International Workshop:
"Ecohealth Approaches to the Prevention and Control of Vector-Borne Diseases in Africa, Asia and Latin America and the Caribbean: Inter-regional Dialogue and Exchange"

Monday, December 1st, 2008
Merida, Yucatan, Mexico
Hyatt Regency Hotel - Regency II Room
08:00 - 16:00

Languages: English/Spanish (with simultaneous translation)

On the occasion of the International Ecohealth Forum 2008 Merida, Mexico

Organized by the International Development Research Centre (IDRC) and the WHO Special Programme for Research and Training in Tropical Diseases (TDR)
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Context

On December 1st at the Hyatt Regency Hotel (Regency II Room), IDRC and the WHO Special Programme for Research and Training in Tropical Diseases (TDR) will be hosting an international workshop on *Ecohealth Approaches to the Prevention and Control of Vector-Borne Diseases in Africa, Asia and Latin America and the Caribbean Inter-regional Dialogue and Exchange*. The majority of the 40 participants are researchers working on projects relating to vector borne diseases in 20 countries.

General Objective

The general objective of the workshop is to facilitate the exchange of ideas and information, and promote scientific linkages amongst partners utilizing ecohealth approaches in the prevention and control of vector borne diseases in Latin America and the Caribbean, Africa and Asia to enhance inter- and intra-regional capacity and facilitate the translation of research into impact and policy, in order to contribute more effectively to sustainable development.

Specific Objectives:

The objectives of the workshop are to:

1. Foster networking and exchange between ecohealth researchers through the identification of specific key issues and challenges in ecohealth research related to communicable diseases;
2. Identify approaches and mechanisms to address key issues and challenges in ecohealth research related to communicable diseases;
3. Promote a global community-of-practice for ecohealth research related to communicable diseases.

Expected Outcomes

- Report on workshop activities and their specific outputs
- Evaluation of workshop (on site)
- Assessment of new opportunities and proposed links amongst participants
• Outline plan for follow-up of inter-team and -region dialogue
### Participants

#### Invited participants
- ABYEYEWICKREME, Wimaladharma
- AGUILAR, Marcelo
- ARUNACHALAM, Natarajan.
- BAGONZA, Asaba Richard
- BASSO, Cesar
- CAPRARA, Andrea
- CARRASQUILLA, Gabriel
- CORVALAN, Carlos
- CHARRON, Dominique
- CHIMBARI, Moses
- DIAZ, Cristina
- ELLIS, Brett
- ESPINEL, Mauricio
- FIUSA, Jose Lima
- GISLASON, Maya
- GURTLER, Ricardo
- HORSTICK, Olaf
- IBARRA, Ana Maria
- KITTAYAPONG, Pattamaporn
- MARCO, Jesusa
- MBOERA, Leonard
- MENDEZ, Fabián
- MONROY, Maria Carlota
- OGUSUKU, Ma. Elena
- OKELLO ONEN, Joseph
- ONESTINI, María
- PANTELIAS, Anastasia
- ROJAS DE ARIAS, Antonieta

#### IDRC staff
- BAZZANI, Roberto
- BEECHE, ARLYNE
- IGLESIAS, Alicia
- WIESE, Martin
Dr. Wimaladharma Abeyewickreme is a Senior Lecturer at the Department of Parasitology, University of Kelaniya in Sri Lanka. His studies in tropical medicine, applied Parasitology and Medical Entomology have taken him to Thailand, Malaysia and England, where in 1995 he earned his Ph.D in Medical Entomology at the Liverpool School of Tropical Medicine. During his research career, he has published over 41 full papers in refereed scientific journals and had 65 reviewed abstracts included in scientific proceedings. He has undertaken numerous research activities through WHO’s Special Program for Research and Training in Tropical Diseases (TDR) including work on Biology, Bionomics and Population Genetics in relation to the ‘possible’ Anopheles culicifacies species complex in Sri Lanka and Vector Competence - Role of indigenous anopheline species on the transmission of bancroftian filariasis in Sri Lanka. His current research includes work on the use of mosquito nets in malaria endemic districts, preparedness for avian influenza in South East Asia, and investigation into the dengue and chikungunya virus serotype and genetic variability in relation to disease severity and transmission. Among other accomplishments, Dr. Abeyewickreme worked to establish human DNA typing services for parentage testing and forensic casework in Sri Lanka through the establishment of a Molecular Medicine Unit at the University of Kelaniya, Ragama.

Dr. N. Arunachalam is a Scientist-F (Senior Grade Deputy Director) at Centre for Research in Medical Entomology (Indian Council of Medical Research), Madurai, India. His studies on transmission dynamics of lymphatic filariasis by the vector, Culex quinquefasciatus earned his PhD in Medical Entomology at Madras University, India. He was awarded a British Council Fellowship for a Medical Entomology course at London School of Hygiene and Tropical Medicine, London, under the guidance of Prof. C.F. Curtis. Dr. Arunachalam has several years of research experience on mosquito vector biology and control. He is currently member of various scientific societies and served as
a consultant for the control of malaria, Japanese encephalitis, dengue, chikungunya and filariasis in different states of India. He has held teaching position at Pondicherry University for M.Sc. (Medical Entomology). He is currently serving as a teaching faculty at ICMR School of Public Health at National Institute of Epidemiology, Chennai. During his research career, he has published more than 50 research papers in peer reviewed journals. He has carried out many research projects on Japanese encephalitis, dengue and filariasis funded by National and International agencies. He has prepared Master Plans for the control of mosquitoes for two metro cities, Bangalore and Cochin. His findings on the role of *Mansonidae* sp. in the transmission of Japanese encephalitis virus contributed new knowledge in Japanese encephalitis epidemiology. His current research is Eco-Bio-Social aspects of dengue fever funded by WHO/TDR/IDRC, vector biology and transmission dynamics of Chikungunya, Japanese encephalitis and control of filariasis and dengue vectors using innovative vector control tools.

**Asaba Richard BAGONZA**

Mr. Asaba Richard Bagonza is an Assistant Lecturer in the Department of Environmental Science and Management at Kampala University in Uganda. He holds a Bachelor of Environmental Management degree and a Masters’ in Environment and Natural Resources, all from Makerere University. He did his Masters’ research on the linkages between gender and malaria in a pastoral/agro-pastoral ecosystem under System-wide Initiative on Malaria and Agriculture (SIMA), Livestock and Malaria linkages project in South-Western Uganda, in which Prof. Joseph Okello-Onen, an Ecohealth expert was the Lead Investigator. Mr. Asaba expects to publish at least two papers from this project. As an Environmental Socio-economist, he is very interested in medical and environmental social sciences, particularly the influence of social and cultural aspects like gender on infectious diseases (such as malaria) and the environment or natural resources in general. Mr. Asaba has also done a lot of research and consultancy work on gender, participatory approaches and environmental/social impact assessment.

**César BASSO**

El Dr. Basso se desempeña como Profesor Agregado de Entomología en la Facultad de Agronomía (Universidad de la República) en Uruguay, de la cual es docente-investigador desde el año 1973. Asimismo, ha actuado como Profesor Invitado de una institución universitaria francesa en el periodo 2005-2007. Posee un diploma de doctorado en la especialidad de control...
biológico de insectos (Francia, 1988). Desde el año 2002 coordina un equipo multidisciplinario sobre el tema Aedes aegypti, donde participan biólogos, entomólogos, antropólogos, urbanistas, genetistas y estadísticos de mi universidad. En el período 2004-2007 fue responsable en su país de un proyecto regional (Uruguay-Argentina) basado en el enfoque de Ecohealth, tendiente a la aplicación del abordaje ecosistémico para la prevención y control de dicho vector, con el apoyo del IDRC de Canadá. A partir de esa experiencia, su equipo ha sido convocado por el Ministerio de Salud Pública de Uruguay para colaborar en el fortalecimiento de la estrategia de acción a nivel nacional, aplicando el citado abordaje en 2007 en un proyecto en una de las ciudades con mayor riesgo para esta enfermedad. Se ha contado para ello con el apoyo de la Organización Panamericana de la Salud.

**Roberto BAZZANI - IDRC Senior Program Specialist, Ecohealth**

A medical doctor with a Master’s degree in Public Health and expertise in public health and health administration (Université Catholique de Louvain). Dr. Bazzani has several years of experience in ecosystem approaches to human health, health policy and systems research and community health. He has held teaching positions at the Faculty of Medicine (Universidad de la República, Uruguay) and worked as Chief of the Planning Department of the Food National Institute in Uruguay.

**Arlyne BEECHE, Program Officer, Ecohealth**

Arlyne Beeche’s research experience includes identifying health disparities between vulnerable groups and managing a phase III trial of insecticide treated plastic sheeting as a new malaria control tool in refugee camps and surrounding communities of Sierra Leone, as well as researching new diagnostic methods for the detection and control of onchocerciasis in the Ivory Coast. She has also worked with the Department of Vaccines and Immunization at PAHO, on the identification of parasites causing newly emerging tick-borne diseases, on newborn weight gain in India, and on projects in collaboration with UNHCR and UNAIDS. Her background is in micro- and molecular biology and she holds a Ph.D. in International Health with a focus on Disease Prevention and Control from the Johns Hopkins Bloomberg School of Public Health, and a Master of Science in Tropical Public Health and MPH certificate from the Harvard School of Public Health.
Andrea CAPRARA

Andrea Caprara, obtained the graduate degree in Medicine and Surgery - Faculty of Medicine University of Modena, Italy (1981) and PhD in anthropology - Université de Montréal (1994). He is currently Assistant Professor at the Department of Public Health at the State University of Ceará and member of the Board of Italian Society of Medical Anthropology (SIAM). Teacher at Sapienza University, Rome (2007) and visiting professor at the Institute of Public Health, UFBA, Brazil.


Gabriel CARRASQUILLA

investigaciones y proyectos financiados por entidades nacionales e internacionales y tiene publicaciones en revistas de circulación nacional e internacional en el área de epidemiología y de investigación de servicios de salud.

Carlos CORVALAN

Carlos Corvalan is an environmental epidemiologist with a Masters in Public Health from Sydney University, Australia, and a PhD in Environmental Health from Nijmegen University, in the Netherlands. He joined the World Health Organization (WHO) in 1993 and the Pan American Health Organization (PAHO/WHO) in January 2008. He is editor and author of the WHO book: Decision-making in environmental health – from evidence to action, the WHO report Climate change and human health – risks and responses and of the WHO report Ecosystems and human well-being – health synthesis, which was WHO's contribution to the Millennium Ecosystem Assessment. He also co-authored a recent WHO report on Preventing diseases through healthy environments which provides an estimate of the environmental burden of disease globally, regionally and by country. For many years he has been giving workshops to representatives from ministries of health and other government officials and experts to promote awareness and action related to protecting health from climate change. Carlos Corvalan was born in Chile, and is coordinator of the Environmental Health Unit of PAHO/WHO in Brazil, and a Senior Advisor on Environmental Health and Sustainable Development for PAHO/WHO.

Dominique CHARRON

Dr. Dominique Charron is Program Leader of the Ecohealth Program Initiative at the International Development Research Centre since 2006. She obtained both a Doctor of Veterinary Medicine and a PhD in Epidemiology at the University of Guelph, Canada. She is adjunct faculty in the Dept. Population Medicine, and special graduate faculty in two other departments at the University of Guelph. While a senior epidemiologist at the Public Health Agency of Canada, she developed and managed a research program on climate change and infectious diseases, particularly enteric and tickborne infections and marine bio-toxins. Other research focused on ecosystem health, agriculture and aquatic bio-indicators, complexity theory, situated learning and participatory methods, and quantitative epidemiological methods. She has conducted research in Canada (including the Arctic) and the Caribbean. She has taught epidemiology and ecosystem health at the
graduate and undergraduate level. She has advised 9 graduate students and has published 12 peer-reviewed articles, 3 book chapters, and many other publications.

**Moses CHIMBARI**

Professor Moses John Chimbari is the Deputy Director at Harry Oppenheimer Okavango Research Centre (HOORC), a research institute at the University of Botswana. Prior to joining the University of Botswana in February 2008, he was Director of Research and Innovation at the National University of Science and Technology in Zimbabwe (2007-2008) and Scientific Director at University Lake Kariba Research Station (ULKRS), a research institute at the University of Zimbabwe (2000-2006). He has a PhD in snail ecology with special interests in research on vector born diseases. Much of his work has been on schistosomiasis and malaria; and to a lesser extent on HIV/AIDS. He was the national leader of the Zimbabwean System Wide Initiative on Malaria (SIMA) team which conducted a project on ecohealth approaches to prevent/control malaria in wetlands in Zimbabwe. The project was funded by IDRC through SIMA. Professor Chimbari was also involved in a project that sought to control schistosomiasis in irrigation systems in Zimbabwe using engineering and environmental measures. He has published a total of 32 scientific papers in peer reviewed journals. He is currently the chairperson of the Research Network for Schistosomiasis in Africa (RNSA). Professor Chimbari is also interested in issues of climate change regarding human health.

**Cristina DIAZ**

For her work on Dengue prevention, Cristina was recently granted Cuba's National Science Award. With experience on a large number of research projects related to the prevention of illnesses like Dengue and other vector borne diseases, and dozens of scientific works published in national and international journals, this biochemist has become a true expert in the area and the region. With Belgian cooperation she is currently working on a Dengue prevention project related to insecticide resistance in mosquitoes and cockroaches. Cristina is a researcher at the Pedro Kourí Tropical Medicine Institute in Havana.
Mauricio ESPINEL

Dr. Mauricio Espinel is a full time professor at the Universidad San Francisco de Quito (USFQ) in Ecuador. His studies in tropical medicine, Management in Health, Epidemiology and Health Impact Assessment have taken him to Brasil, USA and England where in 2004 he earned his Ph.D in Epidemiology at the Liverpool School of Tropical Medicine with a grant provided by TDR OMS. During his research career, he has gained experience at the primary level, managing a health area in the coast of Ecuador confronting poor and difficult conditions. He has combined action with research in different placements of Ecuador. He has been the PI in projects related with prevalent infectious diseases like malaria, onchocerciasis, dengue, diarrhea, tuberculosis and others including from molecular to managerial and control aspects of this problems. He has more than 12 publications in international peer reviewed journals. He enjoy dancing specially salsa and singing Andean music.

At the moment he is the President of the Bioethical Committee of the USFQ and the Director of the International Health Department.

José FIUSA LIMA

Maya GISLASON

Maya Gislason is a Canadian DPhil Research Student in the Department of Sociology at the University of Sussex, England. She is undertaking research on the development of public health responses to newly-emerging infectious zoonotic diseases in the United Kingdom. In this research particular attention is given to the ways in which ecological systems are understood as relevant to population health. This work references the principles of Ecological Health and the practices of integrating knowledge about ecosystem management and nature conservation with human and animal health protection. The themes in this doctoral research are borne of interests identified during her Master's research which looked at the Public Health Agency of Canada's response to West Nile Virus and was undertaken at the University of Victoria in British Columbia, Canada. Maya's work is funded by scholarships from the Commonwealth Scholarship and Fellowship Plan and the Social Sciences and Humanities Research Council of Canada.

Olaf HORSTICK

Olaf Horstick is a consultant in Public Health Medicine whose main interest is in public health in developing countries. He has 15 years of work experience in public health at local, national and international levels (primary care development, health sector reform, programme management, communicable disease control, for single diseases, expertise in: dengue, HIV and AIDS, influenza and avian influenza and malaria) as well as clinical medicine. His postgraduate academic training was as a Fellow of the Faculty of Public Health, London, United Kingdom (UK), as a Doctor of Tropical Medicine, and he has a Master’s of Public Health and a Master’s of Science in Public Health in Developing Countries. He is currently working as a Consultant at the Special Programme for Research and Training in Tropical Diseases (TDR), working on dengue.

Alicia IGLESIAS - IDRC Research Officer, Ecohealth

Alicia joined IDRC in 2003, as Research Officer in the Regional Office for Latin America and the Caribbean, LACRO. Alicia has extensive academic and professional experience in urban planning and management, in particular, in developing countries. She is an urban planner and architect by training, with
a Master of Science (MSc) Degree in Urban Planning and Development at the Development Planning Unit of the University College London UCL, University of London. She also holds a Master’s Degree in Regional and Local Development from the Catholic University of Uruguay. As an urban planner, she has been part of multidisciplinary teams carrying out urban development projects in the LAC region, promoted by international institutions, such as the Inter-American Development Bank, the Global Environment Facility, United Nations Environment Program UNEP, European Union, among others. Since 1995 she was a lecturer at the School of Architecture and Planning of the University of Uruguay. From 2000 to 2003 she was the Academic Coordinator of the MSc Course in Territorial Planning and Urban Development.

**Jesusa M. MARCO**

As Associate Professor from the De La Salle University, Manila (Philippines), Dr. Marco served as Director of the Social Development Research Center of said University from September 2005-May 15 2008. In her more than 30 years with the University, she has served in various administrative positions – Dean of the College of Liberal Arts, Chair of the Behavioral Sciences Department, Graduate School Director, among others. Trained as a sociologist, she is affiliated with DLSU’s Behavioral Sciences since 1976 where she is teaching both graduate and undergraduate courses.

Her research work and consultancy has been in two areas: one as a community specialist and the other as an evaluator. Dr. Marco has done an array of qualitative research in varied areas, such as facilitating group discussions with school heads, teachers, Department of Education division officers, midwives, women in their reproductive years, health workers, street children and youth; convening and presiding over community assemblies to discuss the concern/s of specific projects on hand like promoting reproductive health, gender, and STD, HIV/AIDS awareness among women, information dissemination and forum on water projects, organizing “barangay” waterworks and sanitation association, investigating local government housing projects for urban poor.

As an evaluator, Dr. Marco has evaluated a range of projects from secondary education to upland programs for low income classes, vitamin A, health programs for street children, programs and services for institutionalized street children, abused children and children in conflict with the law, et.al. Moreover, she has developed and conducted belief/attitude, socio-
economic surveys and social impact studies. Dr. Marco has worked with both local and foreign donor groups.

**Fabián MENDEZ**

Dr. Méndez, MD PhD, is a full time professor at the Universidad del Valle School of Public Health, in Cali Colombia. He is the head of the Department of Epidemiology, and his research interests include topics of environmental health and infectious diseases. As director of the Group of Epidemiology and Population Health (GESP), he has conducted research studies on vector transmitted diseases (malaria and dengue) and evaluations of health effects due to environmental exposure to toxic agents (landfill sites, pesticides). One fundamental asset of his research experience has been a multidisciplinary approach in the design and analysis of data.

**Carlota MONROY**

Maria Carlota Monroy Escobar is a Guatemalan biologist with a Masters degree in Medical Microbiology and a Ph.D. in Medical Entomology (Sweden, Karolinska Institute and Uppsala University respectively). Carlota has 28 years of experience in research on vector-transmitted diseases and her 17-year research experience on Chagas disease makes her an expert on that subject. With over 45 peer-reviewed publications, she was awarded the "National Medal of Science and Technology" by the Guatemalan Congress, becoming the first Guatemalan woman to obtain such distinction. With over 28 years of teaching experience at San Carlos University, she is now devoted to research being the founder and senior researcher of the Laboratory of Applied Entomology and Parasitology (www.lenap-usac.org ). This laboratory is a training facility for young undergraduate students on tropical diseases research. Most of Carlota's research is applied to disease vectors control by the Ministry of Health personnel since there is a close cooperation relationship between both organizations.

**María Elena OGUSUKU ASATO**

Bióloga de la Universidad Ricardo Palma, con estudios de Maestría en Ciencias de la Universidad Peruana Cayetano Heredia (UPCH) y cursos de especialización en investigación en Entomología Médica - Instituto de Medicina Tropical de la Universidad de Nagasaki – Japón y el Centro Internacional de Investigaciones Médicas de Cali - Colombia.
Como parte de su experiencia profesional, ha sido investigadora en Entomología del Instituto de Medicina Tropical Alexander von Humboldt de la UPCH, tiene 29 artículos publicados y 4 premios recibidos a investigaciones realizadas sobre vectores de importancia en salud pública y fue parte del equipo que diseñó e implementó el sistema de vigilancia entomológica del Ministerio de Salud del Perú en el año 2000.

Actualmente es Coordinadora de la Unidad de Vigilancia Entomológica y Control de Vectores y Ordenamiento del Medio de la Dirección General de Salud Ambiental del Ministerio de Salud, forma parte del equipo técnico nacional que ha trabajado en conjunto con USAID y el Proyecto Vigía (Convenio de Donación MINSA/USAID) en el proyecto del riego con secas intermitentes en cultivo del arroz para el control de los vectores de malaria, que se está ejecutando en Lambayeque, y próximamente se proyecta extender en las regiones de San Martín, Piura y Tumbes que son las mayores zonas productoras de arroz del país y endémicas en transmisión de malaria.

**Joseph OKELLO-ONEN**

Prof. Joseph Okello-Onen is a Professor of Medical and Veterinary Entomology and Dean of Faculty of Science at Gulu University, Uganda. He obtained PhD in 1997 in Veterinary Epidemiology from Makerere University, Uganda. He is an accomplished researcher with over 60 publications in refereed scientific journals and proceedings in diverse disciplines of research of multi-disciplinary, cross-sectoral and transdisciplinary nature. This includes research on ticks and tick-borne diseases, tsetse and trypanosomosis, relationships between malaria and agriculture, evaluation of indigenous knowledge practices and development of alternative methods (bio-control, plant-based products) for management of ticks and tick-borne diseases. He has diverse experience in community diagnosis, participatory impact assessment (PIA), PRA tools, participatory monitoring and evaluation and extensive work in participatory research, which emphasizes community empowerment and participation as key elements in the integrated approach for management of livestock diseases.

**María ONESTINI**

Maria Onestini ha realizado sus estudios de grado y de posgrado en la Universidad de Indiana y en la Universidad del Estado de Pennsylvania (ambas en EE.UU.). Ella trabaja en el Centro de Estudios Ambientales
(CEDEA), una organización no gubernamental basada en la Argentina que realiza investigación, análisis de política y el entrenamiento en temas de desarrollo sustentable. También ha sido un consultora para varias agencias internacionales y regionales, entre ellas la Comisión Económica para América Latina y el Caribe, el Departamento de Información Pública de la ONU, el Programa de las Naciones Unidas para el Desarrollo, la Oficina del Alto Comisionado para los Derechos Humanos de las Naciones Unidas, el Ministerio de Asuntos Exteriores de Italia, y del Centro Internacional de Investigaciones para el Desarrollo. Tiene experiencia en investigación y en desarrollo de proyectos en varias áreas del desarrollo sostenible. Ella ha sido conferenciente invitada en varias universidades y se ha desempeñado en comités y juntas directivas de un número de organizaciones internacionales.

Anastasia PANTELIAS

Anastasia Pantelias is an Associate Program Officer focusing on vector-borne diseases at the Bill and Melinda Gates Foundation. In this capacity, she is responsible for developing and managing grants aimed at combating diseases such as malaria, dengue, human African trypanosomiasis and rabies. As a member of the Neglected and Other Infectious Disease team, she participates in strategy development, evaluation and operation of the team which has activities in discovery, development, delivery and advocacy for several of the world's most neglected infectious diseases. Prior to joining the foundation, she worked at the Fred Hutchinson Cancer Research Center managing multiple research programs, conducting and analyzing studies on the use of radio-labeled monoclonal antibodies to treat hematologic malignancies such as leukemia and lymphoma. Previously, she spent three years working in the biotech industry as a Research Associate also studying new cancer therapies. Anastasia graduated from Cornell University with a degree in Neurobiology and Behavior while conducting research on integrated pest management and the visual-motor system of flies. She holds a Master's degree from the University of Washington where she studied the electrophysiology of auditory hair cells.

Yasmin RUBIO-PALIS

Proyecto: “Malaria, deforestación y cambio en el uso de la tierra: análisis ecosistémico para la prevención y control de la malaria y la conservación en la Guayana, Venezuela”
Proyecto 103696-006
Actualmente se desempeña como Profesor Titular de la Cátedra Proyecto y Trabajo de Investigación, Facultad de Ciencias de la Salud, Universidad de Carabobo (UC) en Maracay; así como Investigador Titular del Instituto de Investigaciones Biomédicas (BIOMED)-UC. Además desde hace 24 años trabaja en el Ministerio de Salud, Dirección de Control de Vectores y es la Jefa del Laboratorio de Ecología de Vectores. Trabaja en Taxonomía, Bionomía y Ecología de Anofelinos. En menor grado, también ha realizado algunos trabajos sobre bionomía de *Aedes aegypti* y la influencia del clima en la transmisión del dengue en Maracay. En cuanto a su formación académica, es Bióloga (área Ecología) egresada de la Universidad Central de Venezuela, Maestría en Parasitología Médica y PhD en Entomología Médica de la London School of Higiene and Tropical Medicine.

**Nicolás Joaquín SCHWEIGMANN**

Profesor Adjunto del Departamento de Ecología Genética y Evolución de La Facultad de Ciencias Exactas y Naturales. Universidad de Buenos Aires; Doctor en Ciencias Biológicas. FCEyN, UBA. 1994; Investigador CONICET, Argentina. Temas de investigación: Dinámica de transmisión del *Trypanosoma cruzi* en Argentina con especial referencia a la transmisión silvestre entre mamíferos silvestres y triatomíneos (CONICET – UBA); Dinámica de Culícidos urbanos de importancia en la salud humana (CONICET –UBA); Enfoque ecosistémico para la prevención del dengue en Uruguay y Argentina (IDRC); Miembro del nodo del Cono Sur de la Comunidad de Práctica sobre el enfoque ecosistémico en Salud Humana; Director o codirector de 3 tesis doctorales y 3 tesis de licenciatura; Coautor de 47 trabajos científicos en revistas nacionales o internacionales y 6 capítulos de libros.

**Johannes SOMMERFELD**

Dr phil, MPH, is the Project Leader of the TDR/IDRC research initiative on "Eco-Bio-Social Research on Dengue in Asia" at the UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR), World Health Organization, Geneva, Switzerland. The research initiative aims to contribute to improved dengue prevention by better understanding, through multilevel/multi-scale and trans-disciplinary analysis, its ecosystem-related, biological and social ("eco-bio-social") determinants and to developing and evaluating community-centered ecosystem management interventions targeting dengue vector larval habitats, embracing intersectoral actions. Dr Sommerfeld is a social
scientist/epidemiologist with longstanding experience in conducting, facilitating and managing social research related to infectious diseases in developing countries. Managing the TDR Steering Committee for Social, Economic and Behavioural Research, Sommerfeld has been overseeing social science and public health research on a number of critical social issues in infectious diseases and their control, including access, equity, globalization, conflict, risk and vulnerability, human rights and gender. Prior to joining TDR in 2000, he held research associate appointments with Heidelberg University Medical School and the Harvard Institute for International Development.

**Susilowati TANA**

Dr. Susilowati Tana is the principle investigator of Eco Bio Social dengue study for Indonesia; this multi country study is supported by WHO TDR IDRC. Her background is as a medical doctor & she received a doctoral degree in public health. She works at the Center for Health Policy & Social Change, a non governmental organization which works in the area of public health and social science, research and development.
# Workshop Agenda

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<tr>
<th>TIMETABLE</th>
<th>CONTENT</th>
<th>ACTIVITY/RESPONSIBLE ORGANIZATION OR PERSON</th>
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<tr>
<td>08:15</td>
<td>Breakfast meet &amp; greet</td>
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<tr>
<td>08:45</td>
<td>Welcome, presentation of workshop objectives</td>
<td>Johannes Sommerfeld TDR-WHO, Dominique Charron &amp; Roberto Bazzani IDRC, María Onestini, workshop facilitator.</td>
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<tr>
<td>09:00</td>
<td>Ecohealth Research at IDRC: Concept, Programme and Activities. Questions</td>
<td>Dominique Charron, IDRC</td>
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<tr>
<td>09:20</td>
<td>Presentations on regional initiatives:</td>
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<td></td>
<td>1. Communicable Diseases in Latin America and the Caribbean: Ecohealth Research for Policy and Action (CD-LAC)</td>
<td>Arlyne Beeche, IDRC</td>
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<td></td>
<td>2. Eco-Bio-Social Research on Dengue in Asia and Latin America: Five Years of TDR/IDRC Collaboration</td>
<td>Johannes Sommerfeld, WHO-TDR</td>
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<td></td>
<td>3. Integrated Program for Malaria and Agriculture (IPMA)</td>
<td>Martin Wiese, IDRC</td>
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<tr>
<td>09:50</td>
<td>Presentations on key issues in Ecohealth research</td>
<td>Carlota Monroy, Guatemala</td>
</tr>
<tr>
<td></td>
<td>Ecohealth research on</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
<td>Facilitator</td>
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<tr>
<td>10:20</td>
<td>Question/Discussion Period</td>
<td></td>
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<tr>
<td>10:30</td>
<td>Break</td>
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<tr>
<td>10:45</td>
<td>Facilitated plenary discussion to define top three key challenges in ecohealth research related to communicable diseases.</td>
<td>María Onestini, workshop facilitator</td>
</tr>
<tr>
<td>11:45</td>
<td>Introduction to working groups</td>
<td>María Onestini, workshop facilitator</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>13:00</td>
<td>Inter-regional group discussions to address top key challenges identified in plenary session – 3 groups/1 key challenge per group (*)</td>
<td>Johannes Sommerfeld TDR-IDRC, Arlyne Beeche &amp; Martín Wise IDRC</td>
</tr>
<tr>
<td></td>
<td>Chagas highlighting experience in working with CD-LAC Initiative</td>
<td>Joseph Okello -Onen, Uganda</td>
</tr>
<tr>
<td></td>
<td>Ecohealth research experience on malaria highlighting experience in working with SIMA initiative</td>
<td>Pattamaporn Kittayapong, Thailand</td>
</tr>
<tr>
<td></td>
<td>Ecohealth research experience on dengue highlighting experience in working with Eco-Bio-Social Initiative, Asia</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
<td>Speaker(s)</td>
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<tr>
<td>13:40</td>
<td>Reorganization of working groups</td>
<td></td>
</tr>
<tr>
<td>13:50</td>
<td>Dengue, malaria and Chagas working groups to address disease specific experiences and challenges - 3 groups (*)</td>
<td>Carlota Monroy (Chagas), Joseph Okello Onen (Malaria) &amp; Pattamaapornt Kittayapong (Dengue)</td>
</tr>
<tr>
<td>14:30</td>
<td>Presentation on Communities of Practice in Ecohealth (COPEH)</td>
<td>Oscar Betancourt, COPEH-TLAC</td>
</tr>
<tr>
<td>14:45</td>
<td>Report back from working groups</td>
<td>5 minutes per group</td>
</tr>
<tr>
<td>15:15</td>
<td>Final plenary discussion &quot;New avenues for collaboration&quot;.</td>
<td>Olaf Horstick, TDR-WHO</td>
</tr>
</tbody>
</table>
Ecohealth approaches to research on vector-borne diseases

Projects supported by IDRC 2001-2008

IDRC’s Ecohealth research support on vector borne diseases has focused primarily on Chagas disease and Dengue in Latin America and the Caribbean, Malaria and agriculture in Sub Saharan Africa, and on Dengue in South East Asia.

During the initial stages of IDRC’s Ecohealth Program Initiative involvement in this field, a joint project with the Pan American Health Organization (PAHO) and the United Nations Environment Program (UNEP-ROLAC) used the Ecohealth framework in the prevention and control of vector-borne diseases (with a focus on Chagas disease, Dengue and Malaria) in Central America and the Caribbean (2002-2005). This collaboration was then pursued through the regional call entitled Communicable Diseases in LAC. Ecohealth Research for Policy and Action (2006). In 2007 seven projects were selected and are currently active.

The Communicable Diseases in Latin America and the Caribbean (CD LAC) Ecohealth Research for Policy and Action Initiative is an inter-agencies collaboration that was achieved between IDRC and the Organization of American States, the Pan American Health Organization, the Inter-American Development Bank, and the Bill & Melinda Gates Foundation. The CD LAC Initiative’s objectives are to: (i) impact disease transmission dynamics through transdisciplinary action-oriented research that uses multi-stakeholder participatory methods and addresses social and gender equity issues, (ii) identify, plan and test sustainable interventions based on inter-sector management of the ecosystem, and (iii) promote opportunities to link knowledge and intervention learning with policy influence. There are three diseases of focus within the Initiative: Malaria, Chagas and Dengue, as their transmission is related to environmental resource mismanagement and social, cultural and economic activities.

Ecohealth has also been working in partnership with the Tropical Disease Research Program TDR/WHO- (Social, Economic and Behavioural – SEB Unit) to develop an Eco-Bio-Social approach to Dengue in Southeast Asia. The objective of this project is to strategize and contribute to improved dengue prevention by better understanding, through multilevel/multi-scale and trans-disciplinary analysis, its ecosystem-related, biological and social determinants and to develop and evaluate community-centered ecosystem management interventions directed at reducing dengue vector larval habitats.

In Africa, a group of five projects under the general theme of Malaria and Agriculture have been supported by IDRC. The field projects were carried out in East and Central Africa and broadly studied the interaction of agricultural practices and malaria under specific environmental and farming conditions. These projects, which fall under the umbrella of the System-wide Initiative on Malaria and Agriculture (SIMA), are a group of local-level projects with the common goal of not only examining the links between agriculture and malaria in Africa, but also to influence the agricultural sector to contribute to malaria control through better practices. SIMA created in 2001 to study the complex linkages between socio-cultural, economic and environmental factors and malaria. Research activities were carried out in five countries (Ghana, Kenya, Tanzania, Uganda, and Zimbabwe).

Specific information on projects using the ecohealth approach to prevent and control vector-borne diseases supported by IDRC are listed below.
Further information

In the information below you will find a Project ID number. This is an IDRC identifier and it is one of the parameters though which you can find further information on each particular project in the Centre’s database at http://idris.idrc.ca/app/Search.

Furthermore, for the Ecohealth 2008 event a special web page has been created which has further information on the research projects and teams at http://www.idrc.ca/en/ev-131599-201-1-DO_TOPIC.html or (in Spanish) http://www.idrc.ca/es/ev-131599-201-1-DO_TOPIC.html.
**IDRC supported projects on Ecohealth & Dengue in LAC - recently completed**

<table>
<thead>
<tr>
<th>Title: Urbanization, community dynamics, policy response and Dengue control in Fortaleza, Brazil, 2004-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project ID</strong> 100999 (TDR-WHO)</td>
</tr>
</tbody>
</table>

The team based at the Universidade Estadual do Ceará endeavoured to elucidate the ecological, biological and social factors responsible for the re-emergence of dengue fever in the city of Fortaleza. Despite increased vector control efforts, dengue fever is endemic to Fortaleza, and there have been sporadic epidemic outbreaks since 1986. Using a combination of surveys, entomological assessment and ethnographic research, the team carried out a multiple-case study in six purposively selected city blocks. The critical determinant of vulnerability to dengue was the degree of access to water, which varies between advantaged and disadvantaged neighbourhoods. Households in underprivileged neighbourhoods store water in containers to compensate for the irregular supply of piped water. These containers provide a breeding ground for the mosquito vector, *Aedes Aegypti*. The researchers concluded that guaranteeing the right of the poor to a regular supply of potable water, sewer services, education and work will have a great impact on dengue control and eradication.

<table>
<thead>
<tr>
<th>Title: Dengue Control in Colombia, 2004-2005</th>
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<tr>
<td><strong>Project ID</strong> 100999 (TDR-WHO)</td>
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</tbody>
</table>

The team of Fundación Santa Fé de Bogota investigated the problem of dengue in the cities of Melgar and Girardot in the Magdalena river basin. They conducted a knowledge, attitudes and practices (KAP) survey in a random sample of households, and combined it with direct observation of potential breeding sites. They explored the ecological and social context by means of ethnography, direct observation, interviews and focus group discussions. They analyzed the relationship between dengue and seasonal variations based on 213 case reports and weather information using an autoregressive model (ARIMA). This revealed that dengue outbreaks were preceded by a peak of rainfall 14-16 weeks previously. Households where interviewees had a least one year of schooling showed a significantly lower risk of having disease vectors in the vicinity than those with no schooling. Water tanks located on the ground were the most common mosquito breeding sites. Again, shortcomings in the municipal water system made it necessary to store water in containers. Dengue was perceived by the population under study as a minor affliction until it symptoms became severe and haemorrhage appeared. The study provides useful baseline against which to measure future interventions.
Researchers collected primary information for the integrated surveillance system in three municipalities of Habana using revised data collection forms integrating environmental, entomological, and epidemiological and laboratory information. A computerized program originally developed for the municipality of Cotorro was used to process the primary data into indicators for further analysis. The indicators were then mapped by city block with a geographic information system (GIS) to provide instant visual representation for decision-makers. In order to ascertain the population's risk and needs with respect to dengue, the team conducted in-depth interviews with key informants at the political, healthcare and community levels, and surveyed a stratified random sample of 489 households to ascertain people's knowledge, attitudes and risk perception regarding dengue. The resulting data were incorporated into a structural equation model (SEM) linking perceived self-efficacy, outcome expectancy and risk perception as paths to the intention to change behaviour and actual behavioural change with respect to dengue prevention. Community dialogues and sensitivity workshops were organized. These meetings not only succeeded in identifying problems and priorities, but also in leading to the formal creation of neighbourhood groups or committees to help resolve environmental problems. The groups identified those environmental problems related to dengue that they themselves could solve with local volunteers and resources, and those problems that they could not solve locally or directly. The latter were brought to the municipal health council, fulfilling an important role within the health councils by providing on-the-ground feedback on the integrated surveillance system, and a link between field workers and decision-makers. Also, a study was conducted to identify the environmental behavioural and economic conditions or factors associated with the detection of Aedes aegypti mosquito foci in houses. The project provided training for 600 environmental health inspectors and supervisors; six data collectors; 60 members of nine neighbourhood groups; two entomologists; 80 health promoters; and six epidemiologists.
to develop a participatory process in the design and implementation of a surveillance system including three subsystems: the environmental surveillance component allowed to identify and stratify risks at Popular Council level, the entomological surveillance subsystem embraced active surveillance in the search of areas of infestation risk and in the appearance of focuses, and the epidemiological clinical subsystem was implemented to achieve an early diagnosis and follow up of clinical cases. This integrated approach enabled the implementation of a participatory process in the management of ecosystem factors associated with a higher risk of dengue transmission.

**Title:** Ecosystem approaches to dengue prevention in Argentina, 2005-2007

Project ID 101814

Principal Researcher: Schweigmann, Nicolás
nicoschw@gmail.com

This grant aimed at allowing a multidisciplinary team to implement action-research pilot projects in two urban areas with contrasting socioeconomic characteristics: Buenos Aires, Argentina, and Montevideo and Colonia del Sacramento, Uruguay. The goal was to design a participatory, binational, transdisciplinary strategy for reducing the spread of dengue and other diseases associated with urban environmental management in the River Plate region. The team in Argentina achieved to generate new information on the links between different urban patterns and vector ecology in the city of Buenos Aires, and to develop and test ecosystem participatory vector control strategies.

**Title:** Ecosystem approaches to dengue prevention in Uruguay, 2005-2007

Project ID 101814

Principal Investigator: Basso, Cesar
cbasso@movinet.com.uy

This grant aimed at allowing a multidisciplinary team to implement action-research pilot projects in two urban areas with contrasting socioeconomic characteristics: Buenos Aires, Argentina, and Montevideo and Colonia del Sacramento, Uruguay. The goal was to design a participatory, binational, transdisciplinary strategy for reducing the spread of dengue and other diseases associated with urban environmental management in the River Plate region. The team in Uruguay enabled to set the basis for the development of an integrated early warning system that is currently being implemented by the Ministry of Health as well as to implement educational strategies in different schools of the city of Montevideo.

**Title:** Dengue in the border of Guatemala and Mexico. INCAP, 2002-2005
The project aimed to develop a novel and unique integrated approach linking risk factors associated with dengue and diarrhoea as well as focusing on water and solid waste disposal interventions, not only at the household level but also at the community level. It achieved a better comprehension of ecosystem dynamics and household behavioural practices linked to higher rates of dengue incidence in the border of Guatemala and Mexico and to promote the involvement of key stakeholders in the development of new dengue prevention strategies. The project achieved the mobilization of different organized social groups in the community, including Health, Municipality, Education, NGO’s and other groups such as mass communication media (TV, cable, radio, newspaper, etc.) in the city of Coatepeque in Guatemala (border with Mexico). An intersectorial group comprised of local Institutions (Health, Municipality, Education, NGO’s) was established and it called itself “Por Un Coatepeque Limpio y Sano”, through whom all the project activities were performed. Five key behaviours for reducing risk of larval development were implemented through a community-based participatory process (wash basin, cover drums, cover tires, place upside down unused pots, clean your patio and roof, and keep elevated tank covered). The results showed a decrease of entomological indexes after the intervention.

NOTE: Below (page 12) you will find complementary summary information referred to the set of Dengue projects supported by Ecohealth-IDRC in LAC in the past years (information extracted from “Documenting Outputs, outcomes and learning from Ecohealth Projects: Dengue, by Héctor Gómez Dantés. IDRC requested evaluation. 2007).
### Title: Ecosystem Approach to Chagas Disease Control in Guatemala

<table>
<thead>
<tr>
<th>Project ID 101812</th>
<th>Principal Researcher: Carlota Monroy <a href="mailto:carlotamonroy@yahoo.com">carlotamonroy@yahoo.com</a></th>
</tr>
</thead>
</table>

Chagas' disease affects an estimated 730,000 people in Guatemala and is carried by two insect vectors: Rhodnius prolixus and Triatoma dimidiata. A spraying program (being carried out as part of the national vector control program) was expected to reduce R. prolixus to zero. Unfortunately, this was not the case with T. dimidiata, a native species that is impossible to eradicate. This grant supported a study carried out in the department of Jutiapa, one of the areas most affected by T. dimidiata and Chagas' disease. Researchers developed and tested a control strategy based on reducing human-vector contact through environmental management at the household, peri-household and sylvan levels, and a community-based surveillance system. The results of this ecosystem approach would be compared with that of the traditional approach (insecticide spraying). The findings would contribute to the formulation of a policy for Chagas' vector in Guatemala and Central America.

### Title: Control and Prevention of Chagas Disease among the Lenca in Honduras

<table>
<thead>
<tr>
<th>Project ID 102058</th>
<th>Principal Researcher: Ardón, Lombardo <a href="mailto:lombardo.ardon@gmail.com">lombardo.ardon@gmail.com</a></th>
</tr>
</thead>
</table>

The Lenca, an indigenous population living in the Municipality of San Francisco de Opalaca, Inibucá, are particularly vulnerable to Chagas' Disease. Using an ecosystem approach, researchers proposed to determine the ecological, sociological and cultural factors involved in the transmission of T. Cruzi in this population. They then aimed at identified actions to be taken at the household and community level to control the disease. They also endeavoured the strengthening of community organizational structures through leadership training, so that the stakeholders can better implement the identified actions.
Ongoing Communicable Diseases Projects in Latin America and the Caribbean (CD LAC)

CD LAC is comprised of seven projects disseminated throughout eight countries: Guatemala, Peru, Colombia, Ecuador (2), Gran Chaco (Argentina, Bolivia and Paraguay), and Venezuela. The projects integrate health and environmental and social approaches, and incorporate participatory research processes that included communities as well as decision-makers. Information on each of the components of these ongoing initiatives is listed below. **Project ID: 103696**

<table>
<thead>
<tr>
<th>Title</th>
<th>Principal Researcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long term management of <em>T. dimidata</em> domicile reinfestation from peri domicile or wild environment (Guatemala)</td>
<td>Monroy Escobar, María Carlota <a href="mailto:carlotamonroy@yahoo.com">carlotamonroy@yahoo.com</a></td>
</tr>
<tr>
<td>An ecosystem perspective of the process of reinfestation by <em>Triatoma infestans</em> in rural communities of the Gran Chaco ecoregion (Argentina, Bolivia, Paraguay)</td>
<td>Gurtler, Ricardo <a href="mailto:gurtler@ege.fcen.uba.ar">gurtler@ege.fcen.uba.ar</a></td>
</tr>
<tr>
<td>Malaria and deforestation: Understanding their relations to strengthen actions in health and conservation in the Guyana (Venezuela)</td>
<td>Rubio-Palis, Yasmin <a href="mailto:rubiopalis@yahoo.com">rubiopalis@yahoo.com</a></td>
</tr>
<tr>
<td>Environmental management of rice cultivation for the sustainable control of malaria vectors: Effect of irrigation with intermittent dry periods (Peru)</td>
<td>María Elena Ogusuku Asato <a href="mailto:eogusuku@digesa.minsa.gob.pe">eogusuku@digesa.minsa.gob.pe</a></td>
</tr>
<tr>
<td>Malaria transmission and land use management in the Ecuadorian Amazon: Identifying ecosystem determinants of malaria risk for appropriate and sustainable control</td>
<td>Espinel, Mauricio <a href="mailto:mauricioe@usfq.edu.ec">mauricioe@usfq.edu.ec</a></td>
</tr>
<tr>
<td><em>T cruzi</em> transmission risk in Ecuadorian Amazon</td>
<td>Aguilar, Marcelo <a href="mailto:maquiliarv3@gmail.com">maquiliarv3@gmail.com</a></td>
</tr>
<tr>
<td>A dengue intervention strategy with an ecohealth focus in a demonstration area of urban Cali (Colombia)</td>
<td>Méndez, Fabián <a href="mailto:famendez@univalle.edu.co">famendez@univalle.edu.co</a></td>
</tr>
</tbody>
</table>
**System-wide Initiative on Malaria and Agriculture (SIMA) Projects**

SIMA provided an umbrella for a series of local-level projects with the common goal of examining the links between agriculture and malaria in Africa, so as to influence the agricultural sector to contribute to malaria control through better practices. SIMA’s components were:

**MWEA project (Kenya)**

For this project, malaria prevalence and control methods in an area where extensive irrigation supports rice production and cattle were examined. The project revealed large local differences in malaria levels (lower in the irrigated area) and described in detail the complex social and environmental distinctions that were likely responsible for these differences. The studies showed that the main malaria vector in Mwea is zoophilic and therefore suggested that the presence of cattle near human settlement could detract these mosquitoes from biting people and reduce malaria transmission. The study also showed how community-based interventions (e.g. soybean intercropping with rice) can lower levels of malaria.

**SANGA project (Uganda)**

A local community’s belief that pastoralists who had been settled were subject to higher rates of malaria than those who remained nomadic was studied. The project proposed that - if the primary vector was found to be zoophilic and nomadic pastoralists were found to have less malaria than those who had settled - a potential remedy would be the application of pesticide to the skin of cattle. However, both of those assumptions were disproved: all the people were suffering from increased malaria. Moreover the ecohealth comprehensive study showed that land allocation/privatization had cut off livestock from accessing traditional water sources and led to massive proliferation of on-farm ponds which act as vector breeding places. Sometimes, however, water ferns were found to inhibit breeding. This raises the possibility of reducing malaria by eradicating breeding places in thatched huts and open pools of water within communities.

**BUSHENYI project (Uganda)**

A study which investigated whether a dramatic rise in malaria incidence was related to the increase in the use of fishponds. While the project established that disused fishponds did breed mosquitoes, there was no evidence that functional fishponds did the same. The project also produced preliminary evidence that mosquitoes bred in water-filled leaf-axils of yam plants (used to feed the fish), although this contribution needs to be verified. Together, these findings suggest that malaria can be reduced through changes in agricultural practices and by the appropriate management of disused fishponds.

**MVOMERO project (Tanzania)**

This study analyzed a 65 km section of road, with consistent environmental conditions, to determine how changes in agricultural activity (e.g. sugarcane, irrigated rice, rice and maize,
livestock rearing) along that stretch of terrain affected the incidence of malaria. One social science-oriented aspect of the research probed how livelihoods-related behaviour, such as scaring birds away from rice at night, altered malaria transmission. There was a striking variation in malaria between the populations in the different zones, even though they were in similar bioclimatic areas at the macro level.

**ZUNGWI project (Zimbabwe)**

In this project it was examined the hypothesis whether changes in agricultural processes affected malaria transmission rates due either to environmental or socio-economic spin-off effects. Although researchers found malaria transmission to be a less pressing concern than the communities had believed, the transdisciplinary process brought to the fore major issues related to cultivation such as conflict within communities and the spread of HIV/AIDS.
Eco-Bio-Social approach to Dengue in Southeast Asia Initiative

Executing agency: TDR-WHO
Project ID: 10274

This project will support a research initiative aimed at better understanding the ecosystem-related, biological and social (eco-bio-social) determinants of dengue and developing community-based interventions for targeting dengue vector larval habitats.

As components of this project, six research studies on the eco-bio-social aspects of dengue in South and Southeast Asian countries will be carried out (general information on each of these research studies, which are in mid-term of their implementation, is listed below).

The general project objectives are:

- To strategize, and contribute to, improved dengue prevention by better understanding, through multilevel/multi-scale and trans-disciplinary analysis, its ecosystem-related, biological and social ("eco-bio-social") determinants and to develop and evaluate community-centered ecosystem management interventions directed at reducing dengue vector larval habitats, embracing intersectoral actions.

- To set up, and coordinate, a portfolio of up to six research studies on eco-bio-social aspects of dengue in research institutions located in countries under risk of dengue epidemics in South Asia and South-East Asia.

- To conduct trans-disciplinary research on eco-bio-social dynamics of dengue transmission in selected ecosystems.

- To provide technical assistance to the studies and enhance specific strategies to increase local and national research capacities in this field (research capacity strengthening).

- To design, based upon the formative initial research studies, viable inter-sectoral ecosystem interventions, responding to identified eco-bio-social factors and involving local communities and relevant stakeholders in the planning process.

- To test and evaluate, through implementation research, different participatory ecosystem interventions for dengue prevention.

- To facilitate the write-up and dissemination of findings from funded studies in the international peer-reviewed literature and the use of results through active research-to-policy linkages and activities.

- To initiate steps to build a community of practice on dengue prevention that will stimulate critical thinking and practice, cross-collaboration and networking.
Project components in mid-term of implementation:

**Title:** Understanding the biology, ecology and social risk factors for dengue transmission in Yogyakarta  
**Project ID A60617** Center for Health Policy and Social Studies, Yogyakarta (Indonesia)  
**Principal Researcher:** Susilowati Tana, susimr@yogya.wasantara.net.id

**Title:** Eco-bio-social dynamics for better-informed dengue prevention in Myanmar  
**Project ID A60629** Department of Medical Research (Lower Myanmar), Ministry of Health, Yangon (Myanmar)  
**Principal Researcher:** Khin Thet Wai tino-zn@myanmar.com.mm

**Title:** Socio-bio-ecosystem approach to Dengue prevention and control in Thailand  
**Project ID A60618** Mahidol University, Bangkok  
**Principal Researcher:** Pattamaporn Kittayapong, grpkt@mahidol.ac.th

**Title:** Eco-bio-social factors of vector density - developing an effective approach to dengue control in the Philippines  
**Project ID: A60626** Department of Parasitology, Research Institute for Tropical Medicine, Manila (Philippines)  
**Principal Researcher:** Espino, Fe Esperanza fespino_2000@yahoo.com

**Title:** Eco-bio-social aspects of dengue in urban and peri-urban ecosystems in Tamil Nadu, India  
**Project ID A60635** Centre for Research in Medical Entomology, Madurai, Tamil Nadu, India  
**Principal Researcher:** Arunachalam, Natarajan, arunachalam10@yahoo.com

**Title:** Study of dynamics and potential risk factors in the transmission of dengue in Gampaha district, Sri Lanka  
**Project ID A60636** University of Kelaniya, Ragama (Sri Lanka)  
**Principal Researcher:** Abeyewickreme, Wimaladharmawabeyewickreme@yahoo.com
### COMPLETED ECOHEALTH - DENGUE PROJECTS IN LATIN AMERICA & THE CARRIBEAN

#### Ecohealth Strategies by Country

<table>
<thead>
<tr>
<th>Project</th>
<th>Project Leadership</th>
<th>Trans-disciplinary Team Composition</th>
<th>Stakeholders and multi-sectorial participatory involvement</th>
<th>Gender issues</th>
<th>Institutionalization, scale-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanization, community dynamics, policy response and Dengue control in Fortaleza, Brazil</td>
<td>Medical Doctor and Anthropologist</td>
<td>Public health, nutrition, anthropology, pedagogue, nursing</td>
<td>Collaboration with local community centers, schools, NGOs.</td>
<td>Women’s role in domestic settings, household hygiene and health risk</td>
<td>Diagnosis stage. Intervention institutionally based (Municipal Control Programme)</td>
</tr>
<tr>
<td>Dengue Control in Colombia 2004-05</td>
<td>Epidemiologist</td>
<td>Anthropology, public health specialists, health promotion, entomology</td>
<td>Community Action Boards, Municipality and Vector Transmitted Disease Program. Network of health promoters paid by municipal authorities</td>
<td>Not reported</td>
<td>Municipality and Vector Transmitted Disease Program (4 days of disposable items collection campaign). Economic sanctions for breeding sites</td>
</tr>
<tr>
<td>Ecosystem Approach to the sustainable prevention and control of dengue, El Cotorro, La Havana 2003-05</td>
<td>Social Scientist</td>
<td>Epidemiology, educational specialist, psychology, statistics,</td>
<td>Municipal primary health care unit, Popular Health Councils, Neighbourhood groups, workers, sanitary workers of the health and popular councils, Statistics Information System, Vector Control Program (Unit of surveillance and Antivectorial Fight) Environmental Sanitation</td>
<td>17 neighbourhood groups created but composition changed with functions</td>
<td>Easily transferred to the health sector. Institutionally anchored</td>
</tr>
<tr>
<td>Integrated participatory dengue surveillance system</td>
<td>Epidemiologist</td>
<td>Sociology, social workers, entomology, biology</td>
<td>Cuban Women Federation and Defence Committee more involved, Municipal primary health care unit, Popular Health Councils, Neighbourhood groups, Vector Control Program (Unit of surveillance and Antivectorial Fight)</td>
<td>Team members, domestic properties: tires vs. aquatic plants</td>
<td>Easily transferred to the health sector. Institutionally anchored</td>
</tr>
<tr>
<td>Ecosystem approaches to</td>
<td>Entomologist</td>
<td>Sociology, Veterinary,</td>
<td>Social clubs; pensioner, community and health</td>
<td>Use of spaces. School based</td>
<td>Fast adoption by educational districts, governmental agencies</td>
</tr>
<tr>
<td>Study</td>
<td>Participants</td>
<td>Outcome</td>
<td>Challenges</td>
<td></td>
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<tr>
<td>Dengue prevention in Argentina, 2005</td>
<td>Entomology, anthropology, biology, health promotion, social workers</td>
<td>Centers; schools; educational sector; health authorities, literacy workers; parent’s committee; religious groups; Bolivian consulate; radio and newspapers, Barrio Assembly</td>
<td>With promoters and amplifiers of gender roles due to threat of dengue epidemic Neighbourhood and institutional acceptance due to epidemiological situation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecosystem approaches to dengue prevention in Uruguay, 2005</td>
<td>Entomologist, Social scientists, climate specialists, architecture, urban development, biology</td>
<td>Schools, municipal authorities, health sector</td>
<td>Age related, older groups fixed domestic functions with women Fast adoption of procedures even before the creation of the Early Alert model and Follow up Observatory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dengue in the border of Guatemala 2002-04</td>
<td>Entomologist, Public health specialist, health promotion, medicine</td>
<td>City majors, community resources, municipal authorities, Ecocubs, schools, etc., Primary Environmental Urban Health Promoters</td>
<td>Women roles in the household (weak) Educational and communication material used at different levels, useful for other interventions,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dengue in the border of México 2002-04</td>
<td>Entomologist, Public health specialist, health promotion, medicine</td>
<td>Municipal level involved, community groups formed, community leaders and local resources, community volunteers</td>
<td>Women roles in the household, intervention practices according to each gender</td>
<td>Municipal level</td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td>Level of intervention</td>
<td>Baseline, process and impact indicators</td>
<td>Surveillance and laboratory support</td>
<td>Entomology support</td>
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<tr>
<td>Urbanization, community dynamics, policy response and Dengue control in Fortaleza, Brazil (2005)</td>
<td>Poor sub-urban and middle high areas</td>
<td>Qualitative (ethnographic, in depth observations, unstructured interviews, participant observation, life stories, focus groups) Quantitative data</td>
<td>All household water containers in the study area were inspected, and larvae were collected and classified in the FNS (Health National Foundation) laboratory</td>
<td>Every activity performed by the Aedes Control Program in the Study Area has been registered. (Approximately 1500 control program workers perform home visits within the Dengue Fever control program in the town of Fortaleza).</td>
<td></td>
</tr>
<tr>
<td>Dengue Control in Colombia 2004-05</td>
<td>Two middle size cities, warm lands, middle &amp; low income neighbourhoods</td>
<td>Qualitative (ethnographic, focus groups RAP, in depth interviews) direct social observations. Quantitative data (cross sectional survey entomological data)</td>
<td>None</td>
<td>Strong entomological methods, biological control (fishes in tanks)</td>
<td></td>
</tr>
<tr>
<td>Ecosystem Approach to the sustainable prevention and control of dengue, Cotorro, La Havana 2003-05</td>
<td>Rural and urban areas in Havana Low population density 1,131 hab. /Km2</td>
<td>Transversal survey, risk factors for infestation; KAP surveys Indicators developed with the community</td>
<td>Strong health care infrastructure, detection of cases, serology and clinical capacity.</td>
<td>Active surveillance of vector densities; Categorization of breeding sites, no productivity, Strong vector control program</td>
<td></td>
</tr>
<tr>
<td>Integrated participatory dengue surveillance system, Central Havana</td>
<td>(urban environment with high population density 43,600 hab. /Km2)</td>
<td>Environment, entomological clinical epidemiological and community indicators; KAP ‘s (pre and post) key informant interviews</td>
<td>Strong health care infrastructure, detection of cases, serology and clinical capacity.</td>
<td>Active surveillance of vector densities; Case control study determinants of infestation. Use of commercial insecticides (area of concern)</td>
<td></td>
</tr>
<tr>
<td>Ecosystem approaches to dengue prevention in Argentina, 2005</td>
<td>Urban areas; middle and lower class neighbourhoods (poor Bolivian community)</td>
<td>Workshops, interviews, social practices, ethnographic methods, participant observation, semi structured surveys and field observation</td>
<td>Not incorporated</td>
<td>Important support, ovitramps, breeding sites identification; municipal vector control personnel involved</td>
<td></td>
</tr>
<tr>
<td>Ecosystem approaches to dengue prevention in</td>
<td>4 Urban settings in working and</td>
<td>Workshops, interviews, social practices,</td>
<td>Not incorporated</td>
<td>Ovitramps, entomologic surveys, biological control (copepods)</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Study Area</td>
<td>Methodology</td>
<td>Supporting Expertise</td>
<td>Findings</td>
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<tr>
<td>Uruguay</td>
<td>Middle class neighbourhoods in Montevideo and Colonia</td>
<td>Ethnographic methods, participant observation, supported by climate expertise and urban design</td>
<td>Water quality: total and fecal coliforms and chlorine residues in water, Dengue cases reported</td>
<td>Breeding sites typology (disposable and controllable) House Condition Index changes</td>
<td></td>
</tr>
<tr>
<td>Dengue in the border of Guatemala 2002-04</td>
<td>Two middle size cities in the Guatemala – Mexico border</td>
<td>Transversal surveys no stratification, KAP’s, in depth interviews, focus groups. Baseline data</td>
<td>Water quality: total and fecal coliforms and chlorine residues in water, Dengue cases reported</td>
<td>Breeding sites typology (disposable and controllable) House Condition Index changes</td>
<td></td>
</tr>
<tr>
<td>Dengue in the border of México 2002-04</td>
<td>Two middle size cities in the Mexico – Guatemala border</td>
<td>4 transversal surveys (cross over), baseline, 2 mid-lines and final line, stratified; RAP’s and KAP’s, in depth interviews, focal groups, house trials</td>
<td>Water quality: total and fecal coliforms and chlorine residues in water, Dengue cases reported</td>
<td>Detail surveys, typology of breeding sites (disposable and controllable) House Condition Index, Entomological and diarrhoeic risk Indices</td>
<td></td>
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<tr>
<td>Project</td>
<td>Environmental variables</td>
<td>Water management</td>
<td>Breeding sites determinants</td>
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<tr>
<td>Urbanization, community dynamics, policy response and Dengue control in Fortaleza, Brazil</td>
<td>Rainy season, temperature, humidity, domestic environment, water provision and basic sanitation</td>
<td>Irregular piped water distribution. Inadequate system of water distribution at household level; Cultural ties and practices due to droughts</td>
<td>The most productive breeding sites are inadequate containers such as pots, tanks, drums, wells at household level. The presence of these containers is due to inadequate water management Seasonality (droughts)</td>
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<tr>
<td>Dengue Control in Colombia 2004-05</td>
<td>Tourist areas, weekend places, Girardot, Melgar Intradomiciliary water supply, sewage, garbage, precipitation, solar brightness, evaporation, mean temps, humidity, influenced by rainfall</td>
<td>Cleaning low tanks weekly too much, clean deposits vs. fishes or chemicals Water supply is suspended on weekends for tourism Tourism is a determinant of water management</td>
<td>HI &gt;30% BI= 49; Larvae and adult forms surveys, indexes, control activities, low tanks are most important based on pupae, responsibility on vector personnel, government, recycling of disposable containers (useful)</td>
<td></td>
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</tr>
<tr>
<td>Ecosystem Approach to the sustainable prevention and control of dengue, Cotorro, La Habana 2003-05</td>
<td>No climate data or vegetation, The rubber and steel industries in the proximity could influence the breeding sites and control</td>
<td>Deficient water infrastructure, physicochemical and microbiological study of water (nitrates, pH, fecal coli forms)</td>
<td>Stratification of risk, alternative biological methods (copepods, Bacillus thuringiensis, Bactive), problems identified are outside domestic setting (solares, pets, abandoned houses, vertederos)</td>
<td></td>
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<tr>
<td>Integrated participatory dengue surveillance system</td>
<td>Infrastructural: blocked drainage, construction debris, water leaks, vacant lots, flooded basements, tanks in poor conditions. Environmental indicators at household level</td>
<td>Evaluation of pesticides impact in air and water</td>
<td>Breeding sites are low tanks (38%), barrels (14%) cisterns (3.4%), 55% intradomiciliary not protected. Conditions of breeding sites explored, mostly useful containers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecosystem approaches to dengue prevention in Argentina, 2005</td>
<td>Temperature, rainfall, humidity, vegetation, basic sanitation,</td>
<td>Water containers management</td>
<td>Seasonality, high densities in all areas, Ovitramps</td>
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<tr>
<td>Ecosystem</td>
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<tr>
<td>Approaches to dengue prevention in Uruguay</td>
<td>Climate variables, breeding sites ecology of domestic setting</td>
<td>Water containers management</td>
<td>Domestic utensils and use in the house.</td>
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<tr>
<td>Dengue in the border of Guatemala 2002-04</td>
<td>Temperature, rainfall, humidity, vegetation, water pollution</td>
<td>Water use, management of solid waste disposal</td>
<td>Entomological indexes Waste disposal, housing conditions</td>
<td></td>
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<tr>
<td>Dengue in the border of México 2002-04</td>
<td>Temperature, rainfall, humidity, vegetation, basic sanitation, water pollution</td>
<td>Water use, quality, management of solid waste disposal, intervention with untadita in water storage containers and water replacement/turning/elimination of non-water storing containers</td>
<td>Indicators of impact housing conditions, compliance of residents with agua segura initiative, evaluation of intervention on entomological and diarrheal agents</td>
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</table>
Investigación de EcoSalud en Chagas destacando experiencia en trabajar con la iniciativa CD-LAC

• TEMAS A DISCUTIR
  1. Comunidad
  1. Transdisciplinariedad
  2. Genero
  3. Gobierno a distintos niveles
1a. Se requiere habilidad del equipo de investigación para negociar con instituciones gubernamentales

- Instituciones gubernamentales no están dispuestas al cambio.
- No aceptan nada nuevo que implique más trabajo
- Muy poco interés en cambiar metodologías.
1b. Aplicar los resultados a esferas de decisión.

- Aprender a negociar con datos en los Ministerios involucrados.
- Aprender a usar influencias de instituciones internacionales para incorporar resultados en el que hacer del gobierno
1c. Alta Potencialidad de los resultados para políticas ambientales

- Se incluyen metodologías no tradicionales como: Manejo ambiental y físico, reforestación, mejora de vivienda, ordenamiento ambiental, corredores biológicos y otros.
- Varios Ministerios pueden ser involucrados
2. La negociación comunitaria exige un alto esfuerzo adicional al académico

- Cada comunidad tiene sus características propias
- El equipo de investigadores tiene que adaptarse a los horarios y tiempos de la comunidad.
3a. Transdisciplinariedad no es fácil

- Incorporar disciplinas al equipo de trabajo implica mucho esfuerzo y tiempo.
- Como manejar bases de datos de varias disciplinas.
- Necesidad de tener conceptos generales de varias disciplinas.
3b. Serio desafió de la integración e interpretación de datos de varias escalas de comprensión.

- Bases de datos gigantes con varias disciplinas incorporadas.
- Integración y funcionamiento de equipos multidisciplinarios no es fácil.
4. Condición de la mujer rural y enfoque de género.

- Mujer sin ingresos económicos propios
- Los niños y los animales son su responsabilidad
- Se necesita mejorar su condiciones económicas.
Limitaciones en el trabajo

TIEMPO

(Fondos)
Communicable Disease in Latin America and the Caribbean

Ecohealth Research for Policy and Action Initiative
Background I

• Malaria, Chagas and dengue
  – Ecology and transmission disproportionately affect the poor
  – Transmission and prevalence closely related to environmental resource mismanagement and social, cultural and economic activities
Call issued in August 2006
>50 concept notes submitted to IDRC
Criteria:
- integrated environmental, social, and economic approaches
- Incorporated participatory research processes that included communities as well as decision-makers
Of 11 full proposals, seven funded
Background III

• Value >US$2 million
• 3 year period
• Collaboration (IDRC):
  – Organization of American States (OAS)
  – Pan American Health Organization (PAHO)
  – Inter-American Development Bank (IADB)
  – Bill & Melinda Gates Foundation
Objectives

1. Promote effective collaboration between individual projects
2. Support research that focuses on
   – improving human health while maintaining a healthy ecosystem
   – understanding their relationship
3. Increase evidence base for ecohealth approach to inform and influence policy
4. Create/expand new dialogue and partnerships (CoPEHs)
Malaria Projects (3)

1. Biological, social, economic and ecological determinants of Malaria in intermittent rice irrigation systems and sustainable development of the local ecosystem for better vector control in the Pítipo district, Lambayeque region, Peru
   - Ministry of Public Health – DIGESA (Environmental Health Branch), PI: Dr. Elena Ogusuku

2. Malaria and land use change: strengthening action for improved Health and Conservation in Guayana, Venezuela
   - Venezuelan Association for Natural Areas Conservation, PI: Dr. Yasmin Rubio-Palis
Malaria (cont.)

3. Malaria transmission and natural resource management in the Ecuadorian Amazon: Identifying ecosystem determinants of malaria risk for appropriate and sustainable control
   – University of San Francisco, PI: Mauricio Espinel

Dengue Project (1)

Design, implementation and evaluation of an eco bio-socially-based intervention strategy for dengue, Cali, Colombia
   – Epidemiology and Population Health Group of the Universidad del Valle, PI: Dr. Fabian Mendez
Chagas Disease Projects (3)

1. Eco-epidemiology and control of *Triatoma infestans* and Chagas disease transmission in the Gran Chaco region
   - Healthy World Foundation, PIs: Drs. Ricardo Gurtler, Antonieta Rojas de Arias and Francois Noireau

2. Long-term management of risk factors for domestic *T. dimidiata* reinfestation from peri-domicile and the wild environment
   - San Carlos University, PI: Dr. Carlota Monroy

3. Risk of transmission of *T. Cruzi* in Equadorian Amazon (AE)
   - Integral Solidarity Assistance Foundation, Ecuador, PI: Dr. H. Marcelo Aguilar
Eco-bio-social Research on Dengue (and Chagas disease) in Asia and Latin America

Five years of TDR-IDRC collaboration

Johannes Sommerfeld
UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR)
World Health Organization, Geneva
"Eco-Bio-Social" Research

- A collaborative research initiative between TDR and IDRC's Ecosystem to Human Health Program Initiative
  - 2003-2005: Pilot Programme in Latin America with two descriptive studies in Brazil and Colombia
  - 2006-2011: Research Programme in Asia, with six studies
  - 2009-2013: Research programme in Latin America and the Caribbean on Chagas and dengue

Overall objectives:
- To contribute to improved dengue and Chagas disease prevention by better understanding its ecosystem-related, biological and social ("eco-bio-social") determinants
- To develop and evaluate community-centered ecosystem management interventions directed at reducing dengue and Chagas vector larval habitats, embracing intersectoral actions.
Proposal development workshop
Recife, Brazil, 1-5 Sept 2003
Vector ecology
(Ae house index)

Eco-Bio

Climate

Insecticide Resistance

Infected people

State based vector control

Community practices affecting vector ecology

Water supply + garbage

Garbage production + disposal, water storage

Dengue + DHF in humans

Community effects

Health policy

SES, unemployment, crime

Macro economy

Social Cohesion

Health Services

Knowledge + perception + behaviour

Housing

Urbanization

SES, unemployment, crime

Migration

Urbanization

Social Policy
"Eco-Bio-Social" Research on Dengue

- **ECO**
  - Climate
  - Ecology
  - Agriculture
  - Urban environment

- **BIO**
  - Vector ecology
  - Vector behaviour
  - Transmission dynamics

- **SOCIAL**
  - Ecosystem & human health
  - Health systems
  - Public and private services
  - Community dynamics

- **DENGUE**
  - Virus serology in humans
  - Immuno-competence
  - Household economy and practices
  - Demographic and social change

IDRC-TDR Pre-Forum Workshop to EcoHealth Forum
Merida, Mexico
1 December 2008
Urbanization, Community Dynamics, Policy Response, and Dengue in Fortaleza, Brazil: an Eco-bio-social Analysis, Principal Investigator: Andrea Caprara, MD, PhD, Professor, Universidade Estadual do Ceará

- Women play a central role in water use, water storage and garbage management and need to be specifically targeted in interventions.

- Differential access to water among rich and poor neighbourhoods is a critical determinant in dengue transmission.

- Public policies that guarantee poor people’s right to regular potable water, access to sewage systems, education and work, will have great impact on dengue control.

Photos: Courtesy Professor A Caprara
Latin America Studies (2003-2005) II: Girardot and Melgar (Colombia)

Ecosystems approach to evaluate ecological, socio-economic and group dynamics affecting dengue in two Colombian towns, Principal Investigator: Gabriel Carrasquilla MD, MSc, DPH, Fundacion Santa Fe de Bogotá – Universidad del Valle

- Water tanks located on the ground most active breeding sites
- Dengue perceived by the population as a minor affection not falling into the category of illness
- Displaced populations and tourists not concerned with dengue nor with water storage, water use and adequate environmental management
- Targeted interventions focusing on the cleanliness of low tanks are not well understood

Photos: Courtesy Dr Carrasquilla and Prof. Suarez
2005-2011: Eco-Bio-Social Research on Dengue in Asia

CALL FOR LETTERS-OF-INTENT

Eco-Bio-Social Research on Dengue in Asia:
Understanding Ecosystem Dynamics for Better-Informed Dengue Prevention

A WHO-TDR/IDRC research initiative on ecological, biological and social (“eco-bio-social”) aspects of dengue in high-burden/hyperendemic countries of Asia

- Internationally advertised call for letters of intent
- Review by external expert panel
- Proposal Development Workshop
- Submission of research protocols
- Research phase 1 (situation analysis) completed in six sites
- Research phase 2 (intervention), planned for 2009-2010
- Analysis, write-up and research-to-policy activities 2011

Proposal Development Workshop, Bangkok
May 2006
Eco-bio-social research on dengue in Asia: Research phases

**Studies in selected eco-systems**

**PHASE 1a:** (Research) Situation analysis of transmission dynamics: Vector ecology and community contexts

**PHASE 1b:** (Synthesis) Design of a dengue-related ecosystem management intervention

**PHASE 2:** Intervention

- Locally and ecosystem-specific relevant practices for dengue prevention
- New framework for improved ecosystem-related dengue interventions
- Network and community of research practice
- Impact on vector density and transmission

**Networking and Research Capacity Strengthening**

2007 2008 2009-11

Call for Letters-of-intent and Proposal Development

Currently ongoing

UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR)

IDRC-TDR Pre-Forum Workshop to EcoHealth Forum
Merida, Mexico
1 December 2008
Study Sites
Study Sites

Eco-Bio-Social aspects of dengue in urban and peri-urban ecosystems in Chennai, Tamil Nadu, India

Center for Research in Medical Entomology, Madurai, India
(PI: Dr Arunachalam Natarajan)

In collaboration with Madras Christian College, Department of Social Work (Prof. M. Samuel)
Study Sites

Study of Dynamics and Potential Risk Factors in the transmission of dengue in Gampaha District, Sri Lanka

Faculty of Medicine, University of Kelaniya (PI: Dr Wimaladarma Abeyewickreme)

In collaboration with Department of Sociology (Dr Kankanige Karunathilake)
Study Sites

Socio-Bio-Ecosystem Approach to Dengue in Thailand
Mahidol University, Centre for Excellence in Medical Entomology
Bangkok
(Dr P. Kittayapong)

Department of Social and Environmental Medicine, Faculty of Tropical Medicine, Mahidol University
(Dr Piyarat Butraporn)
Study Sites

Eco-Bio-Social Dynamics for Better Informed Dengue Prevention in Myanmar

Department of Medical Research, Lower Myanmar. Ministry of Health
(PI: Dr Khin Thet Wai)
Study Sites

Understanding the Biology, Ecology, and Social Risk Factors of Dengue Transmission in Yogyakarta, Indonesia

Center for Health Policy and Social Change, (PI Dr S. Tana)

in collaboration with

Gajdah Mada University

IDRC-TDR Pre-Forum Workshop to EcoHealth Forum
Merida, Mexico
1 December 2008
Study Sites

Eco-Bio-Social Factors of Vector Density: Developing an Effective Approach to Dengue Control in the Philippines

Research Institute for Tropical Medicine
(PI: Dr Effie Espino)

in collaboration with
De La Salle University, Social Development Research Centre
Eco-Bio-Social Research on Dengue in Asia
Establishing interdisciplinary research teams
Eco-Bio-Social Research on Dengue in Asia
Creating and sustaining a Community of Practice

IDRC-TDR Pre-Forum Workshop to EcoHealth Forum
Merida, Mexico
1 December 2008
2009-2013: Towards Improved Dengue and Chagas Disease Control through Innovative Ecosystem Management and Community Directed Interventions in Latin America and the Caribbean

- Competitive grant making scheme on dengue and Chagas disease
- Two phase projects: Formative research, ecosystem management intervention plus evaluation
- Public health application
- Write up and publication
- Capacity strengthening and CoP building

CALL FOR CONCEPT NOTES
Innovative Community-based Ecosystem Management Interventions for Improved Dengue and Chagas Disease Prevention in Latin America and the Caribbean
A TDR/IDRC RESEARCH INITIATIVE

RATIONALE AND BACKGROUND

The IDRC-TDR Pre-Forum Workshop to EcoHealth Forum
Merida, Mexico
1 December 2008

UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR)
The Neglected Tropical Diseases of Latin America and the Caribbean: A Review of Disease Burden and Distribution and a Roadmap for Control and Elimination

Peter J. Hotez1, María Elena Bottazzi1, Carlos Franco-Paredes3, Steven K. Aust4, Miria Roses Poriago4

1Department of Microbiology, Immunology, and Tropical Medicine, The George Washington University and Sabin Vaccine Institute, Washington, D.C., United States of America; 2Hospital Infantil de México, Federico Gómez, Mexico, D.F., Mexico; 3Department of Medicine, Emory University, Atlanta, Georgia, United States of America; 4Pan American Health Organization/World Health Organization (PAHO/WHO), Washington, D.C., United States of America

Abstract: The neglected tropical diseases (NTDs) represent some of the most common infections of the poorest people living in the Latin American and Caribbean region (LAC). Because they primarily affect the disenfranchised poor as well as selected indigenous populations and people of African descent, the NTDs in LAC are largely forgotten diseases even though their collective disease burden may exceed better known conditions such as of HIV/AIDS, tuberculosis, or malaria. Based on their prevalence and healthy life years lost from disability, hookworm infection, other soil-transmitted helminth infections, and Chagas disease are the most important NTDs in LAC, followed by dengue, schistosomiasis, leishmaniasis, trachoma, leprosy, and lymphatic filariasis. On the other hand for some important NTDs, such as leptospirosis and cysticercosis, complete disease burden estimates are not available. The NTDs in LAC geographically concentrate in 11 different sub-regions, each with a distinctive human and environmental ecology. In the coming years, schistosomiasis could be eliminated in the Caribbean and transmission of lymphatic filariasis and onchocerciasis could be eliminated in Latin America. However, the highest disease burden NTDs, such as Chagas disease, soil-transmitted helminth infections, and hookworm and schistosomiasis co-infections, may first require scale-up of existing resources or the development of new control tools in order to achieve control or elimination. Ultimately, the roadmap for the control and elimination of the more widespread NTDs will require an inter-sectoral approach that bridges public health, social services, and environmental interventions.
Thank you
Ecohealth approaches to the prevention and control of vectorborne diseases: Inter-regional dialogue and exchange

Dominique Charron
Program Leader, Ecohealth, IDRC

International EcoHealth Forum 2008
Merida, Mexico
IDRC is...

- A public corporation created by the Parliament of Canada in 1970
- Mandate: to respond to issues raised by developing countries, IDRC funds research by developing country researchers in developing countries
  - Builds capacity for research
  - Fosters collaboration and coordination
  - Policy impact
- Nearly 500 staff, International Board of Governors (21)
- 6 regional offices in all developing regions
- Budget approximately 280 million CAD$ (85% from Canadian Parliament)
- Over 900 active research activities
The Ecosystem Approaches to Human Health Program

Vision: improved health and well-being, sustainable ecosystems, more equitable development and less poverty

Goals:
- Generate new knowledge on environment and health linkages toward sustainably improving both
- Build research capacity
- Translate knowledge for policy and other impacts
The Ecosystem Approaches to Human Health Program

- Promotion of an approach: trans-disciplinary, multi-stakeholder, participatory and action oriented research with attention to gender and social equity
- Systems thinking, holistic problem definition
- Currently, includes more than 130 active or completed activities in LAC, MENA, SSA and Asia.
Ecosystem approaches

Chagas disease

Malaria

Dengue
Key Benefits of an Ecohealth Approach

- New knowledge for development and change
  - key knowledge articulated
  - Transdisciplinary context

- Research and policy
  - Policy influence
  - Engagement of policy actors in research
  - Persistence of research and policy dialogue
  - Fosters conditions for change

- Science and society
  - participatory process enriches social capital
  - informed the research process and implemented lasting changes.
Emerging Disease Hot Spots

From wildlife

From non-wild animals

From antimicrobial resistance

From vectorborne diseases

Source: Jones et al Nature 2008
Roots linked to issues of development

Emergence
- Population growth
- Economic growth, health care
- Land-use change, encroachment
- Agricultural intensification

Spread
- Migration, trade
- Population density
- Inequity
- Lagging governance mechanisms

Exacerbation
- Globalization
- Climate change
- Food price, energy
Ecohealth and infectious diseases

ASIA

- Partnership on Avian Influenza Research ($4.5M)
- International Livestock Research Institute (ILRI) ($5M)
  - Capacity Building

- Special Program on Tropical Diseases Research and Training (TDR) ($2M)
  - 6 projects on Dengue Fever
Ecohealth and infectious diseases

AMERICAS

- Gates Foundation, Panamerican Health Organization, Organization of American States, InterAmericas Development Bank
  - 7 projects on dengue, Chagas, malaria ($2.5M)

- New: TDR -IDRC program on dengue and Chagas disease

AFRICA

- Integrated Program on Malaria in Africa ($1.7M)
Conclusions

- Re-emerging issue
- Reactive approach is not sufficient
- Intervene in the ecosystem to prevent disease, address root causes
- Better health systems, basic services, development in combination with ecological approaches
- Plan, monitor, intervene, adapt.
Thank you!  Merci!
COMMUNITY OF PRACTICE IN ECOHEALTH: STRUCTURE AND CHARACTERISTICS

COMMUNITY OF PRACTICE IN ECOHEALTH – TOXICS IN LATIN AMERICA AND THE CARIBBEAN (COPEH-TLAC): UNDERSTANDING WHAT WORKS
COPEH-TLAC

A decentralised network that grows progressively

_green_circle倞_builds on and reinforces existing institutions with strengths in research policy and practice

_heart🛣_promotes intervention in the different regions of LAC,

_heart🛣_contributes to the reduction of toxic exposure
CHARACTERISTICS

1. PARTICIPATIVE STRATEGY

- CONVERGENCE OF VARIOUS COUNTRIES AND SEVERAL GROUPS
- PREPARING THE PROPOSAL WITH WIDE PARTICIPATION:
  - WORKSHOPS (CHILE AND COSTA RICA)
  - TO SUBMIT TO IDRC
- WORK PLAN WITH COLLECTIVE CONSTRUCTION (LIMA 2006)
- COMBINATION OF ELECTRONIC COMMUNICATION WITH FACE-TO-FACE MEETINGS (WORKSHOPS, COURSES, EVENTS, CONFERENCES)
CHARACTERISTICS (2)

2. PRINCIPLES

• SIMILAR POINTS OF VIEW ON ENVIRONMENT AND HUMAN HEALTH (ECOSYSTEM APPROACH, SOCIAL MEDICINE)
• SHARED WORK HISTORY AND EXPERIENCES
• DEFENDING THE ENVIRONMENT AND EQUITY (REGIONS, COUNTRIES, SOCIAL GROUPS, GENDER, ETHNICITY)
• MUTUAL RESPECT AND RECOGNITION OF THE OTHER
• RECOGNITION OF EVERYONE´S STRENGTHS AND WEAKNESSES
• NECESSITY OF SHARING IDEAS AND MUTUAL SUPPORT
• LINK RESEARCHES WITH POLITICS AND INTERVENTIONS
3. STRUCTURE

- NODES
  - GEOGRAPHICAL REPRESENTATION
- CENTRES OF EXCELLENCE
- DIVERSITY IN RESEARCH TOPICS
- EXPERIENCE IN THE FIELD OF HUMAN HEALTH AND ENVIRONMENT
- WORK RELATIONS WITH THE COMMUNITIES
4. ACTIVITIES

• ECOHEALTH COURSES

  – UMSA, BOLIVIA (ACADEMIC AND OTHER INSTITUTIONS)

  – UNIVERSIDAD MAYOR DE SAN MARCOS, PERU

  – A TRAINING PROGRAM ON THE ECOHEALTH APPROACH (UNIVERSIDAD GUADALAJARA AND MUNICIPAL AUTHORITIES)

  – COURSE IN UNIVERSIDAD NACIONAL DE ROSARIO (OCCUPATIONAL HEALTH MASTER DEGREE ARGENTINA)
INSP SUMMER SCHOOL COURSE ON ECOSYSTEM APPROACHES TO HUMAN HEALTH IN RESEARCH ON VECTOR-BORNE DISEASES AND TOXICS

PARTICIPATION OF MEMBERS OF COPEH-TLAC EACH YEAR IN MEXICO
UNIVERSIDAD DE LA REPUBLICA DEL URUGUAY
• INTEGRATE ECOHEALTH APPROACHES AND METHODS INTO ON-GOING RESEARCH AND INTERVENTION PROJECTS

• CITIZEN SURVEILLANCE OF DRINKING WATER IN THE RIMAC BASIN, PERU

• WORKERS/RECYCLERS OF THE LEFT BANK OF THE RIMAC RIVER, PERU

• SMALL SCALE GOLD MINING: IMPACTS ON THE ENVIRONMENT AND HUMAN HEALTH, ECUADOR
• NICKEL MINING: ENVIRONMENTAL AND OCCUPATIONAL HEALTH IN EXPOSED POPULATIONS (VENEZUELA)

• HEALTH PROMOTION AND ACCESS TO HEALTH SERVICES (CUBA, COSTA RICA Y GUATEMALA)

• MINING CONTAMINATION IN THE POPO LAKE BASIN (BOLIVIA)

• WORK CONDITIONS AND WOMEN HEALTH IN THE ASPARAGUS AGROINDUSTRY, ICA (PERU)
• WORKSHOPS (FACE TO FACE)

   – BETWEEN NODES (IN CHILE, PERU, MEXICO, URUGUAY, BRASIL, CENTRAL AMERICA AND CARIBBEAN)
• NEUROBEHAVIORAL TESTS (COSTA RICA, MEXICO, BOLIVIA, PERU)

• WORKSHOP ON SAMPLING METHODS AND LABORATORY ANALYSES FOR ENVIRONMENTAL AND HUMAN SAMPLES IN ECOHEALTH STUDIES

• CLIMATE CHANGE AND HEALTH (UNIVERSIDAD MAYOR DE SAN MARCOS WITH POLICY-MAKERS AND REPRESENTATIVES FROM NGOS)
LINK TO OTHER NETWORKS

CANADA NODE HELPED TO BUILD COPEH-CANADA THAT NOW HAS AN INTERESTING WORK WITH MANY CANADIAN INSTITUTIONS

(Margot Parkes University of British Columbia, Johanne Saint-Charles UQAM and Bruce Hunter University of Guelph)

http://www.copeh-canda.org/index_en.php
TO THE CONO SUR NODE

- RESEARCH ON EARLY SIGNS OF NEUROTOXICITY IN PAUNY´S WORKERS, UNR, MAYO 2007

- TEAM TRAINING IN NB TESTS
- ADMINISTRATION OF TESTS
- DATA PROCESSING AND DATA ANALYSIS
• CURRICULUM IN GRADUATE PROGRAMS IN VENEZUELA, ECUADOR AND BRASIL

• MASTER´S DEGREE WITH ECOSYSTEM APPROACH, AT THE UNIVERSIDADE DE BRASILIA

• GRADUATE STUDIES IN OCCUPATIONAL HEALTH AT THE UNIVERSIDAD CENTRAL DE VENEZUELA AND UNIVERSIDAD LIZARDO ALVARADO, BARQUISIMETO

• MASTER´S DEGREE IN OCCUPATIONAL HEALTH AT THE UNIVERSIDAD CENTRAL ECUADOR, UNIVERSIDAD TECNICA DE COTOPAXI, UNIVERSIDAD TECNICA DE MANABI, ECUADOR
• REGIONAL AND INTERNATIONAL EVENTS

• 11TH INTERNATIONAL CONFERENCE IN HEALTH AND WORK IN HAVANA, CUBA

• IX CONGRESS OF SOCIAL MEDICINE BRASIL JULY 2007
RELATIONS WITH POLICY MAKERS AND STAKEHOLDERS

Ministry of Mining
Ministry of Industry

Ministry of Housing
Ministry of Development

Ministry of Environment
Ministry of Agriculture

Ministry of Health
Ministry of Fisheries

NGOs
Unions
Municipal authorities

Village authorities
Informal structures
¡ESO ES!!
International Workshop "Ecohealth Approaches to the Prevention and Control of Vector-Borne Diseases in Africa, Asia and Latin America and the Caribbean: Inter-regional Dialogue and Exchange"

Monday, December 1st, 2008
Regency Room, Hyatt Hotel

Notes of the Workshop

All Power point presentations of this workshop will be available in January 2009 at the following link: http://www.idrc.ca/en/ev-131599-201-1-DO_TOPIC.html

The Workshop’s background information, objectives, agenda and a preliminary list of participants and bios are already available at this link.

1. Welcome, presentation of workshop objectives
   - Introductions: Dr. Bazzani (IDRC), María Onestini (facilitator), & Dr. Sommerfeld (TDR_WHO)
   - Introduce collaboration between WHO-TDR & IDRC
   - Dr. Bazzani introduced some additional topics of IDRC EcoHealth program beyond vector-borne diseases, including agriculture and human health, and practice and policies.

Three current initiatives:
- Communicable diseases in Latin America and Caribbean: EcoHealth Research for Policy and Action (CD-LAC),
- Eco-Bio-Social Research on Dengue and Latin America: 5 Years of TDR/IDRC Collaboration,
- Integrated Program for Malaria and Agriculture (IPMA).

IDRC Partnerships include TDR-WHO, PAHO, Gates Foundation, Organization of American States, and InterAmerica Development Bank.
EcoHealth approach capable of tackling complex problem of emerging diseases and understanding key determinants and design of appropriate responses.
Maria Onestini introduces the workshop (ppt):

- General Objectives.
  - Facilitate exchange of ideas and information
  - Promote scientific linkage between different regions
  - Enhance inter/intra regional capacity
  - Translate research to policy

2. Dominique Charron, Ecohealth Program Leader at IDRC.
Ecohealth research at IDRC: concept, programme and activities.
- Presentation: Ecohealth approaches to the prevention and control of vector-borne diseases:
  - Inter-regional dialogue and exchange
  - IDRC background
    - Public corporation 1970, currently 500 staff with 6 regional offices and 900 active research activities. EcoHealth is one of 17 programs.
    - Mandate: to respond to issues raised by developing countries by supporting research teams in developing countries.
  - Goals:
    - Generate new knowledge linking environment and health
    - Build capacity
    - Effect policy change
    - Promotion of approach: transdisciplinary, social equity, multiple stakeholders, participatory approaches
  - Current program includes more than 130 active or completed activities
  - Introduction to early success of malaria program through ecosystem management in Mexico.
- Key benefits to EcoHealth: 1) New knowledge for development and change, 2) Research and Policy, 3) Science and Society

Extremely important to understand emergence and underlying drivers to VBD, many of these linked to issues of development.
Three key issues link to development include emergence, spread, and exacerbation.
Even if working at community level it is important to understand larger development contexts.
Highlighted main projects in Asia, Latin America, and Africa

3. Presentations on regional initiatives

Communicable Diseases in LAC Initiative, CD-LAC (Arlyne Beeche, IDRC).
Malaria, Dengue, Chagas
- Rationale for the call recognizes that these problems disproportionately affect the poor and involve environmental mismanagement. Prevention should consider social, ecological and health linkages. Seven active projects were selected: 3 malaria, 3 chagas, 1 dengue

Eco-Bio-Social Dengue in Latin America & SE Asia (Dr. Sommerfeld, WHO-TDR)
Overall objective: To contribute to improved dengue and Chagas disease prevention by better understanding its ecosystem-related, biological and social ("eco-bio-social") determinants. And to develop community-centered interventions.

**Integrated Program for Malaria and Agriculture (Martin Wiese, IDRC)**
- Aims to link agriculture and malaria in order to design a more appropriate approach to malaria. Go from hyper-endemic to meso-endemic.
- Lessons learned: Control needs to be context specific and not single interventions, which tend not to be sustainable. These interventions need to be both flexible and resilient.
- Efficient control requires relate to contexts and livelihoods, are combined with health systems interventions, and need to be linked to policy and action.

### 4. Presentations on key issues in EcoHealth research

**EcoHealth research on Chagas (Carlota Monroy, Guatemala)**
- Importance of understanding community and community to understand academics
- Challenges: large databases, and need for investigators to understand general concepts from various disciplines.
- Challenge of integrating and managing large databases from multi-disciplines
- Social equity important part of project and found that if they were able to improve economic condition of women also helped helped strategy overall.
- Limitations: time and funding.

**EcoHealth research experience on malaria highlighting experience in SIMA initiative (Joseph Okello-Onen, Uganda)**
- 5 regional projects (2 Uganda, 1 Kenya, 1 Tanzania, 1 Zimbabwe)
- Differences between past research and EcoHealth. Past research was characterized by: Research problems designed by researchers, No concern for communities concern, communities uninvolved, No feedback, limited dissemination of results, and no impact
- Current objective: To investigate, with communities, the connection between agricultural practices and malaria
- Has worked with different pastoral communities: nomadic, transitional, & settled

**SE Asia Eco-Bio Social (Suzi from Indonesia replacing Pat who couldn’t attend)**
- One year is a too short period for intervention and to evaluate sustainability

### Questions and comments

**- How have projects affected policy making and decision-makers?**

Carlota: Important to determine who the decision-makers are. Take them to the field and to keep them engaged so there is commitment. This takes a long time for the researcher to do this. Carlota was successful by becoming member in health committee. Need to understand structure of health institutions.
Joseph: Try to involve policy-makers from beginning in planning process. Decision-makers tend to adopt interventions or technology if they can see that is working.

Suzi: Involved policy and stakeholders early on as well.

Olaf (TDR): Underline the importance of integration of key players in the planning of the process. It is participation of all types of communities. Involvement of community is actually community(ies) and that it involves a variety of participants, stakeholders, and decision-makers.

Joseph: It is not simple enough to just involve them from the beginning. Can get extra value by creating project steering committee in which policy-makers have a decision in directing direction of projects.

- Is climate change & climate variability been included in studies?

Joseph: Started before boom in climate change interest. Believe some of their increases in transmission in highlands is/was due to climate change. There were seasonal changes in rainfall patterns.

Suzi: Difficult to include climate change but seasonality an important consideration.

PLENARY DISCUSSION (A.M.):

José Fiusa Lima: A lot of knowledge on VBD is already available, but still not appropriately used. What are the instruments that we use to involve policy-makers who fund these types of projects?

Roberto Bazzani: Linking researchers and policy makers is crucial to achieve more commitment and implement integrated programs. Despite the availability of biomedical and clinical knowledge, relevant research gaps are still pending with regards to the social and ecological dynamics. It is essential also to strengthen our abilities to understand the relationships between multiple scales (e.g. community, project levels). How to scale-up results coming from a local ecosystem? We also need to integrate social, ecological, economic, biomedical and health systems approaches, and integrate community knowledge. There is still a need for research in how to best use and implement technologies. Need to develop strategies and interface with ministry of health.

Antonieta Riojas: There is a positive impact of having researchers work closely with communities for two years. But in terms of sustainability there is some concern that the communities aim to please researchers and that the community believes they are there to help researchers solve the problem and not the opposite that researchers are there to help the communities solve their problems. Need to know what the communities perception of the VBD.
Problem with some programs in regard to Triatomine studies in Southern Cone is the need for also the elimination of secondary vectors. Projects should establish the relationship between the timing of signs and symptoms related to VBD and climate change.

Marcelo Aguilar: In response to Jose: It is dangerous to believe that we do not need more knowledge. There is a lot of biomedical knowledge that may not be properly used. There may be also some advances in the ecological and environmental fields, but we need to define key elements and develop interdisciplinary approaches. In response to Carlota: The greatest challenge is that programs are sustainable and it requires an understanding of the social network. This is an area where there are deficiencies.

Marilyn Aparicio: Importance to link malaria and climate change. In Bolivia they have new area of malaria in a mountain area. The ecosystem is also evidence in change in regard to plant life. The habitat of *Anopheles pseudopunctipennis* was found over 2100m which was not observed before.

Gabriel Carrasquilla: We don’t have enough strategies and tools to get to the decision-makers so that the results can be scaled up and implemented on larger scale. Concern about current economic crisis continues it will become a problem.

Cesar Basso: The message is sometimes repeated so often it loses value and it may be more worthwhile to target messages seasonality.

Joseph, Uganda: Many policy-makers do not see the value of EcoHealth because not enough advocacy has been done. There is enormous knowledge right now and do not need to reinvent the wheel but there is a need to repackaging into a sustainable and cohesive solution.

Mario Henry Rodríguez: - (Director INSP, Mexico) The Ecohealth approach needs to further understand and integrate health services and systems in the projects. Not just the health ministry but the entire government. If you do not understand how the decision-makers work with communities then you are missing a big point. We need to integrate the health systems or else we are not building the appropriate responses. We might be achieving a lot with some communities, but there are many different communities, power groups, and networks. If you do not understand the communities you cannot make any changes. In order to move forward its also very important to involve other people beyond IDRC constituencies (i.e. health systems). Another crucial issue is not to continue doing small different projects but to develop larger projects with more interconnected teams.

Mauricio Espinel: With short projects the results, both good and bad, are not always getting communicated. We need to show proof of how development processes are affecting disease transmission. Then you can have more influence at those levels. We also need to open a space to discuss problems and mistakes not just the benefits.

Elena Ogusku: In Peru it has become clear in last ten years that increased Malaria was tied to increase in rice field. Unfortunately, the traditional vector methods using insecticide and bednets did not work and so alternatives were needed. They began to investigate different irrigation
systems using small studies to attract some groups. Promising results were obtained, but this work had not been implemented beyond the scientific interest. There is a need to integrate the health sector (the speaker is from ministry of health) and find partners in finding solutions. Evidence is important for decision-makers. Agriculture needed to know they would not be losing money. The project proved that the new irrigation techniques were less expensive for rice farmers and this is also a very important factor for future policies.

Boris Chan Cheng, Bolivia: Sometimes it is difficult to take the research to the level of health policy. We are not communicating the results of these projects to the communities in which the changes in behavior are needed. It is also due to lack of promotion of health. Sustainability is a big problem. The knowledge can be lost if it does not have a continuative phase. One way to approach it is that it is necessary to make communities feel as if they are the owners of the projects and to make the necessary demands to each health systems. There is always heterogeneity. The study of the sociological and environmental conditions of each area requires to be integrated and linked to inter-sectoral policies.

Roberto Bazzani: As Mario Henry Rodríguez stated we have the challenge of having larger projects instead of many small projects (<$200,000, 2 years), but we also should expand the time-lyfe (duration) of projects.

Fabian Mendez: I would like to deal with the integration of results/outcomes. I think the EcoHealth needs to be further developed. There should be more transdisciplinary development and tools. We continue to train our students in the same disciplines.

Moses, Zimbabwe: Transdisciplinary does not mean that you need to dilute the science. In putting together experts you need to put together good people from each of the disciplines. I have also perceived that it is frequent to find some confusion between climate change and climate variability.

Andrea Caprara: Need to integrate health agents with community intervention projects. In dengue, who makes key decisions are the agencies that distribute water. The small water containers in houses are a result of the incapacity of water distribution agencies that not doing their jobs properly. So far we have not been able to construct relationships with all relevant decision makers.

Nicholas Schweigmann, Argentina: We need to talk about behavior changes and school is a good place to target activities. It can be a transdisciplinary arena. Schools should be considered as a priority partner.

IDENTIFICATION OF MAIN THEMES/CHALLENGES

At the end of the plenary session, a participatory methodology was used to group the main themes and challenges that were considered as priority issues for the discussion of the working groups.
In a first stage, the plenary identified six main themes/challenges (see table below). In a second stage, after voting, four of them were kept for the afternoon discussion at the working groups. Four working groups were announced and a coordinator per working group, one per select theme/challenge.

### CHALLENGES THEMES IDENTIFIED IN THE PLENARY DISCUSSION

**Votes per Challenge/Theme**

<table>
<thead>
<tr>
<th>Identified theme/challenge</th>
<th>VOTOS</th>
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<tbody>
<tr>
<td>Advocacy, Communication Strategies, knowledge transfer and use, policies</td>
<td>13</td>
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<tr>
<td>Challenges for integrating the community and stakeholders. Sustainability issues.</td>
<td>2</td>
</tr>
<tr>
<td>Challenges for integrating different dimensions, including climate change and economic análisis</td>
<td>8</td>
</tr>
<tr>
<td>Challenge of working with Health Systems and Intersectorial policies, including the education sector. Health Systems Analysis. Going beyond vertical control programs, towards horizontal integration.</td>
<td>14</td>
</tr>
<tr>
<td>Scale of projects. Larger projects involving more stakeholders and enabling better validation of results. Duration of projects.</td>
<td>3</td>
</tr>
<tr>
<td>Training and development of skills for better integration of disciplines, data analysis and results</td>
<td>10</td>
</tr>
</tbody>
</table>

Workshop participants divided in 4 groups according to the four most voted challenges/themes

### Group 1: Advocacy, Strategies for the communication of results and knowledge & political management

**Coordinator:** Francois Gasengayire.

**Report of discussion Group 1:**

Projects need to develop a strategy for knowledge management and a communication strategy.
- Stakeholder mapping
- Problem definition
- ID Knowledge holders
- ID local leaders

Effective communication strategy for impact at local level
- ID target audience
- Translate into local language
- ID how people get info in order to disseminate
Regional Information Sharing mechanisms
- (i.e. databank), methodologies, results, success stories, impact assessment.
- Use info to create framework for scale-up

Local coalition for Ecohealth. Ecohealth researchers could help coordinate multiple groups/NGOs working in a same area

Capacity Building to be able to do advocacy

| Group 2: Challenges for integrating different dimensions, including climate change and economic analysis |
| Coordinator: Arlyne Beeche |

Report Group 2

- Macro and micro economics
  - Data bases
  - Multidiscipline issues
    - “Equipo Histórico” - Historical Team (¿?)
    - Economic análisis (“Evaluación Económica”)
- Developing vulnerability indicators
- Horizontal vs vertical approaches
- Interdisciplinary courses for the new generations of researchers
- Analysis of different scenarios (“Análisis de distintos escenarios”)

| Group 3: Challenge of working with Health Systems and Intersectoral policies, including the education sector. Health Systems Analysis. Going beyond vertical control programs, towards horizontal integration. |
| Coordinator: Olaf |

Report of discussions in Group 3

Questions to treat:
- Factors which may influence the theme
- Regional team collaboration
Outcome = 5 key points

1) Influencing factors
- Bottom-up approach, as health system might have vertical and horizontal components: communities have power to influence politics. Degree of devolvement of power
- Question: which influence and power have communities to influence policy? How do communities feel about health: gift or right?
- Leaders in policy: which interests and which background – how to show them problems? Need for leaders and negotiators in communities
- Go beyond level of community leaders: communities are heterogeneous and often not clearly defined before research! Clarify first!
- Prioritizing of health problems within communities and among day-to-day context/problems: what is health in life and how is it ranked
- Identify vulnerable groups;
- Incentive model
- Clarification of roles first;

2) Horizontal health system:
   - We make assumption: we all prefer horizontal approaches to health problems;
   - Should come from communities Horizontal approach only sustainable/functional if it comes from communities;
   - Factors for success?
   - Synergies are key
   - Intersectorial approach = right mix of institutions, avoid powerplays and develop movement approach

   - Vulnerable groups need to be identified: “get women on steering wheel”;  
   - Incentive models depends on specific country conditions: if convergence between interests community and leaders;

3) Inter-sectorial approaches: for presentation
   - Attention to right mix of institutions and expertise:
     - Multi-institutional, multi-technical approaches with capacity strengthening as integrated part of project with  
     - careful set-up to avoid power-plays (hierarchies…) =  
     - long-term strategy necessary to come to sustainability  
     - “movement approach” adapted to context (communities vs. interface research-policy).

Outcome:
1. We make assumption: we all prefer horizontal approaches to health problems;
2. Should come from communities: Horizontal approach only sustainable/functional if it comes from communities – define “community” and include vulnerable!
3. Factors for success: devolvement of power, perception of “health (gift or right?)” among priorities in context of day-to-day life;
4. Synergies are key
5. Intersectorial approach = right mix of institutions, avoid powerplays and develop movement approach, inter-regional approach
**Group 4:** Training and development of skills for better integration of disciplines, data analysis and results  
**Coordinador:** Johannes Sommerfeld

**Report Group 4:**
- Definition of multi, inter and transdisciplinary
- The transdisciplinary should be present in all the stages of the research
- Stages
  - Definition of the problem
  - Conceptual framework
  - Protocol development and research design
  - Process management
  - Problem investigation
  - Implementation, write up communication

<table>
<thead>
<tr>
<th>Phases of the transdisciplinary</th>
<th>Issues and challenges</th>
<th>Training cap need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of the problem</td>
<td>Researcher and community differences in the definition of the problem Lack of knowledge and theoretical and methodological approaches</td>
<td>Team building Peer teaching Break down attitudes</td>
</tr>
<tr>
<td>Research design</td>
<td>Development of disciplinary perspective Inappropriate research instruments</td>
<td>Development protocol Disciplinary research Manuals Data collection and data basis Pilot study</td>
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<tr>
<td>Transdisciplinary process /management</td>
<td>Team dynamic and interaction</td>
<td>Good project Leadership and management Manuals (&gt;G practices in CD research</td>
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<tr>
<td>Problem investigation</td>
<td>Inflexibility to design challenges</td>
<td>Adapting capacity to be built into M&amp; E</td>
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<tr>
<td>Phases of the transdisciplinary</td>
<td>Issues and challenges</td>
<td>Training cap needs</td>
</tr>
<tr>
<td>Implementation, Data analysis, write up and communication</td>
<td>Lack of analytical skills Lack of scientific and policy writing and communications skills</td>
<td>Data analysis workshop Writing /research policy workshop Scientific and community communication</td>
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</tbody>
</table>
# PARTICIPANTS LIST

International Workshop "Ecohealth Approaches to the Prevention and Control of Vector-Borne Diseases in Africa, Asia and Latin America and the Caribbean: Interregional Dialogue and Exchange"

**Monday, December 1st, 2008**

*Yucatán III & IV Rooms, Fiesta Americana Hotel*

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