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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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Urban Ecosystem Health Project Phase – III, Kathmandu

(In Continuation of Vol. 13 No. 4 October to December)

Objective 2: Develop and implement a funding diversification strategy to support local stakeholder organizations and NZFHRC in community development initiatives that follow an urban ecosystem health approach.

NZFHRC is primarily a research organization and its main interest in resource expansion is in securing funding for research on zoonotic diseases, animal and human health of relevance in Nepal. Its interest in a healthier urban development of wards 19 and 20, and potential to scale up to other wards in Kathmandu city will be pursued in a role of facilitation and accompaniment with local stakeholder groups for local development. It will act as broker between local groups, government programs and national and international donors supporting development work in the city, also providing capacity building and technical feedback to the different actors.

One set of activities will consist in linking the local stakeholder community groups with these donors to discuss needs and development activities in wards 19 and 20 with city programs. A workshop will be organized to allow city and national authorities to present city programs and allow local community groups to discuss their needs, expectations and potential participation in these city programs. The following local implementing and donor agencies will be invited to the meeting:

- Local Government such as ward offices of wards 19 & 20
- KMC-Public health division, physical division and city planning

- Bilateral/Multilateral agencies working in Nepal such as GTZ, JICK, UNDP, World Vision International Nepal, Asian Development Bank etc.
- Ministry of Agriculture and cooperative for animal slaughter and Meat inspection act and enforcement
- Ministry of Health for Mass immunization of children and drug rehabilitation
- Ministry of environment for Bishnumati and Bagmati river cleaning and conservation
- World Vision International Nepal
- Lumanti
- Department of Health Services
- Department of Livestock Services
- Ministry of Local Development
- Ministry of Home
- Others

Based on this meeting, potential leads to consolidate or expand the work of the local stakeholder groups will be identified and follow-up. Accompaniment plans will be developed to assist the local groups in proposal development and submission to corresponding funding sources.

In addition to this, a funding diversification strategy will be developed by NZFHRC to allow the Centre to reach potential international donors interested in funding collaborative projects of NZFHRC with local stakeholder groups, and other national or international NGOs in which the Centre will continue to assume its role of broker, capacity building of local groups, and provision of technical support. The following activities will be carried out:

- **A situation/ donor landscape analysis:** a study will be carried out (with the assistance of a consultant) to analyse the local and international partnership environment & the strengths of NZFHRC within this environment (e.g. what are the current issues, important developments in the city, country or region that the work of NZFHRC can contribute to address; identify who are the key funders in the country and region; what types of initiatives do these institutions support; who are the donors more in tune or interested in the type of work NZFHRC does; what are their requirements, etc...)

- **Building/ strengthening relationships with funders:** A minimum of 3-4 international organizations will be contacted and joint proposals (NZFHRC-Local community groups) will be submitted over the duration of the project. Preparation of specific communications materials will be developed as needed. This work is in addition to the relationship building activities carried out with existing donors in the city (as described earlier)

The strategy will be developed during the first six months of the project and will define its expected results, including targets, such as numbers and types of new & existing donors that will be contacted and funding amounts sought by different dates, and a discussion of anticipated risks and potential problems.

Objective 3: Build the organizational capacity and sustainability of local stakeholder organizations that were established in earlier project phases, with special attention to those from the more vulnerable groups, such as wage labourers, street vendors and women sweepers.

Of the 18 local stakeholder groups that were created or strengthened during the first and second phases of the project, four of them have not been able to develop at the same pace as the others and critical work remains in strengthening their organizational capacity. These groups are: **sweepers, street vendors, squatters and small teashop owners**. These groups are formed by the more vulnerable and poor sectors of the communities. They provide important services in the communities (eg. the squatters are a regular source of labour to the butchers and meat sellers) but have little or no voice or influence in decision-making at the ward level. They are in general illiterate and their exposure and role in the transmission of disease, including environment-mediated diseases, in the communities is high.

In terms of research, the guiding research question for this objective is:

What are possible mechanisms to ensure the sustainability of these local stakeholder groups, and make possible the strengthening of their capacity to carry out their work in community development?

As part of the last project phase, each these four groups created an informal stakeholder organization. NZFHRC assisted each in the preparation of a group constitution and work-plan, which were approved by the corresponding membership. They also participated in specific training and awareness activities related to their work and social and health situation (described in project report for phase II). But none of the groups were able to get legal status due to lack of funds to pay registration fees and the complicated registration procedures. Their registration is essential to allow them to have official recognition of their position on community development matters by local ward government, as well as allow them to apply for credit and/ or community development grants from ward and city programs or international NGOs. Phase III will provide special support and attention to these groups. The following activities with them will be carried out:

- Assist each of these groups in completing legal procedures for their registration as an organization under the NGO act, including supporting the registration cost and guiding them in the fulfillment of the necessary paper work and registration procedures which includes registration in ward office (local government), ministry of local development office, ministry of home, and with the social welfare council;
- Provide seed funds to these local organizations to allow them to cover their basic operational cost during their first year;
- Provide training to the four organizations on basic administration procedures (book keeping, request of audits, preparation of basic annual reports);
- Assist each group in opening local bank accounts and in preparing submissions for funding from cooperative bank, and/ or development bank, and /or INGOs to allow them to carry out their existing work-plans;
- Respond to specific requests for funding that the groups have made.
- Beside this project activities, our stakeholders are going to organize many other programs which will be jointly organized by many other NGO's. They request us for support by cash or equipment. Such activities are newly constructed laboratories and clinics, clubs blood donation, Bio-gas technical activities, Bishnumati river environment tree plantation etc. So we have separated few budget for that research support activities also.
- Analogist which will design and create plan in the project area for parks, play ground, environmental land use for residential, industrial, transportation conservation in and around of Bishnumati river of ward 19 and 20 KMC.

With respect to the last point, the street vendor group made a specific request for assistance in building a toilet and water facilities. This

would help street vendors to have access to safe drinking water as well as prevent open-air defecation in the wards. Negotiations began at the end of phase II but were not achieved. The city government committed itself to grant a piece of land to the street vendor group where to build the public toilet facility once the group became officially registered. NZFHRC also facilitated discussions with an INGO who agreed to fund the infrastructure and water connections once the group secured the land from the city. By helping this group to become registered, NZFHRC will then make possible the construction of the facility. The centre will also provide a water storage tank, a washbasin, mirror and general upkeep equipment and supplies to ensure a hygienic environment. Similarly, the sweeper group (comprised largely from lower cast women) requested assistance in helping them establish a sewing group to increase their sources of income. NZFHRC will organize and facilitate the training of the group of women as well as sponsor the purchase of 10 sewing machines. These activities will provide short-term benefits to these low-income groups, while helping strengthen their organizations.

All the above support activities will take place during the first six months of the project. An assessment of the groups and their work will be carried out during the last trimester of the project.

To this end, the assessment will include:

- Meetings with the executive committees of each organization (seven members per group as per current regulations) to review with them their administration capacity (eg. status of bank accounts and book keeping, audits, problems encountered), challenges and accomplishments in the implementation of their work-plans, level of membership, future expectations and plans, participation in ward meetings, etc..
- Assessment of the accomplishment of specific development activities supported (eg. public toilet for street vendors, and sewing machine group) through observation and discussions with members of the groups; including the benefits (or lack of) derived from this funding support
- Assessment of the benefits perceived from being members of the organizations and achievements and challenges faced by the organisations (this information will be collected as part of the knowledge and perception survey on local organization described in objective one)

Impact Assessment and Control of Cysticercosis in the Indian Subcontinent

First Annual Report (1 September 2006 – 31 August 2007)

(In Continuation of Vol. 13 No. 4 October to December)

- Seroprevalence – Vellore District

Fifty three pig sera have been collected from free roaming pigs in Vellore District until 22.7.2007. The dot blot strip assay has been done on all of them – see Table below.

| No of antigen dots developed | No of sera positive | Conclusion |
|------------------------------|---------------------|----------------------------|
| 0 | 33 | No infection |
| 1 | 13 | Exposed to <i>T solium</i> |
| 2 | 2 | Exposed to <i>T solium</i> |
| 3 | 3 | Cysticercosis |
| 4 | 1 | Cysticercosis |
| 5 | 1 | Cysticercosis |

Of 53 porcine sera collected in Vellore District 62.3% of the pigs are not infected with *T solium*, 28.3% are exposed to *T solium* and 9.4% are infected and have cysticercosis.

IR3. Transmission studies in selected areas are conducted

Act 3.1 Develop research protocols and submit for ethical clearance
- India: protocol devised

IR5. South-south collaboration between Nepal & India is established

Act 5.1 Training of NZFHRC staff at CMC
- Two staff from NZFHRC worked in the Neurochemistry Laboratory from December 18, 2006 until January 13, 2007. They learnt to perform the EITB to detect cysticercus antibodies in serum. They also learnt to prepare lentil lectin specific *T solium* glycoproteins used as antigens in the assay. At the end of the one-month training they were capable of independently preparing the antigens and carrying out the EITB.

Act 5.2 Exchange results generated by the project
- Results are being exchanged

IR6 Laboratory tests are operational and personnel are trained for these

Act 6.1 Transfer of the Ag-ELISA to CMC
- Ag-ELISA to detect cysticercus antigens in serum has been established in CMC under the supervision of P. Dorny. The reagents for the ELISA were provided by P. Dorny. The Ag-ELISA has been performed on all sera collected during the ICMR study from the rural and urban populations of Vellore District.

- The immunoblot assay (EITB) for cysticercosis has been modified as a dot blot strip immunoassay using 6 purified infection specific *T solium* antigens as individual antigen dots. These are lentil lectin specific *T solium* glycoproteins of 50, 38, 24, 18, 14, 13 kDa. The individual antigen dots develop as per antibody present in the serum being tested.

For human cysticercosis these dot blots are interpreted as in the case of EITB i.e. cysticercosis is present when sera react to one or more *T. solium* glycoproteins of molecular weights 50, 38–42, 24, 21, 18, 14 and 13 kDa.

In pigs the development of 1 or 2 dots is considered as exposure to *T solium* and development of ≥ 3 dots is considered as infection with *T solium* (cysticercosis).

Act 6.2 Develop the EITB for taeniasis
- EITB for Taeniasis has not yet been developed.
The copro-antigen capture ELISA for detection of *T solium* antigens in stool and determination of taeniasis has been established in CMC. Reagents for the assay, rabbit antibodies to *T solium* worm extracts, have been isolated from immunized rabbits and antibodies purified over Protein A- Sepharose. The antibodies have been coupled to horse radish peroxidase by the method of Wilson and Nakane.

Act 6.3 Transfer all diagnostic tools to be used to NZFHRC
- EITB has been transferred from CMC to NZFHRC
- Ag-ELISA will be transferred in November 2007 to NZFHRC

Act 6.4 Training of NZFHRC laboratory technicians at CMC & ITM
- Laboratory technicians from NZFHRC trained in *T solium* cyst antigen preparation and immunoblots for detection of cysticercus antibodies (See 5.1).
- The training of a NZFHRC laboratory technician has been postponed to the second working year.

IR7 Post-graduate students are trained

Act 7.1 Selection of students and training in relevant research methods
- A research fellow was appointed on the project from November 15, 2006 following the selection norms of CMC. i.e advertisement of position and interview of applicants by a committee of 5 members constituted by The Principal of CMC. Among 24 candidates who attended the interview T Jayaraman (MSc Biochemistry) was selected.

Act 7.2 PhD student at CMC, conduct research on taeniasis/cysticercosis
- In June 2007 Jayaraman applied to the The Tamil Nadu Dr MGR Medical University to register for his PhD. Intimation from the University is awaited.

Act 7.3 Veterinary PhD student at CMC, conduct research on porcine cysticercosis
- A student was identified and the process of registering was initiated.

Act 7.4 PhD student at NZFHRC: conduct research on socio-economic aspects of pig rearing in Nepal
- A student was identified (Minu Sharma) and she registered at Tribhuvan University

Act 7.5 PhD student at NZFHRC: conduct research on taeniasis/cysticercosis
- The Nepalese partner preferred to re-orientate this postgraduate position to a MSc. A student has been identified and was registered.

IR8 Recommendations for control are formulated and disseminated

Act 8.6 Publish results in journals and present results at conferences
- Dr Joshi (Nepal) attended the Conference of the World Association for the Advancement of Veterinary Parasitology from 19-23 August in Ghent, Belgium. Dr Joshi gave an oral presentation on 'Prevalence of porcine cysticercosis and human taeniasis/cysticercosis in Nepal'

Other information

- Mr. Brecht Devleeschauwer, student 1st MSc Veterinary Medicine, UGent, Belgium came to NZFHRC for his thesis work on cysticercosis in the Kathmandu valley, with a VLIR scholarship for the period 6 weeks (17 July to 27 August 2007). He collaborated with the NZFHRC staff with blood and meat samples collection and testing in NZFHRC laboratory, Kathmandu, Nepal.
- Mr. Waldo Paulissen student 3rd MSc Veterinary Medicine, UGent, Belgium came to NZFHRC for his thesis work on trichinellosis in pigs in the Kathmandu valley, with a VLIR scholarship for the period 6 weeks (17 July to 2 September 2007). He examined 400 pig carcasses and collected 383 pig meat samples and 400 blood samples for Trichinella diagnosis. He also learned more about NZFHRC activities on echinococcosis, cysticercosis, rabies, snakebite, brucellosis etc.

Epidemiological Pig Sentinel Farm Established in Sunsari and Morang Districts of Eastern Nepal

Impact assessment and control of cysticercosis in the Indian subcontinent
Ghent University (UGent), Belgium

Table no. 1: Piglets rearer, their address, number of piglets to be reared with ear tag identification marks.

| S. N. | Owner's name | Address | Human stool sample vial no. | No. of piglets to be reared | Ear Tag no. | Sex |
|-------|----------------|-------------------------------|-----------------------------|-----------------------------|-------------|-----|
| 1. | Parshu Ram Rai | Mrigauli-3, Ufrauliya, Morang | 1M to 5M | 3 | 0585 | M |
| | | | | | 0582 | M |
| | | | | | 0579 | F |
| 2. | Binod Rai | Mrigauli-3, Ufrauliya, Morang | 6M to 10M | 3 | 0588 | M |
| | | | | | 0591 | M |
| | | | | | 0583 | F |
| 3. | Bir Bal | Mrigauli-3, | 26M to | 1 | 0545 | M |

| | | | | | | |
|----|--------------------|------------------------------------|------------|---|------|---|
| | Urau | Jhagar tole, Morang | 30M | | | |
| 4. | Buday Urau | Mrigauli-3, Jhagar tole, Morang | 41M to 46M | 1 | 0587 | M |
| 5. | Bali Urau | Mrigauli-3, Jhagar tole, Morang | 31M to 36M | 1 | 0560 | M |
| 6. | Ratiya Urau | Mrigauli-3, Jhagar tole, Morang | 37M to 40M | 1 | 0555 | M |
| 7. | Jhalo Kumari Majhi | Mrigauli-3, Chaudhary tole, Morang | 23M to 25M | 2 | 0592 | M |
| | | | | | 0556 | M |
| 8. | Jay Narayan Bhagat | Itahari-7, Gaisar, Sunsari | 1 to 11 | 6 | 0586 | M |
| | | | | | 0589 | M |
| | | | | | 0590 | M |
| | | | | | 0581 | F |
| | | | | | 0580 | F |
| | | | | | 0584 | F |

For stool vial number

*M = Mrigauli

For sex

*M = Male

F = Female

Free Dog Rabies Vaccination in 24 Municipalities of Nepal

NZHFRC has completed free dog rabies vaccination in 24 municipalities of Nepal from the year 2000 until today. This programme was supported by Donative Unit for Rabies Vaccine to Nepal Tokyo, Japan and DDJ Research Foundation, Kathmandu, Nepal.

Table no. 2: Sex Composition of Dogs and Cats Vaccinated in Different Municipalities during the Campaign.

| S. N. | Name of Municipalities | Total | Male | | Female | |
|-------|-------------------------|-------|------|-------|--------|-------|
| | | | No. | % | No. | % |
| 1 | Kirtipur* | 825 | 606 | 73.45 | 219 | 26.55 |
| 2 | Lalitpur* | 723 | 446 | 61.69 | 277 | 38.31 |
| 3 | Bhaktapur* | 745 | 464 | 62.28 | 281 | 37.72 |
| 4 | Madhyapur Thimi* | 470 | 340 | 72.34 | 130 | 27.66 |
| 5 | Banepa* | 240 | 176 | 73.33 | 64 | 26.67 |
| 6 | Panauti* | 383 | 312 | 81.46 | 71 | 18.54 |
| 7 | Dhulikhel* | 265 | 184 | 69.43 | 81 | 30.57 |
| 8 | Kathmandu* | 2160 | 1390 | 64.35 | 770 | 35.65 |
| 9 | Pokhara Submetropolitan | 1228 | 829 | 67.51 | 399 | 32.49 |

| | City* | | | | | |
|-------|------------------------|-------|-------|-------|------|-------|
| 10 | Lekhnath Municipality* | 333 | 214 | 64.26 | 119 | 35.74 |
| 11 | Butwal Municipality | 3370 | 1912 | 57 | 1458 | 43 |
| 12 | Siddharthanagar | 1615 | 956 | 59.2 | 659 | 40.8 |
| 13 | Bharatpur | 1064 | 757 | 69.86 | 307 | 30.14 |
| 14 | Ratnanagar | 861 | 684 | 78.51 | 177 | 21.49 |
| 15 | Dhangadhi | 1117 | 749 | 67.1 | 368 | 32.90 |
| 16 | Dharan | 930 | 660 | 70.96 | 270 | 29.03 |
| 17 | Bidur | 145 | 110 | 75.86 | 35 | 24.14 |
| 18 | Byash | 562 | 375 | 66.73 | 187 | 33.27 |
| 19 | Itahari | 433 | 313 | 72.28 | 120 | 27.72 |
| 20 | Inaruwa | 228 | 162 | 71.05 | 66 | 28.95 |
| 21 | Hetauda | 192 | 145 | 75.52 | 47 | 24.48 |
| 22 | Mahendranagar | 400 | 280 | 70 | 120 | 30 |
| 23 | Nepalgunj | 544 | 350 | 64.34 | 194 | 35.66 |
| 24 | Waling | 140 | 100 | 71.43 | 40 | 28.57 |
| Total | | 18973 | 12514 | 65.96 | 6459 | 34.04 |

* Two-time dog rabies vaccination was carried out

NEWS:

- NZFHRC is running three months sewing training programme for the Sweeper, Squatter, Street Vendor and Small teashop stakeholder under Urban Ecosystem Health Project Phase –III.
- Dr. Durga Datt Joshi, Executive Chairman, NZFHRC participated in the 44th Annual Scientific Seminar of MSPTM 4-5 March 2008, Grand Seasons Hotel, Kuala Lumpur Malaysia. Two flowing technical papers were presented at MSPTM an oral and poster presentation.
 - "Socio-Economic Impact on Poultry Industry due to Bird Flu Scare (Rumours) in Nepal:"
 - Evidence of Intestinal Helminth Parasites in Monkey of Kathmandu Nepal

K.D.M.A. Research Award:

Please kindly submit your research work paper on allergy for trust award consideration by the end of May 2008 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.

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

TO:

Dr/Mr/Ms

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