

# Nutrition Degrees In Nepal: A Review of Current Offerings and Gaps

## Introduction

The Government of Nepal (GoN) has made a major commitment to improving the nutritional status of its population. For example, Nepal was one of the earliest countries to join the Scaling up Nutrition (SUN) Movement. As a SUN country, Nepal has articulated a clear strategy for scaling up direct nutrition interventions as well as identifying multi-sector strategies for improving nutrition. To this end, GoN in September 2012 released its Multi-Sector Nutrition Plan (MSNP) that will guide the government's investment for the period 2013 to 2017.

One consistent message in the government's strategy to seek to employ both direct nutrition interventions and nutrition-sensitive policies and programs is the imperative need to invest in capacity building. The Nutrition Assessment and Gap Analysis' (NAGA) review of 2008 stated that the nutrition knowledge and skills at all levels of government needs to be enhanced, and that nutrition-related components of advanced training curriculum should be strengthened. Similarly, the MSNP cites the modest capacity of nutrition-related staff and institutions as a challenge. Equally pertinent is recognition that there is "almost total lack of formal courses within the country for providing training in nutrition."

An initial step in developing a framework for capacity investment is the identification of undergraduate and graduate degree granting programs in nutrition currently operating in Nepal. The Nutrition Collaborative Research Support Program (Nutrition CRSP) conducted a stocktaking of degree programs in Nepal. This information is intended to feed into a longer term effort to support capacity building, at all levels, in Nepal.

## Taking Stock of Nutrition Curricula in Nepal

The Nutrition CRSP team conducted a desk review of degree programs at the bachelor's and master's level in Nepal. The desk review was supplemented by interviews with key informants, including the National Planning Commission (NPC), Technical Advisory Committee (TAC). A list of people interviewed is shown in Table 1. A range of institutions are currently involved in degree-granting in nutrition and/or public health. The principal among these include:

- Institute of Medicine, Tribhuvan University
- Padma Kanya Campus, Tribhuvan University
- School of Health and Allied Science, Pokhara University
- B.P. Koirala Institute of Health Sciences
- Purvanchal University

## Undergraduate Degree Programs

Pokhara University, School of Health and Allied Science, Faculty of Science and Technology offers a Bachelor of Public Health (BPH) degree. The goal of this program is to produce public health graduates who acquire academic, technical and practical skills. The degree stresses applied health sciences, laboratory work and application. This is a 4-year degree program. The curriculum for this program is shown in Table 2.

Worth noting, there are two courses specifically addressing nutrition: Food and Nutrition I offered in the fourth semester and Food and Nutrition II offered in the fifth semester. Topics covered in the former course include: introduction to basic food science and nutrition; metabolism of macronutrients; nutritional requirements of different age groups; and assessment of nutritional status. Topics in the latter course includes food hygiene, food processing, and food adulteration; nutrition and diseases; nutrition programs in Nepal; poverty, food security and nutrition; and food quality control. Each of these also includes an additional lab session. In addition, the curriculum includes a number of courses indirectly linked to nutrition such as Public Health, Epidemiology, Environmental and Occupational Health, Child Health, Reproductive Health, and Special Topics in Health and Nutrition (see Table 2). The program is intended for graduates who wish to pursue careers in health organizations, health centers, hospitals, and education and research organizations.

The following colleges affiliated with Pokhara University also offer a BPH degree:

1. National Open College, Sanepa, Lalitpur
2. LA Grande International College Simalchaur, Pokhara (formerly known as Pokhara College of Technology)
3. Nobel College, Sinamangal, Kathmandu
4. Central Institute of Science and Technology College (CIST), Naya Baneshwor, Kathmandu
5. Palpa College of Medicine, Palpa, Lumbini

Purvanchal University has initiated a bachelor's program in health sciences. The stated aim of this degree program is to prepare professional public health specialists with technical and managerial skills that can be used at the district level health programs. The courses for the degree program are shown in Table 3. The degree course is designed for a 3-year period. The emphasis is on general public health; however, the first year does include a specific course on food and nutrition (see Table 3). Units devoted to this section involve basic food science and nutrition; nutritional requirement of various age and sex groups; assessment of nutritional status; nutritional interventions; food hygiene; food processing and food adulteration, nutrition programs in Nepal; nutrition survey; national plans and policies; sociocultural aspect of food and nutrition.

The following colleges affiliated with Purvanchal University also offer BPH degrees:

1. Hope International College, Satdobato, Lalitpur
2. Asian College for Advanced Studies, Satdobato, Lalitpur
3. National Academy for Medical Sciences (NAMS), Purano Baneshwor, Kathmandu
4. Chakrabarti Habi Education Academy, Rajkuloraod, Thimi, Bhaktapur

5. Nepal Institute of Health Sciences, Bouddha, Tushal, Kathmandu
6. Yeti Health Science Academy, Panipokhari, Kathmandu
7. Shree Medical & Technical College, Bharatpur, Chitwan
8. Koshi Health & Science Campus, Biratnagar
9. Little Buddha College of Health Sciences, Gyaneshor, Kathmandu
10. Valley College of Technical Sciences, Midbaneshor, Kathmandu
11. Karnali College of Health Sciences, Ratopul, Kathmandu
12. Oasis Medical College, Chitwan: 3 years, 40 seats
13. Sanjeevani Nursing College, Rupandehi: 40 seats
14. Saptarishi Health Science College, Rajbiraj
15. Unique Educational Academy, Umlabari
16. Om Health Campus, Chabahil, Kathmandu
17. Birat Health College and Research Centre, Biratnagar, Morang
18. Eden Berg International College, Biratnagar, Morang

Tribhuvan University's Institute of Medicine, Maharajgunj recently revised its BPH curriculum in response to the epidemiological transition taking place in Nepal. Rapid urbanization, changing lifestyle, increased mobility, and climate changes are contributing to the double burden of diseases. Competencies to address these challenges and better equip the health work force are reflected in the revised curriculum.

The aim of the degree program is to provide graduates to with a solid foundation in public health, understand the behavioral, sociocultural, and economic dimensions of health and diseases, analyze and manage health systems through the public health lens, and conduct rigorous research to generate evidence for decision making. A food and nutrition course is offered in Year 1 with the aim of imparting knowledge and understanding of the relationship between food, nutrition, and health. It provides an introduction to food science and nutrition, nutritional requirements at different stages of life, nutrition deficiency diseases, assessment of nutritional status, nutrition interventions, food processing, hygiene, and adulteration, an overview of the nutritional policies, strategies, and programs in Nepal, the socio-cultural aspect of food and nutrition, and nutrition survey and research. It is worth noting that the BPH curricula in all three universities are comparable. The 4-year program is designed to generate graduates who can serve as government public health experts at the different levels, I/NGOs, and research institutions. See Table 4 for course listings.

The following colleges affiliated with Tribhuvan University also offer BPH degree:

1. Manmohan Memorial Institute of Health Sciences, Nakkhu, Lalitpur
2. Om Health Campus, Chabahil, Kathmandu (previously affiliated with Purbanchal University)
3. Chitwan Medical College, Bharatpur, Chitwan
4. SANN Research Institute, Kathmandu

Padma Kanya Multiple Campus, through its Central Department of Home Science & Women's studies, offers a Bachelor of Arts degree with courses on food and nutrition, diet therapy, and community nutrition. The food and nutrition course provides a background in food organic chemistry, food science

and nutritional deficiencies. The diet therapy course is specifically designed for dietitians to train them on the root causes of various diet-related problems and dietary management of patients. The community nutrition deals with assessment of nutritional status at the community level and improving nutritional knowledge, behaviors, and practices. See Table 5 for course listings.

## Master's Degree Programs

The School of Public Health at the B.P. Koirala Institute of Health Sciences offers a master's degree in Public Health requiring a 2-year period. The degree program has a strong emphasis on training individuals who will manage health systems at different levels. The courses that are part of this degree are shown in Table 6. While there is no free-standing nutrition course, a section in the family health module delves into nutrition.

Tribhuvan University's Institute of Medicine, Maharajgunj, through the Department of Public Health and Community Medicine, offers a master's degree in Public Health requiring a year for completion. The emphasis is on providing candidates with community orientation and problem-solving skills and training multidisciplinary health professionals who can support the government's national health policy and primary health care goals. A specialized curriculum for nutrition is currently being discussed, in the absence of which, courses on 'food' under the Environmental Health and Disease Control and on 'child health' and 'nutrition and health' under the Family Health module provide an overview on nutrition (see Table 7).

Padma Kanya Multiple Campus, through its Central Department of Home Science & Women's Studies, offers a Master of Arts degree with a two year's specialization course in Food and Nutrition. It is worth noting that, at present, this is the only nutrition specialization course offered. The focus is on community nutrition, dietetics, and applied nutrition. There is also a strong gender component to the program as well as institutional food management, and food and nutrition research (see Table 8).

Chitwan Medical College and National Medical College, Birgunj have recently started offering Master of Public Health (MPH) degrees following Tribhuvan University Institute of Medicine, Maharajgunj, curriculum.

Patan Academy of Health Sciences is also designing a MPH program that will also offer a specialization in nutrition. The degree is not yet offered since the curriculum is currently under the finalization process.

## Challenges Going Forward

Nepal has a strong foundation for degrees related to public health and nutrition at both the undergraduate and master's degree level. A critical challenge is that the demand for graduates in public health/nutrition is significantly greater than the supply of individuals with this training. In part, this high demand reflects the range of programs ongoing in Nepal that requires these technical skills. Large scale programs such as USAID's Suaahara, Feed the Future, the GoN NPC (National Planning Commission) through the development of the MSNP, line ministries and district departments of health, agriculture, local development, such as Scaling up Nutrition as well as international Non-Governmental

Organizations (iNGOs) have collectively increased the need for staff trained in public health and nutrition at both central and district level. Thus, the need is of both advanced skills sets as well as frontline skill sets. In the longer term, the current degree granting programs could be expanded and new programs created in additional universities and institutions. However, in the shorter term, GoN could identify innovations and nontraditional approaches for filling the gaps in nutrition training. Use of distance learning could be one such alternative. Needs at the district level are acute, given the decentralized responsibility for implementing national programs like the MNSP. In this case, field-level, skills-based training involving multiple (local) sectors is likely to be needed.

The MSNP notes that the deficit in nutrition capacity provides a challenge as well as an opportunity. The challenge is clear. The opportunity, however, may be less clear. The opportunity lies in reassessing the types of training and capacity that are now required. The review of bachelor's and master's degree programs showed that the curricula are heavily weighted toward clinical nutrition. With the renewed emphasis on nutrition policies and programs in Nepal, an expanded skill set is needed to address the complexity of issues being addressed. The MSNP illustrates the need for professionals skilled in nutrition but also able to work across sectors. The current degree training in nutrition would address the expanded capacities needed by incorporating training in communications, leadership, program design and delivery.

A majority of individuals interviewed for this report stressed the essentiality of applied nutrition/field experience as part of all degree training in nutrition. The capacity needs in Nepal exist at many levels. Figure 1 illustrates the vertical links between national, district, VDC and ward level. Here again, the MSNP emphasizes that there needs to be an increase in knowledge in nutrition among key staff at central and local levels. In addition, the cross-sectoral approach for nutrition-sensitive development dictates that nutrition skills need to develop in agriculture, education, planning and local government. The government has identified an output related to capacity against which to measure the effectiveness of the MSNP. Specifically this is a “capacity of national and subnational levels enhanced to provide appropriate support to improve maternal and child nutrition.”

The government has committed to developing a comprehensive plan for capacity building in nutrition. The Nutrition CRSP is one resource the government will rely on for this capacity building roadmap.

**Table 1: List of Individuals Interviewed**

Name	Designation	Organization
Prof Dr. Shiba Kumar Rai	Hon. Member NPC	National Planning Commission
Mr. Atmaram Pandey	Joint Secretary (Social Dev. Division)	National Planning Commission
Dr. Tirtharaj Burlakoti	Acting Secretary	MoHP
Mr. Hari Koirala	Senior Nutrition Specialist	USAID
Mr. Debendra Adhikari	Nutrition Specialist	USAID
Mr. Jibachh Mishra	Director	MoE, Food for Education Project
Dr. Tirtha Rana	Public Health Specialist	Nepal Public Health Foundation
Prof. Kanti Lata Bhandari	Professor	Tribhuvan University
Dr. Amit Bhandari	Health Advisor	DFID
Mr. Pramod Koirala	Senior Officer	DFTQC
Mr. Raghu Ghimire	Expert, NPC	Civil Society
Dr. Indira Sharma	Professor	Tribhuvan University
Dr. Uma Koirala	President	Nepal Nutrition Foundation
Prabha Baral	Senior Officer	National Planning Commission
Dr. Kedar Baral	Professor	Patan Academy of Health Sciences
Dr. Sharad Onta	Dean, Dept of Community Medicine and Public Health	Institute of Medicine, Maharajgunj
Mr. Birendra K. Yadav	Assistant Professor	B.P. Koirala Institute of Health Sciences

**Table 2: Courses for the Bachelor of Public Health degree, Pokhara University**

<p><b>Year One – Semester One</b>  Introduction to Public Health  Anatomy and Physiology  Pharmacology, Pharmacy and Biochemistry  Microbiology and Immunology  Technical English  Bio-Statistics and Computer Application</p>	<p><b>Year One – Semester Two</b>  Pathology and First Aid  Toxicology and Entomology  Bio-Statistics and Computer Application -II  Basic Epidemiology-I  Public Health</p>
<p><b>Year Two – Semester One</b>  Health Systems Development II  Introduction to Sociology and Anthropology  Applied Epidemiology I  Health System Development I  Health Promotion and Education</p>	<p><b>Year Two – Semester Two</b>  Applied Epidemiology II  Medical Sociology and Anthropology  Environmental and Occupational Health  Food and Nutrition I  Applied Health promotion and Education</p>
<p><b>Year Three – Semester One</b>  Applied Environmental and Occupational Health I  Food and Nutrition II  Human Resource Development  Primary Health Care in Nepal  Health System Development II</p>	<p><b>Year Three – Semester Two</b>  Research Methodology  Family Health  Applied Child Health  Applied Environmental and Occupational Health II  Community Diagnosis</p>
<p><b>Year Four - Semester One</b>  Health Planning and Policy Development  Health Economics  Health System Research and Computer  Software Application  Comprehensive Field Practice  Health Seminar and Special Topics</p>	<p><b>Year Four - Semester Two</b>  Special Topics in Epidemiology (Any Two)  Special Topics in Nutrition and Health  Special Topics in Topics in Health Systems  Special Topics in Occupational Health  Special Topics in Environmental Health  Special Topics in Child Health  Special Topics in Health Economics  Special Topics in Reproductive Health  Special Topics in Primary Health Care  Special Topics in National Health Priorities Areas  Special Topics in Health Technology/ Public Health</p>



**Table 3: Courses for the Bachelor of Public Health degree, Purvanchal University**

<p><b>Year 1</b></p> <p>Applied Sciences and First Aid            Biostatistics and Computer Application            Fundamentals of Epidemiology            Public Health Laboratory Science - I            Public Health Laboratory Science – II            Public Health, Primary Health Care and Community            Health Development            Food and Nutrition</p>	<p><b>Year 2</b></p> <p>Applied Sociology and Anthropology            Environment and Health            Applied Epidemiology            Public Health Administration and Health Economics            Introductory Health Education and School Health            Family Health, Reproductive Health and Demography            Community health Diagnosis</p>
<p><b>Year 3</b></p> <p>Public Health Research            Applied Environmental Health, Occupational Health            and Safety            Human Resource Development            Health Services Management in Nepal            Applied Health Education and Oral Health            Applied Family Health, Reproductive Health and            Mental Health            Comprehensive Field Practice</p>	

**Table 4: Courses for the Bachelor of Public Health degree, IOM**

<p><b>Year 1</b></p> <p>Basic Science 1            Basic Science 2            Biostatistics            Population studies and Informatics            Food and Nutrition            Environmental Health I            Public Health and Primary Health Care</p>	<p><b>Year 2</b></p> <p>Family Health I            Health Promotion and Education I            Epidemiology I            Environmental Health and Occupational Health I            Medical Sociology and Anthropology            Public Health Administration and Management I</p>
<p><b>Year 3</b></p> <p>Family Health II            Health Promotion and Education II            Epidemiology II            Health Economics and Health Financing            School and Community Health            Public Health Administration and Management II</p>	<p><b>Year 4</b></p> <p>Public Health Research Methodology and Public Health            Project Planning and Development            Health System Management and International Health</p>



**Table 5: Nutrition Courses, B.A., Padma Kayan Campus Listings, IOM**

<p style="text-align: center;"><b>Food and Nutrition</b></p> <p>Unit 1 Introduction  Unit 2 Food Chemistry  Unit 3 Nutrition Deficiency Diseases  Unit 4 Meal Planning and Selection of Food  Unit 5 Improving Nutritional Quality of Food  Unit 6 Cooking Methods and Its Effects on Nutrients  Unit 7 Food Budgeting, Purchasing, and Storage</p>	<p style="text-align: center;"><b>Diet Therapy</b></p> <p>Unit 1 Normal and Modified Diet  Unit 2 Dietary Treatment During Special Condition  Unit 3 Dietary Treatment in Health Condition  Unit 4 Food Item Based on Nutrient Density  Unit 5 Planning and Calculation of Nutritive Value of Diet Using Food Composition Table</p>
<p style="text-align: center;"><b>Community Nutrition</b></p> <p>Unit 1 Causes of Nutritional Problems  Unit 2 Causes, Situation, and Treatment of Micronutrient Deficiency Disorders  Unit 3 Protein Energy Malnutrition  Unit 4 Assessment of Nutritional Status  Unit 5 Nutritional Education in the Community  Unit 6 Breastfeeding and Weaning Practices  Unit 7 Planning and Implementation of Nutrition Research in Rural Community</p>	

## Master of Public Health degree (MPH) Courses

### Table 6: BP Koirala Institute of Health Sciences

#### FIRST SESSION

- Epidemiology
- Biostatistics and Computer Application
- Social and Behavioral Sciences
- International Health & PHC
- Occupational and Environmental Health

#### SECOND SESSION

- Research Methods in Public Health
- Health Economics
- Family Health
- Health Management
- Seminar on Recent Advances in Public Health

#### THIRD SESSION

- Thesis

#### FOURTH SESSION

- Public Health Practice (3 months)
- Electives (3 months)

#### **Nutrition Topics covered (under Family Health module):**

- Food groups
- Concept of food composition, food fortification, food supplementation
- Breastfeeding and supplementary feeding—importance, pattern, problems, programs, strategies and innovative ideas to combat problems related to breastfeeding and supplementary feeding.
- Nutrients digestion, absorption and metabolism (in brief)
- The nutrients and their functions—carbohydrate, protein, fat, minerals and vitamins
- Anti-nutritional factors—food additives, food adulteration, food quality control systems
- Factors affecting nutritional status of the people
- Balanced diet and nutritional requirements through the lifecycle
- Major nutritional problems in Nepal
- Methods of nutritional assessment
- Nutrition intervention, programs and policies in Nepal
- Nutrition rehabilitation
- Nutrition program, planning and management

**Table 7: Tribhuvan University, Institute of Medicine, Maharajung**

Modules of the Course
I Epidemiology
II Biostatistics and Computer Application
III Environmental Health and Disease Control*
IV Medical Sociology, Anthropology and Population Studies
V Family Health**
VI Health Promotion and Health Education.
VII International Health and Primary Health Care
VIII Research Methods in Health Sciences
IX Health Systems management
X Dissertation

\*Consists of a unit in Food: concepts of food security, food balance, and nutrition supply; food quality in Nepal, food quality assurance; and food treaties related to food security.

\*\*Consists of a unit in Child Health: major causes of childhood morbidity and mortality; evidence-based approaches for breastfeeding and supplementary feeding;

Consists of a unit in nutrition and health: nutritional needs at community level; current nutrition policies and strategies of the government of Nepal; program implementation and the involvement of the NGO and private sectors; and legislative issues and quality control regarding food production, transportation, marketing, and consumption.

**Table 8: Padma Kanya Campus**

Year 1	Year 2
Human Nutrition	Diet and Disease
Community Nutrition	Institutional Food Management
Public Health Nutrition and Gender Study	Research Methodology
Food Science and Quality Control	Food and Nutrition Research
Nutritional Biochemistry	Thesis

Figure 1: Vertical and Horizontal Linkages MSNP

