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Late Dr. Durga Datt Joshi, Founder of NZFHRC

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Zoonoses and Food Hygiene News, published four times a year, provides a medium for disseminating technical information on matters related to zoonoses and food hygiene generated in the world, particularly in Nepal. The editors welcome submissions on these topics with appropriate illustrations and references. The views and opinions expressed in the News are those of the authors.

CONTENTS:

- **Review of One Health Epidemiology Fellowship Programme Coordination in Nepal**
☞ **NEWS**

Review of One Health Epidemiology Fellowship Programme Coordination in Nepal

Introduction

Massey University is implementing a three-year One Health (OH) program in Afghanistan, Bangladesh, Bhutan and Nepal from April 2014 to March 2017. The European Union funded the program under the One Health Program in Asia (Europe Aid/133708/C/ACT/Multi; Contract DCI-ASIE/2013/331-217). The overall objective of the program is to develop a collaborative approach to investigation and control of zoonotic diseases among the human, animal and wildlife health sectors in each of the beneficiary countries through education and joint action.

Specific objectives are:

1. To provide formal postgraduate education in human, animal, and wildlife disease epidemiology and develop local language teaching materials for national implementation in Afghanistan, Bangladesh, Bhutan and Nepal.
2. To undertake pilot investigations of zoonoses to determine national priorities based on a range of assessment factors, and then learn how these approaches can be applied to a wider range of diseases.
3. To build and strengthen collaborative relationships within and between countries by integrating project participants into One Health Hubs already implemented in the Region.

The Fellowship program will train 6 (six) participant from each country from the three key sectors, public health, animal health and wildlife health sectors. The fellowship program will run over two (2) years from October 2014 to October 2016. The cohorts in each country will be connected across the region through a series of

collaborative activities and regional workshops. The core of the program is a One Health Epidemiology Fellowship Program in which participants from the human health, animal health and wildlife sectors study together for Master's degrees in epidemiology and biosecurity, and then apply that training using a collaborative approach to reduce the risks of endemic and emerging epidemic diseases transmitted from animals and wildlife to people, protecting and improving livelihoods in their countries. The applied studies focus on priority diseases in each country to provide information of value to national policy and decision makers. Participants are also working with key national institutions in each country to develop educational programs to pass on knowledge and methods learned for future One Health capacity building.

This One Health program promotes collaborative relationships between the human health, animal health and wildlife health professions within and between countries. This is critically important to managing both endemic and emerging zoonotic diseases like avian influenza.

ACTIVITIES

The first quarter summary report:

One Health Epidemiology Fellowship Program was launched in Nepal on 27th August, 2014 by National Zoonoses and Food Hygiene Research Centre (NZFHRC) Chagal, Kathmandu, as the main and Agriculture and Forestry University (AFU) Rampur, Chitwan as the partner in-country host collaborating organizations. The contract on Request for Proposal of Goods and Services was signed between Vice-Chancellor of Massey University and Executive Chairman of NZFHRC. As per the contract, NZFHRC is to host fellows by providing office space and internet facility, provide a collegial and collaborative work environment, coordinate and facilitate in-country program activities in collaboration with one or more collaborating institutions in Nepal. During these three-months period, NZFHRC has provided OH fellows well managed academic building with separate study room (cabin based), seminar hall where they can conduct journal club and discuss various subject related to their course, library facility and general meeting hall. OH fellows have been also provided with reliable and high speed internet facilities for online study. Programme coordinator keep in touch with fellows regularly through a weekly meeting with the fellows to discuss on their course and any issues they face. Till date no big issue has been raised except for day to day minor issues that were being resolved by NZFHRC. Prof. Dr. Ishwori Prasad Dhakal, Vice Chancellor of AFU (sub-contractor for One Health Fellowship Program in Nepal) has also provided monitoring and mentorship support to the fellows from time to time. As per the terms of reference of the host organization, NZFHRC has already organized two professional engagement programmes. A seminar on One Health Epidemiology from Animal Health Perspective was provided by Dr. Khadag Singh Bista, FAO-ECTAD, Nepal and another on One Health Epidemiology from Public Health Perspective provided by Dr. Babu Ram Marasini, Director, Epidemiology and Diseases Control Division (EDCD), Department of Health Services, Teku, Kathmandu. These seminars proved beneficial to OH fellows and broaden their understanding of One Health perspectives. During this reporting period, NZFHRC made necessary arrangement of field visits of OH fellows to EDCCD as well as to DLS to understand the current status of government activities and policies to combat with zoonotic diseases in Nepal. Besides these OH fellows were provided opportunity to participate in

Japanese Encephalitis third year annual review workshop. This workshop is organized by NZFHRC and the fellows got exposure and understanding on the current status of JE along with the recommended control policy for JE in Nepal developed during the workshop. Similarly, the fellows have also participated in two-day National Symposium on Priority Zoonotic Diseases in Nepal organized by NZFHRC in the memory of late Dr. Durga Datt Joshi, Former Executive Chairman and Founder of NZFHRC. During the workshop the OH fellows learned about the government prioritized zoonotic diseases and their current status in the country. During this reporting period, the OH fellows had undergone their first assessment exam. To monitor the exam NFHRC has recruited Dr. Narayan Prasad Ghimire, who is currently the Registrar of Nepal Veterinary Council to supervise the exam as required by the Massey University. Till this reporting date the One Health Epidemiology Fellowship Programme is running smoothly with good academic and learning environment and good collegial and logistical support provided by the NZFHRC.

The second quarter summary report:

One Health epidemiology program 2nd quarterly period was finished successfully (January to March). Programme Co-ordinator remain in touch with fellows most of the time and regularly organizing the weekly meeting with the fellows to discuss on their course and obstacles. Till date we have not faced any major problems. Sub – contractor Prof. Dr. Ishwori Prasad Dhakal is monitoring the fellows time to time. OH fellows were participated NZFHRC other activities like free dog vaccination program in Kathmandu valley. By attending this programme OH fellows became familiar and updated their knowledge on current government policies and activities to control Rabies and public health issues. During this period, three professional engagement programme was launched from experts from different fields. Dr. Sher Bahadur Pun, Sukra Raj Hospital, Clinical Research Unit, Teku has delivered lecture on infectious diseases in Nepal. From this programme OH fellows learnt about recent development in the field of infectious diseases prevalent in Nepal. Similarly, second engagement programme was with Brecht Devleesschauer, Department of Virology, Parasitology and Immunology, Belgium and discussed on unravelling the burden of zoonoses in Nepal where OH fellows learn about zoonotic diseases of Nepal. Last engagement programme was with Dr. Puspa Raj Khanal and Dr. Krishna Chandra Thakuri, Veterinary Epidemiology, Centre, Tripureshor. In this programme OH fellows learnt about Database management of animal diseases in Nepal. Other activities include field visit and discussion on Rabies control Division and clinical research unit, Teku. Besides this OH fellows are working with high speed internet for online study and enjoying with regular refreshment and lunch form one health epidemiology programme special kitchen.



Dr. Brecht Devleesschau was delivering the lecture on Unraveling the Burden of Zoonoses in Nepal and Daly calculation in practice: a

stepwise approach to the calculation of disability adjusted life year to quantify the burden of diseases.

The third quarter summary report:

During the month of April to June 2015, the fellows of One Health Epidemiology Fellowship Program studying online course at NZFHRC have made good progress and carried out many productive activities. The fellows have attended three-day short course on "One Health approach to Disease Outbreak Investigation Programme" organized by Georgia Regent University in collaboration with the Centre for Molecular Dynamics-Nepal (CMDN). In this short course, the fellows have learned the basic principles and methods of epidemiology applied to disease outbreak investigation and management. Similarly NZFHRC had appointed Dr. Mukul Upadhyaya, Senior Veterinary Officer, Ministry of Agriculture Development as external supervisor to monitor the quarterly online examination of One Health Fellows on 13 April, 2015. NZFHRC had provided all logistical support and other arrangements to the fellows to appear their exam in a well-disciplined manner as required by Massey University. At the end of this semester all One Health fellows attended two-week Regional Workshop of Evaluation of Disease Control Policy and Economics in Bhutan organized by Massey University along with other One Health Fellows from Bangladesh, Bhutan and Afghanistan. The workshop was also attended by Dr. Mahendra Maharjan, Research Coordinator of NZFHRC and Prof. Dr. Ishwori Prasad Dhakal, Dean, AFU as representatives from host organizations of Nepal. During the workshop, the future project plan of one health fellows was discussed and finalized. Accordingly One Health fellows of Nepal have agreed to conduct applied epidemiology research on Brucellosis and JE at the initial phase and other two diseases in next phase. NZFHRC has organized one day Annual Meeting and Ms. Minu Sharma, Program Coordinator of NZFHRC disseminated nine months project achievements to the different sectors of government bodies.

The fourth quarter summary report:

During the month of July to September 2015, One Health Epidemiology fellows continued their online course at NZFHRC and made very good progress and carried out many activities. The fellows have been involved in the discussion, planning and the organization of the world Rabies Day celebration with NZFHRC and AFU representatives at zoonoses centre on 14 September 2015. On 21st September 2015, Dr. Damodar Sedhai has been invited for the professional engagement programme. He has presented a paper on risk analysis: concept and its use in Nepal. This presentation proved very beneficial to the OH fellows, particularly as the fellows understood the concept of Hazard identification and risk assessment in medico-veterinary spheres. They learned two standard models of risk analysis systems along with the different types of risk analysis methods adopted throughout the world. They also learned various benefits of the risk analysis from the lecture and discussion. Similarly, during this reporting period, NZFHRC have provided necessary secondary data available in the centre related to Japanese encephalitis, Rabies and Anthrax for their epidemiological studies. The data was helpful for them to prepare proposal for their project and assessment in the next semester. Fellows with NZFHRC and AFU along with other stakeholders celebrated World Rabies Day on September 28. NZFHRC has actively participants in the celebration of world rabies day every year by conducting various activities. On 23, 24th and 30th September, veterinarian of NZFHRC has delivered lectures on awareness of rabies, its prevention and control program for the school children of three public and private schools of the Kathmandu. Similarly on 28th September, NZFHRC conducted anti-rabies vaccination program in dogs at Chagal and Dallu area of Kathmandu. A total of 52 dogs have been vaccinated along with administering of other anti-helminthic drugs. NZFHRC staffs have participated on rallies organized by government on the World Rabies

Day. Veterinarians this centre gave interview in radio Nepal on status of rabies in Nepal and other progress made in Nepal towards its control and prevention.

The fifth quarter summary report:

The fifth quarter of one health program started from October 2015 to December 2015. During this period, one health fellows completed their assigned courses in wildlife epidemiology, the interface of human and animal disease, international public health, communicable disease prevention, risk and decision making. Dr. Sithar Dorjee, Regional Coordinator for South Asia One Health Program International Development Group Massey University, New Zealand visited the NZFHRC and provided mentorship and guidance to the one health fellows on developing questionnaires for the applied epidemiology field studies. Dr. Dorjee and one health fellows also visited pig and cattle farms in different areas of Kathmandu and Bhaktapur districts. These trips helped them for designing the questionnaires and later carried out pre-pilot testing of the questionnaires. The NZFHRC hosted Dr. Dorjee and made all arrangements for his field visits. In addition, NZFHRC also conducted the 2nd National Symposium on Priority Zoonoses in Nepal: Rabies on 30 November 2015. Scientists and subject matter specialists belonging to governmental, nongovernmental, and private sector organizations conducting research and/or services in animal, human and wildlife health, were invited by the NZFHRC to present technical papers relevant to the One Health approach with emphasis on prevention and control of rabies in Nepal. A total 12 papers were presented in the symposium. One health fellows have also participated in this symposium. They got good opportunity to share their knowledge about one health concept to control disease in the symposium which they have been studying in their courses. Dr. Sithar Dorjee presented a paper entitled "One Health Approach: HPAI Preparedness and Response Plan in Bhutan". He presented the HPAI operational module applied for the control and containment of highly pathogenic avian influenza in Bhutan and suggested to modify the module and develop appropriate policy strategy for the prevention and control of priority Zoonoses including rabies in Nepal. Dr. Barun Sharma, OH fellow MVM (Biosecurity) of Massey University also presented a paper entitled "One Health Perspective for Rabies Control in Nepal". Dr. Barun Sharma focused on the WHO-OIE-FAO agreement as the commitment for elimination of rabies at global level. In the national context he urged the stakeholders for an integrated step-by-step strategic approach focusing mainly on collaboration, legislation, surveillance, mass awareness and mass vaccination for the successful control and elimination of rabies in Nepal. Mr. Deepak KC, Social Welfare Administrative Officer, District Development Committee, visited NZFHRC for evaluation and monitoring the one health programme. At the end of fifth quarter, three days interaction program was held on statistical modeling, especially on Poisson regression modeling and multivariate analysis. Overall, fifth quarter programme was completed successfully.

The sixth quarter summary report:

The sixth quarter of one health program started from January 2016 to March 2016. During this period, one health fellows completed their assigned courses on epidemiology and biostatistics, economics of animal disease and ecosystem health. One health fellows completed survey on assessment of biosecurity practices and network analysis of cattle and buffalo movements to understand the risk of brucellosis spread in Nepal, and Risk mapping of JE using swine movement network analysis and environmental factors including land use patterns in Nepal. They did their survey in Kavre and Jhapa districts of Nepal. Program co-ordinator Ms. Minu Sharma had managed all logistic arrangement and monitored the survey. As a part of the professional engagement program, one health fellows participated in the workshop on strategic planning for improving wildlife health

capacity in Nepal which was held on Feb 6 to 8, 2016 at National Trust Nature Conservation (NTNC) Saurah, Chitwan, Nepal. Similarly, co-host organization visit programme was also held Saurah, Chitwan. Dr. David Murdoch, Professor and Head of Pathology, University of Otago, Christchurch, New Zealand NZFHRC and presented paper entitled Collaborative Research at Patan Academy of Health Science. He delivered the descriptive epidemiology of bacterial and viral disease burden in Nepal and evaluation of vaccine schedule of pneumococcal conjugate vaccine. National Zoonoses and Food Hygiene Research Centre (NZFHRC), Chagal and Agriculture and Forestry University (AFU) Rampur, Chitwan, Nepal in collaboration with Massey University, New Zealand organized a 3-day workshop on Database Design and Management using EPI Info 7. The program was held from 31 March to 2 April 2016 at Grand Hotel, Tahachal, Kathmandu. Dr. Sithar Dorjee, Regional Coordinator for South Asia One Health Program, International Development Group of Massey University, New Zealand was a facilitator. The main aim of the workshop was to train one health fellows and officials from others key agencies- medical colleges, wildlife sectors, veterinary sectors and environmental health sectors involved in one health activities in Nepal on database design and management to build their research capacity. Overall, the field data collections for collaborative Investigation Projects (CIPs) were completed successfully and the fellows learnt how to translate the paper questionnaires and responses to electronic database using Epi Info. After their designed their database, fellows will enter the data for analysis in May to June period. The fellows and officials will also be trained in the data analysis and network analysis in May 2016. Thus, sixth quarter program has also completed successfully.

Experience as a One Health Fellow at NZRFC collaborated with Massey University, New Zealand

Dr. Binod Prasad Gupta:- I am one of the six fellow at NZFRC conducted by Massey University, New Zealand, has been completed MPH- Bio-security and doing Applied Epidemiology. During the one health fellowship, I got opportunity to develop expertise in field epidemiology and public health research. I enjoyed carrying out disease surveillance, outbreak investigation as well as data collection and analysis. I worked with multidisciplinary teams to achieve a common goal preventing and controlling zoonoses through active investigation and timely response. This experience sharpened my leadership skills and through the fellowship, I also got better at this project management and proposal writing. I feel proud to have been a part of One Health Program and confident that with this newly acquired competencies, I can effectively conduct an outbreak investigation in any part of the world. Learning to design and use monitoring and evaluation techniques in an organizational settings were among my most interesting and memorable lessons during my fellowship at NZFHRC. I believe that One Health Fellowship was a wonderful opportunity for me and other fellows to enhance knowledge and passion for epidemiology.

Over all out come

- One health fellows have completed their fundamental epi papers and specialty papers
- Acquainted with epidemiological methods for disease control and disease control policy evaluation
- Learnt to work in multidisciplinary team
- Field data collection for CIPs almost completed
- Multi-sectoral network has been build



Group photo of One Health Epidemiology Fellowship Program Workshop: Database Design and Management Using EPI INFO 7

NEWS:

Ms. Minu Sharma Program Coordinator of NZFHRC was awarded Elsevier Foundation Travel Grant for **Early Career Women Scientists from Low or Lower-Middle Income Countries to Present Research Findings at the 17th ICID in Hyderabad, India** by the International Society for Infectious Diseases.

She has participated in the "17th International Congress on Infectious Diseases" held at the Hyderabad International Convention Centre from March 2 to 5, 2016 in Hyderabad, India. She has presented a poster on "Reducing Vulnerability to the Threat of Japanese Encephalitis Transmission in High Risk Districts in Nepal".

Training on Quantum GIS and Spatial Data Analysis

National Zoonoses and Food Hygiene Research Centre (NZFHRC), Chagal, Kathmandu and Agriculture and Forestry University (AFU) Rampur, Chitwan, Nepal in collaboration with Massey University, New Zealand will be organized a 4-days training on Quantum GIS and Spatial Data Analysis. The program will be held from 9-12 May 2016 at Chagal, Kathmandu, Nepal.

DDJ Research Award:

Please kindly submit your research work on zoonotic diseases for consideration of DDJ Research award for the year 2016 by the end of September 2016 to NZFHRC office Chagal, G.P.O. Box 1885, Kathmandu, Nepal, Phone: 4270667, 4274928 and Fax 4272694. This award was established by DDJ Research Foundation in 2071 B.S. (2014) in the memory of Founder of this Foundation, Late, Dr. D.D. Joshi. The award includes a grant of NCRs. 25,001/- (Rs. Twenty Five Thousand and One) with a certificate.

K.D.M.A. Research Award:

Please kindly submit your research work paper on allergy award for the year 2015 for the consideration by the end of September 2016 to KDMART office Chagal, G.P.O. Box 1885, Kathmandu, Nepal, Phone: 4270667, 4274928 and Fax 4272694. This award was established by Late Dr. Durga Datt Joshi in 2049 B.S. (1992) on the memory of his wife, the late Mrs. Kaushilya Devi Joshi. The award includes a grant of NCRs. 15,001/- (Rs. Fifteen Thousand and One) with certificate.

**From: Zoonoses & Food Hygiene News, NZFHRC
P.O. Box 1885, Chagal, Kathmandu, Nepal.**

TO:

Dr/Mr/Ms

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