



Australian Biosecurity CRC for Emerging Infectious Disease

NOV
2006

SUMMER
EDITION

FROM THE CEO

Dr Stephen Prowse



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FROM THE CEO*Dr Stephen Prowse***The impact of research**

Two important studies into the impact of research in Australia have been recently released. The two studies are “*An economic impact of the CRC Programme*” undertaken by Insight Economics (<https://www.crc.gov.au/Information/default.aspx>) and the Productivity Commission’s report into “*Public support for science and innovation*” (<http://www.pc.gov.au/study/science/draftreport/index.html>).

Impact of the CRC Programme

The Insight Economics study supported by the Australian Government Department of Education, Science and Training investigated the benefits from CRC research at four levels: incontrovertible benefits; benefits attributable in part to the CRC Programme; projected benefits from proven and adopted technology; and contingent benefits. The overall conclusion of the study was that the CRC Programme is delivering very clear net benefits to the Australian economy. The additional return to the Australian economy from the research of the CRC Programme

has been calculated at \$2.7 billion as a consequence of an investment of \$2.3 billion. It was recognised that the contingent benefits may be amongst the highest resulting from the CRC Programme but the complexities in quantification and uncertainty meant that they were not included in this study. The benefits of the AB-CRC fall into this latter category.

Public Support for Science and Innovation

The Australian Government has identified science and innovation as one of its strategic priorities, recognising its contribution to Australia’s economic and social prosperity. The government provides significant support for science and innovation and requested the Productivity Commission conduct a study of public support for science and innovation.

The Commission was requested to report on the economic impact of science and innovation, the adequacy of structures and arrangements of Australia’s innovation systems, and on the broader social and environmental impacts of public support for R&D.

The Commission concluded that Australia is well served by its public funding support for science and innovation but that it is not possible, given a host of measurement and methodological issues, to provide accurate estimates of the contributions of such R&D

to the economy, however indications are that they are significant. In addition, the Commission concluded that there are also important social and environmental dividends for Australians. The Commission noted that collaboration can generate significant benefits, but the CRC Programme is only suited to longer-term arrangements and has outlined some options for more nimble, less management intensive, arrangements than the present CRC Programme. The submission from the AB-CRC to the Productivity Commission is available from the CEO and was also taken into account in the Insight Economics Study.

Significant outcomes 2005/06

The AB-CRC has just completed the 05/06 Annual Report which is available at www1.abcrc.org.au/pages/AboutUs.aspx?MenuID=32 and we are in the process of preparing partner and industry reports. These showcase the major findings and activities over the last year and include:

- The discovery that horseshoe bats are the wildlife reservoir of SARS (severe acute respiratory syndrome)
- The completion of a national validation trial for the diagnosis of avian influenza
- A trial of a syndromic surveillance reporting system
- A process for evaluating surveillance systems and disease status
- The first AB-CRC Summer School which

brought together 62 professionals from public health, animal health, plant health and aquatic health to attend training courses in diagnosis and surveillance

- The development of collaborative projects supported by ACIAR (Australian Centre for International Agricultural Research) and the Queensland Government that are well aligned with the objectives of the AB-CRC

Seasons Greetings

On behalf of everyone at the AB-CRC, I want to take this opportunity to wish all *Sentinel* readers compliments of the season and hope you all have an enjoyable and safe summer with family and friends. We are looking forward to 2007 when we will be looking to heighten the impact of our work and exploring the options for the next iteration of the AB-CRC.

Best wishes to you all

NEWS

2006 Ausbiotech Queensland Students Awards For Excellence

Congratulations to two AB-CRC PhD students at these awards, announced on 16 October in Brisbane. **Sheryl Maher** was a finalist in the awards, while **Ellie Virtue** went on to win the award for presenting research work in rapid diagnosis of known and emerging infectious influenzas with human health implications. Ellie won accommodation, airfares and registration to the AusBiotech national conference in Sydney in November.



Ellie Virtue with her certificate for first place

Early Career Scientists To Participate In Feast Forum In Canberra

Congratulations to **Sheryl Maher** for being selected as one of three early career scientists sponsored to attend the FEAST (Forum for European and Australian Science & Technology) conference *Research without Borders*, 28-29 November 2006 in Canberra. The Academy of Science is sponsoring Sheryl's travel, accommodation and conference registration. Sheryl was the only current PhD student selected, the other two sponsorships going to postdoctoral fellows, so well done, Sheryl!

Change In Role For AB-CRC Board Member

Dr Ian Johnsson has been on the AB-CRC's Board, chaired the Research Standing Committee and been a member of the Education, Utilisation & Commercialisation Standing Committee since the opening of the centre.

Ian will resign these roles in November 2006, as he is leaving Australian Pork Ltd to take on the role of Head of On-farm R&D for Meat and Livestock Australia in January 2007, replacing Dr Rueben Rose who will leave at the end of December 2006.

While his recent work has been in the pig industry, Ian has a strong background in livestock production R&D and extensive experience in the red meat industry through an earlier role at the Meat Research Corporation.

We wish Ian success in this new position, and expect continued connection with him through MLA.

WORKSHOP REPORTS

The Role Of Veterinary Epidemiologists In Ecosystem Health

2-4 August 2006, Cairns

Peter Black, Principal Research Scientist, Office of the Chief Veterinary Officer, DAFF

“We can’t solve problems by using the same kind of thinking we used when we created them”

Albert Einstein

Developing an understanding of the mechanisms that lead to disease emergence and re-emergence is a challenge. Many epidemiologists (veterinary and human) addressing emerging infectious disease issues have converged on the ecosystems health (ecohealth) approach as it integrates

knowledge from a wide range of disciplines to assist in addressing real world problems.

The ecohealth approach recognises the critical linkages between human activity, ecological change, human and animal health, and sustainability. This AB-CRC sponsored workshop was designed to give participants a taste of the ecohealth approach and was situated within the *Ecology of emerging infectious diseases* research theme of the AB-CRC. The broader context of the workshop was within the International Symposium of Veterinary Epidemiology and Economics (ISVEE) theme of ‘Innovation: reshaping veterinary epidemiology’.

The objectives of the workshop were to give participants:

- an awareness of the perspectives that inform ecohealth approaches;
- an exposure to some tools and techniques to engage in ecohealth approaches;
- a knowledge of the networks that will inform future developments in ecohealth; and
- an appreciation of the links between concepts of sustainability and ecohealth.

There were 21 participants from eight countries (Australia, New Zealand, Canada, the United Kingdom, the United States of America, Sweden, South Africa and Puerto Rico) at the workshop. The workshop consisted of presentations, including case

studies, from four facilitators (Professor Tony McMichael, Professor David Waltner-Toews, Professor Sohail Inayatullah and Dr Peter Daszak) followed by group exercises applied to specific emerging or re-emerging diseases. The workshop structure was based around adult learning principles. Major learning themes were:

- Overview of ecohealth;
- Human ecology, health and sustainability;
- Understanding the system;
- Wildlife and emerging infectious diseases;
- Adaptive methodology for ecosystem sustainability and health (AMESH);
- Futures thinking and causal layered analysis;
- Teasing out the complexity and predicting the future; and
- Resources and networks.

The ecohealth approach is a very broad domain that includes and explicitly recognises the relationship between a range of scales in terms of species, space and time. The necessary mixing of disciplines in this work means that veterinary epidemiologists need to recognise that they are a part of a team. This was clearly highlighted by Peter Daszak’s presentation covering the investigation into the reservoir of SARS (severe acute respiratory syndrome) coronavirus with a team of about seventeen people. In this type of work, where a team is addressing complex issues, all disciplines need to collaborate in such a way that each takes up some of the

assumptions and worldviews of the others. This is not always easy to achieve. A number of the group exercises served to highlight this real world difficulty for participants.

As expected (and planned), some participants found the content and process of the workshop challenging. However, all participants were open to the experience and contributed to the group exercises and discussion. The diversity of the group certainly increased the richness of the learning environment. I would like to thank the facilitators and all workshop participants for their input and enthusiasm in making this inaugural ecohealth workshop a success.

Introduction to Risk Analysis

*18-22 August 2006
Perth*

*Dr Chris Hawkins, Department of
Agriculture and Food, Western Australia*

Twenty two participants from Queensland, Victoria, New South Wales, and several locations in Western Australia attended the *Introduction to Risk Analysis* workshop.

Dr Francisco Zagnutt from Colorado (USA), who is part of the international risk assessment and consulting firm Vose

Consulting, presented the course. Francisco was in Australia to attend a symposium in Queensland, and it was a great opportunity to engage him while he was here.

Francisco covered topics from international requirements for risk analysis as a basis for animal and plant health risk management strategies, through to the use of contemporary software for quantitative risk analysis.

The workshop ran for 4 days, and covered material that would normally be covered in two weeks, making it necessary to maintain an overview approach rather than pursue topics in depth. By the end of the workshop participants had constructed their own risk models and produced outputs in a format suitable for reporting.

Having engaged Vose Consulting, participants now have access to Francisco and his web-based resources for further training, problem solving, and generally bouncing ideas around.

Participants from DAFWA, Murdoch University, the AB-CRC and the National Plant Biosecurity CRC hope to continue working together informally on risk analysis matters.

Formal assessment of the workshop indicated that participants were very satisfied with what was covered. Feedback suggests that a longer, more in-depth course would be appreciated in the medium term.

DAFWA, Murdoch University and the two CRCs funded the workshop. Their support is gratefully acknowledged.

Further information about Francisco and Vose Consulting can be found at www.risk-modelling.com. Details of commercial software for risk analysis are available at www.palisade.com and www.decisioneering.com.



Workshop participants and trainers

Evaluation of Surveillance for Disease Detection

Tony Martin, Department of Agriculture and Food, Western Australia

A week-long training course was held in July 2006 at Murdoch University for Western Australians who had not been able to attend *Course 2: Evaluation of surveillance systems: use of non-survey data sources to demonstrate freedom from disease* of the 2006 AB-CRC Summer School in Sydney.

The course was based on AB-CRC Project 3.010R *Quantification of confidence in disease freedom*, and presented the quantitative methodology for analysis of surveillance evidence for disease freedom which has been developed in this project. A one-day overview of the methodology was attended by 21 participants from AB-CRC participating organisations, including surveillance planners, managers and analysts from the fields of human, animal and plant health. Fourteen analysts among these were then subjected to a further 4 days of detailed discussion and application of the methods. Participants in the 5-day course worked on analysis of their own surveillance projects, namely serological surveillance for foot-and-mouth diseases (FMD) in Malaysia; clinical surveillance for FMD in Indonesia; acute flaccid paralysis reporting for human poliomyelitis in

Australia; codling moth trapping in Western Australia, and serology for Ross River Virus in 'harvested' kangaroos in Western Australia. The level to which these analytical models were developed during the course was remarkable, perhaps reflecting a younger and more university-based group of participants than in several previous courses on the same material. The course was led by Tony Martin of DAFWA and Evan Sergeant of AusVet. So popular was the course that both NSW Department of Primary Industries and QLD Department of Primary Industries and Fisheries have decided to hold re-runs of the course in November and December 2006.

TRAVEL REPORT

4th Biennial Foreign Animal Disease Training Course And USDA Fort Collins

22 July – 4 August 2006

Nicole Schembri, PhD Student

The purpose of my visit to the United States was to attend the 4th Biennial Foreign Animal Disease Training Course conducted by the University of Madison, Wisconsin with support from Veterinary Services at the United States Department of Agriculture (USDA).

This was a 6-day intensive course covering foreign animal diseases of significance to both the developing and western worlds, focusing on impact to livestock industries and public health. The pathology, epidemiology, clinical presentation, prevention and control of 25 livestock and zoonotic emergency diseases were presented. Participants were also given an overview of the structures and roles of the OIE (World Organisation for Animal Health) and FAO (Food and Agriculture Organization of the United Nations) in international animal disease control. Topics such as veterinary roles in disaster response, agricultural bioterrorism, and federal and state responses to suspect foreign animal disease incursion gave an interesting insight into the preparedness of other countries and how they would handle an outbreak of any magnitude.

The final day was a table-top exercise based on a fictitious classical swine fever outbreak scenario in Wisconsin. This gave course participants the opportunity to work through some of the trials of outbreak investigation under time and resource pressure.

This was a fantastic course, pooling a great source of foreign animal disease knowledge which ultimately served to increase the awareness and understanding of the latest science and developments in foreign animal disease control strategies and policy.

The training course afforded the opportunity to meet veterinarians from a number of countries, including some with experience and expertise in foreign animal disease incursions. The Australian contingent felt a course of a similar nature would be very valuable in Australia to improve our awareness and preparedness.

While in the USA, I was also fortunate to visit the USDA in Fort Collins, Colorado. I spent two days with the USDA, meeting with staff from Veterinary Services organised with the help of Bill Hall (Australian Pork Ltd) and Eric Bush (USDA). This was a great opportunity where I was able to discuss my work and gain valuable knowledge; I have also made some very useful contacts. I am now more aware of the activities of the USDA as an organisation as well as their activities that are relevant to the work I'm currently undertaking. The USDA organised a schedule that was tailored to my needs and interests. Their hospitality, initiative and enthusiasm in hosting international visitors was quite unexpected and overwhelming. I gave a half hour presentation of my work on the second day to about 20 staff members which raised some interesting comment. The USDA is currently organising a survey of backyard pig producers to be issued mid-2007, very similar to the work I am currently undertaking.

The visit was very timely and prospects of maintaining a good working relationship are promising.

A visit to a backyard pig operation 2 hours north-east of Madison-Wisconsin provided a valuable look into just how similar hobby pig production is world-wide. I went to the USA thinking their hobby pig production may be more technologically advanced than ours and was surprised to see these producers have similar infrastructure, share similar views in terms of biosecurity and disease, and potentiate similar risks. It was interesting to learn how the States are tackling their national identification programs – something that is just getting underway in Australia. We also discussed the structures of producer groups, extension activities and producer support – something that is very much needed for our smaller livestock enterprises in Australia.

My visit to the USA was a valuable learning experience where I had the fortune of meeting some wonderful people involved in foreign animal diseases and veterinary epidemiology. It has really helped me gain confidence and direction on where I would like be in the future.

I would sincerely like to thank the AB-CRC and the Moss Vale Rural Lands Protection

Board for their support, allowing me such an amazing opportunity.



Course participants were predominately from the USA, with representation from Chile, Italy and Australia. Presenters came from the USDA; Centre for Disease Control and Prevention; the US Army; Universities of Minnesota, Maryland and Madison-Wisconsin; St Jude Research Hospital; National Center for Foreign Animal Diseases (Canada); University of Pretoria (South Africa); Veterinary Laboratory Agency (UK) and FAO (Italy)



Pigs in a backyard operation in the USA.

2008 CRC BID FEASIBILITY

Lisa Adams, Director of Research Development

Planning has commenced to assess the feasibility of a 'Mark II AB-CRC'. The AB-CRC Board has approved a work plan which will be led by a National Working Group. Members of this Working Group are being finalised.

Stakeholder input, including stakeholders from within and outside the existing AB-CRC partnership, will be absolutely critical for this assessment. Accordingly, a comprehensive national consultation initiative will be undertaken during the next couple of months. This is because a decision about whether to proceed needs to be taken by stakeholders early in 2007 to allow sufficient time to develop a robust business case to be submitted in March 2008 to the Australian Government's Cooperative Research Centres Programme.

Stakeholders, including government, industry and research organisations will be invited to:

1. Register their interest in the planning initiative.
2. Contribute to a national audit of R&D capability which will be mapped to existing risk-based frameworks for emerging infectious disease preparedness

and response. The audit will provide essential evidence to identify areas of research strength and gaps in capability.

3. Contribute to an environmental scan to identify trends in biosecurity preparedness and response, and implications for future research, education and training.

The results of this consultation will be circulated as a discussion paper to all stakeholders who register their interest, and the AusBIOSEC Steering Group and National Biosecurity Research Capability Steering Committee for their planning purposes.

The consultation initiative is being coordinated with AusBIOSEC's biosecurity research needs project to develop a National Framework for Biosecurity Research (further information about this project is provided in this newsletter).

If you have any queries about this initiative, please contact Lisa on (08) 9266 1643 or lisa.adams@abcrc.org.au

ENHANCING AUSTRALIA'S BIOSECURITY SYSTEM FOR PRIMARY PRODUCTION AND THE ENVIRONMENT – AusBIOSEC

Carol Cribb, Manager - Australian Biosecurity System Task Force

Within Australia's biosecurity system there are opportunities to link existing strategies and enhance arrangements for species that have predominantly environmental and social impacts, and where management activities have primarily public benefit outcomes.

Additional work to enhance Australia's Biosecurity System for Primary Production and the Environment (AusBIOSEC) is being progressed as a whole-of-government approach under the leadership of a joint Natural Resource Management and Primary Industries Standing Committee (NRMSC/ PISC) Steering Group. The aim of this process is to integrate the existing elements of Australia's biosecurity system under an overarching framework of common principles and guidelines, so that biosecurity arrangements can be implemented consistently across sectors and jurisdictions.

The Risk Mitigation Working Group has been established by the joint Steering Group to identify priority risks to national

biosecurity management in Australia and develop coordinated national approaches to these priorities, particularly with respect to response preparedness and key operational activities.

Key issues being considered are: biosecurity information sharing and management; a potential AusBIOSEC web portal for easy access to biosecurity related information, procedures, codes, etc.; biosecurity research needs; and surveillance and reporting principles.

National Framework for Biosecurity Research

The biosecurity research needs project is developing a National Framework for Biosecurity Research that provides the strategic direction for a comprehensive national approach for biosecurity research. The National Framework will:

- identify priority cross-sectoral biosecurity research issues and needs, including current knowledge gaps, collaboration opportunities and future research areas;
- develop general principles to guide national biosecurity research; and
- provide guidance on enhanced institutional arrangements, including prioritising research needs and investment; information sharing and intellectual property issues; linking policy and research; and increasing coordination, collaboration and capacity.

The project team is consulting with key stakeholders in the biosecurity research arena (including end users, research practitioners and policy-makers) on the proposed research priorities and institutional needs, including relevant CRCs. It is expected that the National Framework will be considered by the joint Steering Group in February 2007. For more information contact:

Carol Cribb

Manager, Australian Biosecurity System Task Force

Australian Government Department of Agriculture, Fisheries and Forestry

Email: Carol.Cribb@daff.gov.au

Phone: (02) 6272 4853

COOPERATIVE RESEARCH CENTRES BOOST ECONOMY BY \$2.7 BILLION

18 October 2006

Media release from Senator Bishop's office

The Minister for Education, Science and Training, the Hon Julie Bishop MP, has today released a report that shows the work of Cooperative Research Centres (CRCs) boosts the Australian economy by an estimated \$2.7 billion.

The Economic Impact Study of the CRC Programme measured net economic benefits for the economy for the period 1991 to 2010. The report only considered benefits that could be quantified by industry and occurred as a direct result of the CRC Programme's research, training and commercialisation activities.

Minister Bishop said that the CRC Programme has played a key role in supporting the success of Australian industry in global markets.

"The value of the CRC Programme is well known by industry, however this study measures the benefits in a tangible and significant way."

"The report shows the net benefits of the CRC Programme are at least twice the level calculated previously. The return to Gross Domestic Product (GDP) for each dollar invested in the CRC Programme is \$2.16 a return of more than 2:1."

"The 2006 study shows that as a result of the research, training and commercialisation activities of the CRCs, Australian GDP has been increased by nearly \$2.7 billion."

The CRC Programme was established in 1990 to increase collaboration between researchers and industry. The Programme is focused on industry needs and has a strong

educational component, producing graduates with skills relevant to industry.

Since the Programme's inception, the Australian Government has shown its commitment through funding of more than \$2.3 billion.

The Economic Impact Study of the CRC Programme report is available from www.crc.gov.au/

SCIENCE AND INNOVATION PAY DIVIDENDS FOR AUSTRALIA

2 November 2006

Media Release

There are significant benefits to Australia from its public support of science and innovation, according to a draft report released by the Productivity Commission. In addition to positive returns to its national productivity, Australia has also been rewarded with important social and environmental dividends.

In its draft report — Public Support for Science and Innovation — the Commission finds no reason to make large changes to the overall level of public spending - some \$6 billion in 2002-03, but there is a need for incremental shifts in how it is spent.

Commissioner Mike Woods, in releasing the draft, said, "It is important for government programs to maintain a balance between pure basic research and commercial product development. There has been a trend to focus more on commercialisation, but in most cases the private sector is best placed to fund the R&D that leads to marketable goods and services, and to reap the rewards from their sale. Little extra is gained from the taxpayer subsidy of that process."

The objectives of Cooperative Research Centres should be re-aligned to the broad attainment of economic, social and environmental goals, not just commercial ones. Strong public funding support is justified for Rural R&D Corporations with a significant public good orientation. But the Commission considers that the level of public co-funding for some of the more industry-focused corporations could be reduced when the economic circumstances of the rural sector are more favourable.

The Commission finds that certain changes to business programs such as the R&D Tax Concession, which is worth over \$600 million each year, could increase the level of socially-beneficial research. There is also a need for more nimble R&D collaborative arrangements between business and universities, and the Commission has proposed a complement to the CRC Programme that could achieve this.

In commenting on university funding, Commissioner Woods said, "While the proposed Research Quality Framework has some benefits, there are also considerable costs. The Commission suggests that implementation of the RQF be delayed while other options for assessing and improving the quality and impact of block-funded university research are explored."

The Commission has released its draft report to encourage further discussion and input. Final submissions are due on 21 December 2006, with the report to be completed by 10 March 2007.

The draft report from the Productivity Commission on Public support for Science & Innovation can be accessed from www.pc.gov.au/study/science/draftreport/index.html

GRANTS AND AWARDS

AB-CRC Postgraduate Research Scholarship

Applications close Wednesday 31 January 2007

Scholarship applications are invited for the following project: **Dengue outbreak control: identifying early indicators of large outbreaks**

Full details and application forms are available at www1.abcrc.org.au/pages/Education.aspx?MenuID=20

Postdoctoral And Invitation Fellowships In Japan

Applications close 15 December 2006

The Australian Academy of Science is inviting applications from Australian researchers for postdoctoral and invitation fellowships to Japan under a program with the Japan Society for the Promotion of Science. Researchers in any field of natural sciences, including technology, engineering and medicine can apply for travel to Japan in 2007. For more information and guidelines visit:

- Postdoctoral Fellowships (12-24 months): www.science.org.au/internat/jspspd.htm

- Invitation Fellowship for Research in Japan (Short Term, 14-60 days): www.science.org.au/internat/jspsfst.htm
- Invitation Fellowship for Research in Japan (Long Term, 2-10 months): www.science.org.au/internat/jspsflt.htm

Note: *Applications in the humanities and social sciences are also accepted in relation to the Postdoctoral Fellowships only*

PERSONAL PROFILE

Elena Virtue, PhD Student

After completing high school in Boston, Massachusetts in the United States, my family moved back to our hometown of Melbourne where I commenced a Bachelor of Science and a Bachelor of Commerce double degree at Monash University. I majored in Biotechnology/Genetics and Business Law and completed Genetics Honours in 2005.

My Honors research was undertaken at Monash University and the Macfarlane Burnet Institute for Medical Research and Public Health. The title of my project was *Evaluating root culture for the production of plant made vaccines*. Using measles as the model target, the project involved identifying whether

plant-based vaccine production systems were a viable alternative to traditional vaccine expression systems. This Honours project, along with supportive supervisors and mentors (Prof. John Hamill, Monash University and Dr Diane Webster, Burnet Institute) sparked my interest in molecular genetics and infectious disease research.

As a result of my positive research experience I made the decision to undertake PhD study. I had an interest in biosecurity issues relating to emerging infectious diseases and became aware of the Australian Biosecurity CRC project *Rapid diagnosis of known and emerging influenzas with human health implications*. I knew that this would be a challenging and exciting project with the potential for major public health benefits to Australia.



I am fortunate to have been awarded an AB-CRC scholarship and have embraced the opportunity to undertake this very important research underpinned by the excellent facilities, expertise and support of the University of Queensland and the AB-CRC.

Outside of the lab, when I am not tutoring UQ science students, I like to keep the brain in peak condition with fresh air – I enjoy playing touch football and I also don't mind a game of tennis.

PERSONAL PROFILE

Kyaw Naing Oo, PhD Student

I graduated with a bachelor degree of veterinary science from the University of Veterinary Sciences in Yezin, Myanmar. As soon as I graduated from university I got a job in private business, but I was not happy even though the salary was better than working for the government as I wanted to apply my knowledge in the field. So, I joined the Livestock Breeding and Veterinary Department and was appointed as Assistant Veterinary Officer for isolated area volunteer staff, conducting livestock disease control and development in the Sagaing Division, which is located in the north-western part of Myanmar.

During those days of my first experiences as a veterinarian, I encountered a big foot-and-mouth disease (FMD) outbreak in the region where I had responsibility - but I could not control the outbreak properly. Fortunately, the outbreak stopped after affecting thousands of cattle. It was a big challenge to my veterinary knowledge and skills, and I cannot forget that experience!

After 3 years, I was moved to the Livestock Breeding and Veterinary Department headquarter as Deputy Veterinary Administrative Officer for veterinary administration work and I was transferred to the FMD Vaccine Production and Diagnostic Section as a researcher. I did my best to acquire knowledge to prevent a similar experience to the one I had in the Sagaing Division. Then I got a chance to study the diagnostic technique of FMD in Pakchaung, Thailand.

In 2004, I was seconded to the South-East Asia Foot-and-Mouth Disease (SEAFMD) Campaign and participated in the Myanmar-Thailand-Malaysia (MTM) FMD Campaign. My main task was to prepare a disease surveillance proposal for Myanmar MTM zones under the supervision of Prof. John Edwards (former SEAFMD Regional Coordinator, now Dean of the School of Veterinary and Biomedical Sciences, Murdoch University) and Dr Ronello Abila (Regional

Coordinator of SEAFMD Campaign). Further to my work related to the MTM Campaign, the Myanmar Zoning Working Group identified the Sagaing Division as a potential source of FMD in the region and decided to establish a control zone for FMD within the Division. Coincidentally, I received the opportunity to undertake my PhD at Murdoch University with a joint scholarship from the AB-CRC and Murdoch University. Fortune favours me to upgrade my knowledge and improve my ability to combat FMD in the Sagaing Division.

My PhD project entitled *Epidemiological study to support a progressive FMD zoning approach in Myanmar* aims to support the establishment of a progressive FMD zoning approach in Myanmar.



It will contribute to improve the lives of our people in the countryside who love their cattle like family members and have many years of experience in managing their livestock to be FMD-free. The broad objectives of my thesis are to provide recommendations to the Myanmar Zoning Working Group on technical and economic feasibility for Sagaing Zoning and to promote and facilitate the development of zone status from control zone to eradication status in the MTM FMD-free zone campaign.

It is my hope that my PhD research and my effort can make up for the first experiences I had in my veterinary life.

PERSONAL PROFILE

Suhella Tulsiani, Masters Student

I grew up in India in the overcrowded, busy city of Bombay, and like most Indians fell hopelessly in love with curry, cricket and cinema. Avid interest in animal genetics brought me to Australia to complete an undergraduate degree (Bachelor of Science) majoring in zoology and genetics from the Australian National University (ANU), Canberra. After the degree, I still felt the need for getting hands-on animal handling experience and decided to complete a Diploma in Animal Technology

from Canberra Institute of Technology, which got me a job at the John Curtin School of Medical Research at the ANU as a Genetically Modified Organism (GMO) Breeding Technician. Somewhere along my 3 years of working happily with thousands of lab mice I decided to go back and pursue wildlife research work at university. I then completed a Graduate Diploma in Resource and Environment Management at the ANU, and worked extensively on food and colour preference in the Common Indian Myna bird for vertebrate pest mitigation purposes as my research project.

I saw the neon lights of Bris-vegas flash and heard the call for continuing further research, so I moved to Brisbane in 2006 to start my PhD with the University of Queensland, Queensland Health and Australian Biosecurity CRC. I am working on pathogenic Leptospirosis, which is an acute, febrile, bacterial disease that has recently re-emerged in the north Queensland tropics, causing detriment to the banana industry. My project aims to investigate the role of flying foxes in the transmission of pathogenic leptospiral serovars to rodents and the potential public health risk in a community reservoir. The main hypothesis to be tested is that through urination flying foxes shed large amounts of leptospire under their roosts, leading to increased frequency of rodents encountering

leptospire, resulting in a higher transmission coefficient for *Leptospira* species in the rodent populations residing under flying fox roosts. The project falls under the AB-CRC's *Ecology of emerging infectious diseases* program and will also look into whether flying foxes provide a pathway for the introduction of exotic serovars through contact with colonies on the islands off northern Queensland.

My project is very dynamic and combines field work (including scary thoughts of handling giant white-tailed rats or encountering taipans), lab diagnostics and mathematical analysis of host-pathogen transmission models. Understanding the transmission and reservoir hosts of Leptospirosis will help us better manage disease outbreaks in the future. I'm really looking forward to the next 2.5 years of my PhD with flying foxes, rodents, lab reagents and mathematical equations (?).



CONFERENCES

A conference database is available at www.abcrc.org.au > News & Events

Food and Health Society for Applied Microbiology Winter meeting 2007

11 January 2007

London, United Kingdom

For more information visit www.sfam.org.uk/janmeet.php?PHPSESSID=cf5dd99b082898f56a90dc4c64c78cbf

4th Anti-Infectives Partnering & Deal- Making Summit

25-26 January 2007

San Francisco, USA

For more information visit <http://gtcbio.com/confpage.asp?cid=11>

Sixth International Symposium on Antimicrobial Agents and Resistance

7-9 March 2007

Singapore

For more information visit www.isaar.org/index.asp

XIII International Congress in Animal Hygiene

17-21 June 2007

Tartu, Estonia

For more information visit www.eau.ee/~isah2007/index.php

5th World Congress of Science Journalists

16-20 April 2007

Melbourne, Australia

For more information visit www.scienceinmelbourne2007.org/

13th International Symposium for the World Association of Veterinary Laboratory Diagnosticians

11-14 November 2007

Melbourne, Australia

For more information visit www.wavld2007.com/