NEPAL HEALTH RESEARCH COUNCIL
(NHRC)

ANNUAL REPORT

Fiscal Year 2068/69
(17 July 2011 – 15 July 2012)

NHRC

Government of Nepal

FOREWORD

Nepal Health Research Council (NHRC) is an autonomous body under the Ministry of Health and Population, Federal Democratic Republic of Nepal. NHRC was established in 1991 by an Act of Parliament and was given the responsibility to promote and coordinate health research for improvement of the health status of people of Nepal. NHRC aims to create conducive environment for health research and helps the researchers and research institutions in enhancing their research capacity.

NHRC has been providing health research grants, conducting research trainings workshops and dissemination programs to promote research activities. In order to carry out the activities NHRC receive funding support from the Government of Nepal/Ministry of Health and Population, World Health Organization, Maryknoll Fathers and Brothers, UNFPA and UNICEF for research and training programs.

It is my great privilege to bring out the annual report of the NHRC for the fiscal year 2068/69 (17 July 2011 – 15 July 2012). This report reflects the activities implemented within the year and it has also highlighted the achievement accomplished to share information about the research activities. In order to promote health research and improve utilization of the research findings for the development of health policy of Nepal.

I would like to express my sincere thanks to all the institutions and individuals who supported NHRC to carry out its activities.

Lastly, I would like to give my thanks to all the NHRC staff for their great effort for publishing this annual report.

Prof. Dr. Chop Lal Bhusal
Executive Chairman
Nepal Health Research Council

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1. INTRODUCTION

Nepal Health Research Council (NHRC) is the national apical body for promoting health research across the country. NHRC was established in 1991 by an Act of Parliament and was given the responsibility to promote and coordinate health research for improvement of the health status of people of Nepal.

It has focused its attention on research capability strengthening through training of individual on research methods in order to develop a critical mass of people who can develop good quality research proposals. It serves as the main national institution responsible for technical and ethical review of proposals submitted by individual health researchers, national authorities, NGO, INGO's and universities. After appropriate review these proposals are approved by NHRC. The aim of NHRC has been to maintain high levels of technical and ethical standards of research carried out in Nepal.

NHRC has been providing health research grants to the researchers in order to enhance the research activities throughout the country. It also conducts research trainings, workshops and dissemination programs in development regions to promote research activities and research. NHRC also facilitates access to research finding from different research reports, journals, books, magazines etc. through the library and digital data base.

2. OBJECTIVE OF THE NHRC ANNUAL REPORT

The main objective of publishing the NHRC annual report of the fiscal year 20068/69 (17 July 2011 – 15 July 2012) is to compile all the activities in a systematic order and to disseminate the information about the research activities. It is stated in Nepal Health Research Council's Act, 1991 Section 17 that Council shall have to submit an annual report of its activities to Government of Nepal within six months from the end of the fiscal year.

3. NHRC MAJOR ACTIVITIES

3.1 Health Research Grants (UG / PG Grants)

NHRC has been supporting and encouraging researchers and students to conduct research by providing several grants under various titles. Grants are specifically focused to encourage and support researchers who intend research on the priority health related areas. Grants are provided to the Under Graduate and Post Graduate students to promote health research culture and to create more research activities within the country. The grants are provided with the support of the World Health Organization (WHO).

(For more information refer to Annex – I)

3.2 Workshop, Training and Programs

NHRC has been conducting different kind of trainings, workshop programs related to health. Such as training workshop on health systems research proposal development, training workshop on data management and analysis, networking meetings of health research institutions, interactive workshop for the reviewers, training workshop on how to write and publish a scientific paper and meetings with different institutional review committees in different medical colleges. The total number of training/workshops/meetings conducted with the support of Government of Nepal and World Health Organization.

(For more information refer to Annex – II)

3.3 Dissemination of Health Research Findings

Counducting research is not enough, it shoud be disseminted and would be utilized to formulate new plan and policy and to revise the existing policy. So, NHRC felt research findings should be reach to the concern stakeholders' for the proper utilization. Therefore, NHRC has conducted dissemination workshops in different regions of Nepal.

(For more information refer to Annex – III)

3.4 Capacity Strengthening Training

Nepal Health Research Council had provided different types of training according to the needs in the relevant fields in order to strengthen the knowledge and capacity of the staffs and officials.

3.5 Publications

NHRC has published following publications during the fiscal year. Index Review Journal of Nepal Health Research Council, SOP of different Training Workshops, Dissemination Reports and Research Report of the various studies conducted by NHRC.

(For more information refer to Annex –IV)

3.6 Research Projects/Activities

Nepal Health Research Council conducted different research activities supported by Government of Nepal, World Health Organization and other different agencies.

3.6.1 Distribution and Determinants of Diarrheal Disease in Western Developmental Region of Nepal

Status: Completed

Objectives:

General

- To describe the epidemiological distribution of diarrheal disease and its ecological factors in western development region.

Specific

- To analyze the trend of diarrheal disease for the past 5 years in the selected region.
- To describe the epidemiology of diarrheal disease in the selected region.
- To analyze the ecological factors – water and its quality in relation to diarrheal disease (chemical as well as microbial).
- To conduct a microbial analysis of stool samples in selected patients.
- To explore the water purification practice in selected households of the region.
- To identify the areas of intervention for prevention and control of diarrheal disease outbreak.

Executive Summary

Diarrhoea is a rare occurrence for most people who live in developed countries where sanitation is widely available, access to safe water is high and personal and domestic hygiene is relatively good. World-wide around 1.1 billion people lack access to improved water sources and 2.4 billion have no basic sanitation. Diarrhoea due to infection is widespread throughout the developing world. Economically weak countries like Nepal are always in potential risk of diarrhoea outbreak. The unhygienic practices, open defecation and lack of safe drinking water have triggered more diarrheal cases every year. The increasing number of reported diarrhoea cases across the country and confirmed deaths has triggered concerns in Nepal, which faces an outbreak of diarrhoea every year due to unsafe hygiene practices, open defecation and lack of access to safe drinking water.

Epidemiological investigations can provide strong evidence linking exposure to the incidence of diarrheal disease in a population and estimate the magnitude of risk related a particular level of exposure. Also they can specify relation between chance factors and can control risk factors causing gastrointestinal disease. To see is there any correlation between the presences of coliform bacteria with the surrounding community's health, it is important to conduct an epidemiological study that looks into various factors related to diseases as well as disease causing agents in various ecological factors. In case of diarrheal disease, on the ground of aforementioned facts it

is optimum to conduct a study that looks into the cases of diarrhea and tries to identify the cause of diarrhea in one side and microbial and chemical analysis of water that is being consumed by the people suffering from diarrheal diseases.

With this situation a study was planned to investigate the distribution and determinants of diarrheal disease in the Western Development Region of Nepal. The broad aim of the study was to describe the distribution and determinants of diarrheal disease and water quality associated with it. With this aim a cross sectional study was designed to find out the different epidemiological factors associated with diarrheal disease and associated water quality. This study had two components in it, the first being a component to identify the causes of diarrhea in patients visiting the HF and water quality of the source of water being consumed by these patients and the second component being a questionnaire survey to understand their Knowledge and Practice towards diarrhea as well as water and sanitation related practices. In the stool analysis we looked for microscopy for Parasites namely E. histolytica, G. lamblia and Helminths; and did culture of the stool sample for different types of bacteria mainly Coliform bacteria and Vibrio cholera. On the other side the water was tested for its physical and chemical properties as well as for the presence of E. coli.

Majority of diarrhoeal patients (56.70%, n = 97) from the palpa district were found to suffer for less than 3 days from the disease but in contrast, majority (43.84% n=73) of diarrhoeal patients of Nawalparasi district were found to suffer for (3-6) days. Loose watery stool was the most commonly seen symptoms among diarrhoeal patients from both the districts. Nearly 59 percent of the patients from Palpa and 65 percent of the patients from Nawalparasi were found to be consuming the liquid diet same as usual. On the other hand 3 percent from Palpa and 10 percent from Nawalparasi completely stopped the consumption of liquid diet while suffering from diarrhea. Similarly, just above half of the participants from Palpa and two third of the participants from Nawalparasi consumed same amount of solid/semisolid diet during diarrheal episodes. On the other side 6 percent from Palpa and 10 percent from Nawalparasi stopped the solid/semisolid diet. Hand washing practice was found to be fairly better in Palpa district in comparision to Nawalparasi. Nearly all of the participants (99%) mentioned that they wash their hands before eating and after defecation in Palpa whereas this practice is around 90 percent of the participants from Nawalparasi district. In combination, it was seen that only 30 percent and 11 percent respectively from Palpa and Nawalparasi districts washed their hands in all three instances of after defecation, before consuming food and before feeding the baby.

A larger proportion of participants (93.42 %) of Palpa district knew the right steps of ORS preparation and a little lower (79.55 %) did so of Nawalparasi district. The

practices of covering the water storage pot was found to be fairly better in Palpa district (85.57%) than Nawalparasi district (68.49%). On the other hand, water purification practice is found very low in both the districts. Majority of the respondents i.e. 60.82 percent in Palpa district and 98.63 percent in Nawalparasi district, were found drinking water without any water purification measures. Majority of the respondents(93.81%) from the Palpa districts were found to have toilet of their own meanwhile the majority of the respondents (76.71%) from Nawalparasi districts were found lacking toilet of their own.

Around 14 percent of stool sample of the patients from Palpa district was reported with E. histolytica and around 8 percent with G. lamblia, both types of parasites were not found in any stool sample collected from Nawalparasi district. Parasite like H. nana was found in about 1 percent of stool sample collected from diarrhoeal patients from the both district. Bacteria like E. coli, Klebsiella sps, Shigella sps, Vibrio spps were found in the stool samples collected from the diarrhoeal patients of Palpa and Nawalparasi district in relatively smaller proportion. Non Pathogenic growth was observed in significant numbers of stool samples (48.45%) collected from Palpa district. E. coli was reported from the 42.47 percent and 82.19 percent of collected stool sample from Palpa and Nawalparai district respectively. E.coli and Klebsiella spps were found in around 2 percent of stool samples collected from Nawalparasi district. The microbiological analysis of water for the presence and absence of E.coli in water found the presence of E.coli in more than 50 percent (53.61%) water samples collected from Palpa district, in contrast, E.coli was found in just 26.03 percent of water samples collected from Nawalparasi district.

3.6.2 A Study on the Intersectoral Coordination in the Prevention and Control of Tropical Diseases in Nepal

Status: Completed

Objectives

General

To explore the prevailing intersectoral coordination in the prevention and control of tropical diseases in Nepal

Specific

- To identify the present status of tropical diseases in the districts of Terai in Nepal.
- To determine intersectoral coordination effort put forth by DPHO.

- To determine coordination status between NGOs/INGOs/CBOs working in the field of tropical diseases.
- To analyze the present situation of coordination and recommend best practice to the policy level.
- To identify the current prevention and control activities conducted by different agencies in the Terai districts.

Executive Summary

The report entitled "the study on intersectoral coordination in the prevention and control of tropical diseases in Nepal" is focused primarily on the qualitative data from five districts of Nepal to get insight about the role of intersectoral coordination in prevention and control of tropical disease in Nepal. The main objective of the research is to explore the prevailing intersectoral coordination and the combined activities between governmental and different non-governmental organizations including INGOs, NGOs and CBOs in the prevention and control of tropical diseases in Nepal.

This descriptive cross sectional study is primarily based on the qualitative data using In-depth interview/Key Informant Interview in selected five districts of Terai belt. Key Informant Interview was done with representatives from NGOs/INGOs/CBOs and in-depth interview was performed with the DPHO and vector control program officer. Secondary data was collected from HMIS section of DoHS.

The overall intersectoral coordination has been found good enough to control and prevent the tropical diseases. The INGOs, NGOs and local CBOs are contributing in the sector of tropical diseases either financially or in the form of technical assistance. Different health intervention provided by these agencies has been regarded as one of the medium for prevention of diseases. Especially in vector borne diseases, there has been lots of achievement in reducing the cases of malaria, kala-azar in selected districts. DACC is the focal point at the district level for the prevention and control of HIV, AIDS, STI and TB/HIV co-infection but it was found that special focus was given to the HIV and AIDS prevention and control rather than TB/HIV and STI.

There has been increasing number of malaria cases over past five years in the five selected districts. Similar trend is found in case of kala-azar. There has been gradual increasing trend of kala-azar cases over the five years period. The prevalence of leprosy is found to be lowest in Chitwan whereas Banke has the highest prevalence rate (1.73) in the FY 2067/68. There has been steady rise in the new case detection rate in Morang, Chitwan and Kailali district in the FY 2067/68. The TB treatment success rate in FY 2067/68 in Bank has decreased in comparison to previous year. But there has been steady rise in the treatment success rate in Morang and Chitwan districts.

Most of the tropical diseases program through DPHO is a regular program of Government of Nepal under the heading 'Vector Control Program'. These programs in the DPHO are funded by Government of Nepal itself. To conduct certain extra activities under the disease control program at district level, DPHO are found to be asking for assistance with the INGOs, NGOs, and local agencies.

3.6.3 Prevalence and Determining Factors of Diabetes Mellitus and Hypertension in Kathmandu.

Status: Completed

Objectives

General

- To assess the prevalence and associated factors of type 2 diabetes and hypertension in Kathmandu.

Specific

- To identify the prevalence of Diabetes Mellitus type 2 and Hypertension, as previously diagnosed and diagnosed during study.
- To find and compare an associated factors of Diabetes Mellitus type 2 and Hypertension.
- To investigate associated factors of diabetes with hypertension cases.

Executive Summary

Prevalence of type 2 diabetes and hypertension is increasing worldwide with rapid urbanization and modernization. These diseases are very common in developed countries and are arising and alarming in developing countries. Nepal is not exception in this case, many researches showed that substantial problem of hypertension and diabetes has in Nepal. However there is limited population based studies in Nepal, so this study planned to find the prevalence and determining factors of diabetes and hypertension in urban and rural setting of Kathmandu district. Evidence of the study will be supported to policy makers and planners to formulate the policy on prevention and control of those diseases.

A cross sectional, community based study was conducted to assess the prevalence and determining factors of type 2 diabetes and hypertension of Kathmandu district. In this study, 1545 eligible subjects aged 20 years and above were selected from urban and rural area of Kathmandu but 1539 were voluntarily participated. A structural questionnaire was used to collect the information regarding prevalence and determining factors of type 2 diabetes and hypertension. Anthropometric metrics, blood pressure and blood sugar (fasting and 2h post glucose) were also measured. Fasting capillaries blood glucose and two hours glucose load (PP) was taken and

measured by glucose meter (Contour (R) TS). Data was entered in epi data and analyzed in SPSS (version 16). Chi-square test used to find the determining factors of type 2 diabetes and hypertension. Again logistic regression analysis was done by keeping only significant independent variables (showed in chi square test) to find the potential risk factors of both type 2 diabetes and hypertension.

The prevalence of type 2 diabetes mellitus was found 9.6% among age 20 years and above. Among 1539 subjects 118 (7.6%) cases were already diagnosed as a diabetes. However only 29 (1.88) cases were diagnosed as a new diabetes cases. Similarly prevalence of hypertension was 31.3%. Among 1528 subject 305 (19.8%) were early diagnosed and 174 (11%) were diagnosed during study. It observed that prevalence of hypertension was higher in comparison to diabetes.

Type 2 diabetes and hypertension were present in 26.3% and 62.3% respectively of people above 60 years followed by 41-60 years (13.5% and 44.5%) and 20-40 years (2.9% and 15.7%). Likewise urban residents had 14.8% and 39% diabetes and hypertension while as rural residents had 7.1% and 27.8% respectively. Diabetes and hypertension was prevalent more among male (13.3% and 38.7%) in compare to female (7.3% and 26.9%). People having hypertension had highly prevalent with type 2 diabetes (23.2%) in compare to counterpart (3.4%).

Older age, male in sex, urban resident, physically inactive, perceive bad health, disturb sleep, overweight and history of hypertension were significantly associated with type 2 diabetes and hypertension. Additional independent variables like illiterate, habit of smoking and alcohol consumption were also found significantly associated with hypertension.

Similarly, age above 60 years, urban residents and physically in activities were reported as a potential risk factor for both hypertension and type 2 diabetes. Additional male in gender and aged over 40 years was also found as potential risk factors of hypertension. Likewise hypertension was observed as a independent factors of type 2 diabetes.

In conclusion, the result obtained from this study indicated diabetes and hypertension is a public health problem. It showed prevalence increasing with advancing age, accumulated more in urban setting and many numbers of cases were undiagnosed. This indicates a substantial burden of undetected diabetes and hypertension can be high in Nepal. So, there is a need of regular screening of diabetes and hypertension in the community, should be improved health care and education program in the elderly people and appropriately addresses to urban Nepal.

3.6.4 Service Quality and Effectiveness of privately run Traditional Medicine based health service providing centers in Kathmandu Valley.

Status: Completed

Objectives

General

- To assess the present situation of the quality and effectiveness of TM based private health service providing centers in Kathmandu valley.

Specific

- To assess the quality of traditional medicine centers in terms of minimum standard (criteria) specified by MoHP.
- To assess the effectiveness of TM based health service centers from the perspective of service users and providers.
- To identify the diseases that are most effectively treated by the TM based health centers.
- To review the national policy and other national level documents regarding health and traditional systems of medicine.

Executive Summary

This combine study - *Service quality and effectiveness of privately run traditional medicine based health service providing centers in Kathmandu valley* – explores the present situation of privately run traditional medicine based health service providing centers in the Kathmandu valley. Fulfillment of the basic requirements specified by the ministry of health and population was considered as the quality of the services and the perception of the services was considered as parameters for the measurement of effectiveness although these two parameters are not enough to assess the quality as well as effectiveness of the services.

Data and information were gathered through interview and observation. A format was prepared based on the Guideline-2061prepared by Ministry of Health and Population as a tools to gather information regarding infrastructure, human resources, services, tools and equipments, drugs and other. Different 25 (five from each system- Ayurveda, Naturopathy, Homeopathy, Acupuncture and Amchi) registered hospitals or clinics were selected by simple random method and 132 patients were selected at convenient of the researchers ranging from 5-7 from each of 25 centers. These data and information were gathered between January and February of 2012, however interaction with some of the practitioners was continued until data were analyzed to get personal experience, knowledge and information in particular issues as per need for the research.

Traditional medicine based health service centers were found almost never monitored and evaluated once observed by the incumbents of concerned agencies at the time of establishment. This research is, therefore, an important step that assesses the present situation of health centers and the outcomes could be a strong input for policy makers and planners as well as other researcher to continue similar study in future.

Out of total 132 patients interviewed, 59.85% patients' first visit was the modern hospitals before visiting traditional medicine based health service centers, 64.4% believed modern medicine could not cure their problems, 75% were suggested by relatives and other known persons to visit traditional medicine centers. Likewise, 55.33% believed that their problem had been improving, 43.18% said 'not yet but hopeful to be cured soon', 29% were fully satisfied by the treatment, 53% said 'treatment is satisfactory', and 60% said 'doctors are very good'. Nearly 27 types of diseases or problems were common that people visit all the systems.

Hospital level service centers were found only in Ayurveda and Naturopathy. Homeopathy and Unani services were found running by pharmacy and significantly few in numbers in comparison with Ayurveda and Naturopathy. Amchi clinics were found widely practiced by the Tibeto-burman people living in Bauddha and Swoyambhu area and yet to get and not so convenient for the people of other communities due to language restriction.

Basic physical infrastructures as specified by the ministry was found almost fulfilled by the most of the health centers but this research could not go through the details of quality and quantity of the available resources. Post-graduate human resources were seldom available in the centers. Even if available, they were providing general services rather specialized service as per their educational background. Referral systems from one to another systems or one to another physicians within the systems was found nominal. Treatments and therapies offered by the centers were almost general services rather specialized in the terms of quality. Except one reported in Ayurveda, almost none of the centers have prepared treatment protocols that guarantee consistency in service and quality.

Within the limited resources and without adequate state support, how the traditional medicine based health centers have been providing health services is obviously appreciable. Perception and experiences of both service providers and service users were positive and found satisfied. However, *satisfaction* always does not assure service quality and effectiveness. During the study, interviewed physicians agreed that health service centers in traditional medicine are not able to provide quality service that meet global standard because of lack of skilled human resources, quality drugs, modern tools

and equipments which are basic necessity of health centers. Most of the centers were found struggling for sustainability since they were not able to provide specialized services.

Nation should be clear in recognition of traditional systems of medicine, adopt appropriate model for integration into national health care system, encourage private sector to import quality technology, facilitate private sectors to establish educational, research and development organizations, develop inter-sectoral networks and efficient monitoring and evaluation mechanism. Frequent discussion and interaction with the practitioners among various systems of traditional medicine is important not only to share knowledge and experience to each other but also develop harmonious relationship among them. At least, if the state focuses on what WHO has recommended to all the member country regarding to promotion and utilization of traditional medicine, all these systems hopefully can have a quantum leap in near future.

3.6.5 Assessment of Burden of Disease in Central Development Region in Nepal

Status: Completed

Objectives

The principle objective of assessment of burden of disease in Nepal was to estimate the disease load in terms of mortality and morbidity. Comparative study was done to determine various causes of mortality and morbidity in terms of ecological zone, geographical setting, and age- sex wise distribution.

General objective

- To assess disease burden in terms of various causes leading to mortality and morbidity in Central Development Region in Nepal.

Specific objectives

- To assess various causes mortality and morbidity occurring in different ecological zones in Nepal.
- To identify communicable, non communicable diseases and injuries leading to morbidity in Nepal.
- To identify communicable, non communicable diseases and injuries leading to mortality in Nepal.
- To determine age- sex wise distribution of various causes of mortality and morbidity in Nepal.

Executive Summary

Background Burden of disease information is an important component of the health information needed for monitoring the health status of the nation. The availability of

comprehensive, timely and precise health information is the basis for formulating health policy and planning to meet the demand for appropriate health services and interventions. Understanding burden of disease helps planners and policies makers address diseases that currently cannot be managed because of resource constraints. The main objective of this study was to assess disease burden in terms of various causes leading to mortality and morbidity in Nepal. **Methods** Descriptive cross sectional study was conducted to find mortality and morbidity in Nepal. Study was conducted in four districts of central development region. Multistage sampling was done to select districts and VDC. Census was done to collect household information in each ward. Primary data were collected form household survey and secondary data were collected from respective health institutions. **Results** There were 131494 population and 24890 households surveyed in the study. Altogether morbidity was 30513 and mortality was 464. The major causes of mortality were non communicable diseases (60%), communicable diseases (29%), injuries (10%) and unidentified causes (1%). The major causes of morbidity were communicable diseases (45%), non communicable diseases (27%), injuries (9%) and remaining were other conditions. Infectious diseases like diarrhea, dysentery, worm infestations was responsible for (17%) of total mortality and (23%) of total morbidity. Similarly, cardiovascular disease like CVD, hypertension, stroke contributed (17.4%) of total mortality and (0.5%) of total morbidity. Respiratory infections like ARI, common cold, COPD, asthma contributed (28.0%) of total mortality and (23.0%) of total morbidity. Neonatal and maternal mortality accounted nearly 8% of the total death. **Conclusions** This study shows that Nepal is facing double burden of disease. While mortality from infectious disease is still prevailing in country, non communicable diseases are rising in a peak high level. It shows that Nepal is shifting towards epidemiological transition. Mortality is shifting from infectious and communicable disease to non communicable disease. Other conditions like mental disorder, nutritional disorder, nervous system disorder is also responsible for mortality in Nepal. Injuries, accidents, suicide, road traffic accidents are also in increasing trend of mortality in Nepal.

3.6.6 An Assessment of Baby Friendly Hospital Initiative in Nepal

Status: Completed

Objectives

- To assess the process of implementation of baby friendly hospital initiative program.
- To assess the knowledge regarding breast feeding among the beneficiaries of BFH and NBFH.
- To assess the attitude regarding breast feeding among the beneficiaries of BFH and NBFH.

- To assess the practice regarding breast feeding among the beneficiaries of BFH and NBFH.
- To assess the current status of selected hospitals as per 10 steps of BFHI.

Executive Summary

Baby Friendly Hospital Initiative was initiated in 1997 and 7 hospitals have been declared as Baby Friendly in Nepal. The program was implemented since more than one decade but there has been, so far no assessment into the effectiveness of the program till date. Hence this study was conducted to assess the process of implementation of baby friendly hospital initiative program as well as to assess the knowledge, attitude and practice regarding breast feeding among the beneficiaries of BFH and NBFH.

This is a comparative cross sectional study conducted at postnatal wards of 4 baby friendly hospitals and 4 non baby friendly hospitals. This study was carried out in fiscal year 2068/069. Postnatal indoor mothers and key person of postnatal ward of selected hospitals were included in the study. Out of 7 baby friendly hospitals, more than 50% sample i.e. 4 BFH were selected randomly. Similar numbers of non-baby friendly hospitals were selected as comparative sites from the same city or neighboring city considering the similar characteristics such that teaching hospital, zonal hospital etc. Convenient sampling (50 samples per hospital) was applied for the selection of mother. So, from 8 hospitals altogether 400 postnatal mothers (200 from BFH and 200 from NBFH) were interviewed using pretested questionnaire. Observation checklist and interview guideline to a key person of each hospital was used to assess the ten steps of BFHI. Data was entered in Epidata and analyzed in SPSS.

The study revealed that knowledge about the initiation of breastfeeding is found higher in BFH beneficiaries (61%) than NBFH beneficiaries (53%). Majority mothers from both hospitals (97% beneficiaries from BFH and 92% beneficiaries from NBFH) reported breastfeeding is the best method of feeding. Higher proportion of BFH beneficiaries have knowledge about the best method of feeding than NBFH beneficiaries but the difference is not statistically significant (0.147). Higher proportion of BFH beneficiaries (35.5%) identified the correct measures (burping) to be taken after feeding breast milk to the baby than NBFH (16%). Very few mothers from both hospitals knew that mother should sit in any position comfortable to her while BF the baby.

It is found that 82% beneficiaries from BFH and 78% beneficiaries from NBFH said exclusive breastfeeding should be done for baby up to 6 months from childbirth. More than half of the beneficiaries from BFH (54.5%) and 43% from NBFH reported that breastfeeding should be done up to 2 years. Regarding the knowledge about the nature of breastfeeding, 38.5% beneficiaries from BFH and 35.5% from NBFH replied that

demand feeding is the best breastfeeding regime. Above 90% beneficiaries from both hospitals knew that BF makes child healthy. About one fifth beneficiaries from both hospitals were unsure about the measures to be taken before feeding the baby whereas 67% beneficiaries from BFH and 72.5% beneficiaries from NBFH told that breast should be washed with warm water before breastfeeding. About 80% beneficiaries from BFH and 74% from NBFH believed that taking milk or juice or any liquid can helps to improve milk secretion. There is significant difference in knowledge about the frequency of urine that only breastfeeding baby should pass in one day among BFH and NBFH beneficiaries (0.008). Beneficiaries from both hospitals have got less idea about it. Higher proportion of BFH beneficiaries (80%) have correct planning about the period of exclusive breastfeeding than NBFH beneficiaries (65%) and the difference is statistically significant (0.002). About 87% from BFH and 90% from NBFH identified the correct technique of breastfeeding.

Majority of mothers from both hospitals had positive attitude towards BFHI principles and practices. Though higher proportion of NBFH have positive attitude towards BFHI principles in comparison to BFH ones the difference only reached statistical significant for three variables out of 20 variables : BF should be initiated immediately after birth (0.003), Colostrums is bad for child's health (0.036) and each breast should be washed with warm water before BF (0.000).

The proportion of feeding pre-lacteal food among BFH and NBFH beneficiaries is 2% and 5% respectively. Most commonly given pre-lacteal feed is honey. Eighty five percent beneficiaries from BFH and ninety two percent beneficiaries from NBFH kept baby together in same bed after birth. The proportion of practice of keeping baby together in same bed with mother after birth is higher in NBFH beneficiaries than in BFH ones and the difference is statistically significant (0.028). The percentage of babies who ever sucked on a pacifier or dummy is very small, about 1.5% in BFH and 3% in NBFH. About 78% beneficiaries from BFH and 79% from NBFH initiated breastfeeding within 1 hour of childbirth. The proportion is higher in mothers from NBFH and difference is statistically significant (0.046).Assistance of health worker during BF is significantly higher in BFH beneficiaries than NBFH beneficiaries (0.002). Only 30% beneficiaries from BFH and 21% percent beneficiaries from NBFH reported that benefits of breast milk and exclusive BF was discussed during ANC visit and after delivery. Very low proportion from both hospitals (35%) got breast examination during ANC visit. More than 90% postnatal mothers from both hospitals were satisfied with the behavior of health worker but while comparing both hospitals more mothers from NBFH were satisfied than mothers from BFH.

On comparing the baby friendly hospitals and non baby friendly hospitals as per the ten steps of the criteria none of the hospitals have the written breastfeeding policy. All 8 hospitals have not provided any training yet related to breastfeeding policy to health care staff. Practicing of step 3, 4 and 7 inform pregnant women about benefits and management of BF, encourage BF initiation within half an hour of child birth and rooming in is present in all hospitals according to service provider and is quite satisfactory. It was observed that 10 steps of BF were displayed only in one BFH i.e. KZH. None of the hospitals were practicing advertisement of Infant Milk Substitutes. Steps like 6,9 and 10 addressing helping women if they have problem, counseling, support, and building confidence, need skills and staff time. These are seemingly not well implemented in both hospitals.

The findings of this study have highlighted that higher proportion of BFH beneficiaries have knowledge regarding breastfeeding than NBFH beneficiaries. Though higher proportion of NBFH beneficiaries have positive attitude towards BFHI principles in comparison to BFH ones the difference is not statistically significant. Similarly, the practice of implementation of 10 criteria is not found satisfactory in both hospitals to promote breastfeeding. It is due to the lack of interest of stakeholders (government as well as donor agency). So, it should be revitalized by concerned authority and breastfeeding and lactation management training should be given to all health professional especially staffs involving in maternity care unit. Periodic evaluation should be done to document effectiveness and progress of BFHI program.

3.6.7 A Longitudinal Study on *Aedes* Mosquitoes and Climate Change in Distinct Ecological Region of Nepal

Status: Completed

Objectives

The general objective of this study is to assess the effects of climate change on the altitudinal distribution of potential dengue virus vectors in Nepal. The specific objectives are:

- To assess the knowledge, attitude and practice of community people about dengue fever and its potential vectors,
- To ascertain the presence or absence of possible dengue vectors at different altitudes and in different ecological regions,
- To determine different entomological indices used in the study of dengue vectors (Container Index, Household Index, Breteau Index, Ovitrap Index) in different altitudes,
- To identify and characterize the breeding places of dengue vectors and the environmental conditions associated with dengue vector breeding,

- To assess the influence of climatic factors on the temporal and spatial distribution of dengue vectors in Nepal,
- To assess the insecticide resistance of dengue vectors at different temperatures,
- To determine the origin of dengue vectors in Nepal (using DNA bar-coding approaches),
- To determine the climatic tolerance of dengue vectors from different altitudes in Nepal at different temperatures and relative air humidities,
- To identify the diversity of dengue vectors in Nepal using the molecular techniques,
- To evaluate the suitability and cost-effectiveness of different methods used for the sampling of dengue vectors for monitoring and evaluating the vector control programs of Government agencies, and
- To recommend appropriate strategies for controlling dengue vectors in the context of Nepal.

Executive Summary

Background and Rationale for Study Dengue fever is a mosquito-borne disease which in recent years has become a major international public health concern. Dengue virus, the causative agent of this disease, is transmitted by *Aedes* mosquitoes (*Aedes aegypti* and *Aedes albopictus*). With globally about 50-100 million cases of dengue fever every year, it is one of the important and rapidly spreading causes of health problems in world. The first outbreak of dengue occurred in Nepal in 2006. In September 2010, many cases of dengue fever along with the presence of its potential vector *A. aegypti* was reported from Butwal, Chitwan and Damauli. However, detailed studies in these areas have not been carried out yet. Elsewhere in the world, social and environmental factors including increased urbanization, particularly of poor populations lacking basic health services, as well as the rapid expansion of international travel and trade have been linked to the global epidemic of dengue. Climate change may also affect transmission today, as dengue mosquitoes reproduce more quickly and bite more frequently at higher temperatures. However, not any detailed study on dengue vectors has been carried out in Nepal, regarding the possibility of transmission by the vectors and the environmental conditions associated with their occurrence and activity. Hence, this study aims at assessing the environmental conditions associated with A. aegypti and other possible vectors of dengue (notably *A. albopictus*) in Nepal. There are no prevalence data available to enable us to adequately assess the risk of the current spread of *A. aegypti* in Nepal. Essential data on the knowledge, attitude and practices of the community, which are a prerequisite for effective community participation in vector control and prevention of dengue, are also not available for Nepal. The present study is therefore proposed to provide these urgently needed data, to document the bionomics of dengue vectors in Nepal, the influences of our changing environment and climate on dengue vector ecology, and factors influencing the insecticide resistance of these

vectors. S**tudy Area**: The study was selected along a north-south transect cutting through Parsa, Makwanpur, Kathmandu, Nuwakot and Rasuwa Districts. The altitude of the study transect was range from <100 m to 2000 m above sea level. **Environmental Factors:** Environmental conditions at the breeding places of dengue vectors was identified and categorized using a structured form. To adapt this form to the local conditions of the study transect, a preliminary survey of suitable *Aedes* mosquito breeding habitats was performed and sampling stations as well as categories of environmental parameters was fixed. Larval habitats were grouped according to their stability to hold water into temporary habitats and permanent habitats. Temporary habitats hold water for a short period of time (approximately two weeks after rain) and stem mainly from rain showers). Permanent sites hold water for a longer period of time (approximately 2-3 months after the rainy season, or they are fed by natural underground water or human poured water). Besides this, auto shops area was sampled because vehicles tires are a preferred breeding site for dengue vectors. **Meteorological Data:** To record microclimatic data at sample sites, Miniature Data loggers will be used to record temperatures and was put out together with all mosquito traps for the capture of adult mosquitoes. Station weather data was obtained from the relevant meteorological authorities for localities in the study area. The geographical coordinates of study sites including their altitude and individual trap localities was determined and recorded using calibrated hand-held global positioning system GPS instruments. **Household Survey**: A demographic and knowledge, attitude and practice survey was carried out together with a larval/pupal (entomological) survey, usually simultaneously but in some cases with an intervening short time interval. **Cluster background survey**: A cluster (neighborhood) background survey instrument was developed, pilot tested in each site and subsequently used to gather detailed information on the selected clusters and adjacent areas. A GPS instrument used to determine the location of the houses, public spaces and water collection areas. **Entomological Survey**: To understand the temporal and spatial distribution of immature and adult mosquitoes from the Terai to the Mountain region, six months of entomological data and samples was collected along the transect in the five study districts of central Nepal starting from mid-June to mid-December 2011**. Sampling:** To obtain a representative sample from each urban or periurban area for conducting household surveys, background surveys and entomological surveys, work at all study sites was followed a protocol based on area clusters. **Insecticide testing**: Insecticide testing was performed on isolated laboratory populations of dengue vectors from different localities in Nepal raised under controlled environmental conditions in climate chambers (in Frankfurt, Germany) to ensure comparability of the effects of different insecticides. Both larvicides and adulticides of different chemical product classes were tested after consultation with the Government of Nepal authorities in charge of dengue vector control. **Conclusion and Recommendation** Dengue fever is an emerging viral disease of rapidly growing public health concern in Nepal where it was first reported in

2004. Aedesaegypti has been identified in 5 major urban areas of terai region bordering India, i.e. Biratnagar (Morang), Birganj (Parsa), Bharatpur (Chitwan), Tulsipur (Dang) and Nepalganj (Banke) during the entomological surveillance in Japanese Encephalities endemic districtsafter the Dengue outbreak in 2006 in Nepal. An entomological survey in the Kathmandu Valley revealed the presence of the two globally invasive mosquito vectors of dengue virus, Aedesaegypti and Aedesalbopictus, in Kathmandu in 2009. This renders the capital of Nepal, which is situated at about 1300 m above sea level and inhabited by approximately 1.5 million people, vulnerable to local dengue virus transmission. The convergence of these events and facts and a major dengue fever epidemic in the lowlands of Nepal in 2010 prompted us to conduct a study on the occurrence, distribution and breeding habitats of dengue vectors along an altitudinal transect of central Nepal. We collected mosquitoes of all life stages using ovitraps, inspection of water containers and BG-Sentinel traps (Biogents) in localities of the Terai (Birganj), inner Terai (Hetauda), mid-hill (Kathmandu), hill (Ranipauwa) and high mountain zones (Dhunche) from September 2011 to February 2012. All potential breeding habitats in the study areas were screened in and around houses for the presence or absence of *Aedes* larvae. Adult Aedesaegypti and Aedesalbopictuswere collected only from Parsa, Hetauda and Kathmandu during this time, but larvae of both species were found in all study locations including the high mountains. We also collected household survey data to assess the knowledge, attitude and practices of people to control dengue in different ecological regions of Nepal. The preliminary analysis of temperature tolerance of Aedesaegypti from Hetauda and Kathmandu revealed that eggs of Aedesaegypti can survive and rear upto -2^{o}C at laboratory experiment. However, the study could not be completed as desired because of sudden increase of temperature of climate cabinet. This is very risk because perennials transmission of dengue is possible even in mountain region. Our data show that potential vectors of dengue virus already occur up to at least 1400 m in the Nepal Himalayas and are established in the capital Kathmandu, suggesting that dengue virus transmission may occur locally if cases with viraemia are introduced. The KAP surveyed reveal that there is quite good knowledge of people living in all geographical regions of Nepal and practice at least one preventive measures. As this study was carried only for six months, at least one year study is needed to know the seasonal variation and density of Aedes species. Other transect from eastern and western should also cover in order to increase horizontal coverage for modeling the potential risk areas of dengue in Nepal under observed and future climate change in Nepal.

3.6.8 Study on Vector Borne Diseases and Climate Change along Altitudinal Transect in Nepal

Status: Completed

Objective of the Study

To study the vector borne diseases along altitudinal transects resulting from climate change and recommend guideline to develop action plan for its prevention and control in Nepal

The specific objectives are as follows-

- To assess the trend of major vector borne diseases of Nepal,
- To explore the relationship between climatic factor and health effect of vector borne disease on various ecological region,
- To assess Knowledge, Attitude and Practice of elders people on climate change and vector borne diseases,
- To document the existing vector borne disease case reporting referring and treatment policy of Nepal government,
- To compile the perception/ opinion of health professionals and local people towards vector borne disease and climate change,
- To prepare case studies on good public health adaptation to climate change in different ecological zones of Nepal, and
- To recommend guideline for the development of action plan to address the issues of climate change specific to vector borne disease.

Executive Summary

Background and Introduction Nepal is located along the southern slopes of the Himalayan mountain range, with the lowlands in the south at 60 meters above sea level and the mountains in the north rising to over 8000 meters. Therefore, Nepal is facing various degree of climatic impact along these altitudinal transect. Keeping this in mind, Nepal might be a unique place for studying the impact, vulnerability and adaptation aspects of climate change with small but representative sample (Dhimal 2008). Rises in temperature and the associated changes in precipitation patterns (such as less frequent but more intense rainfall events) are likely to result occurrence of vector borne and water borne diseases in country like Nepal along with poor sanitation, movement of people and changing life styles of people. Hence, climate change has given additional burden to achieve health related Millennium development Goals. Vector borne diseases including encephalitis, Japanese Encephalitis (JE), Leishmaniasis, Malaria and Kala-azar (Visceral Leishmaniasis) seem to have occurred in the higher altitudinal districts of Nepal (DoHS 2007). The people have felt that the mosquitoes are shifting to higher altitudes of Chitwan and Rasuwa districts where there was previously no occurrence of mosquitoes in those areas (NHRC 2009). Government of Nepal has developed the mitigation and adaptation priority project area on health sector in its National Adaptation Program of Action (NAPA) document. Though it is urgent need to initiate research on assessment of the impacts of climate change on vector-borne disease at national scale and adaptation strategies for short, medium to long term scales which

generate appropriate data, identify the magnitude of problems, influence policy makers and planners and direct the national government and external development partners for investment in highly vulnerable groups. Therefore the study will develop appropriate action plan to recommend Nepal government for preparing communities in Nepal for the anticipated impacts from vector-borne diseases in relation to climate change; and providing guidance regarding Nepal's participation in regional and national efforts addressing causes and effects of vector-borne diseases in relation to climate change. **Method** It is a descriptive retrospective cross sectional study. Both the qualitative and quantitative method was used in this study. Fifteen PHCC were selected from five development regions, three from each region based on altitudinal transect (500m, 500- 1500m and above 1500m), one PHCC from terai, one PHCC from hill and one PHCC from mountain. Eight Village development committee (VDC) were selected from three PHCC and within eight VDC twenty four wards were selected. Household size was calculated using given standard statistical formula for taking the KAP study from older people age above 60 Years old. KAP study was limited within the western region. Sample size was calculated for conducting KAP survey using standard statistical formula and KAP survey was limited to only Western region. The sampling technique was Judgmental, cluster and multistage randomization. Collected data of vector borne disease and climate was analyzed by SPSS 16 version for the log linear regression analysis. Vector borne diseases data was entered on MS excel and trend analysis made representing in figure and graphs. **Result** Most of the health workers had quite some knowledge about climate change and they were known about it compared to community people who don't even heard the term "Climate Change". Most of the health workers were focusing on the need of strengthening of the existing health programs. They even said that the running programs in the district level are not sufficient and need to be expanded with the availability of proper service and manpower. Health workers from Himalayan region also felt the importance of vector control officer in these regions as well because they presume that the problems of vector are alarming and they are at risk of malaria. KAP survey was conducted in three districts of different ecological regions from terai, hill and mountain. Only 1.73% of the respondents from terai, 28% from hill and 19.18 % from mountain region have knowledge about climate change. Their major source of information about the climate change was radio which is locally available at the community level. Time series analysis was also carried out between climatic parameters and malaria. Temperature (maximum and minimum), humidity and rainfall were taken as independent variables and malaria as dependent variable and were analyzed in the three cross section of Nepal from terai to mountain region. Occurrence of malaria was significantly associated with rainfall ($p<0.032$) and morning humidity ($p<0.007$) and others parameters were found insignificant in terai region. While in hill region, no significant association has been found between malaria and rainfall, evening humidity, maximum and minimum temperature. Malaria was

found significant with morning humidity ($p<0.01$). From both the topographical zone (terai and hill) showed that significant association of humidity and malaria. So, it is noted from the study that relative humidity is major climatic determinants for the occurrence of malaria, which is highly depends upon seasonality and rainfall ultimately climate change. Malaria was not found in mountain region, so no association could be ascertain in this region. **Conclusion** Change in the climate and its effects on the humans of the world have now been a known fact. The effects are both way direct and indirect, in long run of which its immediate impacts are being observed as increase in the number/ occurrence of vector borne diseases. The existing drivers of vector-borne diseases, such as seasonal weather variation, socioeconomic status, vector control programmes, environmental changes and drug resistance, climate change and variability are highly likely to influence current vector-borne disease epidemiology. The time series analysis of vector borne disease with respect to climatic parameter shows there is seasonal distribution of vector borne disease in different attitudinal transect but impact of vector is more prevalent on lower altitude with respect to higher altitude. Most of the health workers are focusing on the need of strengthening of the existing health programs. They even said that the running programs in the district level are not sufficient and need to be expanded with the availability of proper service and manpower. The reporting system of vector borne diseases has not been found satisfactory at every level of organizational structure. Health workers from Himalayan region also feel the importance of vector control officer in these regions as well because they presume that the problems of vector are alarming and they are at risk of malaria.

3.6.9 Assessment of Impacts of Particulate Air Pollutants on Respiratory Health of School Children in Kathmandu Valley

Status: Completed

Objectives

General Objective

To assess the impact of air pollution (Particulate Matter) in respiratory health of school children of selected schools in Kathmandu Valley.

Specific Objectives

- To describe the respiratory manifestations of children of selected schools,
- To identify the correlation of PM 2.5 with the lung function (PEFR), and
- To measure the association between daily PM 2.5 concentration and lung function (PEFR) in children.

Executive Summary

Vehicular emissions as well as other pollutants degrading air quality is a global concern today. This is one of the greatest challenges and key environmental issue in Asia-Pacific region, with the growth of the megacities. The adverse health impacts resulting from

small increases in concentrations of the worst pollutant, particulate matter (PM), are quite significant. These effects are especially severe in infants and children. The effect of particulate matter in the health of the people is one of the most important impact of air pollution that have been identified as the key problem as shown from various studies in developed countries. The impact of air pollutants and its adverse effect on children's health could be harmful till their adulthood. Developed countries are concerned about outdoor air pollution more than they do for indoor air pollution. Developing countries like Nepal are at double jeopardy; as the problem of outdoor as well as indoor air pollution is growing fast. As most lung alveoli are formed postnatal, changes in the lungs continue through adolescence and the developing lungs of children are more vulnerable to the adverse effects of air pollution than adult lungs. As child health is an essential indicator for the overall assessment of country health status, this study is expected to provide a basis to understand the effect of air pollutants on human health. This study can address the need for the information on the effects of air pollution on health in this region of the world and provide locally-gathered evidence to support actions by government to control particulate emissions. The objectives of the study were to assess the impact of air pollution (Particulate Matter) in respiratory health of school children of selected schools in Kathmandu Valley and measure the association between PM concentration and lung function. The study had two components: i) baseline survey and ii) health impact assessment both following quantitative methods and carried out in six months from November 2011 to April 2012. A baseline survey was conducted in 7 schools of different locations in Kathmandu valley among 1184 children using a structured questionnaire, modified ISAAC (The International Study of Asthma and Allergies in Childhood) questionnaire. For the second component correlational study was done to assess the health impact in two schools among 137 students out of 507. After the baseline survey St. Xavier's school (urban roadside) and Santaneshwor Vidya Mandir (Semi urban residential) were taken for the second component where children of age between 10 to 15 years were assessed daily for their lung function by measuring morning peak expiratory flow rate. Meanwhile, data for particulate matter (PM 2.5) was also recorded daily for both schools by using a personal monitor (dusttrak). Weather data was achieved from the Department of Hydrology and Meteorology. Data obtained from these procedures were entered in MS Excel and analyzed using SPSS 16.0 version. Descriptive analysis was done to describe the findings of baseline survey about respiratory manifestations. Similarly, descriptive analysis using frequency tables was done for the general characteristics of the students enrolled for health impact assessment. Mean PM 2.5 of two schools was compared and tested for the difference using Mann Whitney U test. Similarly, mean PEFR for the two schools was tested for the difference using independent samples t test. This test was also done for two different groups of St Xavier's School segregated on the basis of gender as well as age groups. To identify the correlation of PM with lung function of children the average

daily PEFR was plotted with average daily PM 2.5 for different groups. Nearly 70 percent of the children from St. Xavier's school (school 1) and 85 percent of the children from Santaneshwor Vidya Mandir (school 2) were in the age group 13 to 15 years. Rest of them in both the schools was from the age group of 10 to 12 years. Male children were nearly 60 % in both the schools. The mean age of the children was almost similar just above 13 without any significant difference. Mean height and weight of the children were significantly different in the two schools. The mean concentration of PM 2.5 was 203.14(±75.01) and 137.69 (±44.52) in school 1 and 2 respectively and the difference is statistically significant (p =0.04). The mean PEFR was higher for school 1 with statistically significant difference ($p < 0.05$, 95% CI 39.61 – 126.17). The mean PEFR level between the two sexes of school 1 was significantly different (p=0.01, 95% CI 10.52- 80.36), the value being higher for the male children. The PEFR level of the total students of school 1 is found to be varying on certain days with the changing levels of PM concentration which was seen to be varying between the values of 100 $\mu g/m^3$ and nearly 340 $\mu g/m^3$. The PEFR levels of younger (10-12 years) children seem to be correlating with the changes in PM 2.5 concentrations in the initial days and later days of the assessment. Similarly, the PEFR levels of female children also seem to be correlating with the variation in daily PM concentrations on few days. The daily PEFR levels of 20 students taken from the semi urban school is in the inverse relationship with the changes in PM concentrations for most of the days in later half except for few days. It can be concluded that there is an association of lung function with the particulate matter in the atmosphere. However, the relation could not be quantified statistically due to less number of observations.

3.6.10 Estimating the Burden of Diarrheal Disease due to Poor Water and Sanitation

Status: Completed

Objectives

General

- To estimate burden of disease (diarrheal) of range of water intervention in Nepalese context.

Specific

- To calculate the burden of diarrheal disease in different water sanitation scenario.
- To calculate BoD and develop as a case study for further study.
- Develop process for district wise calculation for BoD caused by inadequate water sanitation.

Executive Summary

Introduction and Rational Diarrheal diseases are one of the major infectious diseases in the world accounting about 1.5 million under 05 deaths annually. It is one of the leading causes of morbidity and mortality in developing countries. In Nepal, about 89 percent households in Nepal have access to improve source of drinking water and about 38 percent households have improved toilet facility that is not shared with other households.5 However, the coverage of safe water and toilet facility is not uniform in urban and rural areas. Households in urban areas have greater access to improved sources of drinking water than households in rural areas (93 percent versus 88 percent) and greater toilet facility (40 percent versus 9 percent), though the urban-rural gap has narrowed down in the last five years. Most of the water supply systems in Nepal both in urban and rural areas lack basic water treatment facilities along with inadequate sanitation and poor hygiene. This has resulted to frequent reports of faecal contamination in drinking water and outbreaks of waterborne diseases, particularly in monsoon and post monsoon every year. The estimation of burden of disease can demonstrate the feasibility of quantifying the contribution of disease, injuries and risk factor to population health and identify the effective interventions. Community based disease prevalence or scenario based disease burden has not been quantified till now in the context of Nepal. We have attempted to estimate the burden of diarrheal diseases based on different scenarios at district level and to provide guidelines for similar studies in other districts of Nepal. **Method** A cross sectional descriptive and comparative study was conducted using quantitative method during the period August 2011 to January 2012. Primary data were collected from the community using structured questionnaire. Information about the disease was collected for the period of one year just preceding the data collection. Six different scenario from selected four districts were identified based on range of water supply and sanitation as defined by Pruss et.al (7).viz Scenario I- Tap water with toilet, Scenario II- Tap water without toilet, Scenario III-Spring with toilet, Scenario IV-Spring without toilet, Scenario V- Tube well with toilet and Scenario VI- Tube well without toilet. The scenario was mapped according to the source of water and availability of toilet facilities and the difference in the disease pattern from one scenario to other has been tried to calculate. Individual member of the household either household head or family member was the study unit. A total of 360 household 60 from each scenario were chosen following non-probability purposive sampling method. Study sites were decided with a purpose to meet the criteria for selection. Henceforth, six communities meeting the criteria of different scenarios of water and sanitation as planned were taken from four districts. The community selection process was based on the data available from the District Water Supply and Sanitation under Department of Water Supply and Sewerage. **Result** Incidence of diarrhea was found to be the highest in scenario-IV (Spring without toilet) with 204.89 per 1000 population followed by scenario-VI (Tube well without toilet)

with 145.30 while the incidence of the disease was seen the least in scenario-I (Tap water with toilet) with 46.05. Accordingly, the burden of disease (YLD) was also found to be the highest in scenario-IV and the lowest in scenario-I. Most of the households did not treat water before drinking. Hand washing practice was found to be more than 90% regardless of presence or absence of toilet. **Conclusions** Water, sanitation and hygiene related factors can be considered as one of the important determining component for attribution of burden of diarrheal diseases. The greater risk of acquiring diarrheal disease and higher burden of disease in water sanitation situation of unprotected water source and absence of toilet shows that these could be important contributing factor for diarrheal disease. By this it could be concluded that use of sanitary toilets and protected water source are still the important measures of diarrheal disease prevention.

3.7 Supervision and Monitoring of Health Research Projects

Every year, team of NHRC supervises and monitors the approved and granted research projects. The main objective is to observe and evaluate research projects which consist of experts and member of Executive Board and Ethical Review Board to ensure that researchers maintain ethical standard of the research project and comply with methodology approved in the proposal submitted to NHRC.

(For more information refer to Annex – V)

3.8 Strengthening Digital NHRC Library

Objectives

General

To create a comprehensive networked information environment, a seamless rich set of tolls and resources for the Researchers community**.** To share entire documents in full text format for library users as well as office staffs via intranet & internet system at once times

Specific

- To save the time of library users,
- Easy access to all the staffs,
- Less space occupied,
- Network with other health library,
- Easy to use everywhere and
- To share the same information anywhere at a same time.

Background and Introduction

The Nepal Health Research Council (NHRC) was developed as an example of commitment of Nepal Government (NG) Nepal to promote scientific study and quality

research in health in Nepal. It started as Nepal Health Research Committee under the Ministry of Health, chaired by the Secretary of Health in 1982 AD (BS 2039). The objectives of NHRC are: (a) to do or cause to do study and research on problems in the field of health being encountered or likely to be encountered in future. (b) To conduct programs relating to consultancy service and information in order to make the study and activities relating to health more useful, and (c) To acquire information about studies, researchers and works on various problems relating to health in the world and inform it to HMG from time to time.

NHRC library was established in 1991 with the purpose to provide research based health information. It is being utilized by the all health and related professionals involved in research activities. Network with other health related libraries and information centers based in Kathmandu. It is also an active member of HELLIS Nepal which is a communication center and national focal point. Being Associated with Health Literature Library Information System (HELLIS) Nepal, NHRC library is participating in developing the HELLIS Nepal web page. This association would like to add the presence of NHRC Library not only at national level but also at the International level. NHRC library would like be known as active heath research information center, which aim to provide the research based information in all aspects of health related subjects available in the country.

Existing situation of Library is traditional library. It serves as a repository for health research related information and resources. The Library documents are classified under internationally accepted classification scheme developed by the National Library of Medicine, USA; using MESH (Medical Subject Heading). The library users are taking the services manually. So, the process of the services is lengthy. It takes some times.

Digital library to be an electronic collection of real or virtual resources which also be available elsewhere. These resources must be whole works, with which humans can have a complete cognitive or affective engagement. A digital library may allow either online or offline access to the elements it organizes and houses, and may include multimedia as well as multilingual data.

In the contest of Nepal, none of any types of library (Academic Libraries, Corporate Libraries, Government Libraries, such as National Libraries, Historical society Libraries, Private Libraries, Public Libraries, School Libraries, Special Libraries) has developed the digital library. Some of the libraries are using the Library software for catalogue, circulation.

3.9 Approved Health Research Proposals

The one hundred nine (109) health research proposals approved by the NHRC Executive Boards. In order to facilitate the review of the research proposals submitted for an approval, NHRC charges the processing fees while approving such proposal.

(For more information refer to Annex – VI)

3.10 NHRC Representation in National and International Programs

NHRC represented national and international programs. NHRC Executive Board Members, Ethical Review Board members and NHRC staffs participated in international and national workshops, seminars, meetings, forums.

(For more information refer to Annex – VII)

3.11 NHRC MEETINGS

a) Executive Board Meetings

NHRC has counducted total number of seven Eexecutive Board Meetings during the fiscal year.

(For more information refer to Annex – VIII)

b) Ethical Review Board Meeting

NHRC has conducted total number of fourteen Ethical Review Board meetings during this fiscal year.

(For more information refer to Annex – IX)

4. FUNDING PARTNERS OF NHRC

In order to carry out the activities planned for the fiscal year. NHRC has received the fund from the Government of Nepal/Ministry of Health and Population. NHRC also received funds from the World Health Organization, ICIMOD, UNFPA, UNICEF, and Save the Children for research programs and trainings.

4.1 Government of Nepal

NHRC has been receiving regular annual budget since the year 2000 from Government of Nepal. The date of the fiscal budget of the Government of Nepal starts from Shrawan (July) and ends at Ashad (July). NHRC has acompolished different activities like

research grants, trainings, workshops, monitoring and supervision of approved research studies and dissemination of research finding in the regional level.

4.2 World Health Organization (WHO)

World Health Organization has been providing technical and financial support to Nepal Health Research Council (NHRC) since its establishment for conducting health related programs. WHO has supported NHRC mainly to conduct the programs under Health System Research Program and Environmental Health Programme.

4.3 Others

Maryknoll Fathers and Brothers, ICIMOD, UNICEF, UNFPA, Save the Children and other NGOs/INGOs also supported for conducting research and training activities.

5. CONCLUSION AND RECOMMENDATION

After receiving the funds from Government of Nepal and other donor agencies, NHRC has accomplished the following activities:

1. Provided research grants to the researchers,
2. Strengthened the Library information system of NHRC ,
3. Monitored research project approved by Ethical Review Board of NHRC and visited Institutional Review Committee/Board,
4. Conducted various trainings / workshops,
5. Purchased different kinds of office items,
6. Conducted national and international meetings / workshops,
7. Published scientific journals and research reports
8. Capacity strengthen of NHRC staffs, and
9. Conducted different research related to health

NHRC has made significant progress towards developing a health research system in the country, but still a lot of activities need to be continued with additional new ones. It has expanded different activities by conducting research, meetings, seminars, and conferences.

6. ANNEXES

Annex – I: Status of Research Grants

I) Source of Fund: World Health Organization (WHO)

PG Grant

1. **Title:** General Health and Livelihood Status of Emancipated (Mukta) Kamalarihris of Nepal.
   PI: Mr. Uttam Neupane
2. **Title:** Effectiveness of Amanita Spp. Extract against Aedes aegypti L. and Aedes albopictus (Skuse) Larvae.
   PI: Mr. Raju Sapkota
3. **Title:** Study on incidence of Nalidixic acid resistant Salmonella enteric serovar Paratyphi A and their antibiotic susceptibilities
   PI: Mr. Shudij Giri
4. **Title:** Screening and confirmatory tests for esbl producing organisms (escherichia coli and klebsiella species) and their genetic diversity through pcr technique.
   PI: Mr. Surya Subedi
5. **Title:** Assessment of iodine status of pregnant women and weaning infants in Eastern Nepal.
   PI: Mr. Sharad Gautam
6. **Title:** Lived Experience of Mothers having Children with Autism.
   PI: Ms. Rachana Ghimire
7. **Title:** Prevalence of Occupational Health Problems and Safety Measures among Workers of Udaypur Cement Factory Limited, Jajjale, Udaypur.
   PI: Mr. Indrasen Chaudhary
8. **Title:** Knowledge and Practice of Planned Pregnancy Among Married Couples.
   PI: Mr. Kiran Acharya
9. **Title:** A Study on the level of stress in patient attendees during the course of attendance with patient: A study of some hospitals in Kathamndu Valley.
   PI: Dr. Tribendra Shakya
10. **Title:** Lived experience of Mothers with Muscular Dystrophy Child.
    PI: Ms. Sangita Prasai

UG Grant

1. **Title:** Prevalence of low back pain among nurses and its impact on their nursing job.
   PI: Ms. Susmita Adhikari
2. **Title:** Health Related Quality of Life, Anxiety and Depression level of Cervical Cancer Patients in Nepal.
   PI: Ms. Anjeela Khatiwada
3. **Title:** KAP in use of ORS among mothers having children below 5years of age in Topgachhi VDC of Jhapa district.
   PI: Mr. Saroj Chauhan
4. **Title:** Knowledge and practice regarding burn injuries management among nurses of kanti children hospital.
   PI: Ms. Pratigya Acharya
5. **Title:** Health Seeking Practices among the Caretaker of Mentally Ill Patients Attending at Psychiatric OPD of TUTH.
   PI: Ms. Kamala Paudel
6. **Title:** A Study on the knowledge and practice of Hospital waste management system in Dang District.
   PI: Mr. Raj Kumar Paudel
7. **Title:** Knowledge and practice regarding exclusive breastfeeding among mothers of Balawa VDC, Kathmandu.
   PI: Ms. Kusum Wagle
8. **Title:** Effect of the antiretroviral therapy among the people living with HIV/AIDS at Tribhuwan University Teaching Hospital, Kathmandu.
   PI: Mr. Madhab Raj Pant
9. **Title:** Knowledge and practice of abortion among the visitor's attending marie stopes centre at Kathmandu.
   PI: Ms. Prakriti Khanal
10. **Title:** A study on prevalance of domestic violence and its contributing factors among married women of Kathmandu District.
    PI: Ms. Pramila Karki
11. **Title:** Adjustment Related To Pubertal Changes Among Adolescent Girls.
    PI: Ms. Mira Adhikari
12. **Title:** Sanitation & Personal Hygience among Residential Employee of Brick Factory.
    PI: Ms. Merina Maharjan

Annex – II: Status of Training Workshops

1. Training Workshop on Data Management and Analysis – 2
   a. 2011/12/04 – 09, Total Number of Participants: 26
   b. 2012/03/25 – 30, Total Number of Participants: 26
   Venue: NHRC Training Hall, Ramshah Path, Kathmandu, Nepal.

2. Training Workshop on Health Systems Research Proposal Development – 3
   a. 2011/09/19 – 24, Total Number of Participants: 25
   b. 2011/12/21 – 26, Total Number of Participants: 31
   c. 2012/01/08 – 13, Total Number of Participants: 32
   Venue: NHRC Training Hall, Ramshah Path, Kathmandu, Nepal.

3. Training Workshop on Art of Scientific Writing supported by Maryknoll Fathers and Brothers project on 20-22 Poush 2068 (04-06 January 2012).

4. Nepal Health Research Council organized Central Advisory Committee (CAC) Meeting supported by Maryknoll Fathers and Brothers project on 2068-07-02 (19 October 2011).

5. Training Workshop on Research Review Process supported by Maryknoll Fathers and Brothers project on 09-10 Magh 2068 (23-24 January 2012).

6. Training Workshop on Institute Review Committee supported by Maryknoll Fathers and Brothers project on 2068-12-21 (03 April 2012).

Annex – III: Dissemination Programs

Nepal Health Research Council organized four disseminations programs in different Development Regions**: Central, Eastern, and Western and Mid & Far-Western Regions** with the aim of disseminating the research findings to be done in the study area to inform to the policy makers and people of that area.

The objectives of the dissemination were:

- To disseminate the findings of research, and
- To explore the areas for utilization of research findings.

1) Western regional dissemination workshop on health research findings.

2) Mid & Far-Western regional dissemination workshop on research finding.

3) Eastern development regional dissemination workshop on research findings.

4) Central development regional dissemination workshop on research findings.

Annex – IV: Status of Publications

1) Final Reports of the Research Activities conducted by Nepal Health Research Council (NHRC).

2) Two Indexed Journal of Nepal Health Research Council (NHRC).

3) Proceeding Reports of different Training & Dissemination Workshops.

4) Research Report on Environmental Health Research Activities.

Annex – V: Status of Health Research Projects (Monitoring and Supervision)

The team of NHRC consists of Board member; Ethical Review Board members and experts from different fields supervised and monitored the approved research projects.

The objectives of visit was to know the status of those project approved by ERB. Similarly to improve research quality by identifying those aspects that is working according to plan and those in need of amendment. The major purpose of monitoring is to provide information about the progress, changes and discomfort occurs during the implementation phases.

1) **Research Title:** New tools for monitoring drug resistance and treatment response in Visceral Leishmaniasis in the Indian subcomntinent (KALADGUR-R).
Principal Investigator: Dr. Suman Rijal
Date of Supervision: 27 August 2012
Inspection site: BPKIHS, Dharan
Monitoring and Supervision Team

1) Dr. Shanker Pratap Singh, Member Secretary, NHRC
2) Dr. Krishna Kumar Aryal, Senior Research Officer, NHRC
3) Mr. Subodh Karna, Deputy Account Controller, NHRC
4) Mr. Bijay Kumar Jha, Training Officer

2) **Research Title:** A Randomized double-blind clinical trial of two dose regimens of VINS Polyvalent antivenom (ATCJ06AA03) for the treatment of snake bites with neurotic envenoming in Nepal.

Principal Investigator: Dr. Sanjib Kumar Sharma
Date of Supervision: 26 August 2012
Inspection site: BPKIHS, Dharan
Monitoring and Supervision Team

1) Dr. Shanker Pratap Singh, Member-Secretary, NHRC
2) Dr. Krishna Kumar Aryal, Senior Research Officer, NHRC
3) Mr. Subodh Karna, Deputy Account Controller, NHRC
4) Mr. Bijay Kumar Jha, Training Officer

3) **Research Title:** Natural diversity cares: Focus on cancer (A study of diverse medicinal plants and herbals available in Nepal).
Principal Investigator: Natural Diversity at Nepal (NADAN)
Date of Supervision: 25 Jan 2012
Inspection site: NADAN, Dhumbarahi, Kathmandu
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Rishi Ram Koirala, Vice-Chairman, NHRC
3) Mr. Bhupendra Nirajan Khaniya, Research Officer, NHRC

4) **Research Title:** Prevalence and determining factors of Diabetes and Hypertension in Kathmandu.
Principal Investigator: NHRC
Date of Supervision: 07 Feb and 27 Feb 2012
Inspection site: Satikhel, Talkedudechour, Jitpurphedi, Kavresthali & Ramkot
Monitoring and Supervision Team

1) Mr. Nirbhaya Kumar Sharma, Sr. Administrative Officer
2) Ms. Sushhama Neupane, Research Officer, NHRC

5) **Research Title:** Evaluation of comprehensive health promotion program in Nepal.
Principal Investigator: Mr. Ram Chandra Silwal
Date of Supervision: 05 March 2012
Inspection site: Green Tara Nepal, Baluwatar, Kathmandu
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Laxmi Raj Pathak, ERB member, NHRC
3) Ms. Sushhama Neupane, Research Officer, NHRC

6) **Research Title:** Detection of inborn errors of metabolism through simple urine tests in mentally retarded individuals from association for mentally retarded AWMR and Bavjyoti center Kathmandu.

Principal Investigator: Dr. Arti Sharma Pandey
Date of Supervision: 06 March 2012
Inspection site: Department of Biochemistry, KMC, Duwakot, Bhaktapur
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member-Secretary, NHRC
3) Dr. Ajit Rajmajhi, Pediatrician
4) Ms. Sushhama Neupane. Research Officer, NHRC
5) Ms. Namita Ghimire, Research Officer,NHRC

7) **Research Title:** Impact assessment and evaluation of the pilot Vi polysaccharide typhoid vaccine introduction program in Lalitpur District, Nepal using a case control study.

Principal Investigator: Mr. Deepak Bajracharya
Date of Supervision: 09 March 2012
Inspection site: MITRA Samaj, Maharajgung
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman NHRC
2) Dr. Shanker Pratap Singh, Member-Secretary NHRC
3) Dr. Megha Raj Banjara, Lectural, TU Kritipur, Nepal
4) Dr. Krishna Kumar Aryal, Senior Research Officer, NHRC
5) Ms. Namita Ghimire, Research Officer, NHRC

8) **Research Title:** Operational research on Policy Management of Human Resources for Health (HRH) in Nepal.

Principal Investigator: Dr. Khem Bahadur Karki
Date of Supervision: 11 March 2012
Inspection site: SOLID Nepal, Satdobato
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member-Secretary, NHRC
3) Dr. Laxmi Raj Pathak, Member, ERB
4) Ms. Namita Ghimire. Research Officer

9) **Research Title:** Placebo controlled introduction of prophylactic supplementation of probiotics to decrease the incidence of necrotizing enter colitis (NEC) at Dhulikhel Hospital in Nepal.

Principal Investigator: Dr. Srijana Dongol
Date of Supervision: 12 March 2012
Inspection site: Neonatal department, Dhulikhel Hospital
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman NHRC
2) Dr. Shanker Pratap Singh, Member-Secretary NHRC
3) Dr. Ajit Rajmajhi, Pediatrician, Kanti Children Hospital
4) Ms. Sushhama Neupane. Research Officer

10) Research Title: Tranexamic acid for the treatment of post partum hemorrhage: An international randomized double blind placebo controlled trial.
Principal Investigator: Prof. Ian Gray Robrets / Dr. Pramila Pradhan
Date of Supervision: 20 April 2012
Inspection site: Nepal Medical College, Jorpati
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member Secretary, NHRC
3) Dr. Rajendra Kumar BC, Research Advisor, NHRC
4) Ms. Sushhama Neupane, Research Officer, NHRC

11) Research Title: Role of fluid management in the outcome of children with Acute Encephalitis Syndrome.
Principal Investigator: Dr. Ajit Rayamajhi
Date of Supervision: 26 April 2012
Inspection site: Kanti Children's Hospital, Maharajgunj, Kathmandu
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member-Secretary, NHRC
3) Dr. Krishna Kumar Aryal, Senior Research Officer, NHRC

12) Research Title: Program for Improving Mental Health Care (PRIME) in Nepal.
Principal Investigator: Mr. Nagendra Prasad Luitel
Date of Supervision: 02 May 2012
Inspection site: TPO Baluwatar, Nepal
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member Secretary, NHRC
3) Prof. Dr. V.D Sharma, Professor, IOM
4) Ms. Namita Ghimire, Research Officer, NHRC

13) Research Title: Microparticles and MicroRNA in leprosy and leprosy reaction.

Principal Investigator: Dr. Deanna Alisa Hagge
Date of Supervision: 03 May 2012
Inspection site: Anandanban Leprosy Hospital
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member Secretary, NHRC
3) Dr. Megha Raj Banjara, Lecturer, TU
4) Ms. Namita Ghimire, Research Officer, NHRC
5) Ms. Sushhama Neupane, Research Officer, NHRC

14) Research Title: Medical chart and program review of patients attending Leprosy Mission Nepal Programs.

Principal Investigator: Dr. Deanna Alisa Hagge
Date of Supervision: 03 May 2012
Inspection site: Anandanban Leprosy Hospital
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member Secretary, NHRC
3) Dr. Megha Raj Banjara, Lecturer, TU
4) Ms. Namita Ghimire, Research Officer, NHRC
5) Ms. Sushhama Neupane, Research Officer, NHRC

15) Research Title: Treatment of early neuritis in Leprosy (TENLEP).

Principal Investigator: Dr. Krishna Bahadur Tamang
Date of Supervision: 03 May 2012
Inspection site: Anandanban Leprocy Hospital
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member Secretary, NHRC
3) Dr. Megh Raj Banjara, Lecture, TU Kritipur, Nepal
4) Ms. Namita Ghimire, Research Officer, NHRC
5) Ms. Sushhama Neupane, Research Officer, NHRC

16) Research Title: A New Molecular Surveillance System for Leishmaniasis.

Principal Investigator: Dr. Basu Dev Pandey
Date of Supervision: 29 June 2012
Inspection site: Janakpur
Monitoring and Supervision Team

1) Dr. Krishna Kumar Aryal, Senior Research Officer, NHRC

2) Mr. Bijay Kumar Jha, Training Officer, NHRC

17) **Research Title:** Community mobilization and health management committee strengthening to increase birth attendance by trained health workers in rural Makwanpur, Nepal (Cluster randomized controlled trial).

Principal Investigator: Prof. Dr. Dharma Sharan Manandhar
Date of Supervision: 02 July 2012
Inspection site: MIRA Nepal, Thapathali Kathamandu
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member Secretary, NHRC
3) Dr. Laxmi Raj Pathak, Member, ERB
4) Ms. Sushhama Neupane, Research Officer, NHRC

18) **Research Title:** An evaluative study of quality and utilization of services and maternal and neonatal health (MNH) related knowledge and care seeking behavior in the intensive intervention area, versus in CB-NCP only implementation areas.

Principal Investigator: Prof. Dr. Dharma Sharan Manandhar
Date of Supervision: 02 July 2012
Inspection site: MIRA Nepal, Thapathali Kathamandu
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member Secretary, NHRC
3) Dr. Laxmi Raj Pathak, Member, ERB
4) Ms. Sushhama Neupane, Research Officer, NHRC

19) **Research Title:** The effects of antenatal micronutrient supplementation and current air pollution on growth and lung function in 8-10 year old children.

Principal Investigator: Prof. Dr. Dharma Sharan Manandhar
Date of Supervision: 02 July 2012
Inspection site: MIRA Nepal, Thapathali, Kathamandu
Monitoring and Supervision Team

1) Dr. Chop Lal Bhusal, Executive Chairman, NHRC
2) Dr. Shanker Pratap Singh, Member Secretary, NHRC
3) Dr. Laxmi Raj Pathak, Member, ERB
4) Ms. Sushhama Neupane, Research Officer, NHRC

Annex – VI: List of Approved Health Research Proposals

1.	**Title:**	Economic Consequences of Non-Communicable and other Major Illnesses in Nepal
	PI:	Dr. Ai Koyanagi/ Co. I: Dr. Pradeep Krishna
	Institution:	The University of Tokyo Japan
2.	**Title:**	Investigating the Health Impacts of Rainwater Harvesting Systems in Rural Nepal: A Case Study of Child Health in the Kaski District
	PI:	Ms. Hannah Elizabeth Barrington/Co. I: Ms. Sony Pun
	Institution:	The University of Western Australia
3.	**Title:**	Evaluation of Importance of Genetic Host Polymorphisms as Risk Factors for Human Parasitic Infections in Jhapa District of Nepal as a Background for Control of these Infections
	PI:	Dr. Samir Ranjitkar
	Institution:	Center for Medical Parasitology, University of Copenhagan, Demark
4.	**Title:**	Molecular Genetics of Plasmodium Falciparum and Plasmodium Vivax in Selected Malaria Endemic Districts of Nepal
	PI:	Mr. Shyam Prakash Dumre
	Institution:	Thammasat University, Thailand
5.	**Title:**	The Burden of Foodborne and Vectorborne Disease in Nepal
	PI:	Mr. Brecht Devleesschauwer/Co. I: Dr. Jeevan Bahadur Sherchand
	Institution:	Catholic University of Louvain, Beligium
6.	**Title:**	Impact Assessment and Evaluation of the Pilot Vi Polysaccharide Typhoid Vaccine Introduction Program in Lalitpur District, Nepal Using a Case Control Study
	PI:	Mr. Deepak Chandra Bajracharya
	Institution:	Measures for Interventation, Training Research and Action (Mitra Samaj), Sanepa, Lalitpur
7.	**Title:**	Gosaikunda Rapid Ascent – A Double Blinded, Placebo Controlled Randomised Controlled Trial of Acetazolamide 125 mg BD in Prevention of Acute Mountain Sickness in Rapidly Ascending Pilgrims
	PI:	Dr. Buddha Basnyat
	Institution:	Mountain Medicine Society of Nepal GPO Box 3596, Kathmandu

8. **Title:** Placebo Controlled Introduction of Prophylactic Supplementation of Probiotics to Decrease the Incidence of Necrotizing Enterocolitis (NEC) at Dhulikhel Hospital in Nepal
PI: Dr. Srijana Dangol
Institution: Kathmandu University School of Medical Sciences, Dhulikhel Hospital

9. **Title:** State of Maternal and Child Health Care among Dalits in Eastern Terai Nepal
PI: Ms. Tara Kumari Kafle
Institution: Manaras Hindu University, Uttar Pradesh, India

10. **Title:** Evaluation of Comprehensive Health Promotion Programme in Four VDCs in Kathmandu
PI: Mr. Ram Chandra Silwal
Institution: Green Tara Nepal GPO Box 8974, CPC 158

11. **Title:** Sentinel Human Surveillance for influenza in Nepal
PI: Dr. Sanjaya Kumar Shrestha
Institution: Walter Reed/Afrims Research Unit, Nepal (WARUN)

12. **Title:** The Effects of Antenatal Micronutrient Supplementation and Current Air Pollution on Growth and Lung Function in 8-10 Years Old Children
PI: Dr. David Osrin/Co .I: Mr. Jyoti Raj Shrestha
Institution: University College London, UK

13. **Title:** Assessing the knowledge, Practices and Health Seeking Behaviour of Mothers of Infants in Bhimphedi and Daman VDCs in Makawanpur
PI: Prof. Dr. Kedar Prasad Baral
Institution: Patan Academy of Health Sciences, Patan Hospital

14. **Title:** A Comparative study on ambulatory physical activity of boys with Duchene Muscular Dystrophy in Japan and Nepal
PI: Mr. Tsuyoshi Asai/Co. I: Dr. Rohit Kumar Pokharel
Institution: Faculty of Rehabilitation, Kobegakuin University, Akashi city, Hyogo, Japan

15. **Title:** Knowledge, Attitude and Practice (KAP) on Tuberculosis (TB) and Co-infection of TB and HIV in Nepal
PI: Mr. Sushil Chandra Baral
Institution: Health Research and Development Forum (HERD), Thapathali, Nepal

16.	**Title:**	HIV status and Health Seeking Behavior of Vulnerable Children and Youth in Bagmati District, Nepal
	PI:	Dr. Stephen Jay Atwood/Co. I: Dr. Rajya Shree Nyachhyon Kunwar
	Institution:	Health Research and Development Forum (HERD), Thapathali, Nepal
17.	**Title:**	Nutritional status, early infant growth and maternal energy consumption in pregnancy in food insecure areas of Jumla district, Nepal
	PI:	Dr. Dharma Sharan Manandhar
	Institution:	Mother and Infant Research Activities, (MIRA), Thapathali
18.	**Title:**	Association between Husband's experience of stressful life events and wife's experience of partner violence: A one prospective cohort study among couples living in Kathmandu valley, Nepal
	PI:	Dr. Krishna Chandra Poudel
	Institution:	University of Tokyo, Japan
19.	**Title:**	Assessment of Self-Care Group Activities Among Persons with Leprosy Related Disabilities
	PI:	Mr. Nandlal Bastola
	Institution:	Netherlands Leprosy Relief, New Baneshor, Kathmandu
20.	**Title:**	Assessing the effectiveness of the National Adolescent Sexual and Reproductive Health (ASRH) Programme in Nepal
	PI:	Mr. Dev Raj Acharya
	Institution:	42, Cornhil Garden, Aberdeen, Scotland, UK
21.	**Title:**	A New Molecular Surveillance System for Leishmaniasis
	PI:	Dr. Basu Dev Pandey
	Institution:	Everest International Clinic and Research Centre, Kalanki
22.	**Title:**	Health and Human Rights of Single Women and their Children in Three Districts of Nepal: A Qualitative Exploration of the Nexus between Human Rights and Health
	PI:	Dr. Pamela Jean Surkan/ Co. I: Ms. Lily Thapa
	Institution:	Johns Hopkins Bloomberg School of Public Health, Baltimore USA
23.	**Title:**	Progress and Constraints of VL Case Detection and Management within National Programmes in Nepal
	PI:	Mr. Megha Raj Banjara
	Institution:	Public Health and Infections Disease Research Center (PHIDReC), New Baneshwor, Kathmandu

24.	**Title:**	Barriers to effective Policy Implementation and Management of Human Resources for Health in Nepal
	PI:	Dr. Khem Bahadur Karki
	Institution:	Society for Local Integrated Development (SOLID), Nepal
25.	**Title:**	Program for Improving Mental Health Care (PRIME) in Nepal
	PI:	Mr. Nagendra Prasad Luitel
	Institution:	Trascultural Psychosocial Organization (TPO), Baluwatar
26.	**Title:**	Epidemiological Study on HIV and other Infections among Prisoners of Selected Female Prisons
	PI:	Mr. Nischal Basnet
	Institution:	Right Direction Nepal, Manbhavan, Lalitpur
27.	**Title:**	Assessment of Cost and its Effectiveness of DOTS plus Programme in Nepal
	PI:	Dr. Sushil Chandra Baral
	Institution:	Health Research and Development Forum (HERD), Thapathali Nepal
28.	**Title:**	A Study of Policy Implementation and Local Experiences of People with Disability and Their Households in Okhaldhunga VDC in Okhaldhunga District of Eastern Rural Nepal
	PI:	Ms. Namrata Pradhan
	Institution:	University of Oslo, Norway
29.	**Title:**	Maternal and Child Health Service Provision for Urban Slum Women in Kathmandu Metropolitan City
	PI:	Ms. Tania Guadalupe Gavidia/Co. I: Mr. Mohan Krishna Shrestha
	Institution:	Curtin University of Technology Perth, Australia
30.	**Title:**	Depression among Type 2 Diabetes Mellitus Patients Visiting Three-Urban Centers of Nepal and Their Quality of Life
	PI:	Dr. Kiran Niraula
	Institution:	Bangladesh Institute of Health Sciences (BIHS), Dhaka, Bangladesh
31.	**Title:**	Community, Cultural and Religious Resources for Promoting Psychosocial Resilience among Bhutanese Refugees During Resettlement Period in Nepal
	PI:	Ms. Liana Elizabeth Chase/ Co. I: Mr. Nagendra Prasad Luitel
	Institution:	Transcultural Psychosocial Organization, Baluwatar
32.	**Title:**	Consumer Perception of Maternity Services in Kaski District Nepal
	PI:	Mr. Rajendra Karkee

	Institution:	Curtin University, Australia
33.	**Title:**	Genetic Polymorphisms as a Cause of Pelvic Organ Prolapse among Nepalese Women
	PI:	Ms. Sabrina Laura Lince/Co. I: Dr. Pushpa Chaudhary
	Institution:	Radboud University Nijmegen Medical Centre, Netherland
34.	**Title:**	Study on Situation of Poly-drug users of the so-called "South-Asian Cocktail" in Kathmandu Valley
	PI:	Mr. Suraj Sigdel
	Institution:	ESTHER German Partnership, CIAR-TUTH Project, Maharajgunj
35.	**Title:**	Women's Acceptability in the Community of a New Self- Test to detect Proteinuria to Prevent Pre-Eclampsia/ Eclampsia (PE/E) – Component 4 of a Pilot Project
	PI:	Dr. Harshad Kumar ChanduLal Sanghvi
	Institution:	Jhpiego, 1651 Thames Street, Baltimore, MD 21231, USA
36.	**Title:**	State Building and Peace Building in Conflict Affected States: The Role of Service Delivery in Nepal (Health, Water & Sanitation and Education)
	PI:	Ms. Moushumi Shrestha
	Institution:	Practical Action Maharajgunj, Kathmandu
37.	**Title:**	Oral Health Awareness and Preventive Dentistry among the Dental Students and Dental Internees in Kathmandu, Nepal
	PI:	Dr. Madhu Wagle
	Institution:	University of Tromso, Tromso 9037, Northern Norway
38.	**Title:**	Evaluation of the community – Based Mental Health and Development Model in Nepal
	PI:	Dr. Crick Lund/Co. I: Mr. Padam Raj Shrestha
	Institution:	University of Cape Town, Private Bag X3, Rondebosch 7701, South Africa
39.	**Title:**	Oral histories of medicine taking among the Sherpa of the Mt Everest area of Nepal
	PI:	Dr. Susan Heydon/ Co. I: Dr. Kami Temba Sherpa
	Institution:	New Zealand's National School of Pharmacy, University of Otago
40.	**Title:**	An assessment of HIV risk in Nepal from sex workers of Nepali origin in India
	PI:	Prof. Joe Thomas/Co. I: Ms. Vinita Sharma
	Institution:	South Asia Technical Support Facility, Ranibari Marg, Lazimpat

41.	**Title:**	Acetazolamide for the prevention of high altitude illness: a comparison of dosing
	PI:	Dr. Scott E McIntosh/Co. I: Dr. Buddha Basnyat
	Institution:	University of Utah, USA
42.	**Title:**	Demonstration Study of the Use of the Combination Therapy of Paromomycin and Miltefosine for the Treatment of Visceral Leishmaniasis in Government Hospitals in Nepal
	PI:	Prof. Dr. Suman Rijal
	Institution:	B.P. Koirala Institute of Health Sciences, Dharan
43.	**Title:**	Role of fluid management in the outcome of children with Acute Encephalitis Syndrome
	PI:	Dr. Ajit Rayamajhi
	Institution:	National Academy of Medical Sciences, (NAMC), Kathamandu
44.	**Title:**	Preliminary Investigation of Potential Associations between Leprosy and Intestinal Helminth Co-infection
	PI:	Dr. Deanna Alisa Hagge/Co. I: Mr. Chhatra Bahadur Kunwar
	Institution:	Leprosy Mission Nepal, Anandaban Leprosy Hospital, Lalitpur
45.	**Title:**	Microparticles and MicroRNA in Leprosy and Leprosy Reactions
	PI:	Dr. Deanna Alisa Hagge/Co. I: Dr. Mahesh Shah
	Institution:	Leprosy Mission Nepal, Anandaban Leprosy Hospital, Lalitpur
46.	**Title:**	Measuring Diagnostic Accuracy using Paper and Electronic Algorithms by Mid-Level Health Care Workers
	PI:	Mr. Stephen John Knoble/Co. I; Mr. Madhadev Raj Bhusal
	Institution:	Nick Simon Institute (NSI), Sanepa, Lalitpur
47.	**Title:**	Assessment of provider knowledge and attitudes towards IUD and MA (Round I)
	PI:	Mr. Mahesh Paudel
	Institution:	PSI Nepal, Mahalaxmisthan, Lagankhel
48.	**Title:**	Knowledge and Attitudes of MWRA towards IUD and MA (2011)
	PI:	Mr. Mahesh Paudel
	Institution:	PSI Nepal, Mahalaxmisthan, Lagankhel
49.	**Title:**	Prevalence, Determinants and Microvascular Complications of Type 2 Diabetes Mellitus among Elderly Population of Kathmandu, Nepal
	PI:	Dr. Abhishek Rimal
	Institution:	Chulalongkorn University, Bangkok, Thailand

50.	**Title:**	Impact of the Global polio eradication initiative on strengthening routine immunization and primary health care in Nepal
	PI:	Dr. Svea Hupy Closser
	Institution:	Middlebury College, California at San Francisco, USA
51.	**Title:**	Acute Mountain Sickness treatment: A Randomized, Double blind comparison of Ibuprofen vs. Metoclopramide
	PI:	Dr. Norman Stuart Harris/Co. I: Dr. Buddha Basnyat
	Institution:	Massachusetts General Hospital; Department of Emergency Medicine, 55 Fruit St. Boston, MA, USA 02114
52.	**Title:**	Building the Evidence Base for Protecting and Promoting Child Rights of GLBTI in Nepal (Asia)
	PI:	Mr. Brian J Hunter/Co. I: Mr. Udaya Chandra Manandhar
	Institution:	Save the Children, Sundhara, Kathmandu
53.	**Title:**	Genetics of Bone Structure and Metabolism among the Jirel Community of Eastern Nepal
	PI:	Dr. Michale Charles Mahaney/Co. I: Dr. Janadan Subedi
	Institution:	Southwest Foundation for Biomedical Research, USA
54.	**Title:**	Medical Chart and Program Review of Patients attending Leprosy Mission Nepal Program
	PI:	Dr. Deanna A Hagge/Co. I: Dr. Indra Bahadur Nepit
	Institution:	Leprosy Mission Nepal, Anandaban Hospital, Lalitpur
55.	**Title:**	Comparative Study on frequency of brushing teeth and ownership of toothbrushes between schoolchildren of government and private schools of Tansen, Nepal
	PI:	Dr. Roshan Kharel
	Institution:	Charles Sturt University, Australia
56.	**Title:**	Etiologies of Viral Hepatitis in Pregnancy in Sarlahi Nepal (Sub-study within Field Trail of Maternal Influenza Immunization in Nepal: Mother's Gift-Nepal Field Trial)
	PI:	Dr. Alain Bernard Labrique/Co. I: Dr. Subarn Kumar Khatry
	Institution:	Johns Hopkins University Bloomberg School of Public Health, Baltimore, Maryland, USA
57.	**Title:**	Implementing Surgical Services in Rural Nepal
	PI:	Dr. Duncan Smith Rohrberg Maru/Co. I: Dr. Ruma Rajbhandari
	Institution:	Nyaya Health, USA

58.	**Title:**	Cardiorespiratory Health of Women exposed to indoor air pollution in rural Nepal: A cross sectional comparative study among traditional stove users and biogas users
	PI:	Dr. Buddha Basnyat/Co. I: Dr. Mani Raj Neupane
	Institution:	University of Munich, Germany
59.	**Title:**	Group B streptococcus infections in neonates and its colonization among pregnant women in three development regions of Nepal
	PI:	Mr. Nabin Kumar Thakur
	Institution:	NTNU, Trondheim, Norway
60.	**Title:**	Knowledge and Protective behaviors of staff Nurses on Pandemic influenza A H1N1, 2009 at some health care facilities (Hospitals) of Kathmandu and Chitwan district, Nepal
	PI:	Mr. Ramesh Neupane
	Institution:	Chulalongkorn University, Bangkok, Thailand
61.	**Title:**	Treatment of High-altitude Sleep Disturbance: A Double-blind Comparison of Temazepam vs. Acetazolamide
	PI:	Dr. Norman Stuart Harris/Co. I: Dr. Ghan Bahadur Thapa
	Institution:	Massachusetts General Hospital, USA
62.	**Title:**	Evaluation of the effects of climate factors on the occurrence of diarrhoeal and respiratory diseases in Kathmandu, Nepal
	PI:	Dr. Gajananda Prakash Bhandari
	Institution:	Nepal Public Health Foundation, Maharajgunj
63.	**Title:**	A Cohort Study to Understand Nepalese Adolescents Smoking Trajectories
	PI:	Mr. Umesh Raj Aryal
	Institution:	Nordic School of Public Health, Sweden
64.	**Title:**	Living as a person requiring Prosthetics and Orthotics in Nepal – A qualitative Investigation in accordance with the convention on the Rights of Persons with Disabilities
	PI:	Ms. Anna Ewa Helena Fransson /Co. I: Mr. Prakash Raj Wagle
	Institution:	School of Health Sciences Jonkoping, Sweden
65.	**Title:**	Noise Induced Hearing Loss in Metal Workers in Pokhara, Nepal
	PI:	Mr. Joshua Daniel Whittaker/Co. I: Dr. Devesh Singh
	Institution:	University of Birmingham, UK

66.	**Title:**	The prevalence of Noise- Induced Hearing Loss in at- risk workers in Pokhara, Nepal: A cross sectional study
	PI:	Mr. Timothy Simon Robinson/Co. I: Dr. Devesh Singh
	Institution:	University of Birmingham, UK
67.	**Title:**	Seroprevalence study of Hepatitis B surface antigen among children in two age cohorts (pre-introduction of Hepatitis B vaccine in the routine immunization program during infancy vs. post-introduction of Hepatitis B vaccine in the routine immunization program during infancy)
	PI:	Dr. Shyam Raj Upreti
	Institution:	Child Health Division, Teku
68.	**Title:**	Survival pattern and determinants of survival in adult HIV patients on antiretroviral treatment in Far-West, Nepal
	PI:	Mr. Laxmi Bhatta
	Institution:	University of Tromso, Norway
69.	**Title:**	A proposal on Injection practices in health care facilities of Nepal
	PI:	Dr. Selma Khamassi/Co. I: Dr. Senendra Raj Upreti
	Institution:	Safe Injection Global Network, WHO, Switzerland
70.	**Title:**	Pesticide Exposure and Its Health Effects among Commercial Vegetable Farmers in Chitwan District, Nepal
	PI:	Mr. Dinesh Neupane
	Institution:	University of Southern Denmark
71.	**Title:**	Factors affecting institutional delivery in Chitwan district of Nepal
	PI:	Ms. Rajani Shah
	Institution:	Ludwig Maximilian University, Munich, Germany
72.	**Title:**	Factors Associated With Neonatal Deaths in Chitwan District
	PI:	Ms. Rajani Shah
	Institution:	Shree Medical and Technial College, Bharatpur, Chitwan
73.	**Title:**	Formative Research on Household-Focused Understanding of Behavioral and Cultural Practices to Improve Infant and Child Health and Nutrition Outcomes in Nepal
	PI:	Ms. Suraksha Dhakal
	Institution:	Research Inputs and development Action (P) Ltd. Ratopul, Kathmandu

74.	**Title:**	Factor associated with adherence to antiretroviral medication in HIV-infected patients: A cross-sectional study in Kathmandu District
	PI:	Mr. Rajesh Sigdel
	Institution:	University of Tromso, Norway
75.	**Title:**	Study on Quality of life and livelihoods of PLHIV in Achham and Kanchanpur Districts of Nepal
	PI:	Ms. Sanju Wagle
	Institution:	CARE International Nepal, Krishna Galli
76.	**Title:**	Source and Transmission of *Vibrio Cholera* Causing Cholera in Nepal
	PI:	Dr. Sameer Mani Dixit
	Institution:	Center for Molecular Dynamics Nepal, Thapathali, Kathmandu
77.	**Title:**	Determinants of infant and young child feeding practices and under nutrition among children in Makwanpur district, Nepal
	PI:	Mr. Khem Narayan Pokhrel
	Institution:	University of Tokyo, Japan
78.	**Title:**	Comparison of injection use and its practice in an urban and remote setting of a district in western Nepal
	PI:	Mr. Sudesh Gyawali
	Institution:	Suresh Gyan Vihar University, Jaipur, Rajastan, India
79.	**Title:**	Study of Impact of Child Mental Health Program on Children, Parents and Teachers in Dolakha and Kavrepalanchowk Districts
	PI:	Dr. Pasupati Mahat
	Institution:	Center for Mental Health and Counseling-Nepal (CMC-Nepal)
80.	**Title:**	Nasopharyngeal carriage prevalence of *Streptococcus pneumoniae* in healthy Nepali children using a microarray method to detect multiple-serotype carriage
	PI:	Dr. Shrijana Shrestha
	Institution:	Patan Hospital, lalitpur
81.	**Title:**	Baseline Assessment of Young Women's Reproductive Health Knowledge, Attitude and Skills in Rupandehi, Nepal
	PI:	Dr. Naresh Pratap KC
	Institution:	Family Health Division, Teku, Kathmandu
82.	**Title:**	Effectiveness of *PICHU* in Tension Neck Syndrome
	PI:	Dr. Raja Ram Dhungana
	Institution:	Ayur Polyclinic Pvt. Ltd. Lalitpur

83.	**Title:**	Follow-up study of people with spinal cord injury 12-24 months after discharge from inpatient rehabilitation at Green Pastures Hospital & Rehabilitation Centre in Pokhara, Nepal
	PI:	Ms. Tamara Renate Zijl
	Institution:	VU University in Amsterdam, Netherland
84.	**Title:**	Follow-up study of people affected by leprosy 12-24 months after discharge from inpatient rehabilitation at Green Pastures Hospital and Rehabilitation Centre in Pokhara, Nepal
	PI:	Ms. Alida Mertina Willemina Klugkist/Co. I: Mr. Prakash Raj Wagle
	Institution:	VU University in Amsterdam, Netherland
85.	**Title:**	Qualitative study on diagnosis and referral practices of health care providers regarding persistent fever in Eastern Nepal
	PI:	Prof. Dr. Suman Rijal
	Institution:	BPKIHS, Dharan
86.	**Title:**	A Social Anthropological study of tuberculosis from a patient and community perspective
	PI:	Ms. Ulla- Britt Sigrid Engelbrektsson/Co. I: Mr. Madhu Sudan Subedi
	Institution:	International Nepal Fellowship, PO Box 1230, Kathmandu
87.	**Title:**	Allergic Sensitization and Obstructive Airway Diseases among Adult Population Visiting a Selected Hospital in Kathmandu
	PI:	Prof. Dr. Jens Schreiber/Co. I: Dr. Rajesh Dhoj Joshi
	Institution:	Phect-Nepal, Kathmandu Model Hospital
88.	**Title:**	Suaahara Baseline Survey Implementation
	PI:	Ms. Suneeta Kadiyala/Co. I: Ms. Nira Joshi
	Institution:	International Food Policy Research Institute, New Delhi
89.	**Title:**	Food Hygiene intervention to improve food hygiene behaviours, reduce food contamination and diarrhoeal diseases burden in Nepal
	PI:	Mr. Om Prasad Gautam
	Institution:	London School of Hygiene and Tropical Medicine (LSHTM), UK
90.	**Title:**	Bio-monitoring of Mercury Contamination in Nepal: A Case Study of Phewa Lake and Surrounding Fisherman Community and Health Community
	PI:	Mr. Ram Charitra Sah
	Institution:	Center for Public Health and Environmental Development (CEPHED), Lalitpur

91.	**Title:**	Parental knowledge of the impacts of biofuel smoke exposure on the health of their children in Nepal
	PI:	Prof. Dr. Satyan Raj Bhandrai
	Institution:	University of Leeds, UK
92.	**Title:**	Status of Patient Centered Support Structures among DOTS Registered Urban Poor of Kathmandu, Lalitpur and Bhaktapur Districts in Nepal
	PI:	Ms. Roshani Dahal
	Institution:	University of Minnesota- Twin Cities, USA
93.	**Title:**	Formative research on viability and feasibility of integrating hygiene interventions into oral vaccination campaigns
	PI:	Ms. Yael Velleman/Co. I: Mr. Om Prasad Gautam
	Institution:	Water Aid, London, UK
94.	**Title:**	Child Well-being in Families of the Disappeared: A Study of the Challenges and Coping Strategies of Children in Kaski and Lamjung, Nepal
	PI:	Ms. Sophie Louise Buxton/Co. I: Ms. Rita Dahal
	Institution:	Queen Margaret University, UK
95.	**Title:**	Investigation of indoor solid fuel and kerosene use as tuberculosi risk factors
	PI:	Dr. Sharat Chandra Verma/Co. I: Dr. Senendra Raj Upreti
	Institution:	Institute for Social and Environmental Research-Nepal, Chitwan
96.	**Title:**	Barriers to and determinants of health service utilization: how Nepali caretakers seek treatment for childhood illnesses
	PI:	Ms. Moe Miyaguchi/Co. I: Mr. Ram Chandra Silwal
	Institution:	University of Tokyo, Japan
97.	**Title:**	Genetics of Non Syndromal Cleft Lip/palate in Eastern Nepalese Patients
	PI:	Dr. Varun Pratap Singh
	Institution:	B.P.Koirala Institute of Health Sciences, Dharan
98.	**Title:**	Innovative Community Interventions (ICIs) to improve strategies for implementation and up-scaling of Maternal and Neonatal Health Services in fragile states: A realist review
	PI:	Ms. Sarita Pandey
	Institution:	Hope International College Satdobato, Lalitpur

99.	**Title:**	Implementing Simplified Neonatal Resuscitation Protocol in the tertiary Level Hospital of Nepal
	PI:	Dr. Ashish K.C.
	Institution:	Population Service International (PSI), Nepal, Lagankhel, Lalitpur
100.	**Title:**	Evaluation of an electricity-free culture system for diagnosis of typhoid fever
	PI:	Dr. Amit Arjyal
	Institution:	Patan Academy of Health Sciences, Lagankhel
101.	**Title:**	Surveillance of near-miss maternal morbidity
	PI:	Prof. Dr. Ashma Rana
	Institution:	Nepal Society of Obstetricians and Gynaecologists (NESOG) Nepal
102.	**Title:**	A Comparative Study on Nutritional Problem in Preschool Aged Children of the Kaski District of Western Development Region of Nepal
	PI:	Mr. Jib Raj Acharya
	Institution:	Bournemouth University, UK
103.	**Title:**	Utilisation of Free Health Care Services in Mid Western Reginal Hospital, Surkhet, Nepal
	PI:	Mr. Rajendra Basnet
	Institution:	Nepal Health Sector Support Program, Surkhet
104.	**Title:**	Aetiology and antimicrobial susceptibility pattern of complicated and uncomplicated urinary tract infections
	PI:	Mr. Sujan Gautam
	Institution:	Kantipur College of Medical Sciences, Sitapaila, Kathmandu
105.	**Title:**	Evaluation of Rapid Diagnostic Tests (RDT) in association with clinical and Laboratory predictors for the diagnosis of Neglected Tropical Disease (NTD) in Patients presenting with persistent fever (≥ 1 week) in Cambodia, Nepal, Democratic Republic of the Congo and Sudan
	PI:	Prof. Dr. Suman Rijal
	Institution:	B.P. Koirala Institute of Health Sciences, Dharan
106.	**Title:**	Client Satisfaction Survey on Tuberculosis Services in Lalitpur and Kaski Districts, Nepal
	PI:	Dr. Sushil Chandra Baral
	Institution:	Health Research and Social Development Forum (HERD), Thapathali

107.	**Title:**	Analyze issues regarding cross boarder migration to develop strategies for TB case diagnosis and treatment in Nepal
	PI:	Dr. Sushil Chandra Baral
	Institution:	Health Research and Social Development Forum (HERD), Thapathali
108.	**Title:**	The effect of Diarrheal Diease on Oral Polio Vaccine (OPV) seroconversion in Nepali Children
	PI:	Dr. Laxman Prasad Shrestha
	Institution:	Department of Pediatrics, Institute of Medicine, Maharajgunj, Kathmandu
109.	**Title:**	Investigating the opinions and current practices of Muslims in the Banke Districts of Nepal, on emergency access to health care, during a pregnancy-related emergency
	PI:	Ms. Joy Dodd/Co. I: Mr. Hom Nath Subedi
	Institution:	University of Leeds, UK

Annex – VII: Status of NHRC Representation in various National and International Programs

1. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated in Mid-Far Western Development Region Dissemination Workshop on Health Research findings. Kohalpur, Bake, Nepalgunj dated on 13-14 Shrawan 2068 (28-29 July 2011) and Mr. Bijay Kumar Jha, Training Officer, Dr. Krishna Kumar Aryal, Senior Research Officer and Mr. Sharasoti Prasad Bhattarai, Assistant Store Officer NHRC also participated above said workshop on 12-14 Shrawan 2068 (27-29 July 2011).

2. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated in Western Development Regional Dissemination Workshop on Health Research Findings Kaski, Pokhara District dated on 2068-04-20 (05 August 2011) and Mr. Bijay Kumar Jha, Training Officer, Dr. Krishna Kumar Aryal, Senior Research Officer and Mr. Pukalal Ghising, Accountant NHRC participated above said workshop on 19-21 Shrawan 2068 (04-06 August 2011).

3. Dr. Shanker Pratap Singh, Member-Secretary, Mr. Bijay Kumar Jha, Training Officer, Dr. Krishna Kumar Aryal, Senior Research Officer and Mr. Subodh Kumar Karna, Deputy Chief Account Controller of NHRC participated in Eastern Development Regional Dissemination Workshop on Research Findings at B.P. Koirala Institutes of Health Sciences, Dharan on 08-11 Bhadra 2068 (25-28 August 2011).

4. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, Dr. Shanker Pratap Singh, Member-Secretary, Dr. Anjani Kumar Jha, Chief Editor JNHRC and Dr. Krishna Kumar Aryal, Senior Research Officer NHRC visited Myanmar for Exposure visit on 25-31 Bhadra 2068 (11-17 September 2011).
5. Prof. Dr. Chop Lal Bhusal Executive Chairperson NHRC visited IRC of College of Medical Sciences Bhairahawa on 13-15 Ashoj 2068 (30 September 2011 to 02 October 2011).
6. Prof. Dr. Chop Lal Bhusal Executive Chairperson NHRC Participated in Thirty Second Session of the WHO South East Asia Advisory Committee on Health Research (WHO/SEA/ACHR), Bangkok, Thailand on 23-27 Ashoj 2068 (10-14 October 2011).
7. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, Dr. Shanker Pratap Singh, Member-Secretary, Dr. Krishna Kumar Aryal and Mr. Subodh Kumar Karna, Deputy Chief Account Controller NHRC Visited Research/Exposure Visit to Frankfurt Main Germany dated on 2068-07-23 to 2068-08-01 (09-17 October
8. Dr. Krishna Kumar Aryal, Senior Research Officer NHRC participated and presented Research Paper entitled Assessment of the impact of Air Pollution to the Health of School Children in Kathmandu Valley, Bangladesh, Dhaka on 24-26 Poush 2068 (8-10 January 2012).
9. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, Dr. Shanker Pratap Singh, Member-Secretary, NHRC participate in South Asian Forum for Health Research (SAFHeR) Meeting, New Delhi, India from 21-25 Magh 2068 (4-8 February 2012).
10. Dr. Shanker Pratap Singh, Member-Secretary NHRC supervised Institution Review Committee of National Medical College, Birgung dated on 21-22 Jestha 2069 (03-04 June 2012).
11. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, Dr. Krishna Kumar Aryal, Senior Research Officer and Prof. Chitra Kumar Gurung, Member, Ethical Review Board, of NHRC supervised the Institutional Review Committee and participated on workshop at Bhartpur, Chitwan date on 2069-02-32 to 2069-03-01(14-15 June 2012).
12. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated in Pictorial Health Warning organized by National Health, Education, Information and Communication Centre, Teku, Kathmandu on 2068-04-06 (22 July 2011).
13. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated in Global Outbreak alert and Response Network (GOARN) organized by Epidemiologist and Diseases Control Division (EDCD), Teku, Kathmandu supported by World Health Organization (WHO) on 08-09 Shrawan 2068 (24-25 July 2011).
14. Dr. Krishna Kumar Aryal, Senior Research Officer NHRC participated in Institutional Review Board (IRC) Meeting organized by Kanti Children Hospital, Maharajgunj, Kathmandu dated on 2068-04-11 (27 July 2011).

15. Mrs. Sushhma Neupane, Research Officer NHRC participated on HIV Infections Estimation & Projection organized by National Centre for AIDS and STD Control, Teku, Kathmandu on 25-26 Shrawan 2068 (10-11 August 2011).

16. Dr. Krishna Kumar Aryal, Senior Research Officer NHRC participated in Non-Communicable Diseases Meeting organized by Ministry of Health and Population, Ramsha path, Kathmandu dated on 2068-05-19 (5 September 2011).

17. Mrs. Sushhma Neupane, Research Officer NHRC participated in Laboratory Containment of Wild Polio Virus organized by National Public Health Laboratory, Teku, Kathmandu dated on 2068-07-06 (23 October 2011).

18. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated in National Annual Performance Review Meeting Fiscal year 2067/068 organized by Department of Health Services, Teku, Kathmandu dated on 08-10 Mangsir 2068 (24-26 November 2011).

19. Mr. Purushottam Dhakal, Research Officer, NHRC participated in National Population Debate organized by Ministry of Health & Population, Ramsha path, Kathmandu, Co-ordination by UNFPA and AYON dated on 2068-09-04 (19 December 2011).

20. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated on Dissemination of National Strategies for Prevention and Control of Violence, Injuries and Disabilities organized by Ministry of Health & Population, Ramsha path, Kathmandu dated on 2068-09-14 (29 December 2011).

21. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated in Joint Annual Review Meeting organized by Ministry of Health & Population, Ramshah Path, Kathmandu dated on 2-4 Magh 2068 (16-18 January 2012).

22. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated meeting on National Commitment and Policy Instrument (NCPI) organized by National Centre for AIDS and STD Control, Teku, Kathmandu dated on 2068-11-02 (14 January 2012).

23. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated meeting on Health Sector Development Partners Forum organized by Ministry of Health & Population, Ramsha path, Kathmandu dated on 2068-11-04 (16 February 2012).

24. Mr. Purushottam Dhakal, Research Officer NHRC participated workshop on Integrated Biological and Behavioural Surveillance (IBBS) organized by National Centre for AIDS and STD Control, Teku, Kathmandu dated on 2068-10-24 (07 February 2012).

25. Ms. Namita Ghimire, Research Officer, NHRC participated workshop on Gender Audit organized by Ministry of Health & Population, Ramshah Path, Kathmandu, dated on 2068-12-17 (30 March 2012).

26. Mr. Subodh Kumar Karna, Deputy Chief Account Controller, NHRC participated on dissemination program entitled Resource Flow Activity organized by Ministry of

Health & Population, Ramshah Path, Kathmandu, dated on 2068-12-24 (06 April 2012).

27. Mrs. Sushhama Neupane, Research Officer, NHRC participated in the purpose of approval of conduction, renewal, updatation/infrastructure building of more than 50 beds, private and non-government hospital, nursing home, etc organized by Ministry of Health & Population, Ramshah Path, Kathmandu, dated on 2068-04-17 (02 August 2011).

28. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated in the purpose of approval of conduction, renewal, updatation/infrastructure building of more than 50 beds, private and non-government hospital, nursing home, etc organized by Ministry of Health & Population, Ramshah Path, Kathmandu, on 2068-10-13 (27 January 2012).

29. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated in the purpose of approval of conduction, renewal, updatation/infrastructure building of more than 50 beds, private and non-government hospital, nursing home, etc organized by Ministry of Health & Population, Ramshah Path, Kathmandu, on 2068-12-23 (05 April 2012).

30. Ms. Namita Ghimire Research Officer, NHRC participated workshop on Nepal Ageing Survey organized by Ministry of Health & Population, Ramshah Path, Kathmandu, dated on 2068-12-27 (09 April 2012).

31. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated meeting on HR Strategic Policy Dissemination Meeting organized by Ministry of Health & Population dated on 2069-02-24 (06 June 2012).

32. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated meeting on Dissemination of Leprosy Strategy 2011-15 & Consultative Meeting organized by Department of Health Services, Teku, Kathmandu dated on 2069-03-14 (28 June 2012).

33. Mr. Haridatt Joshi, Research Officer, NHRC participated meeting on Climate Change and Health Sector organized by National Health Education, Information and Communication Centre, Teku, Kathmandu dated on 2069-03-31 (15 July 2012).

34. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated meeting on Strategic Information Technical Working Group (SITWG) organized by National Centre for AIDS and STD Control, Teku Kathmandu dated on 2069-05-11 (27 July 2012).

35. Prof. Dr. Chop Lal Bhusal, Executive Chairperson and Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated on National Dissemination Meeting of Integrated Biological and Behavioral Surveillance (IBBS) Surveys, 2011 organized by National Centre for AIDS and STD Control, Teku, Kathmandu dated on 2068-04-21 (5 August 2011).

36. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated Workshop on Functional Assignment in Nepal's Health System for the Sub-Sectors Human Resources and Health Information System organized by Ministry of Health & Population, Ramshah Path, Kathmandu dated on 2068-05-10 (18 August 2012).

37. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Technical Advisory Committee Meeting to Review Preliminary Findings of NDHS 2011 organized by Ministry of Health & Population, Ramshah Path, Kathmandu on 2068-04-03 (15 August 2011).

38. Ms. Femila Sapkota, Research Officer, NHRC participated on consultative Meeting on Scaling Up Nutrition in Nepal and potential role of Civil Society Organization organized by Ministry of Health & Population, Ramshah Path, Kathmandu dated on 2068-04-03 (15 August 2011).

39. Dr. Krishna Kumar Aryal, Senior Research Officer, NHRC participated on Technical Committee Meeting to review the draft report organized by Ministry of Health & Population, Ramshah Path, Kathmandu dated on 2068-05-05 (22 August 2011).

40. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Human Resource Information, Planning and Staff Roles Presentation organized by Nepal Health Sector Support Programme, Ramshah path, Kathmandu on 2068-05-02 (19 August 2011).

41. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Technical Advisory Committee Meeting of Nepal Adolescent and Youth Survey, 2010/2011 organized by Ministry of Health & Population, Ramshah Path, Kathmandu on 2068-05-12 (29 August 2011).

42. Ms. Femila Sapkota, Research Officer, NHRC participated on Nutrition in Emergency (NIE) Training organized by Child Health Division, Teku, Kathmandu, date on 12-16 Bhadra 2068 (29 August to 02 September 2011).

43. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, and Prof. Dr. Ramesh Kant Adhikari, Ethical Review Board Coordinator NHRC participated on Dissemination Meeting on Chlorahexidine for umbilical cord care pilot finding organized by Department of Health Services, Teku, Kathmandu dated on 2068-06-12 (29 September 2011).

44. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Joint Government of Nepal/NCIP Consultative Meeting on JE, Polio and Neonatal tetanus organized by Child Health Division, Teku, Kathmandu dated on 01-02 Mangshir (17- 18 November 2011).

45. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated meeting on Technical Consultation on National Guidelines on HIV Surveillance in Nepal organized by National Centre for AIDS and STD Control, Teku, Kathmandu on 2068-09-01 (16 December 2011).

46. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated in TAG Meeting for Calcium Pilot organized by Department of Health Services, Family Health Division, Teku, Kathmandu on 2068-11-01 (13 February 2012).

47. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated in Master Training of Trainers for Helping Baby Breathe in Nepal organized by Department of Health Services, Teku, Kathmandu on 06-08 Magh 2068 (20-22 January 2012).

48. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on GoN/NCIP Meeting organized by Child Health Division, Teku, Kathmandu dated on 12-13 Chaitra 2068 (25-26 March 2012).

49. Dr. Rishi Ram Koirala, Vice Chairman, and Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated on Nepal Demographic and Health Survey Dissemination Seminar organized by Ministry of Health & Population, Ramshah Path, Kathmandu dated on 2068-12-13 (26 March 2012).

50. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated on 2010/2011 Nepal Adolescent and Youth Survey Dissemination organized by Ministry of Health & Population, Ramshah Path, Kathmandu dated on 2069-01-08 (20 April 2012).

51. Mr. Purushottam Dhakal, Research Officer, NHRC participated on Discussion Meeting on HH Survey 2012 tools organized by Nepal Health Sector Support Programme, Ramshah Path, Kathmandu dated on 2069-01-28 (10 May 2012).

52. Mr. Purushottam Dhakal, Research Officer, NHRC participated in Discussion Meeting on HH Survey 2012 tools organized by Nepal Health Sector Support Programme, Ramshah Path, Kathmandu dated on 2069-02-09 (22 May 2012).

53. Mr. Purushottam Dhakal, Research Officer, NHRC participated in Discussion Meeting on HH Survey 2012 tools organized by Nepal Health Sector Support Programme, Ramshah Path, Kathmandu dated on 2069-02-16 (29 May 2012).

54. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Consultation Meeting on typhoid vaccination program organized by Child Health Division, Teku, Kathmandu on 2069-03-28 (12 July 2012).

55. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Consultative Meeting on Intervention Package Development for Implementation on SBA Project on 2069-03-03 (17 May 2012).

56. Nepal Health Research Council Organized National Consensus Workshop to Define Health Systems Research Priorities (Phase-I) Supported by World Health Organization (WHO) dated on 2069-02-24 (06 June 2012).

57. Mr. Purushottam Dhakal, Research Officer NHRC participated on Environment Statistics of Nepal 2011 organized by Central Bureau of Statistics, Thapathali, Kathmandu on 2068-07-29 (15 November 2011).

58. Mr. Puka Lal Ghishing, Accountant NHRC participated on Workshop on Revenue Education organized by Department of Internal Revenue , Internal Revenue Office, Tripureshwor, Kathmandu on 2068-11-15 (27 February 2012).

59. Ms. Namita Ghimire, Research Officer NHRC participated on Operational Research Sub-group Meeting organized by Health Research and Social Development Forum (HERD), Thapathali, Kathmandu dated on 2068-11-22 (03 March 2012).

60. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Standards for Bachelor of Dental Surgery (BDS) Program organized by Nepal Medical Council, Bansbari, Kathmandu dated on 2068-12-10 (23 March 2012).

61. Prof. Dr. Chop Lal Bhusal, Executive Chairperson and Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated on Consultative Meeting organized by Society for Local Integrated Development Nepal (SOLID), Satdobato, Lalitpur dated on 2068-12-24 (06 April 2012).

62. Mr. Purushottam Dhakal, Research Officer NHRC participated in NADA Dissemination and Publicity Program organized by Central Bureau of Statistics, Thapathali, Kathmandu dated on 2069-01-21 (03 May 2012).

63. Dr. Krishna Kumar Aryal, Senior Research Officer, NHRC participated on the purpose of approval of conduction, renewal, updatation/infrastructure building of more than 50 beds, private and non-government hospital, nursing home, etc organized by Ministry of Health & Population, Ramshah Path, Kathmandu, dated on 2069-02-18 (31 May 2012).

64. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated meeting on Management and Awareness of the domestic Pesticides dated on 2069-03-21 (05 June 2012).

65. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated meeting on Multivitamin and Mineral Supplementation for Women of Child Bearing Age and Perinatal Outcome organized by Health Resources Consultancy Pvt. Ltd. Nepal dated on 2069-03-25 (09 July 2012).

66. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated on The National Workshop on Prevention and Control of Diarrhoeal Diseases organized by Nepal Public Health Foundation dated on 26-27 Shrawan 2068 (11-12 August 2011).

67. Mrs. Shailee Singh Rathour, Project Coordinator, NHRC participated on Consultative Meeting on Research Review Process organized by National Academy of Medical Sciences, Bir Hospital on 02-03 Bhadra 2068 (19-20 August 2011).

68. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated on Consultative Meeting organized by Society for Local Integrated Development Nepal (SOLID-N), Satdobato, Lalitpur dated on 2068-05-16 (02 September 2011).

69. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated on Project Advisory team Meeting (PAT) on Tackling Crisis in Human Resource for Health in Nepal organized by Save the Children dated on 2068-05-20 (06 September 2011).

70. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated on National Workshop on Non-Communicable Diseases organized by Nepal Public Health Foundation on 24-25 Bhadra 2068 (09-10 September 2011).

71. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated in Co-host the workshop on "Evidence-Based Policy and Programming in Public Health organized by USAID on 02 Ashwin 2068 (19 September 2011).

72. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated on Regional Consultation on Obstetric Fistula Surveillance organized by United Nations Population Fund (UNFPA), Jhamsikhel, Laliptur dated on 09- 11 Kartik 2068 (26-28 September 2011).

73. Mr. Purushottam Dhakal, Research Officer, NHRC participated on Advocacy Workshop for Mainstreaming HIV/AIDS in Multi sector organized by HIV/AIDS Alliance (NEHA) dated on 2068-07-18 (04 November 2011).

74. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated on dissemination Workshop on preliminary findings of research on state-building, peace-building and service delivery in Nepal organized by Save the Children and Practical Action Nepal dated on 2068-08-05 (21 November 2011).

75. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated in The 6th SEAPHEIN Annual Meeting organized by Nepal Public Health Foundation dated on 10-11 Mangsir 2068 (26-28 November 2011).

76. Mr. Chandra Bhusan Yadav, Library & Information Officer, NHRC participated in The "Workshop on development of Linkages between STAC Library and the Libraries of Kathmandu Valley based hospitals and Medical Colleges" organized by SAARC Tuberculosis and HIV/AIDS Centre, Thimi, Bhaktapur dated on 2068-08-26 (12 December 2011).

77. Prof. Dr. Chop Lal Bhusal, Executive Chairperson NHRC participated in National Workshop: A step into the transition process toward safer food organized by Department of Food Technology and Quality Control, Babar Mahal, Kathmandu, on 2068-08-29 (15 December 2011).

78. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated in the project advisory team meeting (PAT) on Tackling Crisis in Human Resource for Health in Nepal organized by Save the Children dated on 2068-09-08 (23 December 2011).

79. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on national level dissemination and intervention package development workshop organized by Nepal Public Health Foundation dated on 2068-09-20 (04 January 2012).

80. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated in Infectious Disease Interaction Program organized by United Team of Research in Microbiology, New Baneshwor dated on 2068-09-23 (07 January 2012).

81. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated on Regional Workshop on Dissemination of Baseline Report from EMPHASIS organized by CARE-Nepal dated on 2068-10-17 (31 January 2012).

82. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Seminar to establish Emergency Medical Services (EMS) Council-a Pilot Project in Nepal organized by NADAN dated on 2068-11-11 (23 February 2012).

83. Mrs. Sushhma Neupane, Research Officer, NHRC participated on consultation meeting regarding situation assessment of care and support and social protection needs for children affected by AIDS organized by Save the Children dated on 2068-12-16 (29 March 2012).

84. Mr. Purushottam Dhakal, Research Officer, NHRC participated meeting on Human Resource for Health: Current Situation, Challenges and Opportunities organized by Resource Centre for Primary Health Care (RECPHEC) on 2068-12-30 (12 April 2012).

85. Ms. Femila Sapkota, Research Officer, Assistant Research Officers Ms. Asmita Shrestha and Ms. Sumitra Katel NHRC participate field visit of National Vitamin A Supplementation Event organized by Nepali Technical Assistance Group (NTAG) on 06-07 Bhaishakh 2069 (18-19 April 2012).

86. Dr. Krishana Kumar Aryal, Senior Research Officer, NHRC participated in High Level Conference in Natural Products organized by Center for Molecular Dynamics Nepal (CMDN) in Collaboration with Ministry of Science and Technology (MoST) GoN, Embassy of India, in association with B.P. Koirala Nepal India Foundation on 06-07 Bhaishakh 2069 (18-20 April 2012).

87. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Dissemination Workshop for the survey Development of the Nepalese Growth Standard for the School-aged Children organized by Public Health and Infectious Disease Research Center (PHIDReC) on 2069-01-26 (08 May 2012).

88. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Consultative Meeting "Generating Evidence for introduction of combination regimens for kala-azar in Nepal" organized by B.P. Koirala Institute of Health Sciences, Dharan on 2069-01-29 (11 May 2012).

89. Mrs. Sushhma Neupane, Research Officer, NHRC participated in A Seminar on HIV/AIDS and STD in Nepalese Scenario organized by United Team of Research in Microbiology on 2068-02-01 (14 May 2012).

90. Dr. Krishna Kumar Aryal, Senior Research Officer NHRC participated in Dissemination Workshop for Research Findings organized by Public Health and Infectious Disease Research Center (PHIDReC) on 2069-01-26 (08 May 2012).

91. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated in Seminar on "Risk Related to Pathogens and Chemicals in Domestic Animals" organized by Tribhuvan University, Kirtipur, Kathmandu on 2069-02-12 (25 May 2012).

92. Dr. Krishna Kumar Aryal, Senior Research Officer NHRC participated in "Pesticides Use in Agriculture, Health and Environment" organized by Nepal Public Health Foundation on 2069-02-32 (14 June 2012).

93. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated in National Level ASRH Dissemination Workshop organized by The Britain Nepal Medical Trust, Lazimpat, Kathmandu on 2069-03-01 (15 June 2012).

94. Dr. Shanker Pratap Singh, Member-Secretary, NHRC participated in The Project Advisory team meeting (PAT) on Human Resource for Health organized by Save the Children on 2069-03-11 (25 June 2012).

95. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated in National Multi-sectoral Consultative Meeting on Health Systems Strengthening organized by National Planning Commission Secretariat, Singhdarbar, Kathmandu in collaboration with the World Health Organization (WHO) on 2069-01-07 (19 April 2012).

96. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated in National Policy Dialogue on Mental Health organized by National Planning Commission Secretariat, Singhdarbar, Kathmandu and Nepal Mental Health Foundation (NMHF) on 2069-02-29 (11 June 2012).

97. Ms. Femila Sapkota, Research Officer, NHRC participated in Nutrition Technical Advisory Committee Meeting organized by National Planning Commission Secretariat, Singhdarbar, Kathmandu on 2069-02-30 (12 June 2012).

98. NHRC Research Officers Mr. Purushottam Dhakal, and Ms. Sushhama Neupane, Participated in National Dissemination of 2011 Integrated Biological & Behavioral Surveillance (IBBS) Surveys Findings among Injecting Drug Users and Female Sex Workers organized by National Centre for AIDS and STD Control, Teku, Kathmandu on 2068-04-20 (12 June 2012).

99. Ms. Namita Ghimire, Research Officer NHRC participated on "Perception, Experience and Health Outcome of Women who had Uterine Prolapse Surgery" organized by Family Health Division, Teku, Kathmandu on 2068-04-27 (12 August 2011).

100. Ms. Sushhma Neupane, Research Officer NHRC participated on Laboratory Containment of Wild Polio Virus organized by Department of Health Services, Teku, Kathmandu on 2068-07-06 (23 October 2011).

101. Dr. Shanker Pratap Singh, Member Secretary, NHRC participated on International Centre for Genetic Engineering and Biotechnology, ICGEB organized by Ministry of Sciences & Technology on 2068-12-19 (01 April 2012).

102. Prof. Dr. Chop Lal Bhusal, Executive Chairperson, NHRC participated on Workshop on Achievements and Opportunities to respond Weather & Climate Related challenges in Nepal: 'Now & Future' organized by Department of Hydrology & Meteorology on 2069-01-06 (18 April 2012).

103. Mr. Haridatt Joshi, Research Officer, NHRC participated in Discuss on National Greenhouse Gas Inventory for SNC and Climate Change Vulnerability (Impact & Adaptation) Assessment organized by Ministry of Health & Population on 2069-01-17 (29 April 2012).

104. Dr. Krishna Kumar Aryal, Senior Research Officer, NHRC participated in Switch Asia Lead Paint Elimination Project organized by Center for Public Health and Environmental Development on 2069-01-18 (30 April 2012).

105. Mr. Haridatt Joshi, Research Officer, NHRC participated on Chemicals in Products-CiP organized by Center for Public Health and Environmental Development on 2069-02-21 (03 June 2012).

106. Dr. Shanker Pratap Singh, Member-Secretary, Dr. Krishna Kumar Aryal, Senior Research Officer, Mr. Nirbhay Kumar Sharma, Senior Administration Officer and Mr. Bijay Kumar Jha, Training Officer NHRC participated on Workshop on Country Capacity Building on WHO Collaborating Centers organized by World Health Organized (WHO) on 11-15 Bhaishakh 2069 (23-27 April 2012).

Annex – VIII: NHRC's Executive Board Meetings

1. Nepal Health Research Council organized Executive Board 157th Meeting on 2068-05-22 (08 September 2011).

2. Nepal Health Research Council organized Executive Board 158th Meeting on 2068-10-20 (03 February 2012).

3. Nepal Health Research Council organized Executive Board 159th Meeting on 2068-12-12 (03 March 2012).

Annex – IX: NHRC's Ethical Review Board Meetings

1. Nepal Health Research Council organized Ethical Review Board (ERB) 94th Meeting on 2068-04-18 (03 August 2011).

2. Nepal Health Research Council organized Ethical Review Board (ERB) 95th Meeting on 2068-04-29 (14 August 2011).

3. Nepal Health Research Council organized Ethical Review Board (ERB) 96th Meeting on 2068-06-08 (25 September 2011).

4. Nepal Health Research Council organized Ethical Review Board (ERB) 97th Meeting on 2068-07-03 (20 October 2011).
5. Nepal Health Research Council organized Ethical Review Board (ERB) 98th Meeting on 2068-08-07 (14 August 2011).
6. Nepal Health Research Council organized Ethical Review Board (ERB) 99th Meeting on 2068-09-01 (16 December 2011).
7. Nepal Health Research Council organized Ethical Review Board (ERB) 100th Meeting on 2068-10-15 (29 January 2012).
8. Nepal Health Research Council organized Ethical Review Board (ERB) 101th Meeting on 2068-11-11 (23 February 2012).
9. Nepal Health Research Council organized Ethical Review Board (ERB) 102th Meeting on 2068-12-01 (14 March 2012).
10. Nepal Health Research Council organized Ethical Review Board (ERB) 103th Meeting on 2068-12-20 (02 April 2012).
11. Nepal Health Research Council organized Ethical Review Board (ERB) 104th Meeting on 2069-01-27 (09 May 2012).
12. Nepal Health Research Council organized Ethical Review Board (ERB) 105th Meeting on 2069-03-17 (01 July 2012).

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