responding to emergencies in DPRK developing an enhanced resilience strategy by rolling out a comprehensive risk analysis process that will allow organization to proactively response to diverse climactic and environmental crises within its programme areas (18).

- *Particular focus on hunger and health:* CW DPRK's project activities focus on two of Concerns' three identified specializations – namely prevention of under-nutrition and WASH. The MSNFS project is an integrated FIM and WASH that aims to prevent undernutrition by increasing crop productivity (especially during lean winter months) and output of protein-rich products. Collectively these agricultural and livestock activities aim to ensure great community-level food availability and household food access that would reduce risk of undernutrition among vulnerable groups. The programme emphasis on WASH aligns with Concern's goal of promoting health of vulnerable populations by acting to reduce likelihood of water-borne diseases within poorest households and communities. The project design demonstrated an integration between food security, nutrition and WASH in three ways:
    - Water supplies provided by gravity flow schemes in previous projects by CW DPRK in Kumchon and UNICEF in Singye helped make the greenhouses viable;
    - Compost from the solid waste collection bins and the composting centre in Singye would be used in the greenhouses in the town;
    - The reduction of faecal presence due to their removal by the new interior plumbing, sewers and DEWATS in Singye town should reduce the risk of environmental enteropathy for children and thus increase their potential to absorb nutrients and avoid stunting; EE is estimated to be responsible for as much as 40% of stunting.
- *Addressing the root causes of extreme poverty:* CW DPRK has engaged in on-going contextual analysis of the food security situation in DPRK, as evidence by several highly detailed and insightful review documents it has prepared, such as the 2012 DPRK Contextual Analysis Report (19) and county profiles (20, 21). These have helped CW DPRK to strategically position its activities to meet local needs and to achieve greater influence through active engagement of government and EUPS colleagues. Given CW's Overall Project Goal, the MSNFS proposal would have benefited from some discussion of 'the deterioration of socio-economic conditions and how different social groups had suffered'. Such an elaboration could have, for example, have discussed estimates of the extent of the decline in conditions and how these had impacted on different strata and groups; alternatively the goal statement could have avoided these hard-to-assess features and only mentioned a focus on those vulnerable groups, common to all societies – children, pregnant and lactating women etc.
- *Accountability and Results:* CW DPRK reporting includes detailed tabulation of project expenditures and results, fostering accountability to key stakeholders in Dublin and the European Union. A recent KPMG-commissioned expenditure verification report for the MSNFS programme in DPRK for periods Jan 01, 2012 to Dec 31, 2012 (22), highlighted that CW DPRK financial reporting complied with General Conditions of the Grant Contract (Article 2); it complied with accounting and record keeping procedures of the Contract (Article 16); and that budget in the Contract and expenditures listed in Financial Report matched. The Expenditure Verification Reported had noted some deviations from Contract specific to timing of activities carried out (e.g. soybean, goat processing and fish hatchery rehabilitation was not complete by end of year one as planned) and excesses in some expenditures (e.g. construction of DEWATS exceeded

budget in year 1 due to earlier-than-planned construction, and hygiene promotion among children had not yet been completed). Justification for these changes has been explained in CW DPRK monthly progress reports.

- *Improving organizational effectiveness:* Thus far CW DPRK has done well in attracting and retaining quality expatriate staff, as evidenced by the on-going 8-year commitment of its WASH expert, and multiple year commitment of its agriculture and food security expert. CW DPRK has recently brought on a new Country Manager, with extensive experience in South Sudan, to lead the Unit's strategic planning and management. The national staff at CW DPRK is engaged in participatory planning and leadership practices.

2.1.3 Relevance to Global Priorities

The MSNFS project addresses priorities set forth in the UN Strategic Framework Agreement in DPRK (2011– 2015)(23) including: modernization of seed processing and its quality inspection; diversification of vegetable varieties[5]; improvement of vegetable seed quality; industrialization of the vegetable production by facilities; and improving nutritional status of mother and child. CW DPRK has identified the linkages between FAO/WFP CFSAM 2013 recommendations for household food security and nutrition (1) and the MSNFS project, which are described in the EUP CW 2013 Narrative Report and re-published here in **Table 1**:

Table 1. Linkages between CFSAM recommendations and the MSNFS project (17).

	CFSAM recommendations	MSNFS
1	Improve dietary diversity and feeding practices for young children and women	X
2	Develop a strategy for behaviour change and counselling	X
3	Improve quality and diversity of food in child institutions	X
4	Distribute high-quality WFP Rice Soya Milk Blend (RSB) food to children in nurseries	-
5	Improve quantity and quality of daily household food basket through market reform and livestock and fish production	X
6	Strengthen treatment of severe and moderate acute malnutrition	-
7	Increase availability of iodized salt	-
8	Improve sanitation and hygiene	X (WASH)
9	Stimulate spring crop production	X
10	Implement disaster preparedness and response programmes	-

As noted in the above table, the MSNFS project does not directly address nutritional needs of vulnerable groups in terms of treatment of severe and moderate acute malnutrition or iodization of salt, and is not currently implementing disaster preparedness and response. The FAO team in DPRK is bringing together the National Bureau for Disaster Management with the Ministry of Agriculture, to define best practice regarding hazard-proofed food production and establish a nation-wide food security surveillance system that can act as an early warning system for food insecurity. If this initiative is successful, CW may have an opportunity to roll this out to its targeted counties.

CW DPRK's activities are relevant to global priorities described under the Millennium Development Goals the Post-2015 Development Agenda. It's overarching goal to "improve the living conditions of the social groups which continue to suffer most from the deterioration of the

[5] CW DPRK obtains vegetable seeds for the greenhouses from three sources: government seed distribution office at county level; purchase from China arranged by CW DPRK; procurement of farmer owned and local produced seeds.

national socio-economic conditions in North Hwanghae Province, DPRK" is aligned with MDG 1 [Eradicate extreme poverty and hunger]; increased availability of food and access to WASH interventions described as part of Expected Results 1-3 are aligned with MDGs 4 and 6 [Reduce child mortality; Combat HIV/AIDS, TB and other disease]; and CW DPRK's sustainable agriculture and water treatment initiatives contribute to MDG 7 [Ensure environmental sustainability]. CW DPRK's work will continue to have relevance in the Post-2015 Development Agenda, which has the eradication of poverty by 2030 as a central focus (24).

2.1.4 Adequacy of baseline information and appropriateness of indicators

CW DPRK has drawn on several high-quality population-based surveys to contextualize nutrition risks and food security needs across DPRK, and to frame their program priorities. These include: the DPRK National Nutrition Survey 2012 (4); WFP/FAO CFSAM report 2001-2013 (1, 25); UNICEF/CBS Multiple Indicator Cluster Survey 2009 (26); and the UNICEF situational analysis of women and children in DPRK. These surveys have also been cited with the project's log frame as 'sources and means of verification' for the overall project. However, it is important to note that data from these surveys track national trends and cannot be used to draw conclusions about a specific population served by one project, or to prospectively monitor project results [6]. Deductions about the overall effectiveness of the program should be based rather on baseline and endline data collected by project staff at county-specific project sites.

CW DPRK has however carried out a baseline survey in 2012 in both Singye and Kumchon for the purposes of fine-tuning its planning, and this document provides information for monitoring and evaluation project progress (i.e. outputs/results) against log frame indicators (27). This report described baseline production estimates for fish and greenhouses (ER1); soybean and goat milk (ER2); WASH (ER3); care environment (ER4) and capacity building (ER5). Baseline data were disaggregated by sex, vulnerable group (i.e. pregnant women, postnatal women, elderly people, disabled, children in nurseries, children in kindergartens, children in primary school; children in middle school; and hospital patients), and where possible rural/urban population status. The key demographic data of the baseline survey are summarised in **Table 2**.

	Kumchon	Singye	Total
nursery children	2,200	1,340	3,540
kindergarten children	3,530	3,780	7,310
pregnant & lactating women	3,600	3,500	7,100
elderly & disabled	2,100	1,700	3,800
hospital patients	150	200	350
total urban population	22,000	18,000	40,000
total urban HHs	6,620	5,400	12,020
no. of nurseries and kindergartens	13	14	27
no. of hospitals	1	1	2

Table 2: CW DPRK baseline demographic data for Kumchon and Singye Counties

[6] This would be considered an 'ecological fallacy' (i.e. the interpretation of statistical data where inferences about individual-level health, nutrition or food security status are deduced from population-level inferences).

Some of these data on children are puzzling:

- The national percentage of children aged under 5 is approximately 9% - but Kumchon reports only 3.3% and Singye 11.7%;
- There are usually approximately 50 to 80 children in each urban nursery or kindergarten; in Kumchon the average is 56 while in Singye the average is over 500.

Ideally, these data should have been examined and corrected before the study was released; but local staff did the study, with not much experience in this kind of research. The use of these data below will set aside some of these numbers and assume that the correct proportion of children under 5 is 9%. Both towns report an average household size of 3.3 and to have 9.5% of their populations elderly or disabled.

The survey tool allowed for collection of both quantitative and qualitative data, to generate some understanding of expected results, project challenges and opportunities. Further, it helped to refine some specifics of the objectively verifiable indicators of achievement.

2.2 Project Effectiveness

2.2.1 Summary of Project Outputs

This was a project with more than a dozen components. The target for all physical assets was met or exceeded. **Table 3** describes a summary of project outputs by County.

Table 3: Summary of Project Outputs by County

MSNFS PROJECT NORTH HWANGHAE PROVINCE		COUNTIES		
PHYSICAL OUTPUTS CONSTRUCTED	ORIGINAL TARGET	KUMCHON	SANGYE	total
winter greenhouses	10	6	6	12
simple poly dome greenhouses	2			0
winter greenhouses partial support	0	6	5	11
Fish ponds	2	1		1
Fish hatchery rehabilitated	0	1		1
Soy factory rehabiliation	1	1		1
Goat factory	1	1		1
DEWATS facilities	5		5	5
sewers (m)	1400		1400	1400
man holes	120		120	120
open drains (m)	2800		2800	2800
community & institutional VIP latrines / cubicles	36 / 163		32 / 188	32 / 188
Solid Waste Collection Blocks	25		25	25
Composting centre	1		1	1

Note: physical targets extracted from the Log Frames in the Inception Report and the 2013 Annual Report

Various modifications, discussed below, were made to the initial list of targets in response to political decisions, changes in costs and local circumstances, but these did not change the essence of the project and enhanced its effectiveness. **Table 4** describes the summary of outputs by project component.

Table 4: Summary of outputs by project component

Component	Summary
Winter greenhouses	The initial target of 10 was increased to 12 by replacing the two simple poly dome greenhouses. After some budget adjustments, partial support was also provided for an additional 11 greenhouses, which CW DPRK supported with frames and accessories. With these changes, potential winter production was probably doubled over the initial design. Each greenhouse is 336 m^2 (8 * 32), south facing covered with plastic sheeting over a metal frame with an anti-friction cover between frame and sheet. Sheet life estimated at 4 or 5 years. Drip irrigation, night blanket cover and scales included. Design based on Chinese experience and supervised by a VIA technician as well as U3 staff. Ventilation comes from roof outlets and from rolling up the sheet at ground level, which includes an insect mesh. Daily logbook maintained of activity, temperature and produce. As greenhouses have become a national programme with, reportedly, thousands constructed throughout the country, the design had been replicated by CPC but with local materials and not as high quality. Planting started in November 2012. Greenhouses in Singye seemed more productive than those in Kumchon.
Fish hatchery and Fish pond	The pond initially selected was changed after the administrative boundaries were revised and that pond allocated to another county. Another site was located but this change delayed construction and the hatchery did not produce fingerlings until 2014, during which 103,000 had been reared. The buildings contain a rearing tank, an agitation chamber and a juvenile culture tank, together with a small laboratory. A pigpen was built behind the centre both for its own worth and as a source of faeces used as one feed for the fingerlings. During the lengthy drought in summer 2014 the hatchery was partially drained to release water for irrigation, a decision that CW staff felt to be reasonable. The hatchery constructed a dam across one third of the pond to preserve the fingerlings until more water was available. During our visit in October 2014 the pond was full of water, with an inflow stream, and fingerlings were being reared. When fingerlings are approximately 10 cms in length they are transported to the fishponds of seven Ris, with a total population of 42,000. The fishpond by the hatchery was also rehabilitated.
Soy factory rehabilitation	A new soy factory was built with most of the funds provided by the County. CW's support had consisted of raw sheet metal, which the CPC used to fabricate most of the equipment and heating system, especially important during the winter months, as the fermentation room requires to be maintained at 30^0 C. The factory produces the culturally important condiments of soy paste and soy sauce as well as soy oil. The initial investment had been under-calculated and funds were transferred from the fishponds to meet the shortfall.
Goat factory	The goat factory was constructed in a fairly remote location (16 kms from Kumchon town) to take advantage of a hillside cave that provides natural, no-energy cooling as well as goat fodder. The factory consists of a production unit, 4 goat houses and the storage. There are 520 goats (420 nannies, 48 billies and 52 kids) that are currently returned to farms for

	winter but will eventually reside at the factory year-round, when sufficient residence is available. The factory produces goat yogurt for the 4 months May to August with plans to eventually produce this for all or most of the year.
Composting centre	The composting centre was a mystery. The centre was constructed in 2013 and consists of a covered unloading area, a mixing machine and four compost pits in a room covered with clear plastic roof for solar heating (in a locked room which could not be visited). The production plan is to mix human waste with coal dust, crop residues and other organic wastes. For our visit, the centre was completely empty so we could not see it operating. CW staff, however, reported that it had been functioning during a previous visit in September 2014 and that there had been some coordination problems between CPC and the County Agriculture Dept. which would be resolved. The pits were reported to each contain 40 MTs of waste, suggesting a total of 160 MTs at any one time. The annual production target of 5000 MTs would require all pits to be filled and emptied 30 times a year, which is way too short for complete composting. A realistic target might 1000 MTs / year but even then that provides only 2 months of composting time. Each greenhouse is allocated 150 kg of compost a year, which will require 3.45 MT if all 23 are supplied. Any surplus compost will be allocated to maize fields.
Solid Waste Collection Blocks	These use a traditional design that provides an elevated platform for transfer to a truck as well as one small separated area for organic waste. We initially saw 2 of the reported 25 constructed and again these were completely empty, although one had a compost pile in the lane beside it. As an unscheduled visit, we saw a third block which did have a small pile of solid waste material,
DEWATS facilities	These treat black and grey waters to discharge water of an adequate quality to return to the environment. This small-scale design was initially developed and promoted by a German NGO (BORDA) in the 1990's and there are now hundreds around the world. The concept has been taken up by UNICEF and NGOs in DPRK. CW has already constructed a few dozen of these in DPRK, some of which were seen during earlier visits in 2010 and 2011. Because the water supply system in Singye (a gravity flow system supported by UNICEF in 2011) was dry (due to the drought) and the limited supplies from wells and rivers was inadequate to generate sufficient volume, it was not possible to see the DEWATS in operation during the visit. The water had been tested in June and the results showed that BOD levels had declined from an average 171 mg/L at the intake to 25 mg / L [7] at discharge.
Sewers (m)	1400 m of underground sewers were required to transport black and grey water from all apartment blocks in the town to the DEWATS facilities.
Man holes	120 manholes had been constructed approximately every 10 or 12 metres along the sewers.

[7] BOD is the acronym for Biological Oxygen Demand, a measure of the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down organic material; a typical measure of BOD in untreated water is between 200 – 600 mg / L and of treated water around 20 mg / L.

Open drains (m)	Almost 3 kms of open drains for management of storm water and grey water from ground level houses had been constructed.
VIP community and institutional latrine blocks	The original approximate target of 36 blocks with 163 cubicles was changed to 32 blocks with 188 cubicles during the detailed planning. These were allocated to 5 institutions with 27 for community use. These are divided into male and female sides; with typically 3 or 4 cubicles for men with a urinal and 4 or 5 cubicles for females. The average number of cubicles per block increased from 4.5 to 5.9, which probably provided better value and, as settlements are very dense would probably not have significantly increased distances from dwelling to the latrine block.
Nutrition, Health & Hygiene education for nursery caregivers; child-to-child hygiene promotion	The project reported 3 sessions for 100 caregivers and 2 campaigns to support child-to-child hygiene promotion for 60 teachers and 990 primary school children. The training was based on materials developed by UNICEF and WHO for global use, which are the best available for these extremely challenging topics. Content included the nutrition of infants and young children as well as proper hygiene and uses visual materials, games, group discussions and role-playing.
Strengthened capacity to construct and manage new food processing facilities.	New and improved skills and knowledge are essential for optimal operations of the new food processing facilities. This was allocated substantial time and resources by CW resulting in 22 training sessions, 23 exchange visits to similar facilities in DPRK and two international visits to China. There are also supports available from in-country experts from their visits to the sites and via telephone. A proper assessment will only be possible in a few years time (see recommendation). Training sessions for the construction and installation of the DEWATS and other waste management facilities were also organised in 2012 and 2013.

2.2.2 Changes in Food Production & Processing

The key findings from the baseline survey's questions on annual production, conducted in April and May 2012, and project targets as outlined in the log frame are described in **Tables 5 and 6**:

Table 5: Reported food production in 2011

Winter vegetables	Nil
Total vegetables	No data for Kumchon; 1548 kg in Singye
Fish production	25 MT (from a large lake near Kumchon)
Soybean paste	49,630 kg
Soybean sauce	24,840 kg
Soybean oil	2,250 kg
Total soy products	76,720 kg
Goat milk	Fresh milk 23 MT

Source: 2012 CW DPRK baseline survey (27)

Table 6: Log frame targets for Increased Food Production

Winter vegetables	12 greenhouses, producing total 36 MT/ year
Total vegetables	
Fish production	30% increase
Total soy products	30% increase
Goat milk	20% increase

Comparing actual production data as provided to the Evaluation Team suggests that CW DPRK has supported significant increases in three of the agricultural products, namely of vegetables production, soybeans and goat milk, described in **Table 7:**

Table 7: Estimated annual production by product and year, 2011-14

FOOD PRODUCTION OUTPUTS	reported by project	baseline annual production	increase over baseline
vegetable production (kg)			
2011		[illegible]1,548	
2012	nil		
2013	43,491		
2014 (January to August)	62,590		at least a 40 fold increase, perhaps more
soybean production (kg)			
2011		[illegible]6,720	
2012	nil		
2013	483,000		
2014 (January to June)	374,752		a five fold increase or more
goat milk production (kg)			
2011		[illegible]3,000	
2012	nil		
2013	[illegible]0,043		
2014 (January to June)	[illegible]8,640		at least 5 MT more, or 22%

The post-intervention production data thus include only one complete year in 2013 and a partial year in 2014. Even these partial data show clearly that production has increased in these three foods meeting or exceeding the targets. The data would be more powerful if vegetable production had been disaggregated by season to show winter produce. As fish require 3 years or more growth before they are consumed their change in production cannot be estimated at this time.

The real test of the project's effectiveness is, of course, the distribution and consumption of the additional foods. Food consumption is difficult to measure with accuracy in all societies and in DPRK it faces the challenges of all research done with outsiders compounded by the political sensitivity of food security. The best examples are probably the CFSAM reports that include a small survey (67 households) and ask for a seven-day recall of foods consumed. In 2011, it found every HH consumed 3 food groups: daily cereals or tubers, daily vegetables (including wild plants) and almost daily (6 days a week) consumption of condiments (bean paste or soy sauce). Households differed in the amounts of oil (ranging from 2 to 5 days), animal protein (0 to 5 days), pulses (0 to 2 days). It found the diet of cooperative farmers to be generally superior to those dependent on the PDS.

To assess the effectiveness of the MSFNS project, the Evaluation Team uses the target allocations as reported by the CPC and other authorities, as described in **Table 8**.

Table 8: Target Food Allocations (grams per day)

	Winter Vegetables	**Goat milk yogurt**	**Fish**	**Soy**
Children 7 –24 months (nursery)	70	100	-	60
Children 25 – 59 months (kindergarten)	150	100	-	60
Pregnant & lactating women	500	100	-	60
Elderly & disabled	500	100	-	60

Source: Baseline Report for MSNFS June, 2012 (27)

The demographic data in the baseline study (Table 2) suggest that there are approximately 8,000 high priority people – young children, pregnant & lactating women, elderly and disabled, and hospital patients.

If all of the estimated 2014 production is allocated to these 8,000, then there are sufficient vegetables for 23 days and goat yogurt for 34 days. For the soy there is easily enough to feed these vulnerable groups throughout the year with sufficient to feed the 32,000 in the general population for almost 9 months. (32,000 @ 0.06 x 257 days = 494,000 kg). **Table 9** describes total food requirements for each vulnerable group and adequacy of current production to meet these requirements. While production can be expected to increase in future years, it is sobering to see how much more vegetable and yogurt will be required to provide year-round supplies.

Table 9: Total food requirements, current production and adequacy by vulnerable group and food type

	daily target (gms / day)				total food requirment per day to meet target		
priority group	Winter Vegetables	Goat milk yogurt	Soy	No. in Kumchon & Singye	total veg eat / day	yogurt	Soy
Children 7 –24 months (nursery)	70	100	60	1220	85,400	122,000	73,200
Children 25 – 59 months (kindergarten)	150	100	60	2360	354,000	236,000	141,600
Pregnant & lactating women	500	100	60	1100	550,000	110,000	66,000
Elderly & disabled & patients	500	100	60	4050	2,025,000	405,000	243,000
total required (gms)					3,014,400	873,000	523,800
estimated annual production (kg) in 2014					70,000	30,000	500,000
number of days total food requirment can be met in 2014					23	34	955

2.3 Project Efficiency

Project efficiency was impeded by the imposition of trade, banking, travel and other sanctions in March 2013 after a unanimous UN Security Council condemning underground nuclear tests. This made procurement more complicated and time-consuming and required agencies to favour offshore purchases rather than using local sources. The import of hard currencies was reduced to the modest amounts that can be legally carried across the border. In addition, the cost of cement increased from E 64 / MT in 2010 - 11, the figure used to prepare the initial budget, to E101 / MT in 2012 (58%) when the project commenced its work.

Despite these challenges, the MSFNS project was able to meet and exceed its target outputs. It did this by amending budget allocations from overheads and staff to physical facilities. **Table 10** describes the difference in the budgeted and actual unit/total costs for new facilities, capacity building & training and other project activities. The most significant additions were in winter greenhouses where the initial targets of ten plus two standard (i.e. warm weather only) were replaced with twelve complete greenhouses and partial support (about two-thirds) to another eleven winter greenhouses, for a total of 23. The initial allocation of 10.4% of the budget was increased to 17.4%.

The fish hatchery and pond was constructed at a lower cost than budgeted and some of this was transferred to the soy factory, which had been significantly under-resourced.

Capacity building to ensure the successful operation of the new facilities was done with a mix of small amount of formal training, exchange visits to similar, existing facilities in neighbouring counties, wall posters that summarised key management information such as the temperature and humidity range for different vegetables and by support visits by technical experts from Pyongyang, who would also be available to provide telephone advice. Greenhouse managers mentioned the continuing challenges of soil and pest management. Only time will tell if the staff have the skills and knowledge to manage the facilities in an optimal manner.

Another training programmes was for school children on basic hygiene and, in particular, hand washing with soap. This is based on the PHAST approaches developed by UNICEF using a variety of games, visual tools and hand-washing drills. The main challenge probably continues to be how to improve the management of faecal waste. The large need for soil enhancement throughout the nation continues to put pressure on the use of human and animal faeces for compost.

The emptying of faeces from traditional pit latrines, from VIP latrines and from DEWATS chambers is done by hand, reportedly mostly by girls and women, particularly in the spring planting season. It is so difficult to do this by hand without significant exposure to faecal pathogens and risk to health.

Table 10: Difference in budgeted and actual unit/total costs per project activity

	initial number	original budget	original unit cost	actual number	actual spend	actual unit cost	difference in unit/ total cost
completed winter greenhouses	12	132,000	11,000	12	39,063	3,255	2,255
partial greenhouses	0			11	6,607	6,055	
total greenhouses					*120,739*		
fish hatchery & pond	2	60,000	30,000	2	2,667	6,334	(13,667)
soy factory	1	25,000	25,000	1	5,652	5,652	30,652
goat milk yogurt factory	1	50,000	50,000	1	5,354	5,354	(4,646)
DEWATS & sewers	5	165,500	33,100	5	61,898	12,380	(720)
VIP latrines (cubicles)	163	84,500	212	188	50,196	267	55
solid waste blocks	50	30,000	600	25	9,841	1,194	594
composting centre	1	40,000	40,000	1	8,114	8,114	8,114
sub-total facilities		*537,000*			*349,392*		*12,392*
training							
staff workshops		8,200					
school nutrition & hygiene		6,000					
on food production		16,500					
exchange visits		9,250					
sub-total training		*54,950*			*53,127*		*(1,823)*
all other costs: personnel, transport, travel, equipment, consultancies, administrative, etc		673,075			25,677		*(147,398)*
Total		1,265,025			1,228,196		(36,829)

The wide range of constructed facilities means that there is no common denominator with which to compare their different outputs and benefits. In **Table 11** below, we have proposed one denominator for each annual output with which to begin to compare the return on the capital expenditure by CW DPRK for different types of facility. The duration of the denominator varies from a year of sanitation services to one week of food for one vulnerable adult. The costs do not include operating costs and the life of the facility is a guesstimate based on the opinions of the evaluation workshop of April 2014 and the consultants' opinions. It also assumes minimal wastage of the food between production and consumption.

Some of the notable features of these data include the relatively low capital costs of

- building a fish hatchery that can provide 0.5 kg of fish for one person for a week (€ 0.023) which computes to about € 1.2 for a year's supply; and
- providing one person with better environmental sanitation for one year (DEWATS + solid waste collection centre + VIP latrine) (€ 1.23)

Table 11: Estimated return on capital expenditure per facility

food production	actual number	estimated life of facility (years)	actual spend by CW (Euro)	estimated annual outputs	estimated beneficiaries & benefits	average annual capital cost of meeting one person's food quota for specified period (E)	
column number	*1*	*2*	*3*	*4*	*5*	*6*	*7 (3/2)/(5/6)*
completed winter greenhouses	12	20 years for building, (45 years for plastic)	139,200	3MT/ha	70 MT/3 years is sufficient to feed full target amounts to 8,000 vulnerable people for 233 days/year	2000g/week	
partial greenhouses	11		81,539	3MT/ha			
total greenhouses			*220,739*				0.3153
goat milk yogurt factory	1	20	49,184	35,000 kg	sufficient to feed full target amounts to 8,000 vulnerable people for 40 days/year	500g/week	0.0351
fish hatchery & pond	2	20	34,539	600,000 fingerlings by 2015	7% is (tot. pop. 38,000) will each harvest 75,000 fish/3yr; av. weight 2kg; total = 150,000 kg; = 28 kg/person/year	500g/week	0.0227
soy factory	1	20	60,855	500,000 kg	enough to provide 22,700 their annual allocation of 60 grams/day (22kg/year)	420g/week	0.0026

non food facilities						denominator	cost (E)
DEWATS & sewers	5	15	161,898		removing waste from 2 4270 HHs (14,100 people) & releasing clean water	per person/year of service	0.77
VIP latrines (cubicles)	188	20	50,196		toilets for 6520 people	per person/year of service	0.38
solid waste collection blocks	25	20	29,841		a cleaner environment for 18,000 people	per person/year of service	0.083
composting centre	1	20	48,114	1000 MT		per MT of compost over life	2.41
sub-total facilities			*455,366*				

These data again show the challenges with vegetable cultivation – the relatively high capital cost (E0.32) to provide required vegetables for one person for only one week - and the consequent need to build many more greenhouses. The capital costs for providing yogurt and fish make these appear to be excellent investments and there is a good economic case for massively expanding these facilities and the resulting outputs.

2.4 Project Outcomes and Impacts

While CW DPRK can demonstrate significant project outputs associated with Expected Results (1-5), the organization is limited in its ability to assess project outcomes and impact. This is due to both political context of DPRK that prohibits any meaningful communication between CW DPRK staff and beneficiaries, particularly after the construction phase and also due to challenges inherent in evaluating causation in programs given the inevitable presence of confounding

factors[8]. The most that CW DPRK can hope to achieve in terms of 'impact measurement' is to use its output metrics as proxies for food consumption (i.e. outcomes) that in turn would lead to reduced food security and incidence of disease (impact). Comparing CW DPRK's output data (described in 4.3) and UN FAO's Food-based Dietary Guidelines (28), may allow CW to derive some reasonable description of the possible per capita nutritional value beneficiaries are receiving from agricultural activities (e.g. ER1 and ER2), for use as project outcome measures. This should involve reference to globally standardized FAO nutritive values specific to each agricultural output including soybeans, which is considered to be a high source of protein, Calcium, Folate and vitamin C compared to other staple foods (29, 30) (**Table 12**); goat milk, which is considered to be a particularly valuable source of vitamin A and protein (31); and for distinct vegetable products, which have diverse nutrient contents.

Table 12: Nutritive Values Of Soybean And Other Legumes And Vegetables

Staple Foods	maize /rice	rice	wheat	potato	cassava	soybean	sweet potato	sorghum	yam	plantain
Protein(g)	9.4	7.1	12.6	2.0	1.4	**13.0**	1.6	11.3	1.5	1.3
Calcium(mg)	7.0	28.0	29.0	12.0	16.0	**197.0**	30.0	28.0	17.0	3.0
Folate (μg)	19.0	8.0	38.0	16.0	27.0	**165.0**	11.0	0	23.0	22
Vitamin C	0	0	0	19.7	20.6	**29.0**	2.4	0	17.1	18.4

Source: United States Department of Agriculture Nutrient Data Lab

The 2013 EC Monitoring Report (32) remarked on a poor differentiation between the project's Overall Objective (OO) and Specific Objective (SO) which limits differentiation between Effectiveness and Impact. It suggested that the log frame indicators should be revised to take account of baseline information (replacing percentages with actual values), implementation changes (fish hatchery, not two ponds) and to replace outputs with outcomes (especially for Result 3). At the core of the issue here is that the project log frame does not adequately distinguish between inputs (financial and in-kind), outputs, outcomes and impacts. CW DPRK should consider using a Results-based management (RBM), which provides a sound framework for strategic planning and management by improving learning and accountability. In accordance with this new approach, CW DPRK should consider revising its log frame to include Organisation for Economic Co-operation and Development (OECD) latest approaches, guidelines and templates, including but not limited to: The OECD Guidelines for Programme Design, Monitoring and Evaluation (33) and Principles of RBM (34). The revised log frame approach should consider RBM terms/definitions that are aligned with United Nations Development Group (UNDG), and the OECD- Development Assistance Committee (OECD-DAC) definitions (**Table 13)**. Additional references that CW DPRK should consider using are papers published by other global think tanks specialized in logical framework approaches and outcome, with case examples in the FSN and WASH sectors (35). Where possible outcome and impact indicators should be aligned with global standards for food security and nutrition promulgated by WFP, to foster comparability of results across agencies and comparison to international reference standards. This might include referring to WFP methods and tools for emergency assessments to distinguish between chronic and transitory food insecurity, and to evaluate the effects of various types and combinations of shocks on these different livelihood groups (36); method to evaluate access and coverage of

[8] In the context of public health and clinical measurement of causation, a confounder variable is an extraneous variable that is either directly or inversely related with an outcome/impact of interest. Failure to identify and control for confounding factors in causal (statistical) analysis can lead to serious mis-estimation of a project's effectiveness.

programmes (37); scoping and designing a climate change adaptation process (38); and first and second level results management frameworks (39).

Table 13: Definitions of terms within OECD results-based management framework(34)

Results: Changes in a state or condition that derive from a cause-and-effect relationship. A development intervention can set three types of change into motion: output, outcome, and impact.
Goal: The higher-order objective to which a development intervention is intended to contribute.
Impact: Positive and negative long-term effects on identifiable population groups produced by a development intervention. These effects can be economic, socio-cultural, institutional, environmental, technological or of other types.
Outcome: The intended or achieved short-term and medium- term effects of an intervention's outputs, usually requiring the collective effort of partners. Outcomes represent changes in development conditions that occur between the completion of outputs and the achievement of impact.
Outputs: The products and services resulting from the completion of activities within a development intervention.
Assumptions (external factors or risks): Expectations about external factors (or risks) that could affect the progress or success of a development intervention, but over which the management has no direct control.

2.5 Project Sustainability

2.5.1 Political

DPRK's political system offers both advantages and disadvantages in terms of project sustainability. Some disadvantages include the fact that centralized and tightly controlled decision-making by government limits CW DPRK's ability to engage in participatory decision-making at the community-level. Specifically, CW DPRK's inability to effectively communicate and interact with local beneficiaries restricts engagement in participatory project design, implementation, monitoring and evaluation – which are pillars of the sustainable development process. On a positive note, however, the political ideology of '*juche'* (understood as self-reliance) has created a strong interest by the government to control, own and fully support project infrastructure and processes once they are constructed. Official policy to use local labour wherever possible in design, construction and management makes a significant contribution to the familiarity with each facility and helps to develop a local sense of ownership and control. In the context of agricultural programs, for example, it means that county employees are now fully responsible for all technical and managerial aspects of greenhouse production, soy processing, goat farming and fish production.

2.5.2 Environmental

Environmental risks to sustainability in DPRK are significant and related to its topography, climate and climate change; they include: temperature extremes, severe droughts and flash floods. The Evaluation Team noted several proactive risk reduction measures that CW DPRK had taken to ensure the environmental sustainability of its projects, including:

- The selection of crop varieties for greenhouse production was specifically designed with consideration to DPRK's temperature extremes (e.g. radishes in summer months since they can withstand extreme heat; and spinach in winter months since it can better withstand cold). These decisions were taken through learning from exchange visits, instruction and guidance from national and county-level agricultural officers, and also took local food preferences into consideration.
- As a strategy to mitigate the 'king' drought of the 2014 summer, CW DPRK agreed with the local counties in their decision to mitigate crop failure risk by releasing water from fish hatchery to irrigate nearby fields.
- In order to prevent adverse impacts from flash floods, which can collapse the water supply and other infrastructure and lead to sewage contamination of water sources, CW DPRK supported gabions at the edge of the riverbank to prevent flood-related overflow.

In general, CW DPRK has demonstrated leadership in the area of disaster risk reduction (DRR). Specifically, CW DPRK aims to strengthen climate change adaptation and social protection through the development of community resilience strategies, defines as "*the ability of a community, which includes households and individuals, to anticipate, respond to, cope with, and recover from the effects of shocks, and to adapt to stresses in a timely and effective manner without compromising their long-term prospects of moving out of poverty* (15). To this end, the organization plans to work with the Red Cross and the National Bureau for Disaster Management to develop a DRR strategy. CW has an updated 'Preparedness for Effective Emergency Response' (PEER) plan for DPRK. Much of CW DPRK's proposed work in DRR (e.g. conservation agriculture) is closely aligned with similar work with the U.N. FAO and provides an opportunity for providing added value to the international community working within DPRK.

2.5.3 Socio-cultural

CW DPRK's programs appear to be sustainable from a socio-cultural perspective on several fronts. Firstly, many of the foods produced with CW DPRK are locally appropriate and meet the dietary preferences of Koreans. Examples of this are Chinese cabbage, chilli and garlic for Kimchee; production of soybean paste as a common condiment; and rearing of carp, which is used in many local dishes. Some questions were raised about the nutritional appropriateness of some specific products, such as radishes, lettuce, cucumber and soy sauce – which have less nutrient value. However these were justified on basis of other factors such as ability to survive climactic extremes (radishes, lettuce), use as a cash-crop (cucumber), and production by-product (soy sauce). Second, the socio-cultural sustainability of projects is fostered through knowledge transfer – notably the hygiene promotion program drills young children to have proper hand washing practices and utilizes locally produced animated booklets and sing-along-songs to encourage children to enjoy learning about the topic. The intent of this approach is that children will remember hygiene songs and behaviours, and perhaps even share their new insights with household family members at home.

One potential risk to the sustainability of CW DPRK projects relates to socio-cultural beliefs and practices around handling of human and animal faeces. Chronic exposure to

unsanitary conditions can undermine potential health benefits of food security and WASH initiatives. This poses both an operational gap and knowledge and opportunity for CW DPRK to consider for future integrated WASH and food security programming (see section 5.1).

2.5.4 Technological

The technological sustainability of CW DPRK projects is closely related to government policies around importation as well as international government sanctions on DPRK. In March 2013, the UN Security Council approved a new regimen of sanctions against DPRK for its underground nuclear test. Of relevance to CW DPRK's projects, the sanctions include an embargo on *imports and purchase of goods and technology listed by the UN*. The Evaluation Team learned of extended delays experienced by other organizations for equipment and parts. CW DPRK has been experiencing logistic delays and complications related to the procurement of a vehicle, and there was discussion about the potential challenge sanctions could play in obtaining foreign equipment parts to fix technologies within the soy processing plant –should any issue arise. Much of the technology is made in China and is quite simple as it cannot be imported if it could be assessed as potentially 'dual-purpose' (i.e. of use for military purposes). Until sanctions are lifted, the technological sustainability of programs in DPRK remains uncertain.

2.5.5 Financial

Agricultural and WASH facilities constructed by CW should be financially sustainable if they are allocated sufficient resources by the CPC to cover operating and maintenance costs. The food products are described as important by authorities and food is one of the three top priorities (the others are energy and water) for the non-military section of the state. In the absence of a market economy, where prices are not related to costs, nor to supply and demand, all of these facilities are vulnerable to the short-comings of central planning: inputs arrive late; wrong inputs are allocated; hard currency funds to import equipment or spare parts is not available, etc.

2.6 Implementation Processes

2.6.1 Roles and Responsibilities

Although CW had no civil society partners, it has collaborated widely with many governmental agencies. This has built ownership and transparency.

Tables 14 and 15 describe the various roles and responsibilities of stakeholders, and divisions of labour:

Table 14: Roles and responsibilities of CW stakeholders in DPRK

	Stakeholders	Role and Participation in the action	Reasons
1	Target social groups	Contribute to the project activities in terms of labour and or as agreed with the CPC and the project team, recipients of the trainings; use the project created assets as per agreed guidelines.	Direct beneficiaries of the project, ownership and developing coping abilities and sustainability strategies
2	County People's Committee (Singye and Kumchon)	Main contributors to the project design, notably in selecting components; Recipients of training; manage all project activities in their respective counties and therefore directly involved in the day-to-day implementation of the project and coordination with the project team.	Key government and political institution at county level overall responsible for County development and management.
3	Ministry of Agriculture (MOA)	At a national level, its main role is to approve the overall action based on its appropriateness and alignment with the MOA's overall national policy and strategies and provide technical support to the project through its institutions – AAS and VRI.	Responsible ministry for food production and agriculture planning in DPRK.
4	Vegetable Research Institute (VRI)	Instrumental in capacity building of green house users in vegetable planning and production. All related training.	Key DPRK institution in vegetable research
5	Academy of Agricultural Science (AAS)	Dissemination of project learning and provide cross learning opportunities to various actors within the sector.	VRI works under leadership of AAS
6	Ministry of Health (MoH)	Provide technical capacity building support to the project through its local staff / trainers	Responsible ministry for health and sanitation in DPRK
7	UNICEF	Supporting capacity building activities under result 4 and 5, in health and sanitation sectors.	UNICEF has qualified trainers and Concern has long-term association with them in the health sector.
8	Korean Federation for the Protection of the Disabled (KFPD)	Supporting capacity building activities under result 4 in health and sanitation sectors. These included making recommendations about a 'universal access' design to the latrine blocks such that one cubicle was a larger size to accommodate a wheelchair, a wall bar was installed and entrances used slopes, not steps.	KFPD are the national experts on all issues related to people with disabilities and will help with meeting their specific food security needs
9	Korean European Cooperation coordination Agency (KECCA)	Supporting the project team in project implementation and coordination with various institutions – MoA – AAS, VRI and MoH; organising visas for consultants, and field trips etc.	KECCA is a key agency under MFA responsible for coordination with EUPS units and supporting them as needed.
10	Technical Assistance (EU- FSO)	Backing of project; Project monitoring; providing technical supports; supporting dissemination events etc.	Coordinating agency on behalf of EC
11	CW	Implementing agency; Overall project management; Provision of project staff; Financial administration; Technical assistance through external advisors; Liaison with ministries, NGOs and donors ; logistics; M&E	Overall responsibility for the project and accountability to EU

Table 15: Division of labour between People's Committee, local partners and Concern Worldwide DPRK

	People's Committee and local partners	CW DPRK
Inception phase		Introductions to PC officials, explanation of CW DPRK mission, modes of working, confirming that the Counties understand their obligations and will deliver what is required
Project identification	PC identifies priority projects with recommendations from the Province, and discusses with CW DPRK	CW DPRK makes reconnaissance visits to sites,
Design, costing	PC Engineer prepares initial plan and bill of quantities; prepares detailed designs with advice of VRI	CW DPRK verifies plans and BOQ, ensures materials are adequate for the project with minimal available for diversion to other purposes; inspects designs and, if necessary, discusses modifications
Resource mobilization	PC estimates work group person – days, equipment etc. and has these included in County work plans	CW DPRK prepares proposal to prospective donors and answers their questions
Training	Exchange visits to greenhouses, fish hatchery and milk farm. Emphasis on learning from their experience	CW DPRK staff visit and support some of the trainings
Procurement	County and Ri responsible for warehouse management	All materials procured by CW DPRK through standard tendering procedures CW DPRK issued RFPs for materiel, equipment, cement etc.; evaluates bids and selects winners Inspects supplies to ensure quality
Transport (from Port of Entry / factory to County / work sites	County delivers to work site; CW DPRK provides fuel vouchers to county	CW DPRK requires the supplier to deliver to the county centre;
Materiel storage & maintenance	County warehouse	
Implementation	Work teams mobilised to excavate and construct. Technicians responsible for construction of source intake, tanks, pipe welding and household connections etc.	
Nutrition, hygiene and health training	Training jointly done with a Health education doctor from the County Sanitary and Anti – epidemic station	
Supervision of works	Frequent visits by County and Ri leaders, technicians and health staff.	CW DPRK national staff (assigned by DPRK) make frequent visits to ensure work is on schedule, to an acceptable quality, and solve problems with PC officers CW DPRK project coordinator (Expatriate)

		make occasional visits as permitted, typically 1 or 2 per month
Verification of project outputs	County and Security officials accompany verification team	Staff and external assessor (this mission) make one brief visit to sites and users; CW staff organised one End-of-Project workshop that brought many stakeholders together to discuss each project components, their strengths and weaknesses, etc; this is an excellent initiative and should be incorporated in all projects;
Sustainable System operations	Totally PC	At present no opportunity to monitor long term operations; CW DPRK moves on at the end of the construction phase;

This process was appropriate to the context and the needs of both parties. CW DPRK has ensured the funds and materials from external sources were used for the agreed purpose and within the spirit in which they were provided by the European Commission. DPRK officials have ensured that they are improving the lives of their residents, working towards the national priority of food security and protecting their jurisdiction from excessive outside influences. The process has found many ways in which local skills can be up-graded and to help ensure that there is some technical capacity to solve any subsequent problems.

3. CONCLUSIONS AND LESSONS LEARNED

3.1 Conclusions

The project was highly relevant and closely aligned with both national needs as identified by DPRK authorities and with CW global strategic priorities. Baseline data and indicators were adequate. Within a distinct and difficult context, the MSFNS project has successfully exceeded its original output targets, on time and at a lower cost than originally budgeted. Building on the experience and knowledge gained from previous related projects, and in combination with external expertise it has achieved these successes despite having to navigate a series of unanticipated obstacles (e.g. change in locations, sanctions, price inflation).

CW has done what it can to ensure that benefits of the project are targeted to the most vulnerable groups, but from this point on, such distribution is beyond its control and beyond its ability to observe or monitor. The project's monitoring and evaluation framework lacks clearly defined outcomes and impacts, and require a re-design of the log frame. Credit must be given to the DPRK authorities that have delivered on their responsibilities, ensuring that constructions were completed and technical advice provided. CW project appears to be highly sustainable on political, environmental, socio-cultural bases, and relatively sustainable on technological and financial bases. The success of this project offers future opportunities for replicability and scalability.

3.2 Lessons Learned

The project design demonstrates the integration of WASH, food and nutrition by 1. Using water supplies for the new greenhouses provided from earlier projects supported by CW in one town and UNICEF in the other; 2. Compost from the new waste collection and composting centre will

be used by the greenhouses; 3. New sanitation facilities should reduce faecal contamination and the risks of diahorrea, thus improving the ability of infants to absorb the nutrients from the new foods. During the period of the project, global knowledge has grown about the significance of environmental enteropathy as a factor that may constrain the impacts of nutrition and WASH interventions on child growth and health and its incorporation is one way in which new proposals might be improved. This constitutes a tremendous opportunity for enhancing integration of WASH, food and nutrition.

3.2.2 Added Value of Considering Environmental Enteropathy

Numerous complex factors affect risk of childhood stunting, which is the predominant nutritional concern in DPRK. Recently the relationship between birth weight and stunting has been affirmed by a meta-analysis that pooled data from five birth cohorts and found that infants with a higher birth weight were significantly less likely to be stunting (40). Appropriate child feeding practices are especially critical for new-borns (early and exclusive breastfeeding) and for infants from 6 months of age (complementary feeding), when breast milk alone is no longer sufficient to meet their nutritional needs (41). Consequently, WHO and UNICEF highlight the importance of exclusively breastfeeding and age-appropriate introduction of safe and nutrient-dense complementary foods together with continued breastfeeding until children are at least 2 years of age (42). As a general policy framework, global standard setting organizations emphasize the importance of meeting the nutritional needs of children during the first *1,000 days of life* (43), from conception to 2 years of age. The 2012 National Survey of DPRK reported that 23% of women of reproductive age (15-49 years) had low mid-upper arm circumference (MUAC) scores; 31.1% of mothers were not exclusively breastfeeding their infants within the first six months of life, and 34% did not initiate timely introduction of complementary foods to toddlers 6-8 months age (4). The adverse impacts of poor maternal and infant health on stunting are generally irreversible, and have long-term effects on child development, learning and health.

More recently, global public health stakeholders have been placing considerable emphasis on the importance of environmental enteropathy as a key contributor to child malnutrition. Environmental enteropathy is an invisible, sub-clinical condition that causes the fattening of villi in the gut, reducing its surface area and resulting in decreased nutrient absorption and infiltration of microbes. It is caused by chronic exposure of children to bacterial pathogens in their environment from human and animal faeces (44). Studies in other contexts have estimated that environmental enteropathy accounted for 40–64% of growth faltering among children (45, 46). Clinical symptoms associated with EE have also been observed in children with severe forms of undernutrition, marasmus and kwashiorkor (47). Recently, a study involving 119 Bangladeshi children was the first to establish a joint relationship between poor household environmental conditions, markers of environmental enteropathy[9] (48), and growth faltering. It found that children living in clean households with good hygiene had lower prevalence of parasites, lower symptoms of environmental enteropathy and better growth (less stunting, wasting, and underweight conditions) compared with children living in contaminated households with poor hygiene (49).

There is a growing body of scientific evidence demonstrating the effectiveness of specific WASH interventions on reduced diarrhoea incidence, environmental enteropathy and stunting. In 2006, a review including 30 trials and 53,000 individuals evaluated the impact of

[9] One salient method of identifying environmental enteropathy involves urine collection and application of intestinal permeability assay.

improved water quality on diarrhoea incidence. This analysis found that interventions focus on improvement of water quality had a reduced incidence of diarrhoea for both children under the age of five and populations of all ages. This study highlighted that household-level interventions were more impactful than program administered at water sources (50). In 2008, a study including 14 trials and a total of 7, 711 participants explored the effect of hand washing promotion on diarrhoeal incidence, and found a significant association (51). In 2010, a review of 13 trials including 33,400 participants found that improved human excreta disposal was positively associated with reduced diarrhoea incidence (52).

The link between WASH interventions and reduced stunting was established by a recent Cochrane systematic review[10] that aimed to evaluate the effect of water quality and supply, provide adequate sanitation and promote hand washing with soap, on the nutritional status of children (53). This study found a borderline statistically significant effect of WASH interventions on height-for-age z-score (MD 0.08; 95% CI 0.00 to 0.16), suggesting a small benefit of WASH interventions on length growth in children under five years of age. Of the WASH interventions under consideration, this analysis specifically highlighted the importance of three WASH interventions, namely: solar disinfection of water; provision of soap; and improvement of water quality (53). However the extrapolation of results from this study are limited by study methodology; and do not preclude the fact that other WASH interventions may be very valuable , especially proximity of water to the point of consumption, as summarised in an earlier summary of findings (**Table 16**).

Table 16: Percent reduction in diarrhoea by WASH intervention type(54)

Intervention	Reduction in diarrhea (percent)
Water supply	
Public source	17
Additional, for house connection	63
Excreta disposal	36
Hygiene promotion	48

Source: Disease Control Priorities in Developing Countries, World Bank, 2006 page 786

Several observational studies have demonstrated that improvements in height are largest with programs that include changes to in water and sanitation conditions (55-58). However, multiple intervention studies have documented no effect of household environmental improvements on height-for-age z-score, and the relationship between environmental improvements and growth remains ambiguous (59-61). There is a critical need for formative and prospective scientific research in this area. Recent publications suggest reframing undernutrition initiatives so that they include a better balanced understanding of two inclusive concepts: the 'five As' (Availability and Access to food; Absorption, Antibodies and Allopathogens referring to internal anal and gastrointestinal processes) and faecally-transmitted infections (FTIs) including environmental enteropathy, other intestinal infections, and parasites (62).

[10] A Cochrane systematic review is a 'meta' analysis that consolidates the raw data from a large number of smaller studies to produce estimates with a higher level of statistical confidence.

Traditional water, sanitation and hygiene interventions (such as latrines or hand-washing) may not be sufficient to address bacterial exposure of infants from soil. Risk of EE, and thereby childhood stunting, may be reduced by limiting exposure of infants and young children to human and animal faeces through a package of interventions that include sanitation, hygiene and changing how families care for children and animals. The latest ideas on optimal programmes for foetal and child nutrition were summarised by the Lancet in 2013 and include a specific mention of 'a safe and hygienic environment' which should be understood to include minimising risk of EE (see **Annex F**). Within DPRK's context, – CW's value added could include supporting formative research regarding community and household risks of EE, and identify and implement socially acceptable mechanisms that reduce child exposure to human and animal faeces.

4.0 RECOMMENDATIONS

4.1 Future CW programming in DPRK

- **Inter-agency EUPS collaboration in DPRK:** Given that formal collaboration between international agencies is not encouraged, CW DPRK must use informal ways to both support and learn from other EUPS Units'. There are several ideas that CW DPRK can explore:
    - Identify common projects across EUPS Units with the propose of proactively sharing information about emerging 'best practices' that be integrated into operations across all Units;
    - Identify common research questions across EUPS Units, and lead agency that can spearhead formative and operations research on behalf of all Units; and
    - Align M&E metrics between EUPS Units to enable aggregation and comparison of output data for case-specific learnings and national-level monitoring of program effectiveness.

- **Increase capacity building exchanges**: Both CPC representatives and CW DPRK staff emphasized the tremendous value that capacity building exchanges have had for improving technical and managerial capacity in agricultural production. Future CW DPRK programming should continue to plan and budget for such exchange opportunities that allow staff from new projects to visit and learn from other longstanding project sites. This was identified by CW staff as essential for addressing some of the discrepancies in outputs observed between different greenhouse sites, and the lack of output from the organic composting centre. Examples of where this would continue to be useful, based on the existing programs are:
    - Exchanges between greenhouses to ensure best practices in crop production;
    - Exchanges between goat milk production farms to foster knowledge on production;
    - Exchanges between hatcheries at County level and ponds at Ri level to optimize fish growth and production; and
    - Exchanges between new and existing composting centres to ensure appropriate CPC and community uptake.

- **Development of Operational Manuals:** CW DPRK should work with national government authorities and universities in DPRK to develop agricultural production and

processing manuals that will act to both harmonize and strengthen capacity and sustainability of technical and managerial know-how. CW DPRK could support this activity by sharing / incorporating global best practices in food security and nutrition that it has gained from its informal partnership with EUPS Units, UN agencies within DPRK and with new international academic institutions. Incorporate best practices from other countries with similar agricultural and ecological profiles. As a strategy to foster government buy-in and ownership, the development of these operational manuals should consider:

  - Involving graduate students from DPRK universities that are already involved in research and training internships at production sites; and
  - Integrating training protocols within government extension worker's core functions.

- **Development of Integrated WASH and nutrition program framework:** CW DPRK has been implementing two sector programmes: WASH and FIM. While there are strong theoretical synergies between WASH and FIM that can help stabilise food production, availability, access and safety, because these activities are taking place in geographically distinct locations within Counties they are not benefiting from the added benefit of an integrated approach. This is particularly important in light of evidence regarding the link between environmental enteropathy and nutritional outcomes. Future CW DPRK programming should therefore seek to combine WASH and food security initiatives more closely at the Ri and County level. This should involve closer consideration of how WASH and nutrition behaviours can been improved at both the community and household level.

- **Foster national and global partnerships with academic institutions:** so CW DPRK can remain current about new innovation relevant to programs (e.g. universities, technology, research):
  - Formative Research in collaboration with AAS, State Academy, AES, Ministry of Agriculture, Ministry of Land, Environment and Protection, Ministry of City Management, Ministry of Public Health with a focus on understanding risks of environmental enteropathy – e.g. nutrition and hygiene household practices; organic composting processing.

- **Consider options for engaging in nutrition programming:** Given CW's international reputation in treatment of MAM and SAM, IYCF and other nutritional programming, as well as needs of women and children in DPRK as identified by the national survey, CW DPRK should consider options for how it can engage in nutrition programming within DPRK to more directly impact the health and nutrition of vulnerable populations. These activities should consider evidence-based frameworks for action for optimal fetal and child nutrition (**Annex E,** prepared in 2013) (63). In light of DPRK's current food security and nutritional status, CW DPRK may want to consider:
  - Focusing on interventions of children within the first 1,000 days including promotion of exclusive and safe breastfeeding for first 6 months, and complementary feeding practice; multi-micronutrient supplementation of pregnant and lactating women;

- An integrated WASH approach that considers prevention of environmental enteropathy, as well as other water-related risks- notably diarrhoea and nematode infections.

- **Revise Monitoring and evaluation (M&E) framework**: CW DPRK's system M&E system should be re-designed to measure project performance with respect to clearly delineated expected outputs, outcomes, and impact. This should involve use and application of an RBM framework, drawing on best practices, guidelines and templates promulgated by the OECD.

4.2 Future EU Investments

- **Consolidation of DPRK Investment**: One of the factors limits EUPS Units ability to both gain access to geographic areas where food security / nutritional needs are greatest (i.e. Northern Provinces of DPRK) and to formally collaborate with UN agencies, is that the size of individual EUPS Unit budgets. Consolidation of EU's investment in DPRK may give EUPS Units more leverage with government authorities to access new areas of intervention and openly partner with UN agencies. One approach to this could be to ascribe administrative leadership to one Unit, that would then lead a strategically harmonized approach. This consolidation would allow for better monitoring and evaluation of EUPS program outcomes, as program effectiveness metrics could be easily aligned across Units given that they are all engaged in identical activities.

- **Encourage Longer-Term Follow-up:** Development agencies improve their performance over time by following-up previous projects to learn from shortcomings and identify what was successful. This is regularly done by many state agencies and NGOs in almost all countries throughout the world. Such evaluation is rarely possible in DPRK, where involvement by an NGO usually ceases once construction is completed and the project handed over to the authorities. One exception to this has been WASH projects constructed by IFRC in DPRK who are allowed to visit the schemes they have supported after five years, and in turn they agree to provide any material or capacity building required to rectify problems.

  There are currently two main obstacles: resistance by DPRK authorities and project-by-project financing by donors with no budgetary provision for evaluations of earlier projects. The first may be addressed by offering the authorities a similar arrangement as IFRC does to restore the project to its intended effectiveness and build long-term sustainability by providing, often quite modest, supports. The EU should negotiate such opportunities for all of the projects it or other European donors have supported. The second can be addressed by raising the issue with the major donors and having them agree to provide budget support to the five-year evaluations of each other's projects within later projects. Such evaluations could be out-sourced to local universities with or without NGO staff involved.

ANNEX A

TERMS OF REFERENCE FOR EVALUATION

Terms of Reference for the End of Project evaluation of the EU funded Multi Sector Nutrition & Food Security (MSNFS) project (2012 – 2014)

Contracting Authority: European Commission

Reference: EuropeAid/130566/C/ACT/KP – Lot 1

Contract number: DCI-FOOD2011264-328

Beneficiary of grant contract and implementing organisation:
CW

Start date and end date of the project:
1st Jan 2012 – 31st Dec 2014

Budget: 1,265,025 EURO

Target area:
Singye and Kumchon counties in North Hwanghae Province

4 June 2014

Background of the MSNFS project

Concern Worldwide, known as European Union Support Service Unit 3CW (Concern Worldwide DPRK) in DPRK is seeking a consultant(s) to carry out the end of project evaluation for its Multi Sector Nutrition and Food Security (MSNFS) project. As a part of its current Country Strategic Plan (2012-16) Concern Worldwide is implementing two sector programmes Water and Environmental Health (WASH) and Food, Income and Market (FIM). The ambition is that projects implemented under these two programmes should be serving as "centres of excellence" in the country. The MSNFS project contributes to both sector programmes.

Undoubtedly, the MSNFS project is benefitting from Concern Worldwide DPRK already well established working relationship with the targeted communities in Singye and Kumchon counties. Equally important is the benefits from the experience gained from implementing similar EC funded project in the past like the Food Production on Sloping Land (FPSL), EuropeAid/126276/C/ACT/KP project and the Community Based Urban Nutrition and Food Security (UNFS) Project, EuropeAid/128275/C/ACT/KP).

Concern Worldwide doesn't have formal partnerships with organisations in DPRK but works through the local government institutions, in particular the County Peoples Committee (CPC), Academy of Agricultural Science (AAS) and, Vegetable Research Institute (VRI). Other important collaborators are the other six resident INGOs in DPRK. The principal donor for Concern Worldwide in DPRK is the Irish government and the European Commission (EC).

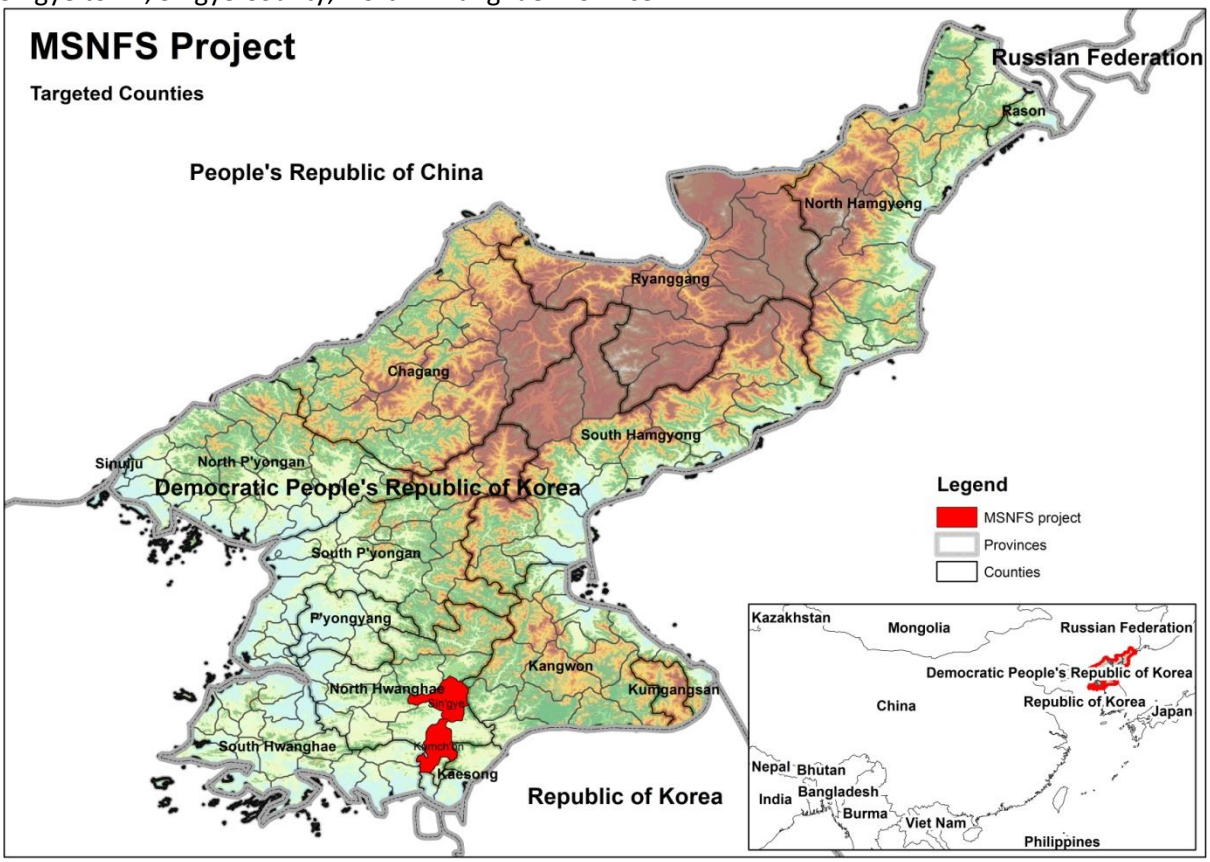
The "Multi Sector Nutrition & Food Security" (MSNFS) project is a joint FIM and WASH intervention with the overall objective to *"improve the living conditions of the social groups which continue to suffer most from the deterioration of the national socio-economic conditions in North Hwanghae Province, DPR of Korea"*. Specific objective is to *"stabilize food production and availability, improve access to & use of food and enhance people's nutritional status with complementary WASH actions in urban and rural Singye & Kumchon County*".

Main Expected Results (ER) of MSNFS project:

ER 1: Increased availability and production of food at household & social institutions from winter greenhouses and rehabilitated fish ponds;
ER 2: Improved access to and use at household & social institutions of soybean and goats milk products in the diet;
ER 3: Improved public health & hygiene from WASH actions that enhance the provision of clean water supply
ER 4: Improved care environment for especially women, children, the elderly & disabled.
ER 5: Improved technical and managerial capacity of stakeholders through technical training, in-country exchange visits and overseas study tours

Overall Goal: To improve the living conditions of the social groups which continue to suffer most from the deterioration of the national socio-economic conditions in North Hwanghae Province, DPRK.
Specific objective: To stabilize food production and availability, improve access to & use of food and enhance people's nutritional status with complementary WASH actions in urban and rural Singye and Kumchon Counties.

The project is being implemented on project sites in Kumchon town, Kumchon County and in Singye town, Singye County, North Hwanghae Province.



Evaluation objectives

The MSNFS project will finish on 31 December 2014. As agreed between the implementing organisation Concern Worldwide DPRK and the donor EU an End of Project evaluation should be conducted in the last phase of project cycle. The objectives of the evaluation are:

a) To independently verify, analyse and assess the results (impact, outcomes and outputs) achieved.
b) To assess the development process, in relation to partnership, local ownership, gender aspects, environmental protection.
c) Cost-benefit analysis of the interventions.
d) Identify key lessons and to propose practical recommendations for follow-up actions.

Methodology of the evaluation

EUPS Unit3 will form a Steering committee for the evaluation composed of representatives from management and implementing staff. The Evaluation committee will be a forum for planning of the evaluation and discussion of the observations and conclusions.

Concern Worldwide DPRK will support the consultant(s) with:

- Copies of relevant documents to study (see list, annex 1).
- Assistance in the Evaluation planning.
- Organising meetings, interviews, visits, workshops as requested by the consultant(s).
- Provide transport and practical arrangement for the visits.
- Provide interpreter English/local language when such are required.

The consultant will be responsible for

1. Review of relevant documents at project and programme level (see list of documents, Annex 1).
2. Development of evaluation questions based on the above review and a strategy for the analysis and proposes a work plan for the evaluation.
3. The team should visit all project sites and carry out interviews with persons representing various interests like staff, County Peoples Committees (CPCs), Greenhouse Managers, Food processing Unit Managers, County water authorities and other stakeholders (see list of people to meet, annex 2).
4. Work closely with FIM and WASH Programme Managers and the Concern Worldwide DPRK team and request for information needed.
5. A debriefing with the Country Director and key project team members
6. At the end of the evaluation a seminar/workshop will be conducted in Pyongyang whereby the team will present the preliminary findings from the draft report to stakeholders.

The steering committee will provide feedback on the draft report which the consultant(s) will incorporate into the final version.

Expected outputs

The Consultant(s) will be expected to produce the following outputs:

- A draft report which will be presented to Concern Worldwide DPRK's steering committee
- A presentation of the draft findings to the steering committee and at a workshop to be organised with stakeholders
- A final evaluation report of max. 30 pages (excluding annexes) ; all tools, surveys, records of focus group discussions, questionnaires administered and other supporting information should be submitted as annexes with the report. A series of recommendations for future programming arising from the evaluation should be included in the report. The draft report should include an executive summary of 2-3 pages (max) which contains a summary of the main findings and recommendations.

Themes of the evaluation

The evaluation study responds to the requirements of the last phase of the project cycle. The consultants shall verify, analyse and assess issues in relation to the five evaluation criteria endorsed by the OECD-DAC (relevance, effectiveness, efficiency, sustainability and impact), and to the EC-specific evaluation criteria (EC added value and coherence).

The objective of the evaluation is to assess the results of the MSNFS project implementation 2012-2014 in relation to the five Expected Results using the following criteria:

1) Relevance; 2) Effectiveness/effect; 3) Efficiency; 4) Impact; 5) Sustainability and 6) EC added value and coherence. The questions under each aspect should be seen as guiding questions but they are not exhaustive.

The evaluation should also assess Policy and advocacy:

- the major lessons learnt at micro, meso and international level that need to be taken forward into the future programming
- Is the project in line with Concern worldwide global policy and procedures

Visibility
The consultants will make an assessment of the project's strategy and activities in the field of visibility, information and communication, the results obtained and the impact achieved with these actions in both the beneficiary country and the European Union countries.

Relevance
The consultant(s) assessment will focus on (but is not limited to) the following questions:

- the extent to which stated objectives correctly address the identified problems and social needs of the target group, country and global priorities.
- the appropriateness of the objectively-verifiable indicators of achievement (OVIs) as in the logical framework.
- the technical and financial appropriateness of the interventions
- if the objectives in line with the local culture, indigenous knowledge and tradition and national development policies, strategies and priorities.
- if monitoring and evaluation arrangements have been appropriate; adequacy of baseline information.
- the ownership of the project.

Effectiveness/effect
The consultant(s) assessment will focus on (but is not limited to) the following questions:

- whether the planned benefits have been delivered and received, as perceived by all key stakeholders (including women and men and specific vulnerable groups)
- whether actual results match the performance targets set out initially
- whether intended beneficiaries participated in and benefitted from the intervention
- whether any shortcomings were due to a failure to take account of issues such as gender, environment and poverty during implementation
- the extent to which cooperation and coordination between Concern Worldwide DPRK, Government (KECCA and CPC), and other stakeholders contributed to the effectiveness of the project
- did any unplanned outputs arise from the activities so far?

Efficiency
The consultant(s) assessment will focus on (but is not limited to) the following questions:

- Were the inputs sufficient for obtaining the outputs planned in terms of quantity, quality and timeliness? Comparison should be made against what was planned.
- Have the outputs been obtained at a reasonable cost? Has the program/project's form of organisation been adequate for its implementation?
- Were the activities carried out in a timely manner? check operational work planning and implementation (input delivery, activity management and delivery of outputs),and management of the budget (including cost control and whether an inadequate budget was a factor).
- Could the outputs have been obtained in a more efficient way?
- Have the program/project's management systems and execution processes functioned well? the quality of day-to-day management, relations/coordination/accountability with local authorities, institutions, beneficiaries, other donors;

- contributions from local institutions and government target beneficiaries and other local stakeholders: have they been provided as planned?

Impact

The consultant(s) assessment will focus on (but is not limited to) the following questions:

- Extent to which the objectives of the project have been achieved as intended in particular the project planned overall objective.
- have produced any unintended or unexpected impacts, and if so how have these affected the overall impact.
- What changes have been identified by the target group since the start of the project? Have these changes been positive or negative?
- What factors and processes explain the changes generated by the program?
- Estimate the impact for the participating stakeholders regarding food and water security and poverty reduction.
- Has the project made a difference in terms of issues such as gender equality, environment, good governance?

Sustainability

The consultant(s) assessment will focus on (but is not limited to) the following questions:

- What evidence exists that the changes identified in the project are either sustainable or tending towards sustainability?
- the ownership of objectives and achievements, e.g. how far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and continue to remain in agreement; degree of beneficiary and stakeholder participation in the programme cycle
- Will the stakeholders that executed the program have the skills and resources (or access to such services) to continue developing project activities when the outside support ends?
- Will the beneficiaries have the capacity in their production to maintain or extend the benefits obtained with the program?
- What factors affect sustainability: political priorities, economic, institutional, technological, socio-cultural or environmental & climate change factors?
- financial sustainability, e.g. whether the products or services being provided are affordable for the intended beneficiaries and are likely to remained so after funding will end; whether enough funds are available to cover all costs (including recurrent costs), and continued to do so after funding will end; and economic sustainability, i.e. how well do the benefits (returns) compare to those on similar undertakings once market distortions are eliminated.
- Development processes (development of individual capacities, development and improvement of organisational capacities and social and cultural development)
- Has the program/project's monitoring system been adequate for generating the information necessary for its management and result reporting?
- Have opportunities for relating with other organisations, projects or programmes been utilised synergistically? the connectedness of this project with other similar initiatives

EC added value and coherence

The consultant(s) assessment will focus on (but is not limited to) the following questions:

- respect for and adherence to the guidelines and regulations of EU

- Likelihood that results and impacts will mutually reinforce government and other donors' interventions (duplication?).

Profile of the Evaluation team

The consultant(s) will demonstrate the following profile and qualifications:

Essential:

- At least 5 years' experience in the areas of food security, food processing, food safety, WASH and nutrition
- Post-graduate degree in development, livelihood security, agriculture, water, sanitation and health.
- Solid experience in designing, planning and conducting impact assessments and end of project evaluations
- Knowledge and experience of EU-supported community based development projects and of EU requirements for assessments/evaluations.
- Experience in the region and in DPRK
- Fully conversant with the principles and working methods of project cycle management;
- Experience in the use of participatory methodologies.

Desirable:

- Knowledge and experience of gender issues and gender integration analysis and other cross-cutting issues (environmental sustainability, good governance and human rights.

Contact person in DPRK

The Consultant(s) will report directly to the Country Director and will work closely with the FIM and WASH Programme Managers.

Evaluation Work plan/Timetable

The consultant(s) will complete the work over a period of sixteen (16) days as outlined (suggested) in the below table. The evaluation is expected to commence on the 1st of September 2014.

	Activity	**Number of Days**
1	Review of documents (proposal, reports, project MIS etc)	2
2	Development of evaluation methodology and planning) (survey, formats, meetings, workshops etc)	1
3	Field visits	4
4	Workshop with the project team/ other stakeholders	1
5	Developing debriefing note and Debriefing	1
6	Draft report	3
7	Final report	2
8	Travel time (actual)	2
	Total	16

Final Report

The consultant will submit the Draft f**inal report** (of maximum 30 pages excluding annexes) using the structure set out in **Annex 2** and taking due account of comments received from the

steering group members. Besides answering the evaluation questions, the draft final report should also synthesise all findings and conclusions into an overall assessment of the project. A draft evaluation report will be submitted for review by DPRK team by the **31th September 2014. The Final report should be submitted by the 15th October 2014.** In accordance with agreed standards, the consultant will prepare the evaluation report (see final report outline, annex 3). The main text of the report (excluding appendices) should not be more than 30 pages single spaced, font 10 Arial. The text of the report should be illustrated, as appropriate, with maps, graphs and tables; a map of the project's area(s) of intervention is required (to be attached as Annex).

Submission of offer

Consultants/Firms that meet the requirements should submit expression of interest, which should include the following:

- Cover letter including the consultant's/firm's suitability for the assignment and current contact information.
- CV, including detailed work experience, education; where more than one consultant will be involved, clearly indicates the overall lead consultant and responsible persons & includes CVs.
- A sample of a previous evaluation conducted by the consultant(s)
- A Technical Offer (max 3 pages) outlining the expected methodology and work plan for the consultancy
- A financial offer outlining expected daily remuneration and any other costs.

Offers should be clearly marked "MSNFS External Evaluation" and should be submitted by email to the Country Director (yousaf.jogezai@concern.net) by **4th July 2014.**

Annex 1. Key documents for the evaluation

1. Project Proposal and log frame
2. Previous EU project documents and reports.
3. Procurement documentation for MSNFS
4. Legal texts and political commitments pertaining to the project / programme
5. Concern - Global Strategic Plan, 2012-2015
6. Concern – Country Strategy Paper, 2012-2015
7. Concern contextual analysis report 2012, DPRK
8. Governmental national and sector policy documents
9. Project baseline study
10. Project end line data
11. Project inception report
12. Project financing agreement
13. Concern Worldwide Global Strategy
14. Project annual narrative report 2012
15. Project annual narrative report 2013
16. Project monthly reports, and technical reports
17. EC's Result Oriented Monitoring (ROM) Report 2013
18. internal monitoring reports of the project
19. Crop and Food Security Assessment Mission (CFSAM) report 2011, WFP/FAO
20. CFSAM report 2012
21. CFSAM report 2013
22. MISC report, 2009
23. National nutrition Survey

Annex. 2 List of potential organizations and institutions to be interviewed during the End of Project Evaluation of MSNFS

	Institution/Organisation	Person	e-mail
	Concern Worldwide HQ Dublin		
1	Regional Director	Brid Kennedy	brid.kennedy@concern.net
2	Desk Officer,	Aoife Black	aoife.Black@concern.net
3	Agriculture Advisor	Paul Wagstaff	paul.wagstaff@concern.net
4	Former FIM Manager	John Reid	johnreid45@gmail.com
	CONCERN WORLDWIDE DPRK,		
5	Country Director	Yousaf Jogezai	yousaf.jogezai@concern.net
6	FIM Programme Manager	Bo Lager	Bo.lager@concern.net
7	WASH Programme Manager	Thakur Shrestha	shresthathakur@gmail.com
8	Project officer, FIM	Kim Hyon Su	
9	Project officer, WASH	Pae Ryong Il	
	Food Security Office (FSO), DPRK		
10	Team Leader	Karl Kaiser	kmikaiser@yahoo.de
11	Nutritional Adviser	John Odea	johnkodea@googlemail.com
	EU Brussels		
12	Programme Manager EC-DEVCO	Diana Moderno	diana.da-silva-moderno@ec.europa.eu
13	CPC – Kumchon County, vice chair		
14	Soybean factory manager		
15	Beneficiaries of soybean		
16	Fish farm manager		
17	Beneficiaries of fish farm		
18	Goat milk factory manager		
19	Beneficiaries of goat		
20	Greenhouse manager		
21	Beneficiaries of greenhouse		
22	CPC – Singye County, vice chair		
23	Greenhouse manager		
24	Beneficiaries of greenhouse		
25	DEWATS system, MoCM		
26	Latrine (VIP), MoCM		
27	Beneficiaries of latrines		
28	Composting centre, MoCM		
29	KECCA, coordinator		
30	WFP	Dierk Stegen	dierk.stegen@wfp.org
31	UN, Coordination officer	Tareq Talahma	tareq.talahma@one.un.org
32	FAO	Belay Derza Gaga	belayderza.gaga@fao.org
33	EUPS Unit 1	Veronique Mondon	kor.hom@pu-ami.org
34	EUPS Unit 2	Erwin Nacuray	erwin@eupsunit2.com

35	EUPS Unit 4	Katja Richter	coordinator@eups4.org
36	EUPS Unit 5	Eva Lecat	eups.unit.5@gmail.com
37	Academy of Agricultural Sciences	Chae Chun Sik	
38	Vegetable Research Institute (VRI)		

Annex 3. Final report outline

Cover

- Project title
- Type of evaluation (in this case final)
- Report Status (draft or definitive version)
- Date (month and year)
- Authors

The cover page of the report shall carry the following text:

- '' This evaluation is supported and guided by the European Commission and presented by [name of consulting firm]. The report does not necessarily reflect the views and opinions of the European Commission''.

Table of Contents

List of Acronyms

1. Content

2. Executive Summary (Summary of conclusions and recommendations: max. 2 pages)
3. Introduction

3.1 Brief description of the project
3.2 Evaluation objectives
3.3 Evaluation methodology and target group participation
3.4 Composition and profile of the Evaluation team

4. Evaluation Findings (Discussion and Analysis)

4.1 Project effectiveness/effect
4.2 Project impact
4.3 Project efficiency
4.4 Project relevance
4.5 Project sustainability
4.6 Implementation processes
4.7 Development processes

Right based approach

5. Conclusions and recommendations

5.1 Conclusions
5.2 Recommendations

Annexes

a. Terms of reference for the evaluation
b. Facilitation work plan
c. Evaluation team
d. List of people consulted or interviewed
e. Evaluation tools
f. Literature and documentation consulted
g. Map of area of intervention

ANNEX B

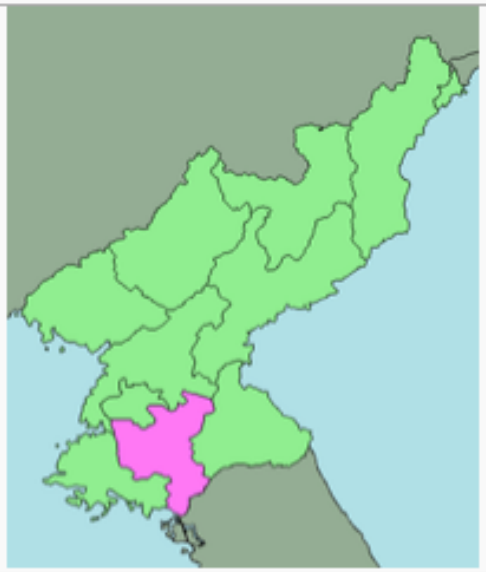
MAP OF AREA OF INTERVENTION

North Hwanghae Province
황해북도

Province

Korean transcription(s)

• Hangul	황해북도
• Hanja	黃海北道
• McCune-Reischauer	Hwanghaebuk-to
• Revised Romanization	Hwanghaebuk-do



Country	North Korea
Region	Haeso
Capital	Sariwon
Subdivisions	3 cities; 19 counties
Area	
• Total	8,154 km^2 (3,148 sq mi)
Population (2008)	
• Total	2,113,672
• Density	260/km^2 (670/sq mi)
Dialect	Hwanghae

Kumchon County
금천군

County

Korean transcription(s)

• Hanja	金川郡
• McCune-Reischauer	Kŭmch'ŏn-gun
• Revised Romanization	Geumcheon-gun

Country	North Korea
Province	North Hwanghae Province
Administrative divisions	1 *ŭp*, 14 *ri*
Population (2008)	
• Total	68,216

Singye County
신계군

County

Korean transcription(s)

• Hanja	新溪郡
• McCune-Reischauer	Sin'gye-kun
• Revised Romanization	Singye-gun

Country	North Korea
Province	North Hwanghae Province

ANNEX C

LIST OF PEOPLE INTERVIEWED AND CONSULTED

Concern Worldwide

1. Mr. Yousaf Jogezai, Country Director
2. Mr. Bo Lager, Food Income & Market Programme Manager
3. Mr. Thakur Shrestha, Watsan Programme Manager
4. Mrs. Kim Chun Ok, Project Officer, MSNFS Project
5. Mr. Jon Tong Gon, Agricultural Project Officer
6. Mr. Pae Ryong Il, Project Officer, MSNFS Project
7. Mr. Kim Myong Chol, WASH Officer MSNFS Project

International Agencies

8. Mr. Belay Derza Gaga, Deputy Representative, FAO
9. Mr. Tareq Talahma , Coordination Officer, UN Resident Coordinator's Office
10. Mr. Dirk Stegen, WFP Representative, WFP
11. Ms. Xuerong Liu, Head of Programme, WFP
12. Mr. Barnaby Caddy, Monitoring and Evaluation Consultant, WFP
13. Dr. Mohammad Younus, UNICEF
14. Mr. Karl Kaiser, Team Leader, EU Food Security Office (FSO)
15. Ms. Veronique Mondon, Head of Mission, EUPS Unit 1 (Première Urgence Aid Médicale International)
16. Ms. Regina Feindt, Country Director, EUPS Unit 4 (Welt Hunger Hilfe)
17. Mr. Gregoire Rochigneux, Head of Mission, EUPS Unit 5 (Triangle)
18. Ms. Carla Vitantonio, Country Director, EUPS Unit 7 (Handicap International)
19. Mr. Rolando Sato Albino, Livelihood Advisor, EUPS Unit 2 (Save the Children International)

DPRK government staff

20. Mr. Chae Chun Sik, Director, Department of the International Science and Technology Exchange, Academic of Agricultural Sciences (AAS)
21. Mr. Kim Tae Hak, Vice Director, Vegetable Research Institute, AAS
22. Mrs. Yu Sun Hong, vice CPC Chairperson, Kumchon County
23. Mr. Ri Nong Su, Manager of fish hatchery
24. Mr. Choe Pom Sun, Manager of goat milk processing unit
25. Mr. Han Gyong Chol, Manager of soyabean processing factory
26. Ms. Ri Gi Nyo, Workteam leader, soyabean processing factory
27. Ms. Choe Kum Hyang, Worker, greenhouse
28. Mr. Ri Myong Guk, Technician, greenhouse
29. Mr. Ko Hyong Man, Vice manager, Paekma goat farm
30. Ms. Kim Un Gum, Worker, goat milk processing unit
31. Mr. Ri Wan Ho, Acting CPC Chairperson, Singye County
32. Mr. Kim Jong Su, Technician, DEWATS, CPC
33. Mr. Kim Myong Hun, Technician, greenhouse, CPC

34. Mr. Ri Hae Jin, Logistic officer, CPC
35. Ms. Ri In Ok, Headmaster of Singye Up kindergarten
36. Ms. Han Sun Bok, Teacher of Singye Up kindergarten
37. Ms. Kang Won Hui, Worker, greenhouse
38. Ms. Choe Gyong Hui, Worker, greenhouse

ANNEX D

INTERVIEW GUIDE

Assess the achievements of the projects against the objectives

Evaluate the impact on the communities;

Whether the systems and ways of working are appropriate

Generate recommendations based on project experiences for improvement and effective Replication; for planning and management for all future health, water and sanitation projects.

Relevance and quality of the design

- Review the appropriateness of the project design against the problems and issues that the projects are addressing.
- Evaluate the process or approach being followed in planning, implementation and management of target activities based on DPRK's context.
- Assess the level of participation of local partners and beneficiaries in the implementation of target activities.

Efficiency and Effectiveness

- Assess the technical and management effectiveness of Concern Worldwide DPRK and local partners
- Evaluate the effectiveness of the projects in reaching the vulnerable groups particularly the health and child welfare institutions and institutions of cares.
- Review the efficiency on the use of projects resources in the implementation of activities.
- Evaluate the projects outputs against the objectives and targets of the LFA
- Technical design of the various components
- Quality of construction work for food production and sanitation

Impact

- Identify and Assess the physical, social and economic impact of the projects to target areas & beneficiaries.
- Assess the training components and identify appropriate measures to improve/enhance the effectiveness of the training both health and technical

Sustainability

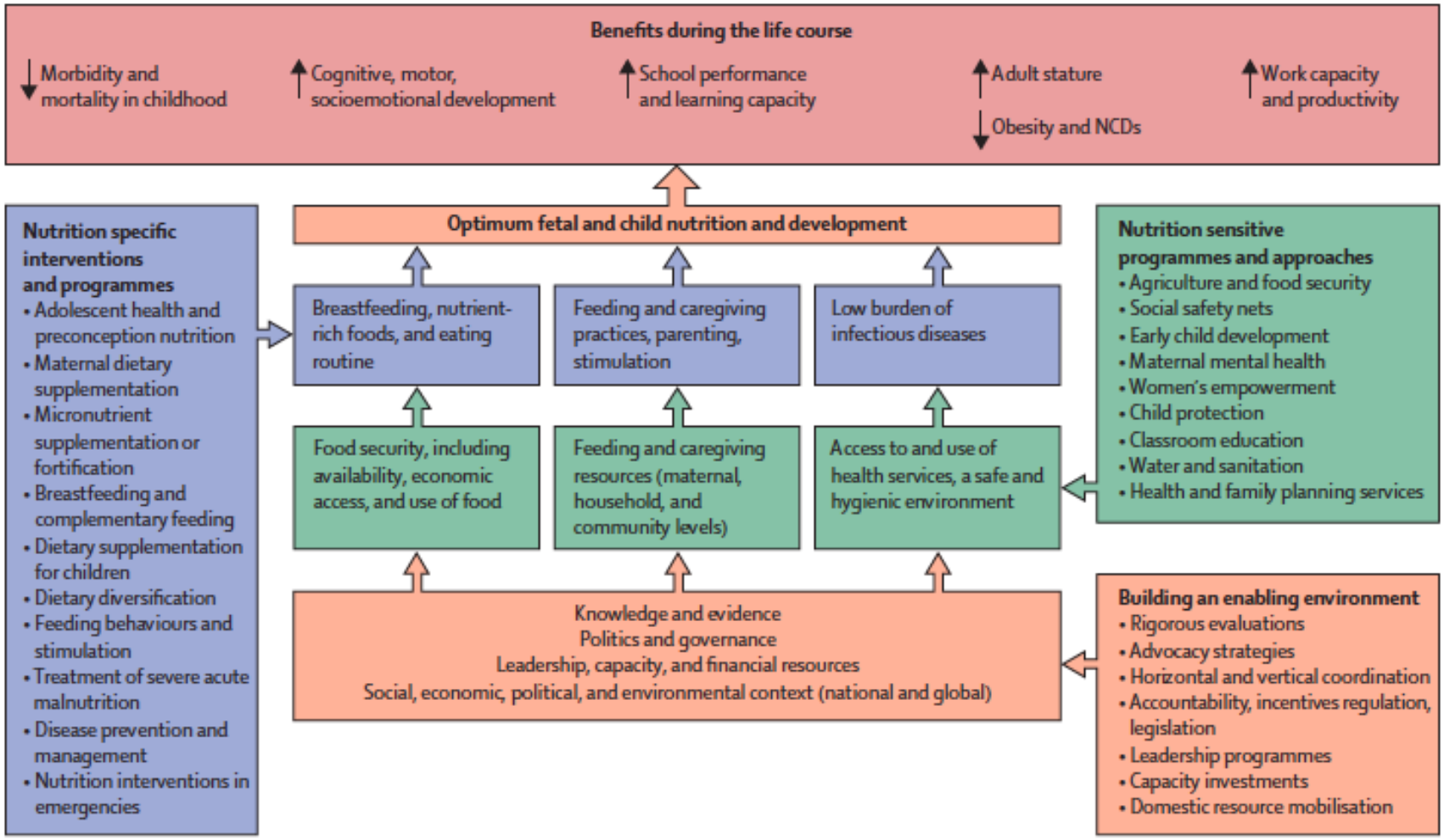
- Assess the quality of the physical outputs of the activities in relevance to their sustainability.
- Evaluate the sense of ownership of the projects outcomes by local partners and target groups in view of sustainability of these outcomes.
- Appraise the likelihood of project activities continuation, based on the capacity and resources of local partners and target groups.
- Assess the technical capacity of the local partners and adequacy of the training for repair and maintenance
- Sustainability of the installed facilities (quality of work during implementation and the aspects of future operation and maintenance).
- Health training, hygiene promotion and nutrition in community and institutions

Lessons & Recommendations

- To consolidate lessons learned,
- Solicit recommendations that could be applied in the implementation of future food, nutrition, health and sanitation projects.
- Prospects of wider replication of project outputs

ANNEX E

CONCEPTUAL FRAMEWORK FOR ACTION FOR OPTIMAL FETAL AND CHILD NUTRITION



ANNEX F

LITERATURE REFERENCED

1. United Nations Food and Agriculture (FAO), and World Food Programme (WFP). Special Report: FAO/WFP Crop and Food Security Assessment Mission to the Democractic People's Republic of Korea. 28 Nov 2013.
2. Wickipedia. 2006 North Korean nuclear test. and 2013 North Korean nuclear test. Available at: http://en.wikipedia.org/wiki/2006_North_Korean_nuclear_test and http://en.wikipedia.org/wiki/2013_North_Korean_nuclear_test.
3. Concern Worldwide. Democratic People's Republic of Korea Country Strategy Paper 2012-2016. April 2012.
4. UNICEF, WHO, WPF. Democratic People's Republic of Korea Final Report of the National Nutrition Survey 2012 September 17th to October 17th 2012. March 2013.
5. World Food Programm (WFP). Emergency Food Security Assessment Handbook. Second Edition. 2009.
6. Chen LC, Huq E, Huffman SL. A prospective study on the risk of diarrheal disease according to the nutritional status of children. Am J Epidemiol. 1981;114:284–92.
7. Schorling JB, McAuliffe JF, de Souza MA, Guerrant RL. Malnutrition is associated with increased diarrhoea incidence and duration among children in an urban Brazilian slum. Int J Epidemiol. 1990;19:728–35.
8. El Samani EF, Willett WC, Ware JH. Association of malnutrition and diarrhea in children aged under five years: a prospective study in a rural Sudanese community. Am J Epidemiol. 1988;93–105:128.
9. Sepulveda J, Willett WC, Mun˜oz A. Malnutrition and diarrhea: a longitudinal study among urban Mexican children. Am J Epidemiol. 1988;127:365–76.
10. Baigari R CM, Kim YJ, Curlin GT, Gray GH. The association between malnutrition and diarrhoea in rural Bangladesh. Int J Epidemiol. 1987;16:477–81.
11. Checkley W, Gilman RH, Black RE et al. Effects of nutritional status on diarrhea in Peruvian children. J Pediatr. 2002;140:210–18.
12. Checkley W, Buckley G, Gilman RH, Assis A, Guerrant RL, Morris SS, Mølbak K, Valentiner-Branth P, Lanata CF, Black RE, and The Childhood Malnutrition and Infection Network. Multi-country analysis of the effects of diarrhoea on childhood stunting. International Journal of Epidemiology. 2008;37:816–30.
13. Democratic People's Republic of Korea Ministry of Foreign Affairs. Draft working papers for formulation of 2011-2015 UNSF. Sept 07, 2009.
14. Ireson R. Food Security in North Korea: Designing Realistic Possibilities. The Walter H. Shorenstein Asia-Pacific Research Center (Shorenstein APARC). Feb 2006.
15. Democratic People's Republic of Korea National Coordinating Committee for Environment (NCCE). DPR Korea's Second National Communication on Climate Change: Submitted under the United Nations Framework Convention on Climate Change. 2012.
16. Concern Worldwide. Strategic Plan 2011-2015: Greater impact in an increasingly vulnerable world.
17. Concern Worldwide (EUPS Unit 3). Multi Sector Nutrition & Food Security (MSNFS) project DCI-FOOD2011264-328. Interim Narrative Report Dates: 1st January 2013 – 31st December 2013. 15 April 2014.
18. Concern Worldwide (EUPS Unit 3). Concern Position Paper Disaster Risk Reduction in DPRK. Sept 2014.

19. Concern Worldwide. DPR Korea Contextual Analysis EUPS Unit 3. Jan 2012.
20. Concern Worldwide (EUPS Unit 3). County profile Kumchun County North Hwanghae Province.
21. Concern Worldwide (EUPS Unit 3). County profile Singye County North Hwanghae Province.
22. KPMG. Report ofor an Expenditure Verification of the Grant Contract Extternal Actions of the European Union Multi Sector Nutrition and Food Security (MSNFS) DPRK. Contract No. DCI-FOOD/2011/264-328. For the Period: 01 Jan 2012 to 31 Dec 2012. 2012.
23. Strategic Framework for Cooperation Between the United Nations and the Government of the Democratic People's Republic of Korea (2011-2015). United Nations,,.
24. United Nations. A New Global Partnership: Eradicate Poverty And Transform Economies Through Sustainable Development:The Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda. Availalbe at: http://www.post2015hlp.org/wp-content/uploads/2013/05/UN-Report.pdf. Accessed on: Nov 06, 2014.
25. United Nation Food and Agriculture (FAO) aWFPW. Special Report: FAO/WFP Crop and Food Security Assessment Mission to the Democractic People's Republic of Korea. 12 November 2012.
26. United Nations Children's Fund (UNICEF). Democratic People's Republic of Korea: Monitoring the situation of children and women: Multiple Indicator Cluster Survey. 2009.
27. Concern Worldwide (EUPS Unit 3). Baseline report for Multi Sector Nutrition & Food Security (MSNFS) project North Hwanghae Province , Democratic People's Republic of Korea (DPRK). June 2012.
28. United Nations Food and Agriculture Organization (FAO). Preparation and Use of Food-based Dietary Guidelines. Available at: http://www.fao.org/docrep/x0243e/x0243e00.htm. Accessed on: Feb 28, 2013. 1996.
29. (USDA) USDoA. USDA National Nutrient Database for Standard Reference. Nutrient Data Lab. Availalable at: http://ndb.nal.usda.gov.
30. Wickipedia. Soybean. Available at: http://en.wikipedia.org/wiki/Soybean - cite_note-27.
31. United Nation Food and Agriculture (FAO). Milk and Dairy Products in Human Nutrition. Available at: http://www.fao.org/docrep/018/i3396e/i3396e.pdf. 2013.
32. European Commission (EC). Multisector Nutrition & Food Security (MSNFS) Project Monitoring Report: Monitoring reference MR-146336.01. . 2013.
33. Organisation for Economic Co-operation and Development (OECD). OECD Guidelines for Programme Deisng, Monitoring and Evaluation. Available at: http://www.oecd.org/derec/finland/38141776.pdf.
34. Organisation for Economic Co-operation and Development (OECD). Results Based Management in the Development Co-Operation Agencies: A Review Of Experience Background Report. 2001.
35. Roduner D, Schläppi W. Logical Framework Approach and Outcome Mapping A Constructive Attempt of Synthesis. AGRIDEA. Available at: http://www.outcomemapping.ca/forum/files/Discussion_Paper_OM_LFA_Synthesis_2008-1_126.pdf. 2008.
36. Devereux S. Identification of methods and tools for emergency assessments to distinguish between chronic and transitory food insecurity, and to evaluate the effects of various types and combinations of shocks on these different livelihood groups. UN World Food Programme (WFP)-Rome. 2006.
37. Myatt M. SQUEAC: Low resource method to evaluate access and coverage of programmes. Field Exchange. Emergency Nutrition Network. 2008; 33: 2-5.

38. Ebi KL, Lim B and Aguilar Y. Scoping and designing an adaptation process. Adaptation Policy Frameworks for Climate Change, B. Lim, E. Spanger-Siegfried, I. Burton, E.L. Malone and S. Huq, Eds., Cambridge University Press, New York, 33-46. 2005.
39. The International Fund for Agricultural Development (IFAD). Results and Impact Management System: RIMS First and Second Level Results Handbook. Available at: http://www.ifad.org/operations/rims/handbook/handbook.pdf. 2007.
40. Victora CG, Adair L, Fall C, et al, for the Maternal and Child Undernutrition, Group. S. Maternal and child undernutrition: consequences for adult health and human capital. Lancet 2008; 371: 340–57.
41. (WHO) WHO. Complementary Feeding of Young Children in Developing Countries:A Review of Current Scientific Knowledge. WHO: Geneva. 1998.
42. World Health Organization (WHO). The Optimal Duration of Exclusive Breastfeeding. Report of an expert consultation. Department of Nutrition for Health and Development, Department of Child and Adolescent Health and Development, WHO: Geneva. 2002.
43. Dewey KG, Brown KH Update on technical issues concerning compelmentary feeding of young children in developing countries and implications for intervention programs. 2003.
44. Veitch AM. J Gasto Hepatology. 2001;13:1175-81.
45. Lunn PG, Northrop-Clewes CA, Downes RM. Intestinal permeability, mucosal injury, and growth faltering in Gambian infants. Lancet. 1991;338:907–10.
46. Campbell DI, Elia M, Lunn PG. Growth faltering in rural Gambian infants is associated with impaired small intestinal barrier function, leading to endotoxemia and systemic inflammation. J Nutr. 2003;133:1332–8.
47. Campbell DI, Murch SH, Elia M, Sullivan PB, Sanyang MS, Jobarteh B, Lunn PG. Chronic T cell-mediated enteropathy in rural West African children: relationship with nutritional status and small bowel function. Pediatr Res. 2003;54(306–311).
48. Goto R, Mascie-Taylor CG, Lunn PG. Impact of intestinal permeability, inflammation status and parasitic infections on infant growth faltering in rural Bangladesh. Br J Nutr. 2009;101(10):1509-16.
49. Lin A, Arnold BF, Afreen S, Goto R, Huda T, Haque R, Raqib R, Unicomb L, Ahmed T, Colford JM and Luby SP. Household Environmental Conditions Are Associated with Enteropathy and Impaired Growth in Rural Bangladesh. Am J Trop Med Hyg. 2013;89(1):130–7.
50. Clasen TF, Roberts IG, Rabie T, Schmidt WP, Cairncross S. Interventions to improve water quality for preventing diarrhoea. Cochrane Database of Systematic Reviews. Issue 3. [DOI: 10.1002/14651858.CD004794.pub2]. 2006.
51. Ejemot RI, Ehiri JE, Meremikwu MM, Critchley JA. Hand washing for preventing diarrhoea. Cochrane Database of Systematic Reviews. Issue 1. [DOI: 10.1002/ 14651858.CD004265.pub2]. 2008.
52. Clasen TF, Bostoen K, Schmidt WP, Boisson S, Fung IC, Jenkins MW, et al. Interventions to improve disposal of human excreta for preventing diarrhoea. Cochrane Database of Systematic Reviews. Issue 6. [DOI: 10.1002/ 14651858.CD007180.pub2]. 2010.
53. Dangour AD, Watson L, Cumming O, Boisson S, Che Y, Velleman Y, Cavill S, Allen E, Uauy R. Interventions to improve water quality and supply, sanitation and hygiene practices, and their effects on the nutritional status of children. Cochrane Database of Systematic Reviews. 2013;Issue 8. Art. No.: CD009382.
54. World Bank. Disease Control Priorities in Developing Countries (2nd Edition). Available at: http://dx.doi.org/10.1596/978-0-8213-6179-5. 2006.

55. Cousens SN, Mertens TE, Fernando MA. The anthropometric status of children in Kurunegala district in Sri Lanka: its relation to water supply, sanitation and hygiene practice. Trop Med Parasitol. 1990;41:105–14.
56. Esrey SA, Habicht JP, Casella G. The complementary effect of latrines and increased water usage on the growth of infants in rural Lesotho. Am J Epidemiol. 1992;135:659–66.
57. Esrey SA. Water, waste, and well-being: a multicountry study. Am J Epidemiol. 1996;143:608–23.
58. Checkley W, Gilman RH, Black RE, Epstein LD, Cabrera L, Sterling CR, Moulton LH. Effect of water and sanitation on childhood health in a poor Peruvian peri-urban community. Lancet. 2004; 363:112–8.
59. Langford R, Lunn P, Panter-Brick C. Hand-washing, subclinical infections, and growth: a longitudinal evaluation of an intervention in Nepali slums. Am J Hum Biol. 2011;23:621–9.
60. Stanton BF, Clemens JD, Khair T. Educational intervention for altering water-sanitation behavior to reduce childhood diarrhea in urban Bangladesh: impact on nutritional status. Am J Clin Nutr. 1988;48:1166–72.
61. Arnold BF, Khush RS, Ramaswamy P, London AG, Rajkumar P, Ramaprabha P, Durairaj N, Hubbard AE, Balakrishnan K, Colford JM Jr. Causal inference methods to study nonrandomized, preexisting development interventions. Proc Natl Acad Sci USA. 2010;107:22605–10.
62. Chambers R, and von Medeazza G. Reframing Undernutrition: Faecally-Transmitted Infections and the 5 As. Institute of Development Studies. October 2014.
63. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, et al. Maternal and child undernutrition and overweight in low-income and
middle-income countries. Lancet Maternal and Child Nutrition Series pp15-39. 2013.