

# Zoonoses and Food Hygiene News

Vol. 12 No.4 October - December, 2006

Government of Nepal, Registration Number: 148/049/050

**This Issue has been Supported by VLIR Project, Belgium**

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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.*

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## **Three Years Progress Report on Urban Ecosystem Health Project Phase – II**

**14 October 2003 - 13 October 2006**

*Minu Sharma and D. D. Joshi*

### **Summary:**

IDRC created the Echohealth program in 1996. This innovative program proposed inviting scientists, decision-makers, and community members to work toward improving the community's health by improving the environment. Since then, this program has been implemented in 30 countries in Latin America, Africa, the Middle East, and Asia including Nepal supported by IDRC. Health is not the absence of illness in Jean Lebel's perspective. It is better defined as a harmonious participation in the resources of the environment, which allows individuals the full play of their functions and aptitudes. Based on this principal National Zoonoses and Food Hygiene Research Centre (NZFHRC) has strengthened its sociological aspect of research in social mobilization for urban ecosystem health since last 3 years of phase II. The primary beneficiaries of the project are the men, women and the children, with particular focus on the marginalized poor including squatters, street vendors, sweeper and ward offices 19 and 20 of Kathmandu Metropolitan City (KMC).

The specific objectives of this three years project on Urban Ecosystem Health were disseminate and share the findings of research from the first-phase project with different stakeholders, from communities, through policymakers for planning and implementation of environmental and health programs and policies; support and strengthen on-going community actions, KMC initiatives and advocacy efforts that emerged from the first-phase project, including monitoring and evaluation of these works and generate in-depth understanding and possible actions to address problems of poverty

and powerlessness of urban poor specially, unorganized wage laborers, and women sweepers, in the study Wards and in relation to urban ecosystem health. Hence one-day annual review workshop was organized to assess the achievement of these above-mentioned objectives implemented.

We are most grateful to International Development Research Centre (IDRC) particularly Dr. Andres Sanchez, Program Officer, Eco Health Department for his kind technical supervision and financial support to this Urban Ecosystem Health Project Phase - I and II.

## **Free Dog Rabies Vaccination in Dharan Municipality, Sunsari District**

*D. D. Joshi*

### **General Objective:**

- To control rabies in dog and cat population in Dharan Municipality.
- To control human rabies cases due to suspected rabid dog and cat bite cases.
- To organize mass public health awareness programme in Dharan municipality.

### **Specific Objectives:**

- Vaccinate all pet dogs and cats, community dogs and stray dogs against rabies in all wards of Dharan Municipality.
- Carry out community health awareness about rabies in humans and animals.
- Carryout deworming of pets brought for vaccination.
- Prepare a final report of Dharan Municipality covered in the project.

### **Methodology:**

The implemented rabies control project was a preliminary effort toward working out and achieving a long-term rabies control on a national level with time and integrated efforts. The program was continuation of the same type of program during the previous year in other parts of the Nepal. This project conducted mass rabies vaccination of dogs and cats in all wards of Dharan Municipality.

Dharan Municipality, Department of Livestock Services, Department of Health Services, NZFHRC and DURVN were main organizations, directly participating in the program. Mass awareness and vaccination program was carried out in coordination with respective municipality, DLSO, DLS, and DHS. The project was implemented by National Zoonoses and Food Hygiene Research Centre, Kathmandu, Nepal and supported by Donative Unit for Rabies Vaccine to Nepal, Tokyo, Japan. Eleven thousand five hundred (11,500) doses of rabiesin have been received as donation from Japan through MERIAL -17, rue Bourgelat 69002 Lyon - France.

Epidemiology and disease control division of DHS is a state run department responsible to promulgate health policies and ensuring good health of the people. Epidemiology and Disease Control Division has in the past run programs to control rabies and is the focal point of action in issues pertaining to zoonoses, as rabies and Japanese encephalitis.

DLS is the state run department responsible to livestock services including animal health care. Department's due expertise in animal disease control proved effective as facilitators in working out plans and carrying out the vaccination program. The District Livestock Service office of Sunsari provided with JT/JTAs as vaccination technicians for the campaign and was direct participants in the campaign.

#### Project Areas and Duration:

The project was implemented in all the 19 wards of Dharan Municipality. Dharan Municipality was informed to locate sites and dates for vaccination. Some wards were very big so they were given a single different site. In other wards sited was placed such as to cover three to seven wards. The Vaccination was carried out for six days from November 13 to November 18, 2006. Vaccination time was 8 AM to 1 PM. The detailed schedule of vaccination is given below in table no. 1.

**Table no. 1: Dog Rabies Vaccination Schedule in Dharan Municipality Sunsari District Nepal.**

| Date of Vaccination | Ward No.        | Centre for Vaccination                |
|---------------------|-----------------|---------------------------------------|
| November 14, 06     | 1,2,3,4,5,6 & 7 | Shopping Complex Dharan - 3           |
| November 14, 06     | 1,2,3,4,5,6 & 7 | Red Cross Offices Dharan - 1          |
| November 15, 06     | 8,9,10 and 12   | 10 Ward Office                        |
| November 15, 06     | 9, 10 and 12    | Dharan Municipality Office-12         |
| November 16, 06     | 8               | 8 Ward Office                         |
| November 16, 06     | 15              | M.C.H. Clinic Minan Chwok Dharan - 15 |
| November 17, 06     | 13              | 13 Ward Office                        |
| November 17, 06     | 14              | 14 Ward Office                        |
| November 18, 06     | 16, 18 and 19   | 16 Ward Office                        |
| November 18, 06     | 16, 18 and 19   | 19 Ward Office                        |
| November 19, 06     | 11              | 11 Ward Office                        |
| November 19, 06     | 17              | 17 Ward Office                        |

#### Publicity:

Extensive publicity was done over the FM radio, national and local newspapers and mobile loud speakers. Pamphlets, leaflets and calendars were also distributed one month in advance to create awareness regarding need to vaccinate dogs against rabies and its public health importance. Publicity was followed up with a next comprehensive effort from the ward representatives and public health workers few days before vaccination to inform and motivate the residents to bring their pets to vaccination centers. News regarding vaccination was published in local/national dailies and weeklies and added to the publicity efforts.

NZFHRC coordinated the entire publicity effort providing publicity materials and technical support. Technicians and manpower support from the DLS, Sunsari proved critical in carrying out the coordinated vaccination in an effort to reach out to the best of capacity.

#### Type of vaccine used:

**Rabisin**, an inactivated adjuvanted vaccine was used for mass vaccination campaign. Each dose of this vaccine contains an inactivated rabies antigen (fixed virus), at least 1IU, Aluminium (as hydroxide), at most 2mg, and Merthiolate, at most 0.1mg.

#### Results:

As it was the first ever vaccination and similar type of charitable program concerning animals for People of Dharan a huge response was obtained there. A total of 1052 dogs and cats were vaccinated in Dharan Municipality. The distribution of population of dogs and cats vaccinated at different vaccination sites is listed in table no. 2.

**Table no. 2: Ward, Center and Sex-wise Population of Dogs and Cats Vaccinated at Dharan Municipality.**

| Centre           | Wards Covered | Dogs |     |     | Cats |    |    | GT   |
|------------------|---------------|------|-----|-----|------|----|----|------|
|                  |               | T    | M   | F   | T    | F  | M  |      |
| Shopping Complex | 1,2,3,4,5,6,7 | 43   | 28  | 15  | 3    | 0  | 3  | 46   |
| Ward 12          | 9,10,12       | 33   | 20  | 13  | 4    | 0  | 4  | 37   |
| Ward 8           | 8             | 85   | 64  | 21  | 1    | 0  | 1  | 86   |
| Ward 13          | 13            | 139  | 92  | 47  | 19   | 6  | 13 | 158  |
| Ward 16          | 16,18,19      | 93   | 67  | 26  | 12   | 4  | 8  | 105  |
| Ward 11          | 11            | 114  | 91  | 23  | 14   | 5  | 9  | 128  |
| Red cross Office | 1,2,3,4,5,6,7 | 35   | 25  | 10  | 3    | 0  | 3  | 38   |
| Ward 10          | 9,10,12       | 28   | 15  | 13  | 3    | 1  | 2  | 31   |
| M.C.H Clinic     | 15            | 79   | 53  | 26  | 17   | 8  | 9  | 96   |
| Ward 14          | 14            | 82   | 59  | 23  | 9    | 5  | 4  | 91   |
| Ward 19          | 16,18,19      | 56   | 39  | 17  | 20   | 4  | 16 | 76   |
| Ward 17          | 17            | 143  | 107 | 36  | 17   | 6  | 11 | 160  |
| Grand Total      |               | 930  | 660 | 270 | 122  | 39 | 83 | 1052 |

Out of total population of 1052 vaccinated against rabies, majorities of them were dogs. Total 930 were dogs and rests 122 were cats. It shows the likeliness of people of Dharan for dogs to cats as a pet. The highest no of population of dogs and cats were vaccinated in sites at Ward no 17 and Ward no 13 office although the sites covered only the respective wards. The number of dogs and cats vaccinated were 160 and 158 respectively in those wards. The reasons for good response to those sites may be due large areas and huge dog and cats population and also due to effective publicity by being in last dates of the vaccination schedule.

### Impact Assessment and Control of Cysticercosis in the Indian Subcontinent

*D. D. Joshi*

**Country and region of the project:** India (Tamil Nadu) and Nepal (Kathmandu)

**Project Duration:** 2006-2010 (4 years)

**Date of project started:** 01/9/2006

**Applying Flemish institute:** Ghent University (UGent)

▪ **Department of Virology, Parasitology and Immunology, Faculty of Veterinary Medicine, Belgium University.**

Promoter: Prof. Dr. J. Vercruyse

Salisburylaan 133, 9820 Merelbeke.

Co-promoter: Prof. Dr. P. Dorny

Department of Virology, Parasitology and Immunology, Faculty of Veterinary Medicine, UGent. Salisburylaan 133, 9820 Merelbeke.

#### Partners:

**a. Christian Medical College (CMC), Department of Neurological Sciences, Vellore, India**

Local promoter: Prof. Dr. Vedantam Rajshekhar

Department of Neurological Sciences, CMC hospital, Vellore 632004, India.

**b. National Zoonoses and Food Hygiene Research Centre (NZFHRC), Kathmandu, Nepal**

Local promoter: Dr. Durga Datt Joshi, Executive Chairman

National Zoonoses and Food Hygiene Research Centre (NZFHRC), G.P.O. Box 1865, Jeevan Smriti Marg House No. 468/32 Chagal, Ward No. 13 KMC, Kathmandu, Nepal.

### Nature of the proposed project

|                   | Score (1-5) |
|-------------------|-------------|
| Research          | 5           |
| Capacity Building | 4           |
| Extension         | 3           |

### Project Summary:

Cysticercosis, a tapeworm (*Taenia solium*) transmitted to man by pigs is a major preventable cause of epilepsy in developing countries. Neurocysticercosis is regularly diagnosed in India and Nepal, where the disease has some unique epidemiological and clinical features. Data on transmission patterns, the burden of disease and the economical impact it causes are inexistent in South Asia. In a first phase, the project aims to provide the evidence base on the presence and impact of *T. solium* infection. A cross-disciplinary approach will be used to tackle the problem. Surveys conducted simultaneously in humans and animals from the same environment to correlate data on an epidemiological level will enable a comprehensive and accurate approach to study the transmission and the burden. For this purpose, highly sensitive and specific, affordable diagnostic tests will be made available and staff will be trained on these, mainly through south-south collaboration. In the second phase of this project intervention strategies that are based on data generated in the surveys and on socio-economic considerations, will be implemented in selected areas and monitored.

### Background of the project

#### ▪ *Origin, and subsequent elaboration of the idea*

Cysticercosis, a zoonotic infection transmitted to man by pigs is a major preventable cause of epilepsy in developing countries. In many endemic countries it is considered to be the main infective cause of neurological disorders. Both the promoter and co-promoter are currently involved in projects in Africa, Asia and Latin America on zoonotic diseases, including cysticercosis. In these projects the collaboration between medical and veterinary experts has been defined as a key factor to successfully collect baseline data on transmission and impact of zoonotic diseases and design sustainable control strategies. Discussions with both project partners from Nepal and India were initiated at international scientific meetings and the basis for collaboration on epilepsy and cysticercosis was laid. CMC obtained a grant from the Indian government in 2004 to study the relationship between epilepsy and cysticercosis. This project will build on the preliminary results of that study.

In contrast to endemic areas of Latin America, Africa and South-East Asia, in South Asia pig production and pork consumption is of secondary importance. Nevertheless, human cases of cysticercosis are frequently diagnosed, hence the need for a more in-depth study of the ways this infection is spread. While the Indian partner has expertise on community health and on diagnosis and treatment of infections affecting the brain in humans, the group in Kathmandu has expertise on studying and formulating control strategies for zoonotic infections, thereby mainly targeting the animal reservoir. Following the acceptance of the letter of intent, information on the situation pertaining to cysticercosis in both countries was exchanged and the methodologies to address the problem were discussed during an identification mission of the co-promoter to CMC, Vellore (28<sup>th</sup> August-3<sup>rd</sup> September 05). The Nepalese counterpart also participated in this meeting

### Presentation of the project partners:

#### a. Christian Medical College (CMC), Department of Neurological Sciences, and Community Health Department:

#### ▪ *General description in terms of status, history, size and disciplines offered.*

CMC occupies a prominent place among the medical institutions in India. It is unique in being both a centre that gives attention to the needs of the disadvantaged, taking health care to their doorstep, and a leading referral hospital offering tertiary care using the latest technologies. CMC was started in 1900 as a one-bed clinic by Dr. I. S. Scudder. In 1909 she started the School of Nursing; in 1918 it became a medical school to train women licentiates in medicine. It became a Medical college in 1942. Men students were welcomed for medical training in 1947. CMC's services have since grown rapidly. Many speciality departments came into being and subsequently number of postgraduate training courses. Today CMC offers 91 recognised training programmes in medical, nursing and allied health sciences. Currently, CMC has a network of services with many mission hospitals located in the rural areas. CMC has been given a five star rating by the National Assessment and Accreditation Council, in recognition for its high standards in education, research and service. CMC employs 504 academic personnel (2005). It offers an undergraduate degree (MBBS), postgraduate diploma and degree in all medical disciplines, higher specialities, M.Sc. degree in basic sciences and PhD. The hospital has more than 2000 beds, and almost treats almost 4000 outpatients and 1222 inpatients daily.

#### **Institute:** *Department of Neurological Sciences:*

The *Department of Neurological Sciences* has over 120 beds for inpatients and caters to over 35,000 outpatients every year. The section of Neurochemistry has gained experience in immunological diagnosis of CNS tuberculosis and cysticercosis. CMC has a well-equipped Department of Radiodiagnosis. The Department of Neurological Sciences is very active in the investigation of infectious diseases affecting the nervous system, which are common in India. The *Community Health Department* coordinates an extensive health and development programme in the urban and rural areas of Vellore district. Each village in the coverage area of the department has a trained community health worker and health and development committees. The Community Health Department, recognized by the WHO, has performed several epidemiological studies on different diseases in the communities.

#### **Local promoter:**

Prof. Vedantam Rajshekhar (MBBS, M.Ch. Neuro), head of the Department of Neurological Sciences of CMC has been involved in research on CNS tuberculosis and cysticercosis since 1989. He is (co-) author of over 150 papers in peer-reviewed journals and books. He was invited member of the international experts meeting for consensus on cysticercosis, Lima, Peru, 2000.

#### b. The National Zoonoses and Food Hygiene Research Centre (NZFHRC), Kathmandu, Nepal

#### ▪ *General description in terms of status, history, size and disciplines offered.*

This centre was established in 1990 with the objectives; to conduct surveillance of zoonotic and food borne diseases prevalent in Nepal. Bacterial Zoonoses: brucellosis, anthrax, tuberculosis, campylobacteriosis, salmonellosis, etc. Viral Zoonoses: Japanese encephalitis, rabies, etc.; Parasitic Zoonoses: echinococcosis/hydatidosis, taeniasis, visceral leishmaniasis, schistosomiasis, trichinosis, toxoplasmosis, filariasis, etc.; Snake bite surveillance and production of anti-venin; Food borne zoonotic disease: salmonellosis, campylobacteriosis, botulism, molds, yeast; Prevention and protection of animals against cruelty; To carry out detailed feasibility studies on zoonotic and food borne diseases and develop implementation projects for governmental and private organizations; Advancement of zoonotic

and food borne disease knowledge for development of better public health policy and action ;Promotion of research, extension and training in zoonoses; Appropriate technology transfer to Nepal related zoonoses; Genetic analysis of different strains of diseases; Waterborne disease surveillance and analysis; Epi-Info database system of analysis and report writing; Agro-Ecosystem Health Approach

The NZFHRC is an independent centre for specialised research and training in zoonoses and food hygiene, recognised by the Government of Nepal (Nepal Registration Number 148/049/050). NZFHRC's over-all goals are: (i) to conduct and promote research in priority areas of zoonoses and food safety, (ii) to advise the government of Nepal on formulation of technology transfer policy & its implementation, and, (iii) to collect and disseminate information on zoonotic diseases. The centre employs 13 staff members, including veterinarians, medical doctor, biologists and a socio-economist; and some temporary staff and post-graduate students. It is sponsored mainly through national and international projects. The centre has a routine diagnostic laboratory for zoonotic infections but no facilities for clinical or neuro-imaging diagnosis in humans.

|   |  |
|---|--|
| Ongoing academic activities and/or externally funded projects (teaching, research etc.) relevant to the project | <i>Urban Ecosystem Health Project Phase - II in Kathmandu Metropolitan City (KMC) with regard to zoonotic diseases, social ethnic structure, water resources and quality testing, slaughtering and meat inspection, environment pollution, stakeholders activities on ecosystem supported by International Development Research Centre (IDRC) Ottawa, Canada 1999 to 2006.</i> |
|---|--|

**Local promoter:**

Dr. Durga Datt Joshi, veterinarian (BVSc & A.H., MPVM, FISCD), is the executive chairman of the NZFHRC and WHO Expert member on zoonoses from 1980 till 2008. He worked as a veterinary officer for the Ministry of Agriculture in Nepal from 1965-79, as chief epidemiologist for the Ministry of Health from 1979-87 and as executive director for the National Dairy Development Board from 1987-93. He is (co-) author of 18 papers in peer-reviewed journals and published over 50 books.

*(Rest information about project to be continued in next issue.)*

**NEWS:**

Dr. Durga Datt Joshi, Executive Chairman has participated to 5<sup>th</sup> **FBPZ and 6<sup>th</sup> JITMM 28 - 30 November 2006, Bangkok, Thailand**. He presented a paper titled "Present Situation of Porcine Taeniasis and Human Cysticercosis in Nepal".

Dr. Durga Datt Joshi participated to Regional Workshop on "Pig System in Asia and the Pacific: how can Research and Development enhance benefits to the poor"? In this workshop he presented two papers titled

- "Global Consortium: Zoonoses and Avian Flu"
- "Pig Farming Systems in Nepal: How Can Research and Development Enhance benefits to the Poor Farmers of Nepal."

Co-organized by: APHCA, FAO-RAP and ILRI. November 23-24, 2006 Bangkok, Thailand.

**K.D.M.A. Research Award for the year 2063 (2007)**

*Please kindly submit your research work paper on allergy for trust award consideration by the end of May 2007 to KDMART office Chagal, G.P.O. Box 1885, Kathmandu, Nepal, Phone: 4270667 and Fax 4272694. This award was established by Dr. D.D. Joshi in 2049 B.S. on the memory of his wife, the late Mrs. Kaushilya Devi Joshi. The award includes a grant of NCRs. 10,001 with certificate.*

**Table 2: Summary partner presentation**

|   |  |
|---|--|
| Year of establishment, and major milestones in terms of its further development.  | <i>This centre was established in 1990. This centre does serological testing, epidemiological surveillance, vaccination, social activities, training workshop in collaboration with FAO, WHO, IDRC, IFS, CDC, Asahikawa Medical College Japan and Vellore Medical College India.</i> |
| Status within the university  | <i>Collaborative research with Tribhuvan University Nepal on zoonotic diseases</i>   |
| Academic Personnel (2005, number, status, level of education)   | <i>Academic cores staff-5, Sociologist, Microbiologist, Epidemiologist, Public Health, Administration Account, Lab Technician &amp; Computer staff at diploma level.</i>   |
| Links to other national and international collaborating institutes (name, nature) and the society at large (government, NGOs, etc.) | <i>FAO, WHO, IFS Sweden, IDRC Canada, JICA Japan, DURVN Japan, CDC USA, DANIDA Denmark, WSPA UK, HIS USA, University of California USA, University of Guelph Canada, Tufts University USA, Asahikawa Medical College Japan, Christian Medical College Vellore India</i>              |
| Most important challenges/limitations the unit is facing  | <i>Trained man power in zoonotic diseases and social science with statistical background</i>   |
| Link between project objectives and long-term development plan of the unit.   | <i>To establish national diagnostic laboratory on parasitic zoonoses in Nepal</i>  |

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

**TO:**

**Dr/Mr/Ms .....**

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