

Nepal National and District Nutrition Capacity Assessment

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Table of Contents

Acknowledgement	2
List of Acronyms	4
Introduction	6
Background	7
Methodology	8
Results	9
Previous assessments	9
System level	10
Organizational level	14
Individual level	22
Employment prospectives including career paths in government, academia and private sector	22
Nutrition competencies of existing workforce	24
Training of staff in public nutrition	25
Workforce supervision and performance evaluation methods	30
Accreditation of academic institutions	30
Professional bodies for individual accreditation.....	31
Discussion	33
Conclusions and recommendations	36
Annexes	38
Annex 1:	39
Programme/Budget Approval.....	39
Budget Allocation and Implementation.....	41
Annex 2	42
Figure 1: National Nutrition Architecture	42
Figure 2: Nutrition Programmatic Model - Local Bodies (for MSNP implementation)	43
Figure 3: The Spread of Maternal, Infant and Young Child Nutrition Interventions	44
Figure 4: The Spread of <i>Suaahara</i> , <i>Feed the Future</i> , <i>Sunalada Hazaar Din</i> , and NAFSP Interventions.....	44
Figure 5: Consolidated Regional Stakeholders Mapping Exercise	45
Annex 3	47
List of Interviewees and Facilitators	47
Nutrition and Food Security Coordination Committee Meeting Participants	47
Bibliography	49

List of Acronyms

ACS:	Agriculture Service Centre
AIN:	Association of International NGOs
ANM:	Auxiliary Nurse Midwife
CAC:	Citizens Awareness Centre
CBO:	Community Based Organization
CEDAW:	Convention on the Elimination of all forms of Discrimination Against Women
CERID:	Centre for Education Innovation and Development
CRC:	Convention on the Rights of the Child
CTEVT:	Council for Technical Education and Vocational Training
DADO:	District Agricultural Development Offices
DDC:	District Development Committee
DHO:	District Health Offices
DLS:	Department of Livestock Services
DoA:	Department of Agriculture
DoHS:	Department of Health Services
DPHO:	District Public Health Officer
ECD:	Early Childhood Development
EDP:	External Development Partners
EPI:	Expanded Programme of Immunization
ETC:	Educational Training Centre
FAO:	Food and Agriculture Organization of the United Nations
FCHV:	Female Community Health Volunteer
FG:	Farmers' Group
FIAN:	Food-first Information and Action Network Nepal
GDP:	Gross Domestic Product
GoN:	Government of Nepal
HDI:	Human Development Index
HLNFSSC:	High Level Nutrition and Food Security Steering Committee
I/NGO:	International Non-Government Organization
ICCPR:	International Convention on Civil and Political Rights
ICESCR:	International Convention on Economic, Social and Cultural Rights
IMCI:	Integrated Management of Childhood Illness programme
IYCF:	Infant and Young Child Feeding
JT:	Junior Technician
JTA:	Junior Technical Assistant
LACA:	Landscape Analysis Country Assessment
LGCDP:	Local Governance and Community Development Programme
LMIC:	Low and middle-income countries
LS(S)C:	Livestock Service (Sub0) Centre
LSGA:	Local Self-government Act
MCHW:	Maternal and Child Health Worker
MDG:	Millennium Development Goal
MGH:	Mothers Group for Health
MNI:	Mainstreaming Nutrition Initiative
MoAD:	Ministry of Agriculture and Development
MoE:	Ministry of Education

MoFALD:	Ministry of Federal Affairs and Local Development
MoHP:	Ministry of Health and Population
MoUD:	Ministry of Urban Development
MSNP:	Multi-sector Nutrition Strategy
MYCNSIA:	Maternal and Young Child Nutrition Security Initiative in Asia
NAGA:	Nepal Nutrition Assessment and Gap Analysis
NAMC:	Nepal Ayurvedic Medical Council
NASC:	Nepal Administrative Staff College
NASDP:	National Agriculture Sector Development Priority Plan
NBC:	Nepal Bar Council
NCD:	Non-communicable disease
NCED:	National Centre for Educational Development
NEC:	Nepal Engineering Council
NEWAH:	Nepal Water for Health
NFN:	National NGO Federation
NTAG:	Nepali Technical Assistance Group
NFSCC:	Nutrition and Food Security Coordination Committee
NFSSC:	National Food Security Steering Committee
NHPC:	Nepal Health Professional Council
NHSP:	National Health Sector Plan
NHSSP:	National Health Sector Support Program
NHTC:	National Health Training Centre
NMC:	Nepal Medical Council
NNC:	National Nutrition Centre
NNC:	Nepal Nursing Council
NNS:	National Nutrition Stakeholders
NNSC:	National Nutrition Steering Committee
NPC:	National Planning Commission
NPC:	Nepal Pharmacy Council
NPCS:	Nutrition Promotion and Consultancy Services
NVC:	Nepal Veterinary Council
ORS:	Oral Rehydration Solution
PMAS:	Poverty Monitoring and Analysis System
PSD:	Public Service Delivery
REACH:	Renewed Efforts Against Child Hunger initiative
SHEP:	Second Higher Education Project (World Bank)
SUN:	Scaling Up Nutrition movement
TA:	Technical Advisor / Assistance
TU:	Tribhuvan University
UGC:	University Grants Commission
UNDP:	United Nations Development Program
UNESCO:	United Nations Educational, Scientific and Cultural Organization
UNICEF:	United Nations Children’s Fund
VCD:	Volunteer for Community Development
VDC:	Village Development Committee
VHW:	Village Health Worker
WCF:	Ward Citizen Forum
WHO:	World Health Organization
WPHNA:	World Public Health Nutrition Association

Introduction

To help give more children in Asia the best start in life, the European Union has teamed up with UNICEF to support a new initiative to tackle maternal and child undernutrition over four years (2011-14). The Maternal and Young Child Nutrition Security Initiative in Asia (MYCNSIA) is designed around four interrelated Result Areas of (1) Up-stream policy work regarding nutrition security, (2) Capacity building of decision-makers, service delivery personnel and communities, (3) Data analysis and knowledge sharing, and (4) scaling up of key proven interventions. MYCNSIA activities are implemented in five targeted countries of Bangladesh, Indonesia, Laos, Nepal and the Philippines. Through the MYCNSIA, UNICEF will work to improve child growth and development in Asia by improving nutrition security using inter-sectoral approaches. Ways will be sought to support capacity building initiatives in these countries through a regional approach.

Although child stunting rates have begun to decline in Nepal in the last five years some forty per cent of young children continue to be so affected. Recognizing the negative consequences of this situation for future human capital development, the Government of Nepal (GoN) has committed to scaling up a set of evidence-based nutrition interventions to improve maternal and child nutrition through a Multi-Sector Nutrition Plan (MSNP) (GoN/NPC 2012). Nepal has already gained international reputation for its MSNP since it became one of the Scaling-Up-Nutrition (SUN) movement early risers already in 2011(SUN 2011). The Plan, which has only recently been officially signed by the Prime Minister as well as all five ministers involved, will begin implementation in 2013.

The MSNP was developed by the National Planning Commission (NPC) in close collaboration with the five Ministries involved in its delivery, namely the Ministry of Agriculture and Development (MoAD), Ministry of Health and Population (MoHP), Ministry of Education (MoE), Ministry of Urban Development (MoUD), Ministry of Federal Affairs and Local Development (MoFALD). The emphasis of the MSNP is on decentralized implementation initially in twelve selected districts by 2014 before gradually scaling up to all districts by 2017.

The overarching objective of the MSNP is to reduce the intergenerational transmission of growth failure. Each of the five Ministries involved in the MSNP has a strategic objective and set of results that they have agreed to achieve that will contribute to the overarching objective. The MoHP is responsible for improving maternal, infant and young child micronutrient status and feeding patterns, as well as the treatment of severe acute malnutrition and diarrhoea. The MoE has committed to improving adolescent girls' nutritional status, awareness and behaviours as well as secondary school completion rates. The MoAD has committed to increasing income as well as the consumption of diverse diet and animal source foods, and reducing the workload and improving the home environment of poor young mothers and adolescent girls. The MoUD will aim to reduce episodes of diarrhoea among mothers, infants and young children by ensuring use of improved sanitation facilities, soap for hand washing and use of treated drinking water. The MoFALD has committed to increasingly mobilize local resources, and improve local coordination between sectors, as well as to direct social protection measures towards accelerating stunting reduction.

The purpose of this document is to assess capacity building needs at the national and district level for accelerating the reduction of maternal and child undernutrition in Nepal and to make recommendations for further strengthening such efforts. This will build on and incorporate as appropriate the assessment of local government and community nutrition capacity that has already been carried out (R. Shrimpton and K. Ghimire 2012a). Based on the findings and recommendations made for strengthening nutrition capacity in Nepal, as well as for Indonesia and Bangladesh, an overall regional strategy for providing support to these country-led efforts will also be developed.

Background

Evidence from the WHO led Landscape Analysis Country Assessments (LACA) and the World bank led Mainstreaming Nutrition Initiative (MNI) (Nishida 2009; Pelletier et al. 2012) carried out in many low and middle income countries (LMIC) over the last five years, indicates that the capacity to act in nutrition is very often quite limited, both at national and district levels. Improving nutrition capacity at all levels of the health system by producing more master's graduates down to improving health professional in-service training is one of the key recommendations of LACA and MNI reports.

Before trying to strengthen nutrition capacity in LMICs, there is a need to have a common understanding of the sort of capacity needed: i.e. what capacity exists, what capacity must be developed, as well as what the challenges, the limitations and the opportunities are for doing this. This includes the need to adequately ground such capacity development mechanisms in the future plans of the various sectors, including system and organizational requirements to ensure future sustainability of such efforts over a five to ten year time frame. Based on such an assessment a capacity development plan could be established for the country concerned with much greater certainty that all bases are covered.

Many different types of professional can be trained in order to ensure that different nutrition interventions are delivered, as well as measure their impact, including dietitians, and community or public health nutritionists. Dietitians administer or perform dietetic work associated with health care services of individuals, usually conducted in an institution; Nutritionists administer or perform advanced work in the field of nutrition, usually associated with non-treatment food assistance programs delivered to populations; Public Health Nutritionists are responsible for advising on or administering the nutrition component of public health services, usually conducted by other professionals both within the health service as well as within the community (USGov 1980). There is also professional training in Public Nutrition, the remit of which is broader than health, and tends to deal more with understanding upstream multi-sectoral influences on nutritional status (J. Mason et al. 1996).

As can be seen from the discussion above, there are many different terms in current use for “nutrition” programs. In this paper, we will differentiate between “nutrition” programs that are generally clinical, which would include dietetics and food science and be aimed at improving the nutrition of individuals, and “public nutrition” programs that are population focused and preventive in nature, and move beyond the boundaries of a

single discipline because of the scope of their causes, especially as seen in the perspective of the life course.

While the emphasis of the MSNP is on decentralized and integrated “bottom up” implementation, each of the MSNP ministries will still be scaling up their own sectoral programmes in a “top down” way. This is especially the case of the MoHP that has most of the “nutrition specific” interventions that should be scaled up to include more than the initial MSNP districts much more rapidly. The capacity assessment should consider the challenges faced by all ministries in scaling up their delivery of nutrition interventions, be it top down or bottom up. As an important first step in the development of the MSNP, the nutrition architecture at the national level has already been strengthened in the NPC by establishing a High Level Nutrition Steering Committee, as recommended by the Nutrition Assessment and Gap Analysis (NAGA)(Pokharel, R.K. et al. 2009).

Methodology

It has been recognized that for capacity building to be successful and sustainable it should not be confined to the individual level, but must also consider organizational and system constraints (R. Shrimpton, Hughes, R., Recine, E., Mason, J., 2012b). As considerable documentation already exists in Nepal on the extent of nutrition capacity and the overall capacity of the various sectors involved at the district level and below, it was agreed not to carry out any further assessments at District level but to concentrate on developing ideas on how to strengthen these, which essentially relies on central level capacity and support.

The aim of system level analysis was to understand the programme, policy and legal frameworks of relevance to nutrition, both from a local government and national government sectoral perspective, as well as from that of civil society and non-government organizations. The analysis was done by desk review of available documents, both official government ones obtained through interviews with key stakeholders in country as well as those found by searching on the World Wide Web.

The aim of the organizational level review was to map institutions where nutrition capacity is embedded and/or could be strengthened in the future, as well as distribution of the existing nutrition work force across sectors and by urban and rural locations if possible. The issues of coverage and intensity of the various interventions being provided by community workers were also investigated, recognizing that high coverage of insufficient intensity is not only ineffective, but also a loss of investment (J. Mason, Sanders, D., Musgrove, P. 2006)

Individual level assessments drew on information gained through reports such as the community and district level assessments (R. Shrimpton, Ghimire, K. 2012a) as well as from interviews conducted by the authors in Kathmandu in early November 2012. These interviews were held with people from academic institutions, donors, professional organizations, and other agencies supporting capacity development in the area of nutrition (see list in Annex 3). Where appropriate, those interviewed were asked of their interest as well as ability to further support nutrition capacity development.

The objectives and proposed methodology was presented at the National Nutrition and Food Security Coordination Committee at the NPC (NNFSCC) (see Annex 3 for list of the participants). It was chaired by Prof. S.K. Rai and involved senior representatives from the key line Ministries and development partners. Following this a core working group was constituted by the NPC and UNICEF to help develop this assessment and to subsequently review the initial draft report. The group included: Radhakrishnan Pradhan, Ramesh Adhikari, Kapil Ghimire, Pradiumna Dahal, Saba Mebrahtu, and Shikha Basnet. The preliminary findings of the assessment were first presented to the NNFSCC for initial comments and feedback. The first draft report was then prepared by the main authors and sent to the core working group for comments and corrections before being circulated and presented to the wider NNFSCC for further discussion and feedback. The revised version has incorporated all the comments received so far from the key concerned.

Results

Previous assessments

There have been various previous assessments of nutrition capacity in Nepal, and many recommendations have already been made in this regard. The Nepal Nutrition Assessment and Gap Analysis (NAGA) (Pokharel, R.K. et al. 2009) found that the current capacity to deliver health-related nutrition programs at national, district, and community levels was inadequate. The team recommended the highest priority be placed on strengthening this capacity. The human resource base dedicated to nutrition required expansion, especially within the MoHP Nutrition Section, as well as within other sectors and at the district and community levels. In addition to strengthening capacity at the national level, the creation of District Nutrition Officer staff positions was recommended to manage nutrition in health interventions at this key implementation level. NAGA also recommended establishing nutrition posts in selected Ministries, particularly in Agriculture and Education, as well as reviewing and strengthening the nutrition-related components of the curriculum for pre-service training of doctors and other health workers.

A capacity assessment for nutrition carried out in the health sector in 2010 (Spiro 2010) reviewed over 30 relevant documents and interviewed 20 stakeholders during the course of the assessment. One of the key recommendations of this assessment was the development of a Health Sector Nutrition Plan of Action to guide the MoHP and support the wider multi-sectoral National Nutrition Steering Committee. This plan intended to address the following technical gaps: Align the NHSP-2 Result Framework with the current nutrition initiatives of the MoHP and the text of the NHSP-2; Expand the number of MoHP staff and improve their capacity to design, plan, implement and monitor nutrition programming at the central, regional and district levels; Improve inter-departmental coordination within DoHS and improve EDP coordination with regards to nutrition; Improve planning, program designing and budgeting coordination between central, regional and district levels; Form a long-term, part-time, non-embedded TA team to support these processes in collaboration with the other components of the NHSSP. The lack of policy for life-cycle and maternal nutrition issues was also noted.

In the agricultural sector an assessment of capacity development needed to carry out the forthcoming “Feed the Future” project of USAID in Nepal (Crawford 2010) found that

District Agricultural Development Offices (DADO) seem to have adequate staff to implement food security programs. However, nutrition is not included in the current program and no staff support nutrition education. Therefore, capacity needs to be developed in the DADO for programming on nutrition.

The assessment of community and local government nutrition capacity found that most people just don't recognize malnutrition as being a problem at all (R. Shrimpton, Ghimire, K. 2012a). Eighty five percent of those interviewed at District Council, Village Council and Community Group level either didn't think malnutrition was a problem or only thought so on being prompted, and then considered it to be just underweight and/or severe malnutrition and largely linked to poverty and poor food habits. Nearly a third of those interviewed didn't think malnutrition was a problem even after prompting. Less than five per cent understood the full spectrum of malnutrition including stunting, micronutrient deficiencies and/or obesity across the life course. Furthermore two thirds of local actors didn't have any nutrition related goals for their work, and/or that their goals and activities were largely imposed from outside with no local problem assessment, analysis and action choice. A half of those interviewed didn't even know what nutrition indicators there were and therefore didn't use them locally for decision-making and/or send them to anybody and/or had ever any feedback in this regard. In order to make the management/organization domain broader in the selected districts a need was identified to shorten the chains of command and link the orientation of efforts to increasingly accommodate local needs in addition to the centrally determined activities. But none of this can happen unless there is increased capacity to take such decisions at the local level.

System level

This includes the programme, policy and legal frameworks of relevance to nutrition, as well as traditionally determined codes of practice. The desk analysis reveals that the government commitment to improving the nutrition situation of its people is a strong one, and great strides have and are being made despite the enormous challenges the young country faces.

Nepal has ratified almost all human rights instruments including the International Convention on Civil and Political Rights (ICCPR), the International Convention on Economic, Social and Cultural Rights (ICESCR) the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW), and the Convention on the Rights of the Child (CRC). Furthermore the incorporation of human rights into the constitution and into law in Nepal has shown slow but continuous progress over the last three decades (Khatriwada 2012).

The constitution of 1990 is Nepal's main legal document and the fundamental rights that are incorporated in it are mainly those of the ICCPR such as the Right to Life, the Right to Freedom, and the Right to Equality among others. Linked to the Right to Equality were some provisions of the CEDAW, related to equality of women. Very few ESC rights were enshrined in the 1990 constitution, and it was only the interim constitution of 2007 that included the Right to Health, the Right to Social Security, the Right to Employment, as well as the Right to Food, among others. The 2011 draft constitution gave continuity to these ESC rights and also included those of the CRC.

Unfortunately the Constituent Assembly was not able to reach a consensus before the end of its mandated time last April, and new elections are not expected until next year.

Nepal is one of the 189 countries committed to achieving the MDGs, a pledge renewed in its current Three Year Plan (2010 -2013). Through the MDG process nations pledged at the turn of the Millennium to reducing the proportion of their population affected by many deprivations to half of 1990 levels by 2015. Nepal has made remarkable progress in its MDG achievement, with the prospects of reaching the targets of all of the Goals except some of those of MDG 1 on poverty and MDG7 on the environment. The main MDG1 target not being achieved is the reduction of young child stunting from 60% in 1990 to 30% in 2015. Despite being on track for the other MDG1 targets, including the reduction of people below the poverty line as well as those with inadequate provision of food energy, the stunting rate was 49% in 2006 and still considerably off track (NPC/UNDP 2011).

Agriculture Sector:

Nepal is primarily an agriculture country, with the sector providing employment for more than two-thirds of the population and contributing one-third to the Gross Domestic Product (GDP). The economy has historically been agrarian in nature, with its share in GDP ranging from 60% to 70% between the 1960s and early 1980s. With the various structural changes in mid 1980s, the contribution of agriculture in GDP was reduced from 51% in 1985 to about 40% in 2000 and to 35% in 2012. While the agricultural sector was severely depleted in the nineties mainly due to structural adjustment policies, great effort is now being devoted to trying to reconstruct the extension network (Adhikari 2011). The first objective for the agriculture sector, as expressed in the National Agriculture Sector Development Priority plan (NASDP 2011-2015), and associated Country Investment Plan, is to “ensure food and nutrition security”. The concept of nutrition security is quite a narrow one however, and is primarily to do with eating a good diet. This is expected to improve with the finalization of the ten-year Agriculture Development Strategy (ADS). The ADS has as its central core component, five-year food and nutrition security plan including a ten year vision, which is in a final draft stage. This will represent an important opportunity to identify the most important pathways through which agricultural changes may affect nutrition, and look at the feasibility of examining the nutritional effects from changes in the agricultural sector, especially if nutritional goals are made explicit (Mebrahtu, S., Pelletier, D., and P. Pinstrup-Andersen 1995; Haddad, L. 2000).

Health Sector:

In the Nepal Health Sector Programme, Implementation Plan II (NHSP -IP 2)(MoHP-GON 2010), which runs from 2010 – 2015, the MoHP is committed to a major expansion in support for combating malnutrition. The Vision statement of NHSP-II focusses on “improving health and nutrition” of the population, and the implementation plan states that although the expansion of nutrition efforts will continue to come under the Child Health Division, it will also focus on maternal nutrition as many child nutrition problems start with malnourished mothers having low birth-weight babies. The Essential Health Care Package of NHSP-IP 2 includes growth monitoring and counselling, iron supplements, vitamin A supplements, iodine supplements and

deworming. To date the main programme activity against general protein-energy malnutrition has focused on growth monitoring (GM) at health facilities, which covers nearly sixty per cent of under-three year olds. The intention is to strengthen facility based GM together with counselling on infant and young child feeding. A community-based nutrition programme will also be progressively introduced, starting from the wards with the highest incidence of malnutrition.

Two years into the plan, the nutrition components of NHSP continue to need strengthening. The second Joint Annual Review of NHSP -IP 2 held in January 2012, (MoHP-GON 2012b) made a systematic assessment of the progress of the programme as compared with its stated objectives. Of the twenty four indicators included only two were related to nutrition: the % of children under five that are underweight, and the % of diarrhoeal attacks that were treated with zinc – the child underweight reduction target was considered to have been met. The words “nutrition” or “malnutrition” do not appear once in the whole document, which suggests that there really is a lot to do here, and that until the nutrition activities of the Child Health Division are incorporated in the planned National Nutrition Centre, it will be difficult to change this situation.

A review of the nutrition interventions in NHSP II in 2011 (Codling 2011) based on the latest global evidence from the *Lancet Nutrition Series* (Bhutta, Z. A. et al. 2008), and the SUN (2010) as well as country level evidence on what works, recommended the establishment of three sets of essential nutrition interventions. The first group that should be maintained/strengthened included vitamin A supplementation and deworming for under-fives, diarrhoea treatment with zinc, iron folic acid supplementation, deworming and vitamin A for pregnant and post-partum women, and salt iodization. The second group that should be expanded or scaled up included **infant and young child-feeding and hand-washing counselling, micro-nutrient powders to children of 6-23 months, integrated management of severe acute malnutrition**, and roller mill flour fortification. A third group which should be further evaluated included interventions such as those to improve maternal nutrition, small mill flour fortification, as well as the prevention and treatment of moderate acute malnutrition. For each of these interventions the proposed coverage for the 75 districts by 2014 is shown in figure 3 in annex 2. Based on the recommendation of this review and evaluation findings of the two key essential nutrition interventions – IYCF/MNPs and CMAM, the MoHP made policy decision to scale these up to the rest of the country by 2017, with initial focus on the most affected districts (GoN/NPC, 2012). Furthermore, the establishment of the National Nutrition Centre has been approved; plans are underway to undertake organization and management survey which will guide its implementation. If fully implemented, it will significantly strengthen nutrition capacity of the health sector. Furthermore, a series of draft policy documents have just been finalized in line with the MSNP – including national maternal nutrition strategy, IYCF strategy for the period of 2013-2017, in line with MSNP, as well as five-year Action Plan on Anaemia and IDD Control, for endorsement by the MoHP’s Nutrition Technical Committee (NUTEC) and government approval. Therefore, though there is much work still to be done, the health sector is on the right track towards contributing to a substantial reduction of maternal and child under-nutrition.

Education Sector:

In the interim Constitution of 2007 education is seen as a basic right, which should be freely available to all and provided by the State. Basic education (primary school) is compulsory and freely available in Nepal. The aim of the current School Sector Reform (MoES-GON 2008) is to consolidate the school structures, linking the Basic Schools with grades 1-8 to Secondary Schools with grades 9-12. The policy direction of secondary education is towards expanding free secondary education ensuring opportunities to equitable participation in all aspects of secondary education. Furthermore, Early Childhood Development (ECD) program is a priority program of the Ministry of Education (MoE). According to the MOE's Flash report of 2012 there are currently 34,174 ECD centres involving some 50,000 ECD facilitators and covering 1.1 million children throughout the country. There are ongoing pilots to test effectiveness and feasibility of ECD facilitators to work together with Female Community Health Volunteers (FCHVs) to counsel and support mothers on infant young child feeding and care practices including, including hygiene and sanitation and early stimulation and responsive feeding. This is an important opportunity to build on the existing community level resources for enhancement of young child growth and development, based on encouraging global evidence (Bentley, M.E. 2011).

Local Government:

In Nepal the Local Self-Government Act (LSGA) of 1999 provides the basis for decentralization of governance and community development. The Interim Constitution of Nepal (2007) proposes the future restructuring of the state to promote and institutionalise an inclusive, democratic and progressive local governance system, maximising people's participation based on decentralisation, devolution of power and the equitable distribution of resources to local bodies. Although LSGA considers Public Service Delivery (PSD) at the local level an important indicator to assess how well the District and Village Councils are functioning, in reality PSD is still very much centrally driven (A. K. Sharma, Muwonge, A., 2010).

In the absence of elected local bodies since 2002 one of the major tasks of the GoN still remains to substantiate the objectives, policies and principles of the LSGA and to translate the principles of local self-governance into practice through the mobilisation of local bodies and local communities with the facilitation and support of the central line ministries. To this end the MoFALD has been implementing its Local Governance and Community Development Programme (LGCDDP) since 2008, with the over-arching goal of contributing towards poverty reduction through inclusive, responsive and accountable local governance and participatory community-led development (K. L. Devkota 2009). The lack of any elected local government officials has hindered the full development of local government, however, since the all-party mechanism seems to be frequently abused (Dhungel 2011).

At the same time, MoFALD has initiated Child Friendly Local Governance (CFLG), which has as its main objective to mainstream Child Rights (Survival, Development, participation and Protection) issues in the policies, systems, structures, mechanism and working processes of local government (areas and levels). Currently it is being implemented in 34 districts of the country (UNICEF 2010). This represents a potential

forum to advocate for and support policies, systems, structures, mechanisms, and actions that protect, promote, and support enhanced maternal and child nutrition targeting key local government policy leaders and community stakeholders.

Social Cultural and Economic Factor:

Nepal, with a per capita income of about \$750 is one of the poorest countries in the world. It is passing through a momentous and prolonged political transition following a 10-year violent conflict that ended in 2006. According to the 2011 Human Development Report (UNDP 2011), Nepal's Human Development Index (HDI) is 0.458, which gives the country a rank of 157 out of 187 countries with comparable data. The HDI of South Asia as a region increased from 0.356 in 1980 to 0.548 today, placing Nepal below the regional average.

Nepal's wide range of physical and social diversity, including its marked spatial variation in resources, has created and perpetuated the differences in the living conditions of its population (UNDP-Nepal 2009). The country has 103 caste and ethnic groups speaking 92 languages. Cultural diversity is one of Nepal's national treasures, and caste, ethnicity, language, and religion remain the major sources of cultural identity. These same factors, however, are the major sources of inequality and exclusion amongst Nepali people. The caste and ethnicity differences result from the norms and socially defined practices of dominant caste groups that together have defined the degree and form of these discriminatory practices. Perhaps the most important of these cultural practices with regard to nutrition is the unequal gender relations that stem from traditional socio-cultural structures, whereby over half of adolescent girls are married before they are eighteen years old (UNICEF 2010), despite the legal age for marriage being 20 years. Another dominant cause of inequality is the caste differentials stipulated by the Muluki Ain (the national code of 1854) that characterized Dalits as "untouchable".

Organizational level

Included here are the national level nutrition architecture, and the various delivery platforms in health, agriculture, education, as well as local government and the community. The structure of this nutrition architecture is shown in Figure 1 in Annex 2, and while these various sectoral platforms are quite extensive and potentially influential, the capacity of the potential nutrition workforce is still quite limited.

National Level Coordination, Planning and Technical Guidance:

At the national level the High Level Nutrition Steering Committee was revitalized in the National Planning Commission (NPC) during the preparation of the MSNP. More recently this has been joined with the National Food Security Steering Committee of the NPC to form the High Level Nutrition and Food Security Steering Committee (HLNFSSC) which has an administrative secretariat. Furthermore, the NPC has just approved establishment of a larger Nutrition and Food Security Secretariat, which represents a significant increase in capacity. It is being supported by UNICEF, REACH, The World Bank, and WFP, in order to provide technical support to the HLNFSSC. The Secretariat, under the Member Secretary of the HLNFSSC, will

comprise of eight professional staff including a Lead Facilitator, Facilitator, Food security officer, Nutrition officer, Results monitoring officer, Communications officer, Programme Assistant, and Administrative/finance assistant (NPC-GoN 2012). It will work under the general guidance of the National Nutrition and Food Security Coordination Committee (NNFSCC).

The main technical nutrition unit at the national level is located in the Child Health Division of the Family Health Department of the MoHP. Despite its third echelon position this Nutrition Section has been remarkably active and productive over the last decade or more. With only two permanent staff nationwide focused on nutrition, the current capacity of the Nutrition Section is greatly taxed. Furthermore there is no regional level staff person assigned to deal solely with nutrition. Currently Regional MCH staff also deal with nutrition programming. A similar structure exists at the District level where a nutrition focal person is designated but not fully assigned to monitor, assess, plan and implement nutrition, as they also have to deal with immunization and other Family Health interventions.

Following recommendations from NAGA and the National Health Sector Support Program Capacity Assessment for Nutrition the proposal for establishing a national nutrition centre (MoHP-GoN 2012a) has been approved, with plans underway to undertake an organization and management survey to guide its implementation. The National Nutrition Centre (NNC) will be formed as an autonomous agency under Ministry of Health and Population. It will work in close collaboration with Department of Health Services for the implementation of health related nutrition programmes. NNC will position one Nutrition Supervisor in each district, under the DHO/DPHO to provide support to the DHO/DPHO and other stakeholders for the implementation, monitoring and multi-sectoral coordination of nutrition programmes. The sections proposed for the central NNC unit include Community Nutrition, Nutrition Education and Counselling, Nutrition Research and Planning, Clinical Nutrition, and Multi-sector Coordination.

Health Sector Implementation:

The main delivery platform for nutrition interventions in Nepal is through the health system and the health extension into the community achieved by the Female Community Health Volunteers (FCHVs). The primary role of the FCHV is concentrated on the health promotional activities of mothers and children in their designated ward, promoting utilization of available health services and raising awareness on health through the Mothers' Groups. In addition, the FCHVs promote health and healthy behaviour of mothers and community people through the promotion of safe motherhood, child health, family planning, and other basic health services with the support of health personnel from the Sub-Health Posts, Health Posts, and Primary Health Care Centres. Besides the motivation and education, the FCHVs re-supply pills and distribute condoms, ORS packets and vitamin A capsules; and in IMCI program districts, they also treat pneumonia cases and refer more complicated cases to health institutions. Similarly, they also distribute iron tablets to pregnant women, which has been one of the principal reasons why coverage is reported to have increased.

Development and monitoring of the FCHV program occurs at the central level, where a "FCHV coordination sub-committee" is structured under the National Reproductive Health Coordination Committee. Members of this committee include representatives from several agencies of GoN, partner agencies, and I/NGO. This committee aids the Family Health Division in developing policies and strategies related with FCHVs and

helps in the review and implementation of associated FCHV programs. Review/reporting of the FCHV also occurs at the village level health institution twice a year and is conducted by the health institution head with participation of the village health worker (VHW) and maternal child health worker (MCHW). The review meeting includes the review of the FCHVs work and the ward's relevant health problems are discussed. In addition, analysis of the ward register, problem identification and solution, and the recording of vital events are done during the review. If appropriate, necessary guidance and logistics support is provided to the FCHV.

At the community level there are approximately 50,000 FCHVs affiliated with 3,134 Sub-Health Posts in all 75 districts of the country. The criteria for assigning an FCHV stipulate that for each ward (an administrative division with ~500 inhabitants) of the Village Development Committee (VDC) (lowest geo-political unit), one FCHV will be selected by the local mothers' group (MGH). This group is also responsible for scheduling and conducting monthly meetings where information is collected from the FCHVs and disseminated by the MGH to members of the community. Some districts have implemented a population-based system, with one volunteer for 400 population in the Terai, 250 in the Hills and 150 in the Mountains. The 2008 FCHV survey (NewEra/USAID/GoN 2008) found that almost 90% of FCHVs meet regularly with their supervisor the Assistant Nurse Midwife (ANM), 80% report regularly to their health facility and 70% attend monthly meetings at their health facility, all of which is very good in as far as it goes. There is great concern about "overloading" the FCHVs, but they have reported that their average working hours are about 5 hours a week; 75% would like to spend more time working as FCHVs; 75% feel it is a prestigious job that is valuable to their community.

The FCHVs are "facility based" as opposed to being "community based", as they report to the nearest Health Post where the Auxiliary Nurse Midwife (ANM) is charged with their supervision. The FCHV survey (NewEra/USAID/GoN 2008) carried out in 2006 estimated that there were some 47,000 FCHVs in rural Nepal, and the ratios of FCHVs to population in the Terai was 706 in ward-based and 454 in population-based districts, while in the Mountains it was 334 in ward-based and 156 in population-based districts. Assuming an average family size of around 6, the average FCHV to family ratio is probably around 26 families in population-based districts of the Mountains to 118 families in the ward-based districts of the Terai. The sorts of nutrition intervention carried out by the FCHV include treatment of severe malnutrition, and the delivery of micronutrients such as iron folate to mothers during pregnancy, as well as the delivery of vitamin A capsules during the Child Health Days held each six months.

As of yet there is no community based growth monitoring promotion, with the exception of a few pilot areas. However, FCHVs will be including Infant and Young Child Feeding (IYCF) during their monthly meeting with Mothers Groups and distributing every six months Micronutrient Powders or *Baal Vita* to improve micronutrient intake of young children in 15 districts as of 2012, with the plan to scale it up to the rest of the country by 2017. However, there is still limited continuous individual counselling of mothers on these issues on a monthly basis, nor are children routinely weighed or measured and their growth plotted on a growth chart. For continuous individual counselling to happen on IYCF by FCHVs in the community there would need to be frequent visits, say monthly, of health centre staff to the communities to work with the FCHVs together with their mothers groups in order to continuously promote these important IYCF behaviours. For this, the job descriptions

and the skills needed by the ANM would need examining and some adjustments made so that they could facilitate the more intense and frequent outreach into the community, in support of FCHVs doing behaviour change for improved IYCF.

Agriculture Sector:

The Agriculture extension service is another important service delivery channel for nutrition. The Department of Agriculture (DoA) and the Department of Livestock Services (DoLS) are two of the three departments of the MoAD, and under both there are 5 regional directorates. Under MoAD, the Department of Agriculture (DOA) and the Department of Livestock Services (DLS) are responsible for public sector extension services (Thapa 2010). The organizational structures under DOA and DLS are similar from the departments down to the grassroots level in the districts. Each has District Offices, and in the agriculture subsector, the number of Agriculture Service Centres (ASCs) is 378 throughout the country while in the livestock subsector, there are 999 Livestock Service (Sub-) Centres (LS(S) Cs) varying in number from one district to another. Each ASC covers around 9000 households and less than 15% of farm households are thought to be reached by the extension system. The service centres are headed by JTs (Junior Technicians) or JTAs (Junior Technical Assistants). While nationally there are some 5000 JT/As, there is normally just one covering at least two VDCs. Each ASC and sub centre has 2-3 JT/JTA's with the primary role of providing extension service to farmers and Farmers Groups (FG), collect information for management and policy formulation and also play a regulatory role within the farming community.

There are no community level volunteers, like the FCHVs, working in Agriculture extension, although there are “lead farmers”. A recent review of the Agriculture Extension System in Nepal recommended major changes (Suvedi 2012). The current top down approach needs reversal. Local level organizations such as VDCs, farmers, cooperatives and private sector need to play key roles in planning, implementing, monitoring and evaluating extension programmes and services. At the present the agriculture extension system doesn't cover food and nutrition education and this shortage needs to be addressed.

Education Sector:

The extensive education sector workforce could potentially be a powerful channel for changing the narrow perception of malnutrition so common in Nepal. There are primary schools in most communities, although secondary education is available only at VDC level. In 2009 there were 32,130 schools, of which 24,900 were basic primary schools and 7221 were secondary schools (UNESCO 2011). There were also nearly 50 thousand teachers of which 75% were in primary schools. That same year there were six and a half million students enrolled of which 75% were in primary schools (grades 1-5), with almost ninety per cent of them being community aided or community managed. The School Management Committees have a strong role in running the schools, against standards that are set by the central Department of Education (DoE) which provides funding for teachers' salaries while local contributions are needed to provide other support as necessary.

Early Child Development (ECD) in Nepal has also made remarkable advances in the last decades, and the primary focus in scaling up ECD activities has been on Centre-

based ECD (UNICEF 2011). ECD facilitators are the teachers/caregivers who staff ECD centres, which are essentially preschool classrooms. Community-based centres are often located near a public school but may also be stand-alone facilities in communities that do not have a primary school. The number of public ECD facilities has risen from 5,023 in 2004 to 24,773 in 2009, of which 12,883 are community-based ECD centres and 11,890 are school-based ECD centres. Each ECD centre is staffed by one or two ECD facilitators, with a total of some 50 thousand facilitators, which are usually young women, who provide care and instruction for as many as 25 children in the centre. One of the provisions of the ECD centres is that they carry out parent education, and this is where the MSNP aims to intervene.

As of now the education sector has no staff with nutrition specialization. In order to help develop the parent education so that the issues of child marriage and adolescent pregnancy are highlighted, together with all of the other essential behaviour change issues associated with protecting the 1000 day window, it would seem logical to task the central group working on School Nutrition in the National Nutrition Centre that is being created, with helping this to be developed. This should be done in addition to ensuring that the correct broad perception of nutrition (i.e., under and over nutrition, macro and micro, from a life course perspective) permeates the school curriculum and teacher training orientation. In order to ensure that all ECD centres are performing adequately in this regard there will also need to be a nutrition focal point in the DOE who trains, and then oversees the work of trainees to ensure that this happens.

Civil Society Organizations:

There are many Non-Government Organisation (NGO) actors working in nutrition in Nepal. The Association of International NGOs (AIN) has approximately 100 institutions listed as members¹ and about a quarter of them list nutrition among their activities. Many are doing more nutrition in emergency and/or feeding projects including in schools. Among the more well-known nutrition related INGOs are Helen Keller International, CARE International, Save the Children, Micronutrient Initiative, World Vision and ACF. There is also a National NGO Federation (NFN) that has 5730 member organizations and is organized into District level chapters². Since its establishment in 1991, the NFN, apart from defending NGOs' autonomy, has been fighting to promote human rights, social justice and pro-poor development. Nutrition doesn't really feature among the main topics of the website so it is not possible to identify which of these have nutrition related activities. Some 50 or so national and international NGOs are members of the Network on the Right to Food in Nepal under the umbrella of FIAN Nepal (NFN 2012). One of the most prominent local NGOs involved in nutrition related activities is Nepali Technical Assistance Group (NTAG). The local NGOs are essential elements in delivering any new innovative programme, such as *Suaahara* for example, since they allow the hiring of local "coaches" or trainers who can fill the gaps in the Government service delivery ranks.

¹ Association of International NGOs in Nepal. 2011 List of members.

http://www.ain.org.np/member_ingos.php (accessed 16/11/2012)

² http://www.ngofederation.org/index.php?option=com_content&view=article&id=1:welcomes-to-ngo-federation&catid=29:welcomes-note

Local Government:

The district level organization, as idealized for implementing MSNP, is shown in Figure 2 in Annex 2. The vertical sectors such as Education and Health and Agriculture are not shown in this figure as these Sectoral Service Centres are essentially still funded and run by the central government Ministries. It is envisaged that staff from these different sectors participate in the Nutrition and Food Security Steering Committees (NFSSCs) in the MSNP selected districts. These structures are part of the Local Governance and Community Development Programme (LGCDP) that MoFALD has been implementing since 2008 (K. L. Devkota 2009). The District and Village NFSSCs are tasked with multi-sectoral coordination as well as analysis, review and endorsement of nutrition and food security plans, and review of progress in implementation of the same that are developed with the Block Grants released to District level for the implementation of the locally developed NFSSC plans.

The District level NFSSC has 13 members including the DDC Chair, District Health Officer, the Local Development Officer, Chiefs of Line Agencies, NGO Representative, as well as Local Government programme officers for Social Development, Planning, among others. Eventually, the District level management structure will count on support from the health sector through the district nutrition officer, as well as the political and administrative leadership from the District Council Nutrition Coordinator. The Citizens Awareness Centre (CAC) at the VDC level and the Ward Citizens Forums (WCF) will be entrusted with raising awareness on nutrition through the Community Based Organizations (CBOs). At the Village level the NFSSC has 6 members including the VDC Chair, Chiefs of Service Centres, as well as Representatives of Health Facility management committee, School management committee, and Ward Citizens Forum.

Below the District and Village NFSSC are the various community bodies that are involved in the planning and the implementation of the Local NFSSC plans at the Ward and Community level. The LGCDP has identified social mobilization as the principal means of empowering communities and organizations. The aim of the social mobilization is to promote the participation in public affairs, especially by the marginalized/disadvantaged groups, in order to articulate their needs and priorities and to exercise their rights in regard to local government and administration. The Citizens Awareness Centre (CAC) is a grass root organization where poor and excluded people of a particular settlement or Village Development Committee (VDC) are brought together to identify, analyse and take actions on the issues that directly affect them. Normally the number of participants in a CAC will be 20-30 people, but priority will be given to women who did not have access to information. They meet every week for two hours and discuss different issues of the village, like underlying causes of poverty, social discrimination, gender, planning process and participation, etc. They also do analysis of different subjects in order to understand the local situation. Following the discussion they prepare an action plan (e.g., delegation, campaign, etc.) and also review their actions and outcomes periodically. The main purpose of establishing CAC is to empower those who are poor and excluded through the REFLECT process (empowering and social change approach). The social mobilizer facilitates the members to learn about their rights and supports them to take actions for ensuring access to services. It helps to capacitate members to advocate and lobby for their rights. At present there is only one CAC in each VDC and Municipality Ward.

The Ward Citizen Forum (WCF) is a group of people of a respective Ward, constituted to discuss the problems, challenges and issues of the Ward. The WCF gives voice to local bodies and other agencies to demand their rights so that their needs may be met. This Forum is supposed to be inclusive. In each WCF there are approx. 25 people of the respective Ward with representation from community organizations, women and child club networks, *Dalits*, indigenous people, ultra poor, those with different capacities (disabled), and well to do families. The participants hold meetings regularly and identify their needs and priorities by analysing the local situation. Then they voice local level priorities to VDC and other agencies for support. The main purpose for establishing WCF is to increase participation of people, especially those who are poor and excluded, in planning, implementation and oversight process of local level planning.

There is certainly a multitude of community level actors operating at the Ward level and below in Nepal, with links to the various sectoral line Minsters. There is no single overarching analysis, however, that looks at all of these community level actors and how they relate to each other. It may well be that many of these actors are the same people doing a multitude of different actions, very often on a voluntary basis. How to organize the relationship and interaction of the various sectoral workers and the community mobilizers and village facilitators in order to support the delivery of local government-led community-based efforts to accelerate stunting reduction is something that needs to be constructed as part of the development of the MSNP in selected districts. This requires creation and facilitation of the district, municipal and village level coordination structures as stated in the MSNP, including willingness of the sectoral ministries and their line agencies as well as district and village level CBOs to cope up with the local bodies in the design and implementation of the multi-sectoral nutrition approach in an integrated way. In order to make the management/organization domain broader in the selected districts there is a need to shorten the chains of command and link the orientation of efforts increasingly to accommodate local needs in addition to the centrally determined activities.

There is a need for a nutrition professional to act as “focal point” in the DCC that can have oversight of and be supportive of the multiple nutrition related local government activities that should be going on in the selected district. The orientation of the training of the DDC nutrition focal point should be more in line with “Public Nutrition” rather than “Public Health Nutrition” (J. Mason et al. 1996), since it is essentially very multi-sectoral. The job of the District Nutrition focal person is to ensure “the glue” needed to bring the various sectoral efforts together with the “bottom-up” aspirations of the communities as expressed through participatory planning, and has an impact on nutrition in the selected district. This district public nutrition focal point would also provide all the back up and support the district nutrition and food security committee will need for them to be able to function efficiently.

Information Systems:

Current social sector information systems seem to heavily favour central level decision-making, and include very few nutrition indicators. The current information system for LGCDP is the Poverty Monitoring and Analysis System (PMAS). The primary objective of PMAS is to coordinate, consolidate, harmonize and analyze data from existing poverty monitoring systems and to communicate results in ways which feedback into the policy process. It seeks to accomplish this through five key functions:

Implementation (or input/output) monitoring; Outcome or well-being monitoring; Impact assessment; Poverty management information system; Communication/Advocacy. A district PMAS was also designed in order to facilitate decision making by the DDCs. A recent analysis of the information systems in PMAS supported by UNICEF concluded that while they may serve the information needs to administer the various programmes they are insufficient to meet the monitoring and evaluation needs of the MSNP or early warning systems (Vance 2012). The water and sanitation data, the education data, parts of the agriculture/food security data, and parts of the health primary data were not considered reliable, and would need to be further strengthened to address key issues in national NIS, drawing from other country experiences (Mason, J. Mebrahtu, S. and Horjus, P. 2010). The MNIS review has informed development of the strategic plan to strengthen the existing nutrition information with links to other early warning systems such as the FAO supported recent initiative on Integrated Food Security Phase Classification (IPC). Furthermore, initiatives are being taken to strengthen the nutrition component of existing food security information systems. WFP has been helping develop capacity and institutionalize the NeKSAP (Nepal Food Security Monitoring System) within the government structure, and the second phase of the project was launched in 2012 for duration of four years.

Planning and budgeting mechanisms:

These go from village up to national level and back down again during the course of a year, and the district level implementation is always a year behind the planning process. The steps being developed for MSNP are shown in Annex 1 on MSNP Implementation. There are fourteen steps for preparing the annual budget, which begins at the VDC level. Plans approved there by the Village Nutrition and Food Security Steering Committee get brought together at the DDC level for approval by the District Nutrition and Food Security Steering Committee. The DDC submits the district nutrition programme and budget to the Regional Directorates, Departments and sectoral Ministries who consolidate them and forward them to the HLNFSSC to approve and pass to the Ministry of Finance. The Ministry of Finance will allocate and release budget to the National Planning Commission Secretariat (Nutrition Secretariat) as per approved district level nutrition sensitive programme and budget (education, WASH, agriculture and local development sector) as conditional grants. Programme and budget of the sectoral ministries and nutrition specific programme and budget of the Ministry of Health and Population will be released through their regular budget heads. National Planning Commission will provide total lump sum budgetary grants to each district as conditional grants to the DDF to implement nutrition sensitive programmes at the district level. The District Development Committee will allocate funds from the DDF to the line agencies (education, WASH, and agriculture) as per their approved action plan to implement programmes at the community level, especially at the ward level, according to the nutrition menu prepared by the Ward Citizen Forum/Citizen Awareness Centre. Line agencies will implement the programmes at the ward level by self, service centres or local bodies in collaboration with the CBOs or through the CBOs

Individual level

This includes existing courses as well as those that need to be created, and employment perspectives for future graduates, including career paths in government, academia and private sector.

Employment perspectives including career paths in government, academia and private sector

Government: Through the establishment of the Multi-Sector Nutrition Plan, the GoN defined its commitment to increasing the capacity for nutrition in the field. This includes not only upgrading the capacity of existing health, agriculture and education workers, but creating new positions dedicated solely to the management and coordination of nutrition activities among the various concerned sectors. The recommendation of the NAGA (Pokharel 2009) was to “establish posts for expert and qualified public health nutritionists supported by an adequately trained staff team (for leadership and programming),” and to enhance the administrative positioning of nutrition, “for example, within the Ministry of Health at a level equivalent to the Expanded Program of Immunizations (EPI) with adequate staffing and operational budget and a national multi-sectoral coordination mechanism.”

In addition to positioning these new posts at the national and district level in MoHP, recommendations were made to establish similar nutrition posts in other Ministries: MoA, MoE, MoUD, and so on. Each of which would have a role at the District level to plan, monitor, and manage nutrition interventions through each of their sectors. In this way, overall intersectoral planning would be done at the higher levels of government, while interventions would be implemented by the sectors themselves.

For this to work, however, it is necessary to establish another position at the District Level of Public Nutritionist, independent of the line ministries and working within the DDC. The role of this person would be less technical (though technical expertise would clearly be needed) and more managerial, to work with local government to coordinate and manage the intersectoral work of each sector, to collect, process and analyze available nutrition related data from the District, and to prepare reports and recommendations to the Intersectoral Working group at the national level.

In summary, the positions needed:

1. Central level MoHP: staffing for a Public Nutrition Section (similar in staff and budget to the EPI and with a national multi-sectoral coordination mechanism. *Estimated number of positions: 2 Public Health Nutrition specialists; 1 administrator; xxx*
2. Central level Agriculture, Education, Water and Sanitation: Public Nutrition staff member to work within each sector to mainstream nutrition concerns and interventions as appropriate throughout the sector activities. *Estimated number of positions: 3 Public Health Nutrition specialists*

3. District level Line Ministries: nutrition focal point in each sector. *Estimated number of positions: 3-4 staff with Public Health Nutrition training per district x 75 districts: ~300 positions*

4. District Level local government: Public Nutrition District Manager/coordinator. *Estimated number of positions: 1 Public Nutrition Specialist x 75 districts = 75 positions.*

Academia: The staff position for placement in Central Level MoHP will require a Masters degree in Public Health Nutrition. The Central Level posts in Agriculture and Education, as well as the District Level sectoral focal points in nutrition will require a Master's Level degree in their field with a specialization (or extra accredited course work) in Public Health Nutrition, but not necessarily a Masters in Public Nutrition itself. For example, a District Level nutrition specialist in MoHP could have an MPH with specialization in Public Nutrition. The District Level Public Nutrition Coordinator, however, should eventually have a Masters in Public Nutrition, but at the onset, an MPH with public nutrition specialization would be adequate.

In order to meet the needs for these degrees and training, academic institutions that confer Bachelor and Masters level courses in Health and other related fields (i.e., Agriculture and Education) will need to upgrade their capacity (and faculty) in Public Nutrition. At present, a review of the existing curriculum in nutrition (M. D. Devkota 2012) indicates that in the health sector, the academic programs with the most extensive curricula in nutrition are at the bachelor level in nursing and public health, and to a lesser extent in Ayurvedic medicine. Though less extensive, some nutrition subjects are taught in the MBBS program, but a nutrition curriculum is essentially absent from the MPH program.

The curricular courses should be divided between those for clinical nutrition and dietetics and those for public health nutrition; the difference is essentially a focus on the individual versus a focus on populations. The two are of equal importance and clearly relevant, but to achieve the goals articulated in the MSNP, the gaps identified in the NAGA, and the objectives of the National Nutrition Centre, the emphasis must be on the latter. The analysis of the contents of the existing curriculum is heavily weighted toward clinical nutrition and dietetics with some courses (e.g., nutritional problems of Public Health (MPH), nutritional beliefs and practices (BN), national nutrition programs and nutrition surveys (BPH, MBBS, and MPH), having relevance to public nutrition.

The education in Agriculture is related to food security, with an understanding that integration with health and nutrition programs will be necessary but without present curriculum dedicated to Public Nutrition. The same is reportedly true for Education.

With this in mind, it is understandable and appropriate at the onset to focus plans for nutritional curriculum development on those degree programs being sponsored by the MoHP. And of those, given the emphasis on job creation mentioned above, to start with a closer coordination between curriculum in the BPH and MPH programs.

This will mean changing the public health curriculum and developing career pathways for faculty involved in teaching Public Health Nutrition. Alternatives could include a Faculty of Public Nutrition within the Institute of Medicine; an Institute of Public Health Nutrition in one of the major Universities; courses of Public Nutrition within various Health related Faculties.

There are additional academic institutes aiming to offer Masters level degrees in nutrition and dietetics within faculties of Science and Technology, building on

established academic work in food technology (e.g., the MSc in Nutrition and Dietetics to be started in Purbanchal University.) These offer examples of how on-going programs could be further adapted to include nutrition in their teaching. However, the change must go beyond the clinical and technical aspects of nutrition to include Public Health Nutrition.



Figure 1: Distribution of CTEVT training sites nationally

Vocational institutes: The Council for Technical Education and Vocational Training (CTEVT) is a national autonomous apex of the technical education and vocational training sector, organized through a multi-sectoral assembly chaired by the Minister of Education. The Assembly members come from various ministries, the National Planning Commission, business and industrial organizations, and institutions. Courses cover a wide

range of topics and sectors, though reportedly 75% of students are involved in a health field (of which 3600 graduates per year are in Nursing). Included in these courses is a community outreach component. The CTEVT graduates approximately 50,000 students each year (divided between short vocational courses and longer term academic courses) through its 400 institutions throughout the country, located as shown below mainly in the Terai and Hill districts. At present, public nutrition is not included in the curriculum. As this is a vocational training institute, educational offerings are geared toward jobs. Therefore, the development of jobs funded by the private sector or the government with clearly defined competencies in Public Health Nutrition would motivate the development of courses in this area, including a 2-3 year diploma course. In the short term, short courses could be developed that would upgrade the skills of staff in position.

However, in order to provide these courses, particularly the long-term academic offerings, new faculty would be needed in the Council, and the capacity of present Council faculty in the area of Public Health Nutrition would need development.

Private Sector: There are numerous private Universities and degree-granting academic institutions in medicine and allied health sciences throughout the country, operating without government support and relying on tuition fees to support their function. Accreditation of these is of vital importance.

Nutrition competencies of existing workforce

While direct assessments of the nutrition competencies of those workers involved in delivering nutrition interventions are not available, from other reports it is possible to conclude that their nutrition competencies are poor. The community and local government assessment (R. Shrimpton, Ghimire, K. 2012a) showed that the only “recognized” nutrition trained person at that level is the FCHV. The FCHV has many tasks related to reproductive health especially, as well as the more curative and micronutrient interventions. The training of FCHVs to do IYCF counselling is one area

that needs to be developed, but this will require more intensive and supportive supervision from the health post, as well as increasing the number of households being mobilized by each FCHV. Growth monitoring coverage in Nepal remains low largely due to the unavailability of appropriate measurement tools, inability to integrate growth monitoring with other related interventions such as infant and young child feeding (IYCF), community based integrated management of childhood illness (CB-IMCI), nutrition counselling, as well as poor technical capacity, incomplete reporting, and lack of supportive supervision for health workers (WHO 2010). Even severe child undernutrition is commonly unrecognized in health facilities (Riggs-Perla 2011). Children don't seem to be routinely weighed even in a health facility. The Child Health Card, which is supposedly given to all children by the health system, has a growth chart incorporated in it, and children are supposed to be weighed and have the weight recorded each time they come in contact with the health system. District level surveys in Divyapuri in the Terai in 2010 found just 40% of mothers could even produce a child health card (D. Pahari et al. 2011) as opposed to 52% reported for Kanchanpur in 2003, which was after seven years of project implementation in that district (Onta 2003). But regardless of their competencies, a survey of health workforce performance and accountability found that less than half of health workers were present in their place of work and active at the time of the survey (SOLID/Nepal 2012), which is as great a concern.

Outside of the health sector there is as yet no other “workforce” and this will need to be created. Though the ECD facilitators providing support on early child stimulation, this is not yet being targeted to young children (less than two years of age) and does not still adequately address nutrition, except in a few pilot areas where integrated IYCF/ECD component on early stimulation and responsive feeding involving both FCHVs and ECD facilitators is being tested with UNICEF and SCF support. The JT/As in the agriculture sector also don't currently have any nutrition training, and so this needs attention. The *Suaahara* project is already working with the Agriculture Extension Training Institute in this regard and is providing JT/As with orientation on all aspects of a broadly perceived nutrition, that includes explanation of the importance of the 1000 days, and the life course consequences of being unsuccessful in stopping growth faltering during this period, as well as the immediate underlying and basic causes of undernutrition, beyond just food per se.

Training of staff in public nutrition

Relevant curricula of nutrition workforce in training institutions

A review was done in July 2012 of the relevant curriculum of the nutrition component for nursing and other health workers. (M. D. Devkota 2012) The review examined the curriculum in the training of Auxiliary Nurse Midwives (ANM), Health Assistants (HA), students in the Bachelor of Nursing (BN), and BScN degree courses, Bachelor of Public Health (BPH), Bachelor of Ayurvedic Medical Sciences (BAMS), MBBS, and Masters in Public Health (MPH) programs for their nutrition content. Topics covered included those related to clinical nutrition and dietetics (i.e., individual oriented) and public nutrition (i.e., population oriented). Among the topics that could be considered teaching in Clinical Nutrition and Dietetics were (i) Classification of Foods, (ii) Nutritional Deficiency Diseases, (iii) Balanced diets, (iv) preparation of weaning foods, (v) Food adulteration, (vi) Maintenance of food hygiene, (vii) Methods for preserving

nutrients in various food, (viii) types and sources of proteins, fats, carbohydrates, and vitamins, (ix) anthropometry, (x) nutrition factors in selected diseases, (xi) meal planning and preparation, (xii) special diets, (xiii) nutritional value of locally available foods, (xiv) food tests, and (xv) types and uses of different spices. Among the topics that could be considered relevant to population based nutrition were (i) the roles and responsibilities of the ANM, (ii) food for pregnancy, lactation, and adolescence, and national programs (iii) breastfeeding including in different health conditions including HIV, (iv) national nutrition assessments, (v) control and prevention of undernutrition in the community, (vi) nutritional problems of public health, (vii) food and nutrition education programs, (viii) nutrition beliefs and practices, (ix) nutrition programs in Nepal including food supplementation programs, (x) national nutrition surveys, plans and policies, and (xi) cultural determinants of nutrition and impact of socio economic status. The nursing students (BN and BScN) received mainly training in clinical nutrition, whereas the BPH students had more training in population or community nutrition. The MPH students received hardly any training in nutrition.

The review exposed two contrasting gaps: though the ANM received considerable training on nutrition-related topics (16 topics were covered, approximately 11 with a greater clinical than public health relevance), there was no nutrition related responsibility outlined in her Job Description. Conversely, in the MPH curriculum that focuses on population-based problems, there is less training in public health nutrition. What is covered is nutrition needs at the community level, current nutrition policies and strategies of GoN, and legislative issues and quality control regarding food production, transportation, marketing and consumption. The explanation for the lack of nutrition education in the MPH curriculum is that most of the public health nutrition topics are being covered extensively in the BPH program and therefore do not have to be repeated in the Masters level training. The BPH course covers food science and nutrition, nutrition requirements at different stages of life, nutritional deficiency diseases, food processing and so on, as well as nutrition programs, surveys and research done in Nepal, and national nutrition plans and policies. It remains a program with a balance toward clinical nutrition and dietetics.

Similarly, in the extensive course on Nutrition conducted by the Central Department of Home Science, Tribhuvan University, there is a course on Community Nutrition (i.e., the terminology many used to refer to public health nutrition.) The curriculum is excellent in touching on key topics of nutrition (e.g., diet and disease, food science and quality control, institutional food management, and so on), but it does not reflect the newer thinking and research in nutrition: evidence based interventions highlighted in *The Lancet Nutrition Series*, an emphasis on a life-cycle approach that adds emphasis to the nutrition of women at all stages of their reproductive lives, the focus on the ‘window of 1000 days’ that is a part of that, the relation of intrauterine nutrition to adult onset diseases (including obesity and the double burden of malnutrition occurring in many developing countries,) etc. Many of the references are dated, and could be updated to reflect the more recent work in this area. This course, linked with the MSNP, could be upgraded to a current public nutrition course of study.

Several key facts emerge from the review. It is difficult to gauge the currency of educational programs even when they focus on nutrition. The training materials may not reflect the explosion of nutrition research and understanding that has occurred in the past 10-15 years. The BPH curriculum does not cover the recently developed MSNP.

There is a general lack in multi-sectorality in the nutrition training overall. Furthermore, while nursing students receive education in topics related to nutrition, they are predominantly in subject areas related to clinical nutrition and dietetics. This may be appropriate for facility based nurses, but those nurses who will work in the community should understand more about the immediate, underlying and basic causes of undernutrition, and that some of these causes go well beyond their clinical realm. It is also difficult to revise job descriptions that have been in place for decades. (For example, the ANM job descriptions were developed in the 1980's and not subsequently revised).

In the training provided by the CTEVT, 75% of students are enrolled in courses related to health, especially in nursing. However, while senior members of the Centre perceive that there is a lack of awareness of nutrition problems at the community level, there are no specific courses offered on public Health nutrition. The Council is diversifying its curriculum to include more agricultural courses.

In the review of the Agricultural Sector Capacity done in preparation for the *Feed the Future* Initiative in Nepal (Crawford 2010), it was acknowledged that although research and extension was strongly supported in the two decades between 1970 and 1990, lack of funding has weakened both of these since that time. It also noted that although there was adequate staff in the District Agricultural Development Offices, nutrition is not included in their current program and that there were no staff who supported nutrition education.

Nutrition content of in-service training

Deficiencies in pre-service institutional training in nutrition extend into the in-service training, as there is a lack of trainers who can impart updates in public health nutrition to field staff. Among the institutions that provide training to field level workers, the National Health Training Centre (NHTC) provides pre-service as well as in-service courses, with a focus on ANMs, and AHWs, as well as Senior ANMs, and Senior AHWs. The training is done through five regional training centres. The NHTC is also holding a one-month Paediatric Nursing Course (funded by UNICEF), a one-week course on homestead food production and developing a monitoring check-list for ANMs. The Centres follows up on approximately 20% of its course graduates as a means of gauging capacity of the training.

There is a field staff of seven trainers per Regional Training Centre, which in addition to the Central training centre means there are 42 trainers working in the NHTC. However, it was felt that the trainers did not have the skills and knowledge to train workers in nutrition. There was recognition that public nutrition content could be added to both the pre-service and in-service training courses.

The Agriculture sector also provides in-service training through its five regional training centres with an additional five regional training centres under the Directorate of Livestock training. Training within this system is directed at JT/JTA workers, and progressive farmers. In the Agriculture centres, there are 10 trainings with 200 trainees per training centre per year. Training is evaluated with a pre- and post-test, and a learning test all to measure changes in knowledge, attitudes and practices.

Another institution involved in training of government workers is the Nepal Administrative Staff College (NASC). The NASC provides training courses on Trainer Development, with general and specific courses in training methods, case preparation, training needs assessments, and strengthening of training institutions through training quality improvement and development of intersectoral linkages. This is a forum that could be very effective in establishing multi-sectoral approaches to nutrition problems in the country.

The Ministry of Education also provides pre-service as well as in-service training of its workers. The focus of training is through the National Centre for Educational Development (NCED). Established in 1993, it undertakes teacher development activities, particularly capacity development of educational personnel and the conduction of research activities in Education. Of greatest importance to this project is the fact that in 2004, the previous Distance Education Centre and Secondary Education Development Centre were merged with the NCED to form a robust centre that deals with all aspects and levels of teacher training and management training. NCED has 34 Educational Training Centres (ETCs), to carry out its training programs across the country. Working with these centres, NCED has also established an extensive training network that involves Educational Campuses (of TU), higher secondary schools, private teacher training centres, and mobile teams with the partnership concept for the implementation of training programs.

The Department of Education also has a program linked with the private sector in Early Childhood Development (ECD) funded by UNICEF (UNICEF 2011). (Though there are presently 29,000 ECD centres in the country, the goal is 70,000). While the program does not have extensive training in nutrition, it provides an example of a capacity development program that focussed on teachers, head teachers, and district and VDC officials. It has also seen the importance of taking the training to parents. Among the lessons learned was that some facilitators received only 8-12 days of the required 16 days of training, and most had not received refresher training. This was in part because the training could not keep pace with the high turnover rate of facilitators. It may also relate to a lack of monitoring of training process and lack of follow-up by local government. Evaluation of the program is being conducted through the Research Centre for Education Innovation and Development (CERID) of Tribhuvan University (with UNICEF support.) The MoEd has nine regional Educational Training Centres with 20 centres in the Districts, with an additional 1053 Resource Centres for monitoring and providing technical support to teachers. There is also a system of supervision with a Supervisor coordinating activities for at least three Resource Centres. Finally, Education sets another example in its Teaching Licensing Exams run through the Teachers Services Commission.

These centres are mentioned, not because they currently have the capacity to train in public nutrition, but because they are all interested and willing to add public nutrition to their training curricula, and they have the personnel (there are vacancies) who are willing and able to be trained in public nutrition topics. Each makes the point as well that training participation is diminished if there is not a job awaiting the graduate.

Roles of professional and international organizations in individual level training

The mandate of the training centres is to conduct individual level training. In addition to the Centres mentioned above, training is also provided through the faculties of medicine and community health, of education, and of agriculture. In each of these there are centres or departments assigned to curriculum development that can influence what should be taught in public nutrition and where it is taught. For example, in the Institute of Medicine, the home would be in Community Medicine, possibly linked with the department of Pediatrics. 14% of MBBS students in the IoM choose community medicine. In Community Medicine, nutrition would be taught under Family Health (as distinct from Family Medicine which is the equivalent of General Practice). Under Family Health, it could be linked with reproductive health, gender issues, and the life cycle. In the MPH program, there are nine core disciplines taught of which one is nutrition. And of the 20 students that graduate with the MPH each year, 3-4 of them write their thesis on a nutrition related topic.

In addition to these academic institutions, there are projects supported by international NGOs and bilateral donors that have a strong nutrition focus. An example is the *Suaahara* Project financed by USAID. This is a five-year project that began in August 2011 and focuses on reducing stunting, wasting, underweight, and anaemia among children, as well as anaemia and low BMI in women. *Suaahara* is designed to support the multi-sector nutrition plan (MSNP) in its convergence of health, nutrition, agriculture, sanitation and hygiene. It works through local NGOs and the Village Development Committees (VDCs) in 20 of Nepal's most poverty-stricken districts. It also works with health facility staff. *Suaahara* implements interventions at the proximate level: training health care providers, pharmacists, families and others to encourage mothers to give an extra meal to pregnant women and two extra meals to a lactating woman; adding animal source foods to a child's diet as well as green vegetables and orange-fleshed foods. The idea is to focus on three or four achievable and effective practices. Training is the core of the work done by *Suaahara*. It not only works at the community level, but it works with the government and external development partners to update and harmonize curricula, messages and IEC materials. The most important (and most difficult) task of the project is working across sectors for a multi-sectoral approach: staff are knowledgeable about nutrition, WASH, family planning and reproductive health and agriculture, with expertise in broader areas of social mobilization, gender equity and social inclusion, monitoring and evaluation. *Suaahara* integrates inputs from seven partners: three international including Save the Children, Helen Keller International, Jhpiego, and three national including Nepal Water for Health (NEWAH), Nepali Technical Assistance Group (NTAG), and Nutrition Promotion and Consultancy Services (NPCS).

The importance of the *Suaahara* example is that it represents an approach to the problems of malnutrition at the community level by planning intersectorally, but then implementing interventions sectorally. In this way, implementation is coordinated, but Sectors use their expertise and preserve their identity by implementing actions according to their particular expertise. However, the project has taken on large problems in a relatively short time horizon: 5 years. Working at higher levels of government,

linking them with community based actions, and maintaining the intersectoral approach over a wider area and for a longer period of time in order to reach goals is another challenge.

Furthermore, *Suaahara* bypasses the difficulty of not having public nutrition capacity at the higher levels of training by providing the expertise through the interventions of outside public nutrition organizations like HKI, Save, JHPIEGO, and USAID. The question of sustainability will need to be addressed, as once these organizations are no longer involved, the responsibility for training trainers in public nutrition will have to be embedded in the training venues mentioned above.

Workforce supervision and performance evaluation methods

In each of the examples of in-service training mentioned above, respondents commented on the weakness of supervision and performance evaluation. Even in situations where accreditation and licensing are robust, where there are centres for monitoring and providing technical support – as in education – the report was that monitoring in the system was still weak. In-classroom monitoring in education provides a useful model in enlisting the Parent – Teachers’ groups to do the monitoring. This type of community based monitoring is being introduced in other countries. Similarly, in the Health Sector, the National Health Training Centre reported a follow-up on only 20% of course graduates. The concept of accreditation being promoted by the University Grants Commission (UGC) requires a reassessment of institutions every five years. This provides a useful construct for also requiring re-certification and licensing on a periodic basis for all professionals working in the field. This would keep people current in their field, and could offer a strong forum for the introduction of new materials, i.e., related to public nutrition.

The community and local government nutrition capacity assessment (R. Shrimpton, Ghimire, K. 2012a) also highlighted the highly centralized nature of information systems. Furthermore the nature of the management and organization of the nutrition workforce (actual and potential) is also highly centralized, with little or no use of any indicators (input, output, outcome, or impact) to judge at the local level how well people are doing their work, and to offer critique and change of course if they are not. In order to scale-up-nutrition interventions and begin to ensure that coverage and intensity of preventive nutrition specific interventions (IYCF) especially, local capacity has to be created at district level to achieve this. This function of managing nutrition interventions and nutrition programmes at the district level is the sort of competency that district nutrition officers, be they from health, education, or agriculture, must be trained to do. They must both train peripheral workers to correctly carry out nutrition specific interventions, but then also provide supportive supervision to ensure that behaviours change. For this to happen they cannot only have theoretical knowledge about metabolic pathways, and food groups, (i.e. know “what to do”), but also need to know “how to do” and can “show how to do it” (Hughes et al. 2012).

Accreditation of academic institutions

Accreditation of institutions of higher education has been one of the targets of the University Grants Commission, under the Second Higher Education Project (SHEP)

funded by the World Bank. The project is set to run from 2007 -2014. To date, the project has accredited six institutions and has established accreditation as a process of quality assurance, whereby a program or an institution is appraised on a periodic basis (every 5 years is recommended) (WorldBank 2012). The core of the accreditation process is based on a Self-study report (SSR) that is followed with a visit by a Peer Review Team (PRT). SSR allows for reflection on the strengths and weaknesses of one's program; the PRT process allows for an outside person to check the work performed to ensure that it meets specific criteria.

Accreditation of Master in Public Health programs does not yet exist in Nepal, despite the recognition that accreditation or standardization of curriculum is of vital importance with the opening of many new institutions that require a means of evaluating the quality of graduates. The study team heard of instances of programs producing graduates who were not hired for available jobs because the quality of their program was not considered sufficiently high to recommend them.

At present, establishing standards of education comes through a variety of mechanisms: university subject matter committees that review how a course is taught, with committee members selected by the Dean; examination controllers in technical programs affiliated with CTEVT drawn largely from within the institutions; University certification with quality dependent upon the quality of individual institutional leadership. Offering a new approach with input from international academic affiliates, the Patan Academy of Health Sciences has introduced a 36 member International Advisory Board with external evaluators as part of its system of quality control. Other forms of quality control include qualifying exams for MBBS degrees, licensing requirements for school teachers, and licensing exams for nurses.

At present the best examples of accreditation / credentialing programs exist within the various professional councils in Nepal. The lessons learned from these could be used to inform the establishment of a National Public Health Council for accreditation of MPH and other public health degrees, including those in Public Health Nutrition.

Professional bodies for individual accreditation

The professional bodies that presently exist in Nepal include the following:

1. Nepal Medical Council (NMC),
2. Nepal Engineering Council (NEC),
3. Nepal Nursing Council (NNC),
4. Nepal Ayurvedic Medical Council (NAMC),
5. Nepal Health Professional Council (NHPC) and
6. Nepal Veterinary Council (NVC)
7. Nepal Bar Council (NBC)
8. Nepal Pharmacy Council (NPC)

In each of these, efforts are being made to set up and regulate quality assurance and accreditation mechanisms. Of the eight listed, three offer the potential for important input to the eventual accreditation and quality assurance of public health nutrition education and training: the Nepal Medical Council, The Nepal Nursing Council, and the Nepal Health Professional Council.

The Nepal Medical Council registers medical and dental institutes based on criteria established through the National Medical Council Act of February 1964. The Council has accredited 18 institutions listed on its website, and regularly holds licensing examinations.

A similar process is followed by the Nepal Nursing Council, which is considered the authoritative body for accreditation of nursing education institutions, and for conducting licensing examinations of graduates of accredited nursing schools.

The National Health Professional Council (NHPC) is an autonomous body established in 1997. It sees as its purpose protecting the public and providing guidance to registered health care practitioners. It states its mandate as “regulating the health professions in Nepal in aspects pertaining to registration, education and training, professional conduct and ethical behavior, ensuring continuing professional development and fostering compliance with healthcare standards.” The NHPC carries out field supervision and monitoring with the assistance of the WHO. The NHPC works with all concerned parties in health education: MoHP, five regional Health Professional training institutes, and the CTEVT. Of particular interest is the effort the NHPC is taking to strengthen management of public health practice, bringing together the National Planning Commission and the NNC along with other partners in a one-day seminar.

The quality of higher education in Agriculture has been improved through affiliation with outside organizations like USAID and ADB. In addition, training of JTs and JTAs has been provided through the Council for Technical Education and Vocational Training (CTEVT). A part of the mandate of this Council is development of curricula, development of skill standards for various occupations, and testing skills of people. This body is guided by a 24 member Assembly and a governing board (the Council) comprising nine members. The Minister of Education chairs both the Assembly and the Council. (Suvedi 2012) However, there is no external accreditation of CTEVT courses.

The significance of these organizations is that they offer models and possibly platforms for the accreditation and certification of training in public health nutrition in short term, medium term and the future. In the short and medium term, it would be best to locate additional courses in public health nutrition in accredited institutions and progressively incorporate standards (derived from the competencies established by the WPHNA) of public health nutrition into the credentialing mechanisms of those institutions. In the long term, the establishment of a National Public Health Council would aid concerned parties in identifying the criteria for accreditation in Public Health, and that could eventually become a home for accreditation of programs in Public Health Nutrition.

The importance of accreditation and certification in Nepal cannot be underestimated. Nepal presently has a significant brain drain of students seeking higher education outside of the country even for courses available in Nepal. In 2009/10 the Ministry of Education permitted more than 28,000 students to go abroad for higher education. The general concern is that once they have gone abroad and earned a new credential in an internationally accredited institution they will not come back to Nepal (S. R. Sharma 2012). For this trend to be reversed or at least blunted, national institutions will need to be accredited according to international standards with the capacity to provide an international quality education.

Discussion

From the information presented, it is clear that there is very limited element of the work force in Nepal – from the village to the level of line Ministry in Kathmandu, including academia and technical training institutes – that has a thorough knowledge and capacity in public nutrition. This is not to say that nutrition is not being taught in the country. It is, and the fact that it appears on the in-service and pre-service curricula of ANMs, Health Assistants, Nurses, Doctors, and public health specialists speaks to the recognition in the country that it is an important topic. However, what is being taught may be inadequate to deal with the problem of undernutrition that the country increasingly faces. Much of the important population based nutrition science is relatively new, and has been developed in the last few decades, whereas much of the “nutrition” that already exists in Nepal is more clinical and basic science related and directed at doing research, but very little oriented to managing population oriented programmes.

There have of course been many important successes in nutrition in Nepal, especially in the area of micronutrients, and this has been achieved despite the apparent lack of nutrition training and specialization. This is because these micronutrient interventions

Year	Stunting (%)	Wasting (%)	Underweight (%)	Women BMI <18.5 (%)	Women anemic (%)	Source
1975	48.1	2.8	50	--	--	CDC/USAID
1995	53	16	--			MICS
1996	48	11	47	>25	--	DHS
2001	57	10	48	--	--	DHS
2006	49	13	39	24	36	DHS
2011	41	11	29	18	35	DHS

Table 1: Measures of Malnutrition in Women and Children in Nepal Source (D. P. Pahari 2012), (MoHP 2012)

can be achieved in a very top-down way, without much need for local adaption and continuous supportive supervision. High coverage of Vitamin A capsules have been achieved by conducting twice yearly Child Health Days, with large scale mobilization on that one specific day. Salt iodization is done centrally. The increase of coverage of iron/folate tablets during pregnancy was another success that will have contributed to the reduction in maternal

anaemia rates, and this was achieved by adding on the home delivery of the tablets to the existing task of the FCHVs to deliver contraceptives, and ORS packets for example. The challenges that remain to accelerate the reduction of stunting are more complex than these interventions, and require more continuous efforts to change behaviours that exist throughout the population, such as IYCF, as well as teenage pregnancy and cigarette smoking for example.

The high prevalence of stunting in children (41%) and anaemia in children (46%) and women (35%) in the country indicates how big a problem it is. The fact that these levels have, until very recently, remained essentially unchanged (see Table 1) indicates that what is being taught, and who is being taught may be adequate for clinical situations but is not sufficiently focused on populations to change the size or the trend of the problem.

It is clear from the numbers that ‘business as usual’ is not going to solve Nepal’s problems with undernutrition. And, based on current research, what is at stake is not only individual but national development. Not only are stunted children of normal weight likely to complete fewer years of schooling than their normal peers (Alderman et al. 2006), but severe anaemia in childhood can lead to a loss of up to 25 IQ points. (Lozoff et al. 2006) The fact is that children, malnourished in their early years, had wage rates 34-47% lower and incomes 14-28% lower in adulthood than children who came from well nourished backgrounds. (Hoddinott et al. 2008)

‘Business as usual’ is no longer an adequate response to a persistent problem, furthermore the problem itself is changing. According to the Demographic Health Survey of 2011(MoHP 2012) 11% of women were overweight (BMI 25-29 kg/m²), and 2 per cent are obese (BMI 30 kg/m² or above). The prevalence of overweight/obesity had increased by 5 percentage points since 2006. Just over a quarter of urban women were overweight/obese (26 per cent) twice as high as in rural women (11 per cent). Overweight and obesity were positively correlated with wealth quintile: the proportion of overweight/obese women increases steadily from 3 per cent in the lowest wealth quintile to 30 per cent in the highest wealth quintile. This is of even greater concern since the cut-offs used in the DHS seem conservative. WHO (2004) has recommended a BMI ≥ 23 kg/m² as the trigger for public health concern (i.e. the definition of overweight) for use in Asian populations (E. C. WHO 2004). With the concerns of preventing and mitigating the increasing burden of NCDs that are related to overweight/obesity ensuring that the nutrition workforce is adequately prepared would seem an important consideration.

There is excellent work being done in the country: the *Suaahara* project and the *Sunaula Hazar Din* project in the pipeline both have multi-sector strategies for addressing the problem of stunting and other indicators of under-nutrition, in line with the MSNP. Furthermore, the *Feed the Future* project is poised to make significant contributions to food security in the country; ANMs are already receiving training in some aspects of community nutrition in their pre-service classes; there is a nutrition curriculum in the first year of the Bachelor’s in Public Health program; the Department of Home Sciences is graduating students with a nutrition degree. However, there is still room for further improvements, to consolidate these on-going efforts through the strengthened national nutrition and food security coordination mechanism under the leadership of the NPC and under the champion of the prime Minister who is a member of the SUN Lead Group. This needs to be coupled of course with concerted effort to ensure that latest state of the art approach to nutrition training is adopted, which is informed by recent advances published in the past 10-5 years.

For Nepal, with such an extensive gap in capacity, the approach is going to have to be equally extensive and will need to cover everything from Job descriptions of field workers to the training of Masters or even Doctors of Public Nutrition capable of leading academic faculties dedicated to the discipline. This will need to be done in a phased manner of course, for it to be feasible. There will have to be different time horizons that define short term, medium term and long term interventions, but each must be started now, even if their impact may not be felt for many years.

To solve these problems, programs and strategies must be developed that will not only improve *individual* knowledge of public health nutrition, but will improve the *organizational* structure of pre-service and in-service education, and develop *systems*

that can sustain the self-sufficiency of the country in human resources with the capacity to plan and implement public nutrition programs, by embedding public health nutrition within national policies and programmes. These capacities have to go beyond the health sector to include the agricultural, educational, and rural/urban development sectors as well.

From a systems perspective, despite a strong government commitment to improve the nutrition status of children and women, there is a gap in specific policies directed at public nutrition. The NHSP-IP 2 the vision statement focuses on improving ‘health and nutrition’ of the population. However, two things may limit the full effectiveness of this: the focus remains on children, although there is to be a growing emphasis on maternal nutrition in recognition of the origins of nutrition problems *in utero*; of the 24 indicators in the Joint Annual Review of the NHSP, only two were nutrition ones (% U5 children underweight, % diarrheal attacks treated with zinc), and the review doesn’t mention ‘nutrition’ or ‘malnutrition’ in the entire document; the government policies until recently have lacked a multisectoral focus, although the recent Multi-sectoral Nutrition Plan (MSNP) (2013-2017) published by the National Planning Commission and embraced by the involved sectors is a major step towards correcting this. In fact, the championing of the nutrition by the NPC, despite its lack of legislative authority, is a strong step toward strengthening the systemic approach to malnutrition in Nepal. The MSNP outlines three major outcomes: *Outcome 1* – Policies, plans and multi-sector coordination improved at national and local levels; *Outcome 2* -- Practices that promote optimal use of nutrition ‘specific’ and nutrition ‘sensitive’ services improved, ultimately leading to an enhanced maternal and child nutritional status; *Outcome 3* – Strengthened capacity of central and local governments on nutrition to provide basic services in an inclusive and equitable manner.

Organizationally there is a need to match the national response of capacity development to these outcomes. As capacity in public health nutrition is recognized as lacking, there must be a well-planned strategy for its improvement. This will start at the field level and at the top levels simultaneously, each informed by the other. Job descriptions must be written (and in many cases as with ANMs, re-written) and jobs created in Public Nutrition in order to stimulate the development of master’s classes in nutrition-augmented majors, and eventually in courses of study leading to a Masters of Public Nutrition. Many faculty members interviewed stated that without job creation, there would be no impetus to turn out graduates in public nutrition. Jobs, outlined above, are needed at the village, District, and national level. This includes Academia where a professional pathway of promotion to full Professor in Public Nutrition should be the ultimate, and at present long-term goal.

In order to define the job descriptions, a set of competencies will be needed (see the WPHNA website, <http://www.wphna.org>), which to be used to define the training courses necessary for each level of staff working in Public Nutrition. Trainers will be needed for field level staff, which dictates the need for trainers of the trainers with adequate knowledge and expertise in public health nutrition.

In order to create this cadre of worker, the future public nutrition work force, there must be graduate and undergraduate courses in public nutrition. These courses will continue to produce Masters level graduates in inter-sectoral disciplines (e.g., in Agriculture, Education, and Health), but new courses in public nutrition in each of these curricula

will yield Masters graduates with a specialization (i.e., 2-3 courses in public health nutrition) in public health nutrition. Although initially, these courses can be taught with assistance from outsider expertise since at present there are no sufficiently trained teachers in public nutrition, this is a temporary solution that should evolve into a national capacity to produce Masters or even Doctorates in Public Nutrition. This will require a re-organization of academic faculties so that within 5-10 years, there should be programs in the country, taught by local faculty, in public health nutrition.

It should be noted that there are presently many online courses in nutrition that might serve to fill the interim gap in domestically based teachers of public nutrition. A word of caution is needed, however: many of these courses are expensive, they may either not be accredited or be unable to give certificates, they may be focused on clinical nutrition and dietetics rather than public nutrition, and they may not be monitored for quality. If these are to serve a key purpose, they must be properly managed, possibly by administrators in a central unit that can oversee and monitor quality and the administration of the courses. Students will still need ‘mentoring’, or some form of face-to-face contact with a teacher, and this is where faculties should prepare through training their own centres for mentoring. Since other countries in the region have the same needs, costs and curricula can be shared between countries and organized around a regional strategy (as with the one being developed by UNICEF with EU support.)

It is clear from the above that some of these steps are short-term interventions that can produce immediate results (e.g., the *Suaahara* project is an example of immediate capacity development of District and community workers), the medium term (e.g., courses in public health nutrition taught in existing Masters level programs) and long-term (e.g., reorganization of faculties to accommodate a career path in public nutrition) all must be started immediately and simultaneously if they are to yield an organizational structure that is self-supportive and sustainable over the next five to ten years. Piecemeal implementation of each step will be self-defeating as each level of organization is intricately dependent on the others for its success.

Conclusions and recommendations

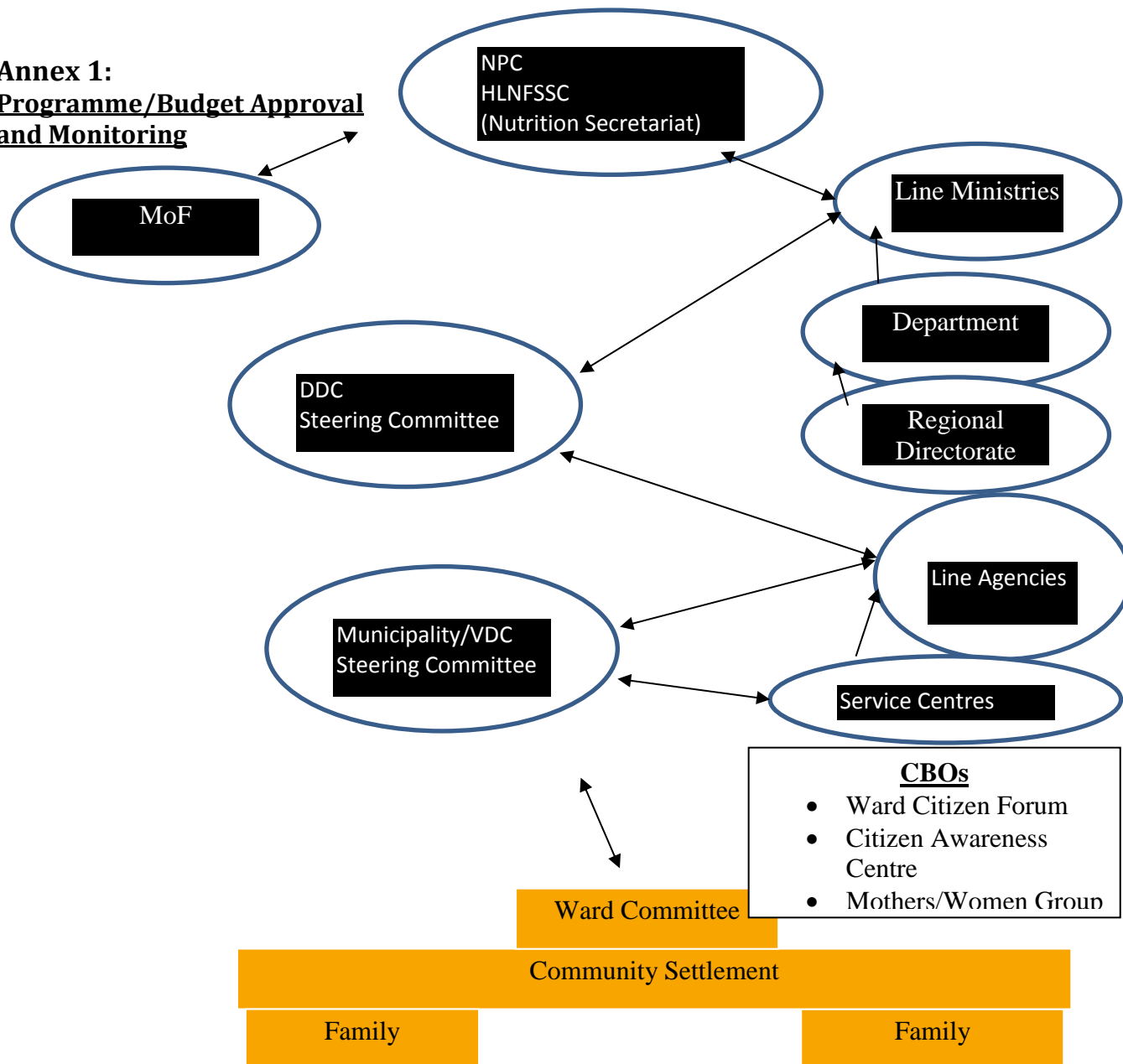
- Nutrition capacity in Nepal is very limited, and most probably out of date. In order to change this situation there is an urgent need to start now taking short, medium and long-term measures to fix this. In the short term there is a need to train the existing workforce, and, especially in the health sector, to rapidly take to scale nutrition specific interventions in a top down fashion in many districts. This can be done in parallel to the more gradual building of the bottom-up integrated approaches in the MSNP selected districts. But unless the organizational and system deficiencies are fixed over the next five to ten years, none of this will be sustainable. At the Individual level there is a need to create immediate in-service training of existing sectoral workers. The *Suaahara* project is making efforts already on this and their experience should be built upon and expanded by others trying similar approaches, be it in Health and/or Agricultural sectors.
- Simultaneously, there is a need to create “on the job training” for the district level nutrition officers that will be created under the National Nutrition Centre. These

could be existing MPH graduates who receive on the job training through distance learning for example. Such an effort should be anchored in one of the current academic faculties in order to ensure “buy in” as well as local mentoring.

- In Academia there is also a need to create a cadre of “modern” population and programme oriented public nutrition professors who can be the future trainers of the public nutrition workforce.
- These steps will allow for short and long-term knowledge transfer and offer mechanisms for skill creation.
- At the Organizational level over the medium term there is a need to revisit all of the information for decision-making processes in national, district and village level decision making for nutrition in each of the sectors and ensure that appropriate nutrition indicators are present.
- This must be supported by appropriate supervisory structures at all levels so that progress in improving the public nutrition situation can be followed, and people can be held accountable.
- At the System Level there is a need to look at how to establish civil service jobs for future graduates, by changing the civil service act as appropriate. In parallel there is a need for a professional association to be created that looks after the process of establishing the nutrition profession, including mechanism of accreditation as proposed by the WPHNA for example.

Annexes

**Annex 1:
Programme/Budget Approval
and Monitoring**

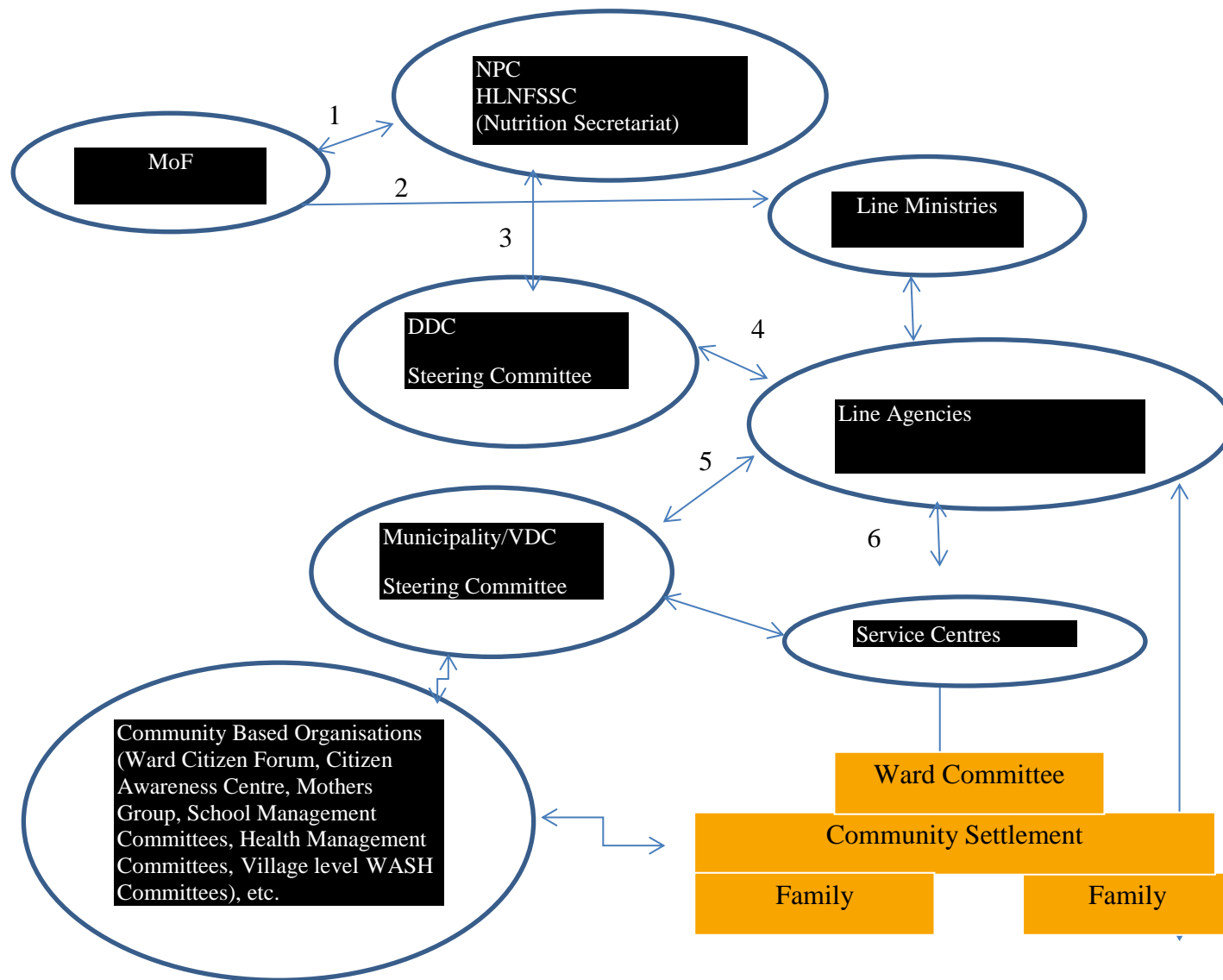


Annual Budget preparation steps are as follows:

- 1: Prepare nutrition programme menu at the municipal/VDC ward level and submit it to the service centres and municipality/VDC.
- 2: organize participatory discussion on the nutrition programme menu at the Municipality/VDC.
- 3: Prepare nutrition programme and budget as per nutrition programme menu and discuss it at the Municipal/VDC Integrated Planning Committee.
- 4: Prepare integrated nutrition programme and budget of the Municipality/VDC.
- 5: Submit the integrated nutrition programme and budget in the Municipal/VDC Nutrition and Food Security Committee for endorsement.
- 6: Submit the integrated nutrition programme and budget in the Municipal/VDC Council for approval.
- 7: Submit integrated nutrition programme and budget of the Municipality/VDC to the relevant line agency.
- 8: Compile sector nutrition programmes and budget from the Municipal/VDC programme budget and prepare sectoral nutrition programme and budget by the line agencies.
- 9: Submit sectoral nutrition programme and budget to the District Nutrition and Food Security Steering Committee for endorsement by the line agency.
- 10: Prepare district nutrition programme and budget by the DDC.
- 11: Submit district nutrition programme and budget in the District Council for approval.
- 12: DDC to submit district nutrition programme and budget to the Regional Directorates, Departments and sectoral Ministries.
- 13: Sectoral ministries to integrate sectoral nutrition programme and budget received from the DDCs and prepare sectoral nutrition programme and budget under conditional grants (central level programmes under regular budget heads and district level programmes under conditional grants).
- 14: Submit their nutrition programme and budget to the HLNFSSC by the sectoral ministries for endorsement.
- 15: Integrate the sectoral nutrition programme budget and submit the National Nutrition Programme and Budget to the Ministry of Finance by the Nutrition Secretariat, NPC as per HLNFSSC decisions.

Once approved, the Ministry of Finance will allocate and release budget to the National Planning Commission Secretariat (Nutrition Secretariat) as per approved district level nutrition sensitive programme and budget (education, WASH, agriculture and local development sector) as conditional grants. Programme and budget of the sectoral ministries and nutrition specific programme and budget of the Ministry of Health and Population will be released through their regular budget heads. National Planning Commission will provide total lump sum budgetary grants to each district as conditional grants to the DDF to implement nutrition sensitive programmes at the district level. District Development Committee will allocate funds from the DDF to the line agencies (education, WASH, and agriculture) as per their approved action plan to implement programmes at the community level especially at the ward level according to the nutrition menu prepared by the Ward Citizen Forum/Citizen Awareness Centre. Line agencies will implement the programmes at the ward level by self or service centres or local bodies in collaboration with the CBOs or through the CBOs

Budget Allocation and Implementation



Annex 2

Figure 1: National Nutrition Architecture

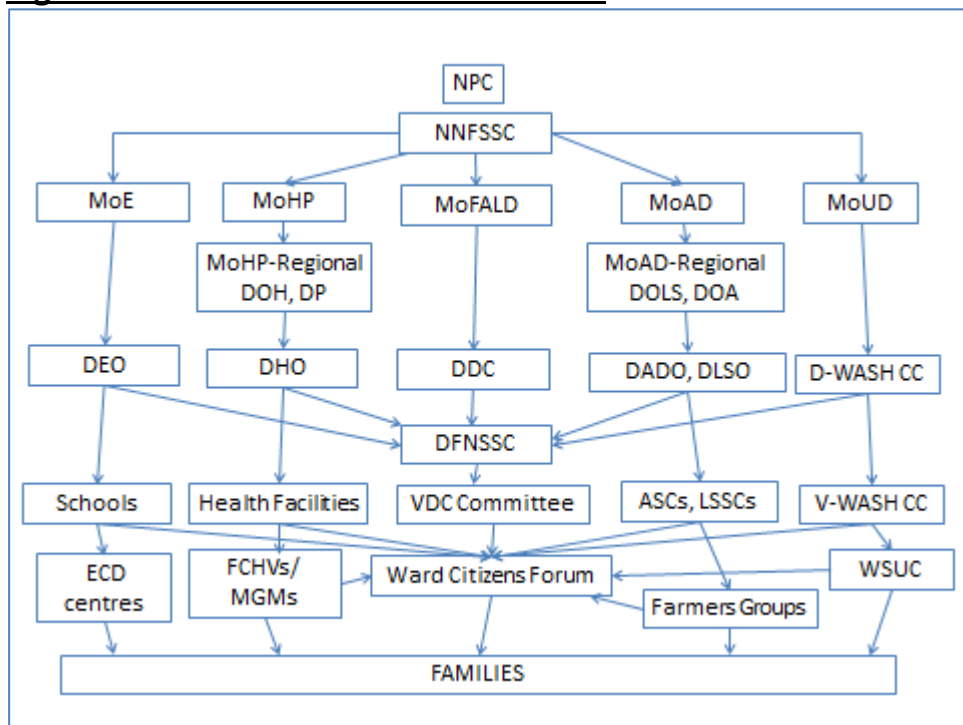


Figure 2: Nutrition Programmatic Model - Local Bodies (for MSNP implementation)

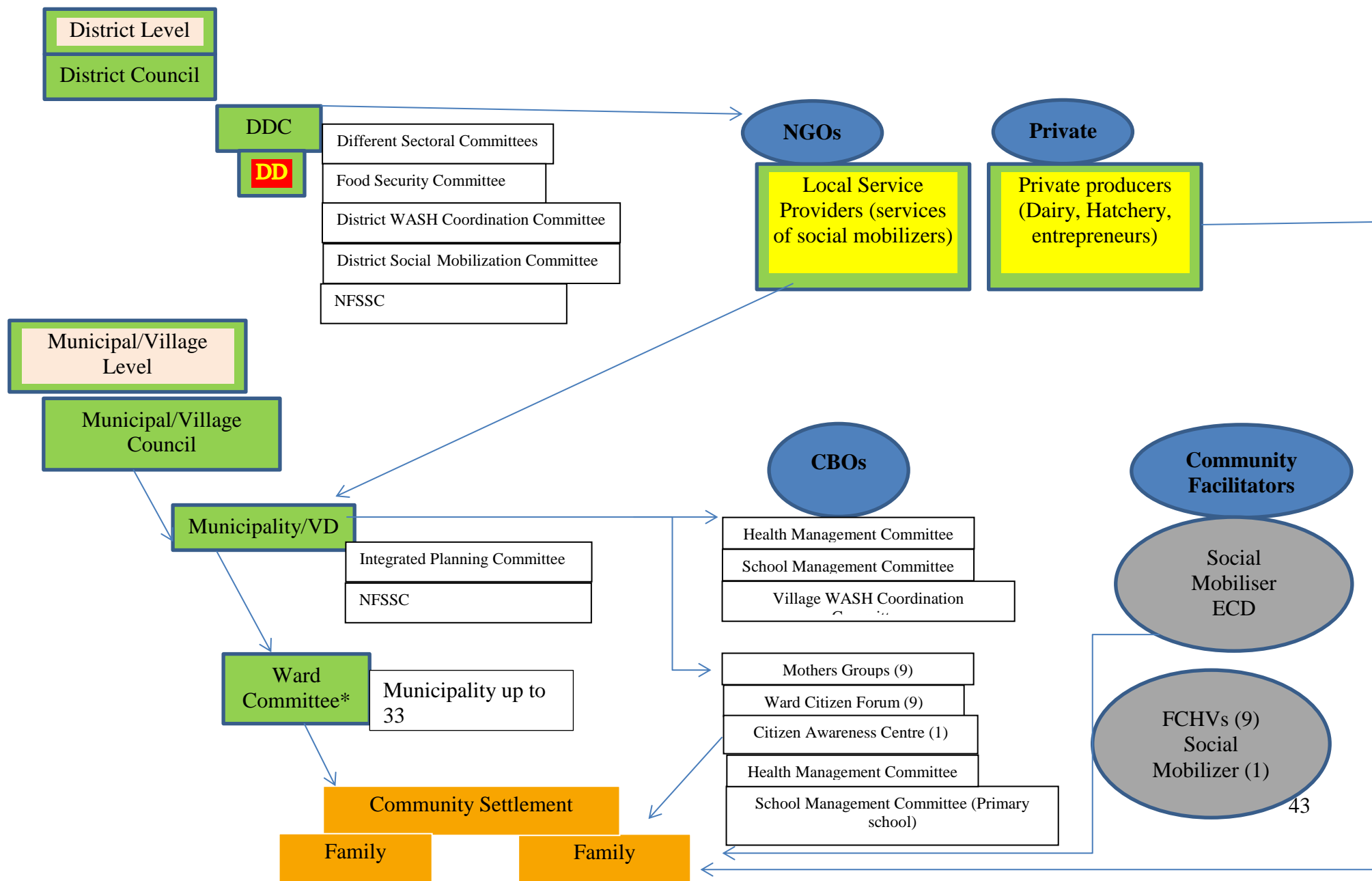


Figure 3: The Spread of Maternal, Infant and Young Child Nutrition Interventions - 2012

Source: UNICEF-EU Program Report, 2012



Figure 4: The spread of Suaahara, Feed the Future, Sunaula Hazaar Din, and NAFSP Interventions

Source: World Bank Program Report, 2012

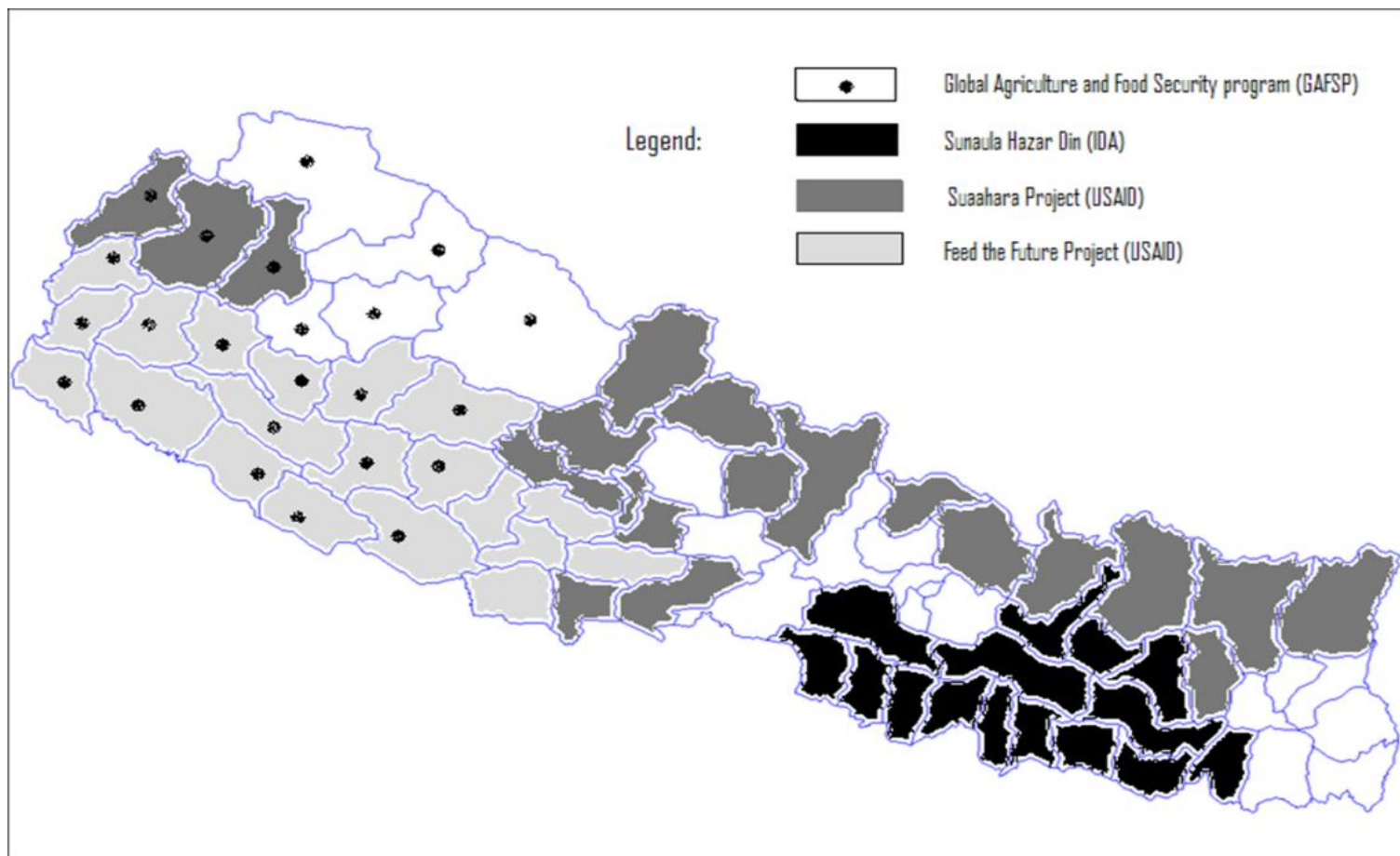
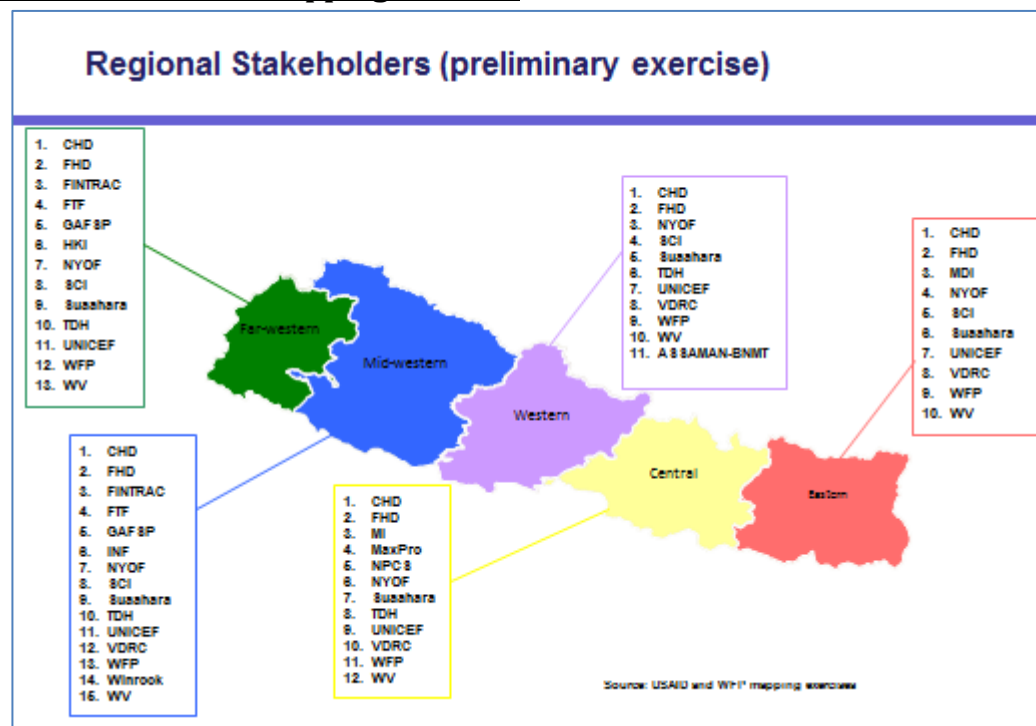


Figure 4: Consolidated Regional Stakeholders Mapping Exercise



Source: REACH Regional Stakeholders mapping exercise, 2012.

Annex 3**Table 1: List of Interviewees and Facilitators**

Name	Institution
Interviewees	
Prof. Jagat Bahadur KC	Former Vice chancellor, PU
Dr.Madhu Dixit Devkota	Institute of Medicine
Dr.Ramesh Kant Adhikari	Member, Technical Team, Nutrition and Food Security Steering Committee, NPC
Dr.Kedar Baral	PAHS
Diplav Sapkota	NCRSP/Tufts
Dr.Sarad Onta	IOM
Dr.J.B Tandan	CTEVT
Kishore	CERID
Nakkul	MoE
Dhirendra Karki	Lead Trainer, Agriculture Directorate
Laxminarayan Deo	NHTC
Rajkumar Pokharel	CHD
Dr.Shiba Kumar Rai	Hon. Member NPC
Dinesh Thapaliya	MoFALD,Joint Secretary
Dr.Uma Koirala	Padma Kanya Campus
Dr.Tirtha Rana	Nepal Public Health Foundation
Tulasa Kharel	Coordinator of Capacity Building Group under AIN
Dr.Resham Bahadur Thapa*	Institute of Agriculture and Animals (IAAS)
Shiva Lal Bhushal	UNICEF, Education Specialist, UNICEF
Eva Ahlen	Chief, Education Section, UNICEF
Andreas Knapp	Chief, WASH Section, UNICEF
Beth Verhey	Chief, Social Policy Section, UNICEF
Facilitators	
Shikha Basnet	Programme Coordinator, NPC/UNICEF
Pradiumna Dahal	Nutrition Specialist, UNICEF
Dr. Saba Mebrahtu	Chief, Nutrition Section, UNICEF
Dr. Steve Atwood	Consultant, UNICEF
Dr. Roger Shrimpton	Consultant, UNICEF/World Bank

*Telephone interview

Table 2: National Nutrition and Food Security Coordination Committee (NNFSCC) Meeting Participants

S.N.	Name	Institution
1	Prof. Dr. Shiba Kumar Rai	Honorable Member, NPC, and Chair of the NNFSCC
2	Purshottam Ghimire	Joint Secretary, NPC
3	Rajkumar Pokharel	Chief, Nutrition Section, CHD
4	Bhaba Krishna Bhattarai	Joint Secretary, NPC
5	Dr. Ram Krishna Khatiwada	DDG, Dept.of Livestock Services
6	Dr. Pradip Chandra Bhattarai	SLDO, Dept .of Livestock Services
7	Debendra Adhikari	Nutrition Specialist, USAID
8	Diplav Sapkota	Country Representative, Tufts N/CRSP
9	Ramadhin Yadav	Undersecretary, MoHP
10	Prof. Dr. Ramesh Kant Adhikari	Member, Technical Team, Nutrition and Food Security Steering Committee, NPC
11	Kapil Ghimire	Managing Director, COMAT
12	Saba Mebrahtu, PhD	Chief, Nutrition Section, UNICEF
13	Shikha Basnet	Programme Assistant, NPC (UNICEF)
14	Jay Lal Tewari	Director, DWC
15	D.B Kandel	S.O, MoFALD
16	Hari Krishna Shrestha	NARC
17	Hastha Bista	MoAD
18	Sanjay Khanal	Program Director, Social Protection, NPC
19	Nataraj Pokharel	Undersecretary,MoCS
20	Pramod Koirala	Senior Food Research Officer, DFTQC
21	Dila Ram Panthi	Planning Officer, NPC
22	Prakash Dahal	Planning Officer, NPC
23	Dr. Manav Bhattarai	Health Specialist, The World Bank
24	Prof. Uma Koirala, PhD	Chair, Nepal Nutrition Foundation
25	Dr. Tek Gurung	Director, Nepal Agriculture Research Council
26	Ramprasad Pulami	Joint Secretary, MoAD
27	Bal Mukunda Shrestha	CDE, MoUD
28	Badri Nath Koirala	Program Director, Agriculture and Rural Development, NPC
29	Dr.Steve Atwood	Consultant, UNICEF
30	Dr. Roger Shrimpton	Consultant, UNICEF/World Bank

Bibliography

- Adhikari, J. (2011), 'Nepal MSNP Framework for the reduction of chronic malnutrition: Agricultural Sector Interventions', (Kathmandu, Nepal: Helen Keller International).
- Alderman, H., Hoddinott, J., and Kinsey, B. (2006), 'Long term consequences of early childhood malnutrition', *Oxford Economic Papers*, 58 (3), 450-74.
- Bentley, M. E. (2010). Responsive Feeding and Child Under-nutrition in Low- and Middle-Income Countries. *J. Nutr.* 141:502-507.
- Bhutta, Z. A. et al. (2008), "What Works? Interventions for Maternal and Child Under-nutrition and Mortality." *The Lancet*. Feb 2;371(9610):417-40
- Codling, K. (2011), 'Accelerating Progress in Reducing Maternal and Child Undernutrition in Nepal', (Washington, D.C. : World Bank).
- Crawford, E. W. (2010), 'Institutional Capacity and Training Needs Assessment for the *Feed the Future* Initiative in Nepal', (USAID, USA: Michigan State University).
- Devkota, K.L. (2009), 'Local Governance and Community Development Programme (LGCDP)', in Fiscal Decentralization & Public Finance Management (ed.), (Kathmandu, Nepal: Government of Nepal).
- Devkota, Madhu Dixit (2012), 'Review and Update of the Nutrition Component: Nursing and Other Health Workers Curricula', (Kathmandu: Ministry of Health and Population).
- Dhungel, D.N., Sapkota, M.R., (2011), 'Decentralization in Nepal: Laws and Practices', (NIBR-rapport 2011:23; Oslo, Norway: Norwegian Institute for Urban and Regional Research).
- Haddad, L. (2000). "A Conceptual Framework for Assessing Agriculture–Nutrition Linkages," *Food and Nutrition Bulletin*, vol. 21, no. 4: 367-373.
- Hoddinott, J., et al. (2008), 'Effect of a nutrition intervention during early childhood on economic productivity in Guatemalan adults', *Lancet*, 371 (9610), 411-6.
- Hughes, R., et al. (2012), 'Commentary: Empowering our profession', *World Nutrition*, 3 (2).
- Government of Nepal (GoN)/National Planning Commission (NPC). (2012) Multi-sector Nutrition Plan for Accelerated Reduction of Maternal and Child Under-nutrition in Nepal, 2013-2017 (2023). Kathmandu, Nepal.
- Khatriwada, P.P. (2012), 'Nepal: Domestication of Treaties. What about Implementation? ', (Kathmandu, Nepal: Human Rights Alliance).
- Lozoff, B., Jimenez, E., and Smith, J.B. (2006), 'Double burden of iron deficiency in infancy and low socioeconomic status: a longitudinal analysis of cognitive test scores to age 19 years', *Archives of Pediatrics & Adolescent Medicine*, 160 (11), 1108.
- Mason, J., Mebrahtu, S. and Horjus, P. (2010), "Child Nutrition in Vulnerable Populations in Eastern and Southern Africa, 2000-2006" (ed.), *Food and Nutrition Bulletin*. Vol. 31. No. 3.
- Mason, J., Sanders, D., Musgrove, P. (2006), 'Community health and nutrition programs', in D. T. Jamison, Breman, J., Measham, AR (ed.), *Disease Control Priorities in Developing Countries* (second edn.; Washington, D.C.: World Bank).
- Mason, J.B., et al. (1996), 'Public nutrition', *The American journal of clinical nutrition*, 63 (3), 399-400.
- Mebrahtu, S., Pelletier, D., and Pinstrip-Andersen, P. 1995. "Agriculture and Nutrition." In: Pinstrip-Andersen, P., D. Pelletier, and H. Alderman, eds., *Child Growth and Nutrition in Developing Countries: Priorities for Action*. Ithaca: Cornell University Press.
- MoES-GON (2008), 'School Sector Reform - Core Document: Policies and Strategies', in Ministry of Education and Sports (ed.), (Kathmandu: Government of Nepal).
- MoHP, NewEra, ICF (2012), 'Nepal Demographic and Health Survey 2011', (Kathmandu, Nepal: Ministry of Health and Population).
- MoHP-GON (2010), 'Nepal Health Sector Programme - Implementation Plan II (NHSP-IP 2) 2010-2015', (Kathmandu, Nepal: Government of Nepal).
- (2012a), 'National Nutrition Centre: Concept Note', in Department of Health Services / Child Health Division (ed.), (Kathmandu, Nepal: Government of Nepal).
- (2012b), 'Nepal Health Sector Program II (NHSP II) The Second Joint Annual Review (JAR), Aide-Memoire', (Kathmandu, Nepal: Ministry of Health & Population).

Nepal National and District Nutrition Capacity Assessment – version 2

- NewEra/USAID/GoN (2008), 'An Analytical Report on Female Community Health Volunteers of Selected Districts of Nepal', (Kathmandu, Nepal: Government of Nepal).
- NFN (2012), 'Food and Nutrition Security in Nepal: National Status from the Perspectives of Civil Society', (Kathmandu, Nepal: NGO Federation of Nepal).
- Nishida, C. (2009), 'Landscape analysis on countries' readiness to accelerate action in nutrition', *SCN News*, (37), 3-9.
- NPC-GoN (2012), 'Nutrition and Food Security Secretariat: Concept Note', in National Planning Commission (ed.), (Kathmandu, Nepal).
- NPC/UNDP (2011), 'Millennium Development Goals, Needs Assessment for Nepal 2010', in UNDP (ed.), (Kathmandu, Nepal: National Planning Commission, Government of Nepal).
- Onta, S. (2003), 'CARE Nepal Child Survival Project: Knowledge, Practice and Coverage Final Survey in Kanchanpur District, Nepal', (Kathmandu: CARE Nepal).
- Pahari, D.P. (2012), 'Chronological Summary of Nepal's Efforts in Nutrition', *Health Prospect*, 10, 91-94.
- Pahari, DP, Bastola, SP, and Paudel, R. (2011), 'Factors affecting retention of child health card in a rural area', *Journal of Nepal Health Research Council*, 9 (2), 154.
- Pelletier, D.L., et al. (2012), 'Nutrition agenda setting, policy formulation and implementation: lessons from the Mainstreaming Nutrition Initiative', *Health Policy and Planning*, 27 (1), 19-31.
- Pokharel, Raj Kumar et al. (2009), 'Nepal Nutrition Assessment and Gap Analysis', (Kathmandu, Nepal: Ministry of Health and Population).
- Riggs-Perla, J., Adhikari, M., Adhikari, R.K., et al. (2011), 'Nepal Family Health Program (NFHP) II Evaluation', (Kathmandu: USAID-Nepal).
- Sharma, A. K., Muwonge, A., (2010), 'An Opportunity to improve Service Delivery in Nepal through Local Governance', *Fifth Annual Himalayan Policy Research Conference* (Nepal Study Center: University of New Mexico, University of Wisconsin).
- Sharma, S.R. (2012), 'NEPALESE EDUCATION IN 2030', *Peaceful and Prosperous Nation*, 163.
- Shrimpton, R., Ghimire, K. (2012a), 'Capacity building to strengthen local government and community participation in multi-sectoral nutrition programmes in Nepal', (Draft edn.; Kathmandu: World Bank).
- Shrimpton, R., Hughes, R., Recine, E., Mason, J., (2012b), 'Nutrition Capacity Development: Invited Commentary', *Journal of Public Health Nutrition*.
- SOLID/Nepal (2012), 'Barriers to Effective Policy Implementation and Management of Human Resources for Health in Nepal: Human Resources for Health Management from Central to District Level', (Lalitpur, Nepal: SOLID Nepal, MERLIN, EU).
- Spiro, D., Devkota, M., Rana, PP, Blechynden, K (2010), 'National Health Sector Support Program Capacity Assessment for Nutrition ', (Helen Keller International).
- SUN (2011), 'Scaling Up Nutrition: Progress Report from countries and their partners in the Movement to Scale Up Nutrition (SUN)', in D Nabarro (ed.), (New York: United Nations).
- SUN (2010). "Scaling Up Nutrition: A Framework for Action." Available at: http://www.unscn.org/files/Announcements/Scaling_Up_Nutrition-A_Framework_for_Action.pdf
- Suvedi, M., McNamara, P (2012), 'Strengthening the Pluralistic Agricultural Extension System in Nepal: A MEAS Rapid Scoping Mission, December 2011', (USAID Nepal).
- Thapa, T.B. (2010), 'Agricultural Extension Services Delivery System in Nepal', (Pulchowk, Nepal: Food and Agriculture Organization of the United Nations).
- UNDP (2011), 'Human Development Report 2011 - Sustainability and Equity: A Better Future for All', (United Nations, NY: UNDP).
- UNDP-Nepal (2009), 'Nepal Human Development Report 2009: State Transformation and Human Development', in UNDP (ed.).
- UNESCO (2011), 'World Data on Education: Nepal', (VII edn.; Paris, France: UNESCO).
- UNICEF (2010), 'Progress for children: Achieving the MDGs with Equity', (Number 9; UNICEF NY).

Nepal National and District Nutrition Capacity Assessment – version 2

- (2011), 'Evaluation of UNICEF's Early Childhood Development Programme with Focus on Government of Netherlands Funding (2008-11): Nepal Country Case Study Report', (New York: UNICEF Evaluation Office UNICEF).
- USGov (1980), 'Position Classification Standard for Dietitian and Nutritionist Series GS-0630', in Office of Personnel Management (ed.), (Dietitian and Nutritionist Series, GS-0630; Washington, D.C.: US Office of Personnel Management).
- Vance, G. (2012), 'Review of Information Systems in Nepal: the Multi-Sector Nutrition Plan and Early Warning Detection', (Kathmandu, Nepal: UNICEF/NPC).
- WHO (2010), 'Regional Workshop on National Nutrition Surveillance', (New Delhi: WHO SEARO).
- WHO, E.C. (2004), 'Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies', *Lancet*, 363 (9403), 157.
- World Bank (2012), 'Implementation Status & Results, Nepal, Second Higher Education Project (P090967)', (Washington, DC USA: University Grants Commission, Ministry of Education, Tribhuvan University).