

Empowering People, Ensuring Health

2008 Asia and Pacific Regional
Health Impact Assessment Conference

22-24 April 2009

The Empress Convention Center

Chiang Mai, Thailand



Program at a Glance

Date/Time	Program	Place
20 April 2009		
8.00 - 9.00	Check-in for training courses	Petcharat Room
9.00 - 17.00	Pre-conference training courses: Day 1	The Empress Hotel
21 April 2009		
9.00 - 17.00	Pre-conference training courses: Day 2	Petcharat Room Empress Hotel
15.00 - 17.30	Registration for HIA 2008 Conference	Lobby, ground floor Empress Convention Center
22 April 2009		
7.30 - 9.00	Registration for HIA 2008 Conference	Lobby, ground floor Empress Convention Center Empress Grand Hall 2nd floor,
9.00 - 9.15	Opening Ceremony	Empress Convention Center
9.15 - 9.25	VCD on 'HIA: Empowering People, Ensuring Health'	
9.25 - 9.30	Opening Address	
9.30 - 9.40	Opening Statement	
9.40 - 9.45	Welcome Address	
9.45 - 10.10	Keynote speech 'HIA: Empowering People, Ensuring Health'	
10.10 - 10.30	Break/refreshments	
10.30 - 12.00	Plenary Session on 'HIA: Empowering People, Ensuring Health'	
12.00 - 13.00	Lunch	Lobby, 2nd floor Empress Convention Center
13.00 - 15.00	Concurrent sessions (A1-A4)	Chiang Mai Room 1-4, 1st floor Empress Convention Center
15.00 - 15.30	Break/refreshments	Lobby, 2nd floor Empress Convention Center
15.30 - 17.00	'HIA Cafe': Networking activities <ul style="list-style-type: none"> 'HIA Poster Corner': Poster discussion 'HIA Cafe': Development of HIA mechanism in ASEAN 'Meet and Greet': Getting to know Thai HIA organizations Voices' for HIA 2010 in Wellington, New Zealand 'HIA in the context of new approaches to health promotion': Preparations for the 2009 Nairobi Global Conference on Health Promotion 'Joining Hands in Making The Chiang Mai Declaration' 	Empress Grand Hall
18.30 - 20.30	Welcome Dinner	Imperial Ballroom, Empress Hotel
23 April 2009		
7.30 - 8.00	Check-in for at - scene conference	Ground floor Empress Convention Center
8.00 - 9.00	Travel to at - scene conference	Location assigned by each group of at - scene conference
9.00 - 12.30	At-scene conference	
12.30 - 13.30	Lunch	
13.30 - 16.30	Concurrent Sessions (B1-B5)	
16.30 - 17.30	Leave to Khum Khantoke	
17.30 - 18.30	International Solei (dialogue) on Inspiration and HIA Commitment	At Khum Khantoke
18.30 - 20.30	Khantoke Dinner (local delicacies and cultural show)	At Khum Khantoke
24 April 2009		
9.00 - 10.30	Keynote Speech Hand in Hand in Civic Empowerment	Empress Grand Hall
10.30 - 11.00	Break/refreshments	Lobby, 2nd floor Empress Convention Center
11.00 - 12.30	Concurrent Sessions (C1-C4)	Chiang Mai Room 1-4, 1st floor Empress Convention Center
12.30 - 13.30	Lunch	Lobby, 2nd floor Empress Convention Center
13.30 - 13.45	Presenting Draft of the Chiang Mai Declaration	Empress Grand Hall
13.45 - 14.45	Plenary Session on 'Future Direction of HIA in Asia-Pacific Region'	2nd floor
14.45 - 15.15	Conclusion of the HIA 2008 Conference	Empress Convention Center
15.15 - 15.30	Introduction to HIA 2010 in New Zealand	
15.30 - 15.50	Closing Speech	
15.50 - 16.00	Closing Ceremony	



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Dear Colleagues,

The world today is globalized and dynamic. The economic-led development has created policies and projects; however, many of these have somehow overlooked the health and well-being of people. For these reasons, there have been attempts to create a rational and deliberative tool to be used in supporting policy decisions to ensure that health is taken into account.

Grounded from studies and practices, HIA has been developed and employed at a local and international level with a multidisciplinary approach to improve health equity and increase the degree of public participation. Thailand is a pioneering country in this field and stipulates HIA in the Constitution of the Kingdom and the National Health Act.

National Health Commission of Thailand and collaborating partners are honored to host the HIA 2008: Asia and Pacific Regional Health Impact Assessment Conference. Sharing activities in this conference will broaden knowledge, experiences and strengthen the network.

This conference is consequently a significant milestone which will pave the way towards an HIA movement in the Asia-Pacific region. Your contribution to the conference is valuable to empowering people and ensuring health. This is the theme of the conference. This is our commitment.

Thank you very much

(Signature)
Mr. Abhisit Vejjajiva
Prime Minister
Chair of National Health Commission
Thailand



Amphon Jindawatthana



Dr. Amphon Jindawatthana is currently working as the Secretary General of Thailand's National Health Commission chaired by the Prime Minister. He has 31 years of experience in health policy development, health systems reform, universal coverage scheme and human resource development for health. His remarkable work is to develop and advance the National Health Act enacted in March 2007. He used to serve as the secretary to the Minister of Public Health from October 2006 to September 2007 and a member of the National Legislative Assembly from October 2006 to March 2008.

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Maureen Birmingham



Dr. Maureen Birmingham has been WHO representative to Thailand since 2008. During her service in WHO South East Asia Regional Office from 2006 to 2008, she was actively engaged in International Health Regulations (IHR) and Emerging Diseases issues. Her previous achievements also include child survival issues in Africa, Polio eradication, monitoring and surveillance for EPI and laboratory networks for EPI.

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Patrick Harris



Patrick Harris is the coordinator/research fellow on the New South Wales HIA project at the Centre for Health Equity Training, Research and Evaluation, UNSW. This programme of work has been recognized internationally for its efforts in building capacity to undertake HIA and equity focused HIA. In this role, Patrick has undertaken or been involved in 20 HIAs, ranging from assessing high level strategic plans to local community driven issues, and has trained over 250 people in HIA. Based on this work, he developed 'Health Impact Assessment: A Practical Guide' which is also internationally recognized. He is also co-developed and delivered UNSW's Masters of Public Health elective on HIA.

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Pongsak Angkasith



Professor Dr. Pongsak Angkasith has been a president of Chiang Mai University since 2004. He has been also a member of the board of Botanical Garden of Thailand, Highland Research, and Royal Project Foundation. He was a member of the National Legislative Assembly from October 2006 to March 2008. He has 32 years experiences in the area of agricultural extension, coffee extension, and rural development. He has concerned on global warming and highland agriculture.

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Decharut Sukkumnoed



Dr. Decharut Sukkumnoed is currently a lecturer at Faculty of Economics, Kasetsart University. He has been actively involved in the development of Health Impact Assessment in Thailand since 2002. He has also been the manager of Healthy Public Policy Foundation advocating the development of HIA in Thai society through various ways such as HIA researches, capacity building program and HIA networking. His research experiences and publications on HIA especially in energy and agricultural sectors are widely recognized among national and international communities.

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Nguyen Duy Bao



Dr. Nguyen Duy Bao became Acting Director of National Institute of Occupational and Environmental Health of Vietnam and Director of the WHO Collaborating Center for Occupational Health in April 2008. He has 26 years experience in the area of occupational and environmental health. He is the manager of certain HIA projects for the Ministry of Health. He has compiled documents on HIA and organized HIA training courses and direct lectures on HIA in Vietnam. He is a member of compilation committee of the national target programme (NTP) on environmental protection for public health to 2015.

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Pattapong Kessomboon



Dr. Pattapong Kessomboon is an Assistant Professor and the Head of the Department of Community Medicine, Faculty of Medicine at Khon Kaen University in Thailand. He is interested in health sector reform and healthy public policy. He is one of the members of HIA development network in Thailand. He has experience in conducting HIA of contract farming and pesticides.

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Richard K. Morgan



Richard Morgan is a Professor in the Department of Geography at the University of Otago, New Zealand. He is a former President of the International Association for Impact Assessment (IAIA) and is currently the chair of the New Zealand Association for Impact Assessment (NZAIA). He organized the first New Zealand workshop on HIA in Christchurch in 1998. Since that time he has contributed to HIA development in New Zealand in a variety of ways, through research, publications, training courses, and presentations to conferences and workshops. He established the Centre for Impact Assessment Research and Training (CIART) in 1999; in 2007, he joined with Louise Signal (Dept of Public Health, Wellington School of Medicine) and Robert Quigley (Quigley & Watts) to set up the HIA Research Unit within the University of Otago.

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Robert Bos



Robert Bos is a Dutch public health biologist with 28 years of experience in the World Health Organization. As part of his early responsibilities as Executive Secretary of the joint WHO/FAO/UNEP Panel of Experts on Environmental Management for Vector Control (PEEM) he laid the foundation for the subsequent line of work on Health Impact Assessment. Over the past 15 years, part of his professional efforts have focused on HIA capacity building, covering national policy development, the establishment of intersectoral institutional arrangements and the development of professionals' skills in intersectoral negotiation. In 2001, he also succeeded in establishing an MOU between WHO and IMA.

Email Address : bos@who.int

Susan Eaton



Susan Eaton is an adult educator with over 30 years of experience in group facilitation and community development. She worked in the field of international development for 20 years. Since 2000, Susan has been actively involved with People Assessing Their Health (PATH), a network of groups and individuals sharing ideas and resources to build healthy communities. The PATH Network works with local communities to develop tools for doing community-driven health impact assessment. She is currently the manager of a project entitled "Influencing Healthy Public Policy through Community Health Impact Assessment".

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Twisuk Pumpeng



As a senior technical officer at the Department of Health, Thailand, Dr. Twisuk Pumpeng has been providing technical supports to both administrative and technical staff in the areas of health promotion, environmental health and HIA. He has over 35 years of experience in occupational and environmental health in research, development projects, standard setting, legislation, and planning. His outstanding roles include the planning group of WHO Collaborating Centers in Occupational Health, International Steering Committee and the National Coordinator of the Health and Environment Linkages Initiative (HELI Global Initiative) a joint WHO/UNEP project, and a Chairman of the Thematic Working Group on Toxic Chemicals and Hazardous Substances of the South-east and East Asia Regional Forum on Health and Environment.

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Wiput Phoolchareon



Dr. Wiput Phoolchareon is currently working as the president of Health Impact Assessment Commission Board, a key organization developing Health Impact Assessment along the line of Healthy Public Policy in Thai society. He also has more than 25 years of working experience in managing health programs for hospitals and government agencies. As a former director of Health Systems Research Institute entrusted with the stewardship of national health system reform through a series of academic analyses, He wrote a book named "Quantum Leap: The reform of Thailand's health system" which is widely recognized among health practitioners and policy makers.

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Roy E. Kwiatkowski



Roy Kwiatkowski is currently the director of Environmental Health Research Division, Health Canada. EHRD carries out research and capacity building activities aimed at strengthening Indigenous communities' abilities to: accurately define health risks, trends and emerging issues; effectively design and carry out research; and support self-governance of Indigenous communities. It is particularly interested in supporting research efforts that utilize community-based participatory and traditionally-based methodologies. These two approaches encourage the meaningful collaboration between communities and researchers that is thought to stimulate community healing, and to empower, motivate and activate change.

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Tayphasavanh Fengthong



Dr. Tayphasavanh Fengthong is currently working as a director of Environmental Health Division and Chief of Health Impact Assessment Team, Department of Hygiene and Prevention, Ministry of Health, Lao PDR. In this role, he has been involved in drafting the practical guideline for HIA since 2007 and in reviewing several HIA projects such as HIA of Namtheun 2 dam project, gold mining, indoor air pollution and ground water contamination. He is also a team member in reviewing and revising a regulation on Environment and Social Impact Assessment (ESIA) in 2008.

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William Rex



William Rex is a Lead Country Officer in the World Bank's office in Vientiane, Lao PDR. One of his responsibilities is to lead the team responsible for the World Bank's support to the Namtheun 2 project, a 1,070MW hydropower project located in central/southern Lao PDR. The project is an attempt by the Lao Government, the private sector, and several international financial institutions, to demonstrate a socially and environmentally sustainable approach to hydropower that has strong developmental benefits for the country.

Prior to moving to Vientiane in 2006, William worked for the World Bank's corporate strategy group where he led a team responsible for helping senior management think about the long-term strategic challenges facing the World Bank, including developing scenarios about how the world and international development could evolve by 2020.

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Course I: Principles and Practice of HIA: Screening Procedures and Appraisal of an HIA Report

Instructor: Robert Bos
Public Health and Environment Department, WHO
Venue: Petcharat Room, 2nd Floor, Empress Hotel

● **Purpose**

The course is organized in response to the increasing demand for adequate health impact assessments. It aims to contribute to capacity building for the competent performance of HIA. Specifically, the proposed course aims to provide participants with the knowledge, experiences and opportunities for dialogue on the objectives, procedures, tools and expected outputs of the screening, scoping and early appraisal process in pre- and post-HIA phases, and to place these procedures in the broader HIA and general impact assessment framework.

● **Content**

The course will systematically address the key issues related to HIA screening, scoping and initial appraisal. The assessment of health implications of policies, programmes and projects must take account of the **environmental and social determinants of health**. New **health hazards** and changes in existing health hazards must be translated into **health risk** predictions. It must consider health in a comprehensive way, focusing on **vulnerable groups** and the particular health risks they will be exposed to. It should lead to a public health action plan that promotes **health safeguards** and **mitigating measures** within the project design and operation first, backed up by an adjustment of health sector interventions. It should operate in an **institutional framework** where the Ministry of Health is the ultimate authority in public health and where other public sectors, to a greater or lesser extent, are engaged in activities for the protection and promotion of health.

● **Anticipated learning outcomes**

- At the end of the course, participants will have
 - updated their knowledge of the general principles and practices of HIA
 - acquired specific knowledge and know-how about the screening phase of HIA
 - acquired specific knowledge and know-how about the appraisal of an HIA report
 - gained a better understanding of the technical, procedural, institutional and policy aspects of HIA screening and appraisal
 - shared experiences from different regional settings
 - learned how to perform essential HIA screening and appraisal tasks in a realistic context

Date/Time	Task
20 April 2009	Day 1: Screening
8.00 – 9.00	Check in for training course
9.00 – 9.20	Introduction of the course (Objectives, scope, programme, materials, procedure and expected outputs)
9.20 – 10.00	HIA principles and practice Special reference to essential functions, links between EIA and HIA, strategic vs project-oriented HIAs
10.00 – 10.20	HIA examples: Global & Thailand
10.20 – 10.30	Discussion, Q&A
10.30 – 10.45	Break/refreshments
10.45 – 11.00	Introduction to Nam Theun 2 Dam
11.00 – 11.15	Introduction to Task 1: Screening
11.15 – 12.30	Task work on Task 1 in four groups (Two mixed Thai/International, two Thai only; four groups in total)
12.30 – 14.00	Lunch
14.00 – 14.15	Plenary, Q&A

Date/Time	Task
14.15 – 15.15	Task 1: Screening Task work in four groups (continued)
15.15 – 15.30	Break/refreshments
15.30 – 16.30	Groups report back on the outcome of their task work (4 presentations)
16.30 – 16.45	HIA, institutional arrangements
16.45 – 17.00	Wrap-up discussion
17.00	Closure Day 1
21 April 2009	Day 2: Appraisal of the HIA report
9.00 – 9.10	Recapitulation day 1 and overview programme of day 2
9.10 – 9.30	HIA policy frameworks
9.30 – 10.30	Appraisal of an HIA report – overview; the draft HIA report of The Nam Theun 2 dam, introduction Task 2
10.30 – 10.45	Task 2: Appraisal of an HIA report (Task work in four groups) Break/refreshments
10.45 – 12.00	Task 2: Appraisal of an HIA report Task work in four groups (continued)
12.00 – 12.30	(TENTATIVE) the health impact of the Kwaee Noi dam, a comparative case study
12.30 – 14.00	Lunch
14.00 – 14.15	Plenary, Q&A
14.15 – 15.15	Task 2: Appraisal of an HIA report Task work in four groups (continued)
15.15 – 15.30	Break/refreshments
15.30 – 16.30	Groups report back on the outcome of their task work (4 presentations)
16.30 – 17.00	Reflection on the two-day experience
17.00	Closure Day 2 and closure of the course

Course II: Linking HIA to the Work of the Local Government in the Asia Pacific Region

Instructor: Lynn Kemp, Andrew Gow and Patrick Harris
University of New South Wales, Australia
Venue: Petcharat Room, 2nd Floor, the Empress Hotel

There is increased recognition of the role of local governments in determining the health of populations, and there is evidence that health impact assessment (HIA) can play a positive role in assisting local governments to enhance health. This workshop will link HIA to the work of local governments in differing jurisdictions in the Asia-Pacific region. Participants will develop a picture of the core business of local governments throughout Asia Pacific, and the relationship of local governments to health across the region. The workshop will be interactive, featuring case studies from across the region, presentations, small group work and large group discussion.

Date/Time	Task
20 April 2009	Task
8.00 – 9.00	Check in for training course
9.00 – 9.30	Introductions and overview of the workshop
9.30 – 9.45	Evidence on effectiveness of HIA within the work of local government
9.45 – 10.15	Some elements of the work of local government for participants to consider
10.15 – 11.15	Case studies: Models of local government
11.15 – 11.45	Break/refreshments

Date/Time	Task
11.45 - 12.45	Case studies (continued)
12.45 - 14.00	Lunch
14.00 - 15.00	Small group work: case study synthesis
15.00 - 15.30	Large group feedback on case study synthesis
15.30 - 16.00	Break/refreshments
16.00 - 17.00	Country based small group work
21 April 2009	
9.00 - 9.30	Recap from Day 1
9.30 - 10.00	Large group discussion
10.00 - 11.00	Presentation HIA for Healthy Public Policy - Lessons from Thailand
11.00 - 11.30	Break/refreshments
11.30 - 12.00	Presentation: public participation within HIA
12.00 - 13.00	International approaches to HIA and potential applications in the Asia Pacific Region
13.00 - 14.00	Lunch
14.00 - 15.30	Small group work
15.30 - 16.00	Break/Refreshments
16.00 - 17.15	Small group work presentation
17.15 - 17.30	Wrap up and next step
17.30	Closure of the course
22 April 2009	
7.30 - 9.00	Registration for HIA 2008 Conference
9.00 - 9.15	Opening Ceremony
9.15 - 9.25	VCD on HIA: Empowering People, Ensuring Health
9.25 - 9.30	Opening Address Representative of Stateless people
9.30 - 9.40	Opening Statement Dr. Maureen Birmingham, WHO Representative to Thailand
9.40 - 9.45	Welcome Address Mr. Amornpun Nimanun, Chiang Mai Governor
9.45 - 10.10	Keynote speech ' HIA: Empowering People, Ensuring Health ' Prof. Dr. Pongsak Angkasth, President of Chiang Mai University
10.10 - 10.30	Break/refreshments
10.30 - 12.00	Plenary Session ' HIA: Empowering People, Ensuring Health ' <ul style="list-style-type: none"> Ms. Susan L. Eaton, PATH, Canada Dr. Jayphasavanh Fengthong, Ministry of Health, Lao PDR Dr. Iwisuk Pungpeng, Department of Health, Ministry of Public Health, Thailand Dr. Witut Phoolcharoen, President of HIA Commission Board, Thailand Moderator: Dr. Pattapong Kessomboon, Khon Kaen University, Thailand Rapporteurs: Dr. Nustaraporn Kessomboon, Khon Kaen University, Thailand Ms. Nanoot Maathurapote, NHC, Thailand
12.00 - 13.00	Lunch
13.00 - 15.00	Concurrent Sessions A1: HIA and integrated impact assessment (Room: Chiang Mai 1) A2: HIA and local government (Room: Chiang Mai 2) A3: HIA and capacity building (Room: Chiang Mai 3) A4: HIA - Beyond the limits of imagination (Room: Chiang Mai 4)
15.00 - 15.30	Break/refreshments

Date/Time	Task
15.30 - 17.00	A4 (continued): HIA - Beyond the Limits of Imagination (Room: Chiang Mai 4)
15.30 - 17.00	'HIA Cafe': Networking Activities (Room: Empress Grand Hall) <ul style="list-style-type: none"> HIA Poster Corner: Poster discussion HIA Cafzi: Development of HIA mechanism in ASEAN Meet and Greet: Getting to know Thai HIA organizations Voices for HIA 2010 in Wellington, New Zealand HIA in the context of new approaches to health promotion: Preparations for the 2009 Nairobi Global Conference on Health Promotion Joining Hands in Making The Chiang Mai Declaration'
18.30 - 20.30	Welcome Dinner at Imperial Ballroom, Empress Hotel
23 April 2009	
7.30 - 8.00	Check-in for at - scene conference
8.00 - 9.00	Travel to at - scene conference <ul style="list-style-type: none"> Water resources management: Water management of Ping river Urban development: Spiritual community in Wat Ket area Industrial development: Lamphun in the storm of change Agriculture development: Go green and healthy agriculture Informal worker: One lambon One Product (OTOP) city at Baan Iawai
9.00 - 9.30	Local introduction to the health impacts of case studies
9.30 - 12.30	Field visit, focus group and open discussion
12.30 - 13.30	Lunch
13.30 - 16.30	Concurrent Sessions: At - scene sessions "Flow HIA can address and solve the problem?" B1: HIA and water resources management B2: HIA and urban development B3: HIA and industrial development B4: HIA and agriculture development B5: HIA and informal worker
16.30 - 17.30	Leave to Khum Khantoke
17.30 - 18.30	International Solei (dialogue) on inspiration and HIA Commitment
18.30 - 20.30	Khantoke Dinner (local delicacies and cultural show)
24 April 2009	
9.00 - 10.30	Keynote Speech iHand in Hand in Civic Empowerment <ul style="list-style-type: none"> Mr. Roy Kwiatkowski, Health Canada, Canada Mr. Patrick Harris, University of New South Wales, Australia Dr. Decharut Sukkummod, Kasetsart University, Thailand Moderator: Dr. Nguyen Duy Bao, National Institute of Occupational and Environmental Health (NIOEH), Vietnam Rapporteurs: Ms. Soyamol Kaiyooawong, Project for Ecological Awareness Building, Thailand Ms. Wipawa Chuenchit, HPPF, Thailand
10.30 - 11.00	Break/refreshments
11.00 - 12.30	Concurrent Sessions C1: HIA mining and industrial policy (Room: Chiang Mai 1) C2: HIA institution and mechanism (Room: Chiang Mai 2) C3: Social perspectives for HIA development (Room: Chiang Mai 3) C4: Transboundary HIA (Room: Chiang Mai 4)
12.30 - 13.30	Lunch

Date/Time	Task
13.30 - 13.45	Presenting Draft of the Chiang Mai Declaration by Dr. Decharut Sukkumnoed, Kasetsart University, Thailand
13.45 - 14.45	Plenary Session on iFuture Direction of HIA in Asia-Pacific Region <ul style="list-style-type: none"> Mr. Richard Morgan, University of Otago, New Zealand Mr. Robert Bos, WHO, Geneva Mr. William Rex, World Bank, Lao PDR Dr. Amphon Jindawatthana, National Health Commission, Thailand Moderator: Dr. Wiput Phoolcharoen, President of HIA Commission Board, Thailand Rapporteurs: Dr. Nusaraporn Kessomboon, Khon Kaen University, Thailand Mr. Suphakit Nuntavorakarn, HPPF, Thailand
14.45 - 15.15	Conclusion of the HIA 2008 Conference Dr. Wiput Phoolcharoen, President of HIA Commission Board, Thailand Rapporteurs: Dr. Roshinee Oupra, Boromarajonani College of Nursing, Thailand Ms. Wipawa Chuenchit, HPPF, Thailand
15.15 - 15.30	Introduction to HIA 2010 in New Zealand
15.30 - 15.50	Closing Speech Mr. Wittitaya Keoapharadai, Vice Chair of National Health Commission
15.50 - 16.00	Closing Ceremony

Concurrent Sessions

A1 -A4

Date: 22 April 2009	
Time: 13.00-15.00	
A1: HIA and Integrated Impact Assessment	Room: Chiang Mai 1
Chairperson: Dr. Twisuk Pumpeng, Department of Health, Thailand	
Coordinator: Ms. Thunyaporn Surapakdee, HPPF, Thailand	
Rapporteurs: Mrs. Rosalind Amornpitakpun, ONEP, Thailand Mr. Pongsak Auenusuwanna, ONEP, Thailand	
A1.1 Integration of HIA with EIA in Western Australia	Ms. Dianne Katscherian
A1.2 Integration HIA into the EIA Report in Thailand	Mrs. Rosalind Amornpitakpun
A1.3 Vietnam Environmental Health Initiative – A program on creating tools to assess health impact of environmental pollution in Vietnam	Mr. Nguyen Tri Thanh
A1.4 Health Impact Assessment on Incinerator Construction Project in Korea – A case study: focusing on human risk assessment	Dr. Young Soo Lee
A1.5 The Initiative of Conducting HIA in EIA: Lessons learnt from Thung Khai industrial zone project, Trang province	Ms. Thunyaporn Surapakdee
A1.6 Strategic Assessments: Better health outcomes, but is it HIA?	Ms. Dianne Katscherian
A2: HIA and Local Government	Room: Chiang Mai 2
Chairperson: Mr. Patrick Harris, University of New South Wales, Australia	
Coordinator: Mrs. Buddhina Nuntavorakarn, HPPF, Thailand	
Rapporteurs: Dr. Tipicha Posayanonda, NHC, Thailand Ms. Supaporn Chaigarun, Khon Kaen University, Thailand	
A2.1 Facilitating Communities in Designing and Using Their Own Health Impact Assessment Tool.	Ms. Colleen Cameron
A2.2 Application of Health Impact Assessment for Development of Local Regulation on Health-Hazard Activity Control in Thai Local Government	Mrs. Uraivan Immuong
A2.3 Fight for Firefly: HIA of firefly tourism dilemma in Samut Songkram	Mrs. Suphunnee Saringkhan

A2.4	Solution to Survive : HIA of local energy planning in Thailand	Ms. Kanlaya Naclungka
A2.5	The Way to Get Good Health by the Human Excreta Management: Health impact assessment of human excreta management in Angthong province	Mrs. Jariya Namtubtirim
A3: HIA and Capacity Building		Room: Chiang Mai 3
Chairperson: Ms. Theechat Booyakarnkul, Department of Health, Thailand		
Co-Chair: Dr. Lertchai Charerntanyarak, Khon Kaen University, Thailand		
Coordinator: Ms. Duangjai Rungrojcharoenkit, HPPF, Thailand		
Rapporteurs: Ms. Wipawa Chuenchit, HPPF, Thailand Mr. Wisut Boonyasopit, NHC, Thailand		
A3.1	Community Engagement and Capacity Building – Some Canadian examples	Mr. Roy Kwiatkowski
A3.2	HIA Capacity Building in Lao PDR: Formulating a national HIA policy and setting up an institutional structure	Mr. Soutsakhone Chanthaphone
A3.3	Knowledge Management Base for HIA Capacity Building in Thailand	Mrs. Jittima Rodsawad
A3.4	HIA Capacity Building in New Zealand	Mr. Matt Soeberg
A3.5	HIA Capacity Building as a Supportive Mechanism for Empowering Thai Society	Ms. Sriwan Chandanachulaka
A3.6	Revitalizing Thailand's Community Healthy Impact Assessment	Ms. Somporn Pengkam
A4: Beyond the Limits of Imagination		Room: Chiang Mai 4
Chairperson: Dr. Kitirat Nontapattamadul, Thammasat University		Time: 13.00 - 15.00 15.30 - 17.00
	Ms. Kamolpun Punpuing Thammasat University	
Coordinator: Mrs. Rungthip Sukkumnoed, HPPF, Thailand		
Rapporteurs: Mr. Jaruek Chaiyarak, NHC, Thailand Ms. Wanida Werakul, NHC, Thailand Ms. Praew Eiamnoi, Health Promotion Center for People with Disability, Thailand Ms. Sarinee Kaewsawang, Health Promotion Center for People with Disability, Thailand		
A4.1	Freeing Imagination for Missing Asset Recovery with disability	Mrs. Rungthip Sukkumnoed
A4.2	The Gap between Medical Model Concept and Social Model Concept in Health Service for Disabled People	Mr. Athiphan Wongwai
A4.3	Who Should be Responsible for the Health Conditions of Disabled People?	Ms. Praew Eiamnoi
A4.4	The Missing Parts of the Health Care System	Mr. Santi Rungnasaun
A4.5	Art & People with Severe Disability	Ms. Arunwadee Limunggul
A4.6	A Gap to be Fulfilled: Disability field and environmental work Families and Communities Network for Potential Development of Disabled People	Ms. Sarinee Kaewsawang
A4.7	Assistive Technology Center and Quality of Life for People with Disabilities	Ms. Nanta Sampinong
A4.8	Empowering People with Disability: Public policy for basic social welfare Equity among Differences	Ms. Kamolpun Punpuing
A4.9	Empowering People with Disability: Public policy for basic social welfare Equity among Differences	Mr. Supol Boontham
A4.10	Empowering People with Disability: Public policy for basic social welfare Equity among Differences	Mrs. Ubonrat Nannaphol
A4.11	Empowering People with Disability: Public policy for basic social welfare Equity among Differences	Mrs. Suleepan Solanda
A4.12	Empowering People with Disability: Public policy for basic social welfare Equity among Differences	Dr. Kitirat Nontapattamadul
		Dr. Wachara Riewpaiboon

Concurrent Sessions

B1-B5

Date: 23 April 2009 Time: 13.30-16.30		At Scene
B1: HIA and Water Resources Management Chairperson: Dr. Pattapong Kessomboon, Khon Kaen University, Thailand Coordinator: Mrs. Suphunnee Saringkhan, HPPF, Thailand Mr. Navin Sopapum, Chiang Mai University, Thailand Rapporteurs: Dr. Voranuch Wangsuphachart, Mahidol University, Thailand Mr. Jaruek Chairak, NHC, Thailand		
B1.1	Health Impact Assessment on Proposed Dam Developments: A Malaysian methodological perspective	Dr. Mazrura Sahani
B1.2	NTPC Hydroelectric Project and HIA - Lessons learnt and future	Dr. Pany Sananikhom
B1.3	No Shortcut for Empowering People: HIA of Thachin short cut canals project for flood protection's scheme	Mr. Prachern Khonthet
B1.4	Fecal Contamination and Community Health Impact Assessment (CHIA) of Mekong River in Chiang Rai, Thailand	Dr. Voranuch Wangsuphachart
B1.5	Hydropower Development and Indigenous People in Sesan River, Cambodia: impacts, resettlement, and compensation	Mr. Meach Mean
B2: HIA and Urban Development Chairperson: Dr. Decharut Sukkumnoed, Kasetsart University, Thailand Coordinator: Mrs. Rungthip Sukkumnoed, HPPF, Thailand Rapporteurs: Dr. Tipicha Posayanonda, NHC, Thailand Ms. Nattaya Thaeinin, NHC, Thailand		
B2.1	Urban Developmental Policies Review in Malaysia	Dr. Rozlan Ishak
B2.2	Health Impacts of Indoor Air Pollution in Two Provinces of Lao PDR.	Dr. Tayphasavanh Fengthong
B2.3	HIV Prevention and Campaign on National Road No. 8 Construction Project	Mr. Somsanouk Vongsomphou
B2.4	Effect of Particulate Matter in Asian Dust on the Peak Expiratory Flow Rate of the Schoolchildren in Inner Mongolia of China	Dr. Xiaochuan Pan
B3: HIA and Industrial Development Chairperson: Mr. Suphakit Nuntavorakarn, HPPF, Thailand Coordinator: Ms. Thunyaporn Surapakdee, HPPF Rapporteurs: Dr. Arpa Wangkiat, Rangsit University Mrs. Niracha Ussavathirakul, NHC, Thailand		
B3.1	Health Impact Assessment due to Producing Industry	Dr. Nguyen Thu Ha
B3.2	Rayong Paradox	Ms. Wipawa Cheunchit
B3.3	A Health Impact Assessment on the Bangsaphan Iron Smelting Project in Thailand	Dr. Arpa Wangkiat
B3.4	Health Impact Assessment of the South Pradutao Oil Field Development Project in Phitsanulok and Sukhothai Provinces, Thailand	Dr. Jaruwat Tabthiang
B4: HIA and Agriculture Development Chairperson: Dr. Nussaraporn Kessomboon, Khon Kaen University, Thailand Coordinator: Mr. Chomchuan Boonrahong, ISAC Rapporteurs: Dr. Parichart Visuthismajarn, Prince of Songkla University, Thailand		

Mrs. Jittima Rodsawad, Department of Health, Thailand		At Scene
B4.1	A Case Study of Farmers Practice Regarding the Use of Pesticides and Other Agricultural Inputs on Farmers' Health and Quality of Life of the Elderly Farmers Elderly in Sansai, Chiangmai Chiang Mai Co-operations	Mr. Injai Wongratanasatian
B4.2	Empowering Backbone Collaborations for Healthy and Wealthy Co-operations	Dr. Parichart Visuthismajarn
B4.3	Go Green and Healthier Agriculture: Health impact assessment of chemical agriculture in Bor Ngern Sub District Administrative Organization, Pathumthani	Mrs. Thida Kriwattanapong
B4.4	Biological Diversity Index in Rice Field: A pilot study comparing between pesticide used and unused	Ms. Supaporn Chaigatun
B4.5	CEO of the Field: HIA of transition to sustainable agriculture	Mrs. Buddhina Nuntavorakarn
B4.6	Illusion and Realities of Free Trade Agreement: Lesson learnt from HIA of Thai-Chinese FTA on fruit and vegetable agribusiness	Ms. Duangjai Runrojcharoenkit
B5: HIA and Informal Worker Chairperson: Dr. Wiput Phoolcharoen, President of HIA Commission Board, Thailand Coordinator: Dr. Susantha Yimyam, Chiang Mai University Ms. Kanlaya Naclungka, HPPF, Thailand Rapporteurs: Dr. Uraivan Innuong, Khon Kaen University Dr. Roshinee Oupira, Boromarajonani College of Nursing, Thailand		
B5.1	Labour in the Informal Sector: Scavengers	Ms. Jaranya Wongprom
B5.2	Way of life and Quality of life of Migrant Children in Thai Society	Ms. Kamonwan Saenthaweesook
B5.3	Environmental Health Impact Assessment in a Mechanical Craft Village in Vietnam	Mr. Vu Xuan Trung

Concurrent Sessions

C1-C4

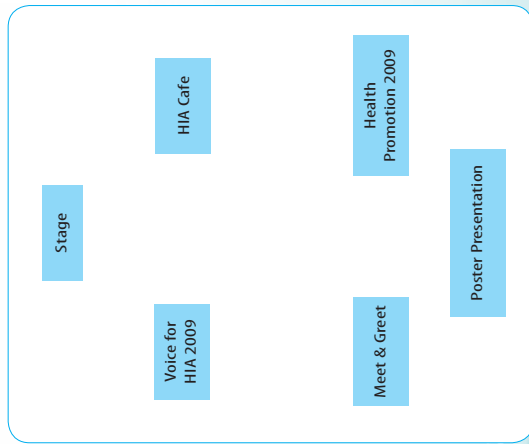
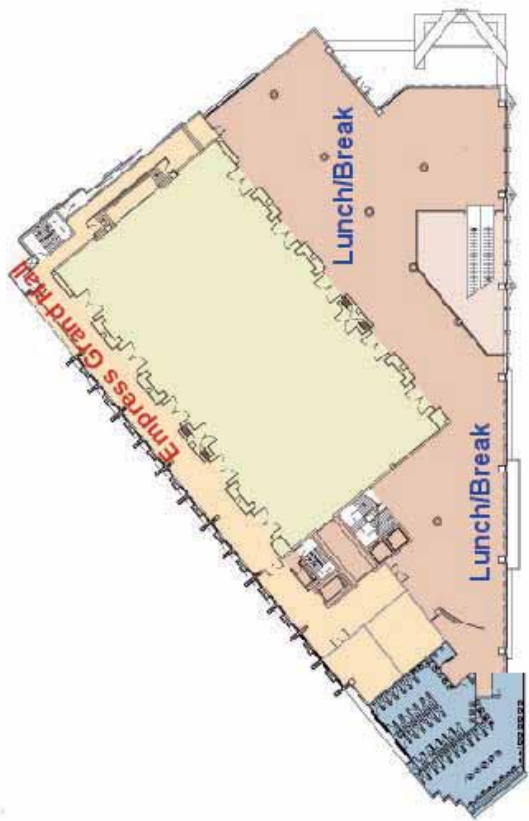
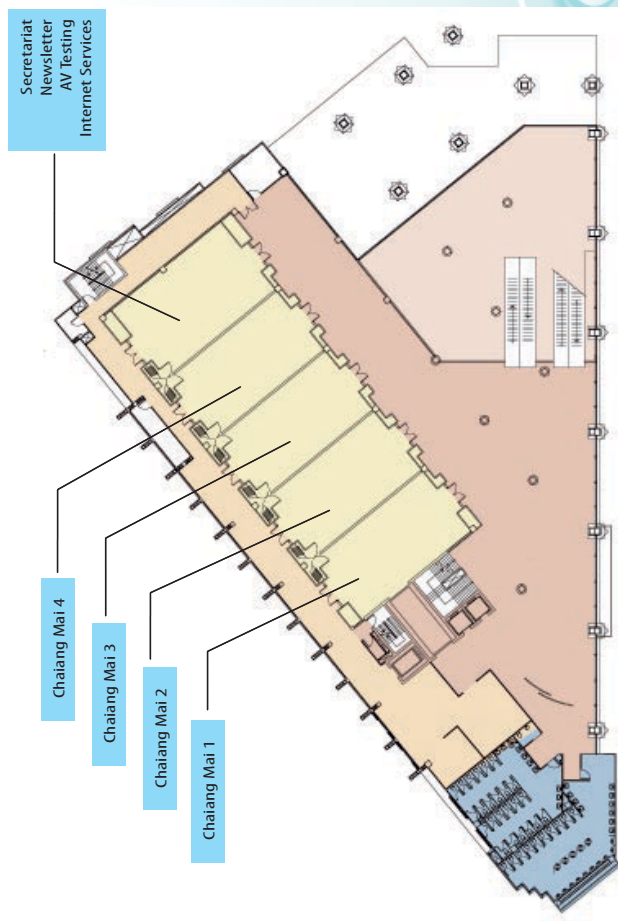
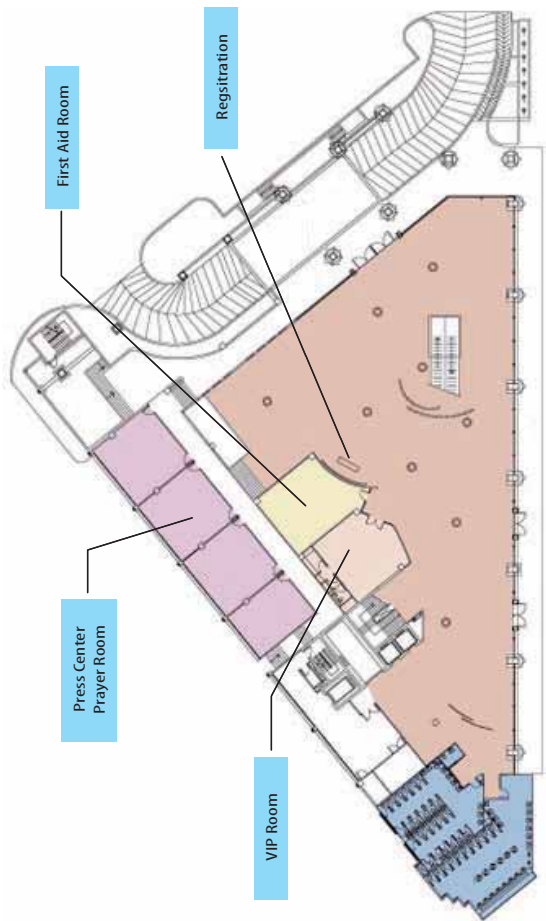
Date: 24 April 2009 Time: 11.00-12.30		Room: Chiang Mai 1
C1: HIA and Mining and Industrial Policy Chairperson: Dr. Saisuda Kesornthong, Department of Disease Control, Thailand Coordinator: Ms. Thunyaporn Surapakdee, HPPF, Thailand Rapporteurs: Ms. Jaranya Wongprom, Khon Kaen University, Thailand Mr. Surasak Buntian, NHC, Thailand		
C1.1	Integration of HIA in Strategic Environmental Assessment (SEA): The proposal of HIA and SEA in the cross-border bauxite mining in Vietnam, Lao PDR	Mr. Pham Quang Tu
C1.2	Community HIA for Community Health: Case study of Thung Kham Gold Mine, Wangsaphung District, Loei Province	Ms. Watcharaporn Wattanakum
C1.3	The Environmental an Health impacts Assessment on Area Strategy of Southern Development Plan Based on Sustainable Development	Ms. Sayamol Kajvorawong
C1.4	Community Health Impact Assessment by Local People in Response to a Mega Project	Mr. Prastitchai Noomuan

Poster Session

Date: 22 April 2009 Time: 15:30-17:00 Room: Empress Grand Hall	
P1	Emissions of Carbamate Pesticides from Jasmine Agriculture in Khon Kaen Province, Thailand Ms. Kailaya Hampicharmchai
P2	Initiation of Health Impact Assessment Course in Master of Public Health Program, Chiang Mai University Dr. Chomnard Potjanamart
P3	Mortality of Population Exposed to the Different Polluted Environment Dr. Tran Thanh Ha
P4	Diseases Situation of Population by Retrospective Figures of Commune Health Station from 2002 to 2006 Ms. Dam Thuong Thuong
P5	Health Impacts Assessment from Salt Mine in Sakonakon Province Ms. Parinee Hongsuwan
P6	Health Problems and Health Management among Children Addicted Ms. Jennara Wongpalee
P7	Community Health Problems and Solving by Community Participation, Mae Rim, Chiang Mai. Ms. Prakaikeaw Ianasuwan
P8	The Battle for Silence: Health Assembly as an effort to alleviate noise and other pollutions of Suvarnabhumi International Airport Mr. Thanatod Preepname
P9	Health Impact from Tourism on People in Pai Municipality, Pai District, Mae Hong Son Province Ms. Veeraya Chaimanakij
P10	Health Impacts from Solid Waste on People in Lampang Municipality, Lampang Province Ms. Busara Thatsanawichit
P11	Health Impact from Migrant Labour on People in Mae Ai District, Chiang Mai Province Mrs. Chatsuda Tongchaisuwan
P12	A Comparative Study of Health Status Between Farmers Who Practice Agrochemical Farming and Organic Farming in Sanpatong District, Chiang Mai province Mr. Anon Wisurthananon
P13	Increasing the Poor's Access to Renewable Energy Technologies through Microfinance : Nepal Case Study Mr. Gopal Raj Joshi
P14	Management of High Fluoride Content in Community Drinking Water : An HIA application Surat Mongkolnchai-arunya,
P15	The Lessons from Bhopal: Chemical industry and the health of people Bhopal Movement
P16	Chlorpyrifos Exposure among Farmers in Sabak Bernam, Malaysia Dr. Rozita Hod
P17	Impact of Driving and Working Hours on Commercial Bus Driver's Fatigue and Its Implication to Safety and Health Policy In Transport Sector Dr. Norlen Mohamed

C2: HIA and Institution and Meehanism		Room: Chiang Mai 2
Chairperson:	Dr. Wiput Phoolcharoen, President of HIA Commission Board, Thailand	Ms. Marilyn Wise
Coordinator:	Mr. Suphakit Nuntavorakarn, HPPF Thailand	Dr. Jayphasavanh Fengthong
Rapporteurs:	Mrs. Orapan Srisookwatana, NHC, Thailand Ms. Voranuch Wangsuphachart, Mahidol University, Thailand	Ms. Jinhee Kim Mr. Suphakit Nuntavorakarn
C2.1	HIA at the Crossroads: Are we ready for the unanticipated impacts of success?	Room: Chiang Mai 3
C2.2	Implementing Progress of Health Impact Assessment in Lao PDR	
C2.3	Implementing HIA in South Korea	
C2.4	HIA in Southeast Asia: Background, on-ground, and foreground	
C3:	Social Perspectives for HIA Development	
Chairperson:	Susan L. Eaton, PATH, Canada	
Coordinator:	Ms. Buddhina Nuntavorakarn, HPPF, Thailand	
Rapporteurs:	Dr. Angkhanaporn Sornngai, Sirindhorn College of Public Health, Thailand Mrs. Niracha Ussavathirakul, NHC, Thailand	
C3.1	Rate of Suicide: An index for cumulative health impact assessment	Dr. Pattapong Kessomboon
C3.2	The Study of Factors Affecting to Well-being of the Elderly with Spouse in Rongheeb Subdistrict, Bang Khonthi District, Samut Songkhram Province	Mr. Chakrit Piungam
C3.3	The Application of the Geographic Information System in the Study of the Area of Suicide Risk Surveillance	Mrs. Pornitip Dumrongpattama
C3.4	An HIA on a welfare program for low-income children's health improvement	Dr. Eunjeong Kang
C3.5	Health and Urban Resettlement among Low Income Elderly People in Phitsanulok, Thailand	Dr. Angkhanaporn Sornngai
C4:	Transboundary HIA	Room: Chiang Mai 4
Chairperson:	Dr. Decharut Sukkumnoed, Kasetsart University, Thailand	
Coordinator:	Ms. Duangjai Runrojcharoenkit, HPPF, Thailand	
Rapporteurs:	Dr. Parichart Visuthismajam, Prince of Songkla University, Thailand Mr. Suttipong Vasusophapoi, NHC, Thailand	
C4.1	Climate Change in Australia: A national adaptation plan for human health	Ms. Dianne Katscherian
C4.2	Health Impact of Climate Change: Case study on rain-fed farmer in Kula Ronghai field, Thailand	Dr. Vichien Kerdsuk
C4.3	Climate Change Impacts on Human Health in Bangladesh	Mr. Golam Rabbani
C4.4	Ban Koum Dam: Transboundary impact on the Mekong river	Mr. Montree Chantawong
C4.5	Economic Impacts of the Thai-US FTA on Access to Medicines	Dr. Nussaraporn Kessomboon
C4.6	Health Impacts of the Thai-US FTA: A case study of access to antiretroviral drugs of Thai HIV/AIDS patients	Mrs. Usawadee Maleewong

Map of the Empress Convention Center



Empress Grand Hall
 'HIA Cafe': Network activities
 22 April 2009
 15.30 - 17.00

Empress Grand Hall

A1: HIA and Integrated Impact Assessment

(A1.1) Integration of HIA with EIA in Western Australia

Dianne Katscherian

The Western Australian (WA) Environmental Protection Act 1986 prescribes the Environmental Impact Assessment (EIA) process for consideration of environmental issues that may arise associated with project assessments. This Act has primacy over other assessment processes and developments may not proceed until environmental issues have been appropriately dealt with. However, although some health issues, where the links to the environment can be demonstrated are addressed in EIA, consideration of health impacts is limited and there is a demonstrated need for HIA.

Rather than creating a stand alone HIA process for project approvals the Department of Health agreed to integrate HIA with EIA, but providing a methodology with few added administrative impediments for proponents has not been without its difficulties. This presentation discusses the background to the integration agreement and challenges faced by Government to provide an integrated approach and better health outcomes for WA communities.

(A 1.2) Integration HIA into the EIA Report in Thailand

Rosalind Amornpitakpun

Because of people in some area affected health due to developing projects, therefore the government organizations interested in health impact assessment. The tenth National Socio-Economic Development Plan, the principle plan of Thailand, determined to integrate HIA into the EIA report. The environmental management plan 2007-2111 also gives an importance to HIA. Thus the Office of Natural Resources and Environmental Policy and Planning; ONEP realized the importance of implementation of the plan. In fiscal year 2007 ONEP conducted the activities to develop a guideline of incorporating an HIA into an EIA report in order to provide guidance for those involved. The concept is how to increase the importance of health issues in the EIA while the stakeholders have the possibilities to implement the recommendations.

Nowadays, there are 22 types of projects listed in the notification of type and sizes of projects that require an EIA report following the Enhancement and Conservation of National Environmental Quality Act (NEQA) 1992. An EIA report has to contain four environmental elements which consist of: Physical Resources, Biological Resources, Human Use Values and Quality of Life Values. Quality of Life Values extend to public health and occupational health issues. This presentation discusses the background of the integration HIA into the EIA reports, the problems of conducting the HIA guidance and how to improve the HIA guidance.

(A1.3) Vietnam Environmental Health Initiative--A program on creating tools to assess health impact of environment pollution in Vietnam

Nguyen Tri Thanh

Recognizing the outstanding health issues affected by the environment factors particularly respiratory due to air pollution, epidemics related to water quality and environment pollution from urban, industrial and hospital solid waste etc, Vietnam Environmental Protection Agency has launched VIETNAM ENVIRONMENTAL HEALTH (EH) PROGRAM with purpose of creating tools to assess health impact of environment pollution in Vietnam. This is also an initiative from Vietnam to respond to Regional EH Initiative to address the EH problems in the region with a major focus on strengthening EH research and managing activities at national and regional level in order to promote the reduction and effective management of EH risks. After 2 years, the Program has achieved some major outcomes as: (1) National report on Environmental health 2006 presenting the overview of the Environmental health issues including related policy system, institutions and services as well as orientation of environmental health priorities; (2) Environmental health Impact Assessment guideline (technical guideline) to guide the local environmental management staff in assessing the adverse health impacts from environment pollution (3) Reports on EH impact assessment pilot programs in two hot-EH spots (4) Draft of National Environmental Health Action Plan presenting the comprehensive plan to address EH problems in Vietnam. These outcomes will be the firm basics as tools for state managing bodies especially Environment and Health ministries dealing with the impact from environment pollution to protect community health.

(A1.4) Health Impact Assessment on Incinerator Construction Project in Korea – A case study focusing on health risk assessment

Young Soo Lee

The Ministry of Environment (MoE) of Korea has recently established the Environmental Health Act. The Act includes an article related to implementation of Health Impact Assessment (HIA). This study selected an incinerator construction project which was suspected to have an effect on human health among major development projects and conducted a risk assessment on inhalation exposure to hazardous air pollutants.

The process of HIA on incinerator is as follows: The first step is to presume and calculate the amount of hazardous air pollutants emitted using emission factor. The second step is to conduct an exposure assessment using the SCREEN3 model which is used for predicting the concentration in a conservative method. The last step is to carry out a risk assessment on carcinogenic and non-carcinogenic substances.

This study concluded that the result of human risk assessment on carcinogenic and non-carcinogenic substances is lower than the U.S. criteria for risk assessment. It is expected that the technique of HIA, especially human risk assessment on hazardous air pollutants, would be applied to the incinerator construction project. In addition, more systematic studies are needed to overcome some weak points and limits found in this study.

(A1.5) The Initiative of Conducting HIA in EIA: Lesson learnt from Thung Khai industrial zone project, Trang province

Thunyaporn Surapakdee
Duangjai Rungrojcharoenkit
Sanya Rugkaphan

In Thailand, there is an initiative among related organizations, both governmental and non-governmental sectors, to develop HIA in EIA system. However, this leads to some arguments in terms of the probability, difficulties, and complexities for implementing HIA in EIA. The aims of this study is to find the solution of these arguments and serve the appropriate way for using HIA as a useful tool in EIA study process.

The study has been conducted through case study of the proposed project, Thung Khai Industrial Zone which located in the southern part of Thailand, Thung Khai sub-district, Yan Ta Khao district, Trang province. The project covers the public area 1,648 Rai and was undertaken EIA study for approval by ONEP (Office of Natural Resources and Environmental Policy and Planning). The results of this study will be analyzed and set up the recommendations for further guideline of HIA in EIA process.

(A1.6) Strategic Assessments: Better health outcomes but is it HIA?

Dianne Katscherian

The Government of Western Australia has developed a more aggressive approach to the strategic assessment of land for a range of activities: particularly industrial development and large scale residential holdings. The HIA branch at the Department of Health aggressively pursued a seat at the table for these assessments and the value the inclusion of the health sector and the consideration of potential health impacts in these assessments has been clearly demonstrated. Two case studies in which the HIA sector was included are presented; a green fields site for a future town of 90,000 people and a (project ready) industrial site. The consideration of health issues during the planning stages of these Strategic Plans has resulted in better long term health outcomes for future communities but the process is not what would be regarded as conventional HIA. This presentation discusses the processes undertaken and the outcomes with respect to health and how these differ from commonly accepted methodologies for HIA.

A2: HIA and Local Government

(A2.1) Facilitating Communities in Designing and Using Their Own Health Impact Assessment Tool

Colleen Cameron
Sebanti Ghosh
Susan Eaton

People Assessing Their Health (PATH) is a process that uses community health impact assessment to build the capacity of people to become active participants in the decisions that affect the well-being of their community. The process is grounded in the principles of adult education and the belief that people know a lot about what makes them and their communities healthy.

The PATH process was originally used in three communities in northeastern Nova Scotia, Canada in 1996. Since then it has been used in other communities in Nova Scotia and in 2006 it was introduced in Mukitmanipur, India with a tribal community that was about to embark on an Endogenous Tourism Project. More recently, the community health impact assessment tool developed in Antigonish, Nova Scotia has been used by a group of citizens to assess the potential impact of a large recreation/tourism project on the well-being of that community.

Improving the health of communities requires a community development approach that builds people's ability to critically analyze a situation and to engage in effective social action to bring about desired change. PATH is an empowering process for community members because it increases analytical skills and provides communities with their own unique tool to assess the potential impact of projects, programs or policies on the health of their community.

This presentation will discuss the lessons learned from PATH's experiences of building capacity among the community. In particular, the presentation will examine the methodology used in the process and identify the underlying adult education and community development principles. Since PATH is the only truly community-driven health impact assessment process, the presentation will also discuss the lessons learned about using this process in various contexts and cultures.

(A2.2) Application of Health Impact Assessment for Development of Local Regulation on Health-Hazard Activity Control in Thai Local Government

Uraivan Innuong
Soomol Srisookwatana
Nathathai Traithin
Pornpun Maisuporn

The Thai Public Health Act B.E. 2535 included several articles related to control of nuisance and health-hazard activities. It required the Thai local governments to issue any regulation to take control of any possible health-hazard related activities, both from commercial and non-commercial sources. Since 1999, there have been a new form of local government established namely Sub-district Administrative Organization (SAO). The SAO is a small-scale governing structure which located and functioned within local community across country. The administrators and officers of the SAO are relatively new with less experience on any of public health practices, particularly on environmental health problem control. This research attempted to introduce and apply a participatory health impact assessment (HIA) tool for the development of SAO health-hazard control activity and regulation, conducted during May 2005-April 2006 at Ban Meang and Kok See SAOs, Khon Kaen Province. Key HIA tool included activities for participatory actions on community environmental health problem survey, and health impact and local regulatory measure workshops. The study result showed the participatory HIA tool enabling the SAO administrators and officers understanding of environmental health problem, as well as its resolution and appropriate regulation imposed. Eventually, the SAO developed the guideline on health hazard control, and also issued its local regulation.

(A2.3) Fight for Firefly: HIA of firefly tourism's dilemma in Samut Songkram

Suphunnee Saringkhan

Amphawai is one of the most renowned symbols of Samut Songkram province. Today, as a fast-growing tourist attraction, Amphawai has been overwhelmingly promoted for economic reasons with a firefly or lightening bug tour as a magnetic sightseeing option. Nevertheless, the area is experiencing several critical problems.

Being a new land mark for the province's travel industry, Amphawai has witnessed the sharp increase in the number of motor boats used for the firefly tour. The number rose from 5-6 boats in 2005 to 170 boats in 2006. This has also caused considerable impacts to the villagers of Baan Lom Tuan as this neighborhood is a natural habitat for a great number of firefly populations. The noisy tourists and the sound of boat engines have destroyed the peacefulness of the community. Besides, the waves caused by motor boats are an important factor of soil erosion along the banks as well as the damage on Lamphu trees (*Sonneratiaceae*), which finally affect the life cycle of fireflies leading to decreasing number of them.

Envisioning the fireflies as forever friends of the community and the sustainable eco-tourism in Samut Songkram province, Baan Lom Tuan's villagers have gathered to provide an alternative firefly eco-tourism using non-motored boats and learning local eco-cultural system. This paper applies HIA to analyze the health impacts from different tourist paths. It shows that the alternative eco-tourism of Baan Lom Tuan leads to better impacts on health and may solve the problems from firefly tourism industry.

(A2.4) Solution to Survive: HIA of local energy planning in Thailand

**Kanlaya Nadiungka
Dilok Sarawadi
Rutchanart Thanomsin
Decharut Sukumnoed**

The world is confronting the pressure from convention energy crisis continuously, which all people in the world participates in making problem by rising energy demands. Energy crisis is not only in economic aspect but also in environmental and social aspects. Under these crises, Thai society seems to be suffer from our energy consumption. On the other hand, energy crisis is a chance to look around our selves and find resources and, more importantly, local wisdom for our alternative energy solutions. The study provides the view that, in fact, there are huge hidden renewable energy resources in all communities. However, how we can convince ourselves that the renewable energy sources are also healthy solutions for the communities, as well as which should be a proper approach to be implemented. Therefore, this HIA study will provide processes to analyze health impacts from renewable energy development and concrete examples in Thailand on how renewable energy generate health benefits within the communities through the improvement of several health determinants. With all these attempts, it may pave the way towards sustainable energy and the healthier future.

(A2.5) The Way to Get Good Health by the Human Excreta Management: Health impact assessment of human excreta management in Angthong province

**Jariya Namtubtim
Chairoj Khummongkol
Pimporn Somboonyosdech**

The excreta are the dirty things that cause the epidemic of the alimentary system disease. Angthong province had the violence flood and stayed in the wetland situation for long time every year. People got both effects on their health and environment from the lavatory and the excretion problems. In order to get good health and good environment of the people this participatory research was conducted in 6 municipalities in 2007. It emphasized on the participatory learning of the people and related units.

The result indicated that most of municipalities (66.7%) had role and legal management of human excreta but did not have any apparent policy relating to management of human excreta. Having no disposal system and untreated human excreta was transferred to environment such as: into public land, farmland and grassland with or without permission from the owner, which might impact direct or indirect to human health. Only one of municipalities had vacuum trucks by private enterprises that had

licensing. They almost did not pertinent to the regulation guideline of Public Health Act B.E. 2535. The assessment of the health impacts found that there were both positive and negative effects; also the psychological health and social impacts. Basing on the participatory approach process found that the people wanted to have disposal system, the vacuum trucks by the municipalities and sanitary area to cast the excreta. The municipality management organization had the clear cut policy to develop the excreta. Most of the municipalities agree with the people and would bring to the local public policy.

In conclusion, to support and improve the community potential and the related units by creating the understanding/awareness/good sense within the participatory learning would bring to the local public policy.

A3: HIA and Capacity Building

(A3.1) Community Engagement and Capacity Building – Some Canadian examples

Roy Kwiatkowski

Accelerating industrialization within developing countries, particularly throughout Asia, will have a major impact on the environment and human well-being; especially on those communities located downstream or downwind of the new development project. Effective and efficient Impact Assessments provide not only protection of the environment but as well of human health. Consultations with impacted communities are a cornerstone to Impact Assessment. Mistrust between community members and government decision makers can be a significant roadblock to the exchange of ideas and consensus building. If the information source is not trusted then the information itself will not be trusted regardless of its quality. There is no simple communications/community engagement tool that works universally. The Environmental Health Research Division of Health Canada has had extensive experience with a number of different but interlinked approaches to indigenous community engagement into environmental health research. Each is unique, yet the outcomes of each, cumulatively enhances indigenous community's ability to gather data and information, and improve their knowledge and understanding of the impacts associated with a project, program or policy. The Environmental Health Research Division focuses on building capacity (through training) and Indigenous community engagement (through research activities) in its efforts to enhance Health Impact Assessment integration within Environmental Impact Assessment. Six examples (three for capacity building and three for community research engagement) will be discussed.

(A3.2) HIA Capacity Building in Lao PDR: Formulating a national HIA policy and setting up an institutional structure

Soutsakhone Chanthaphone

The Lao PDR is a landlocked country in South East Asia and richly endowed with natural resources. The geography of the Lao PDR part of the Mekong River basin creates a huge potential for hydropower generation as well as Lao PDR also possesses important mineral wealth. The government of the Lao PDR adopted the MDGs to eradicate the poverty status in the country by emphasizing on the development of socio-economic to the better health promotion of the people including the good quality of life in the safe environmental conditions. Therefore the HIA to the project development is an important tools and mechanisms to enhance the people good health quality. In the past we did not pay much attention to the HIA of such development projects that may impact to the people's health, therefore, the need for HIA policy in parallel with EIA is crucial. The formulation of the National HIA Policy has been carried out with the objective to strengthen local capacities in the emerging field of HIA and the introductory workshop on HIA was organized in March 2003, which included many key government stakeholders as attendees and in October/November 2003 followed by several continuous activities conducted respectively. Yet, in March 2006, the National HIA Policy has been approved by the Prime Minister with the clear mandates for the Ministry of Health to act as leading agency. In early November 2006, the National HIA Policy Launching Workshop has been organized with the participation by various ministries where the workshop outputs would be the keys results to develop and apply the National HIA Policy into practice. In December 21, 2006, the HIA management Unit and the technical back up team have been established with their authorized roles and responsibilities under the guidance of the MoH.

(A3.3) Knowledge Management Base for HIA Capacity Building in Thailand

Jittima Rodsawad

OBJECTIVES: Health Impact Assessment was recognized as a new approach in Thailand since 2001. Consequently, it so far became an essential part of Thai National Health Act in 2007. In respect to preparedness and responses in the health impact assessment development, Department of Health as an organization with this mandate realized that capacity building for public health and coordinated relevant agencies have been an essential key component.

METHODS: The two workshops based on providing opportunities to share and learn the knowledge from real life of health impact assessment application in wide range of current issues were delivered to public health practitioners as well as local administrative officers. Self-reported evaluation was administered to evaluate the effectiveness, and descriptive statistics was summarized.

RESULTS: More than one hundred of public health practitioners, local administrative officers and officers from relevant coordinated agencies attended the workshops. The self-reported evaluation indicated that participants had knowledge increased in health impact assessment concepts, principle and applications. The majority of participants noted that the workshops were beneficial and strengthened their confidence in utilizing such newly acquired knowledge. **CONCLUSION:** The results confirmed the need of continuous capacity building and provided the directions for developing a programme in responses for further health impact assessment development in the future.

(A3.4) HIA Capacity Building in New Zealand

**Matt Soeberg
Paula Hawley-Evans**

This paper will outline how the newly established Health Impact Assessment Support Unit in New Zealand has set out a strategic framework for HIA capacity building across the country. A baseline of HIA activity was completed in 2007 which indicated that a significant number of people had been trained in HIA but this did not translate into actual HIAs, with a small number of HIAs completed each year before 2007.

To build capacity and the evidence base on HIA a Learning by Doing HIA Fund was set up initially targeted at district health boards to increase the number of HIAs. The paper will outline the scope of the work undertaken in Round 1, 2007/08, and the proposals under Round 2, 2008/09. Specific HIAs funded as part of the Fund will be given as case studies. A key part of the development of HIA in New Zealand has been to strengthen the practitioner network through raising awareness about HIA, building partnerships, providing advice and support, regular communication and developing HIA evaluation methodology. This will also be outlined in the paper.

(A3.5) "HIA Capacity Building" as a Supportive Mechanism for Empowering Thai Society

**Sirivan Chandanachulaka
Theechat Boonyakamkul
Benjawan Tawatwapa**

Health Impact Assessments (HIA) are an emerging decision-making tool aimed at improving the development process by including the consideration of potential health implications with special attention to vulnerable communities and population groups in society. The Health Impact Assessment Division was established within the Department of Health (DOH) as part of the Government reform of 2002 and was recently revised again in 2007 to be the collective leadership on developing the Health Impact Assessment and Surveillance system in Thailand. The Division has tried to establish an HIA system in the DOH under relevant Acts and develop the mechanisms for HIA in Thailand; the Division's mandate with respect to HIA includes the formulation of national technical guidelines for HIA, implementation of a number of pilot HIA and their evaluation, networking and public communication, specifically capacity building on HIA.

According to the several relevant Acts: Public Health Acts which we cooperated with Ministry of Interior Local Civil Soc to strengthen HIA in local government by capacity building program and developed the HIA implementation in local government context such as HIA case study on market, HIA on Sewage disposal, and etc. as learning by doing process. Moreover, Environmental Acts which we developed the formulation of the HIA technical guideline and HIA guideline for the developing project, and the new Thai constitutions which we participated in the cooperation with many organizations and also other countries to develop the HIA mechanisms. The HIA capacity building program aimed to improve the technical knowledge and skill among personnel of practitioners or stakeholders on HIA by developed HIA training programs/modules for government officer, conducted training/ workshop on overview concept, methodology and tools of HIA including HIA application in health practitioners for instance; the risk assessment workshop, the environmental epidemiology workshop and the environmental health surveillance. Furthermore, we conduct the HIA technical symposiums on both of Energy Sector and Climate Change including the HIA knowledge management symposiums in 4 regional networking within Thailand for the HIA practitioners in the DOH, the local government, the university and the provincial health office which aimed to share information and data on HIA among network.

The lessons learnt from these HIA capacity building programs, recently DOH has received valuable reflections from local authorities, health sector and non-health sector on the future direction of HIA capacity building program due to the limitation in number of HIA professionals and less priority and awareness on HIA application in local government level. Therefore, DOH needs to support more local authority to apply HIA and empower the government sector on the driving HIA mechanisms in Thailand as well as training for trainers on best practice for delivery of HIA courses at the provincial level

(A3.6) Revitalizing Thailand's Community Healthy Impact Assessment

**Somporn Pengkam
Suwit Kularpwong**

Community Health Impact Assessment (CHIA) has long been conducted in Thailand. However the methodology is social norm and belief oriented. We believe in interconnectedness and pay respect to our ancestors spirit and nature. We consider natural resources as Divine God such as Mother Earth, Water God, Rice God and etc. Some part of Thailand, for example northeast, has its own traditional rule that no one dare to violate because it may cause disaster. With these beliefs, whenever a community initiates activities, villagers will discuss until all sides satisfy. Implementation is then made. This could be said that the social norms and beliefs are a guideline for HIA. The process of discussion invites villagers to participate in policy making at their community.

Since Thailand has geared up to modernization, the social norms and beliefs of the community have been devalued. High and complicated technology has replaced indigenous knowledge. Villagers have been disregarded from consulting their impacts because they are not considered as academic. Environmental Impact Assessment (EIA) has been introduced with a scientific base. Hence spiritual belief of the community has been gradually ignored. National Health Commission Office (NHCO) makes an effort to revitalize a process of community based HIA and elevate it to be a part of national HIA mechanism and system. As a result, Community Health Impact Assessment Development Project (CHIA) has been initiated with an aim to develop a concept and guideline for HIA at a community level. In addition, a community's capacity will be strengthened to conduct HIA and deploy it as a tool to create a community's well-being together with preventing and solving an impact from a public policy.

A4: HIA - Beyond the Limit of Imagination

(A4.1) Disability of Imagination

**Rungthip Sukkumnoed
Decharut Sukkumnoed**

There is a prejudice against the disabled people in the Thai society for their compassion and sin. Such prejudice results in that the disabled are treated as a social burden and marginalized, and are provided with little welfare as part of discriminatory practice. This bars the disabled from gaining an opportunity and accessing to rights in many aspects in comparison to ordinary people. According to the National Statistics Bureau in 2551, only 18.3% of the disabled whose ages are between 5-30 years,

have studied or used to have studied. And 35.2% of the disabled who are 15 years old up are employed. As a result, the vulnerability of the lives of the disabled and members of their families are not derived from disability itself, but environmental and social constraints, which make it difficult for them to make a living.

Entities including disability-oriented organizations have been trying to solve the problem by encouraging the disabled people to be self-determined under the concept of Independent Living. This concept is both a philosophy and a social movement whereby the disabled are to make their own decision, deem for equal opportunity in the society and are self-respected. In assessing the health impact of implementing Independent Living principle, it is uncovered that the disabled are more skillful in making a living and more self-confident. They also form groups of friends who they can exchange views and share sorrow, as well as being able to socialize and develop their leadership skills. The most important thing is the disabled and surrounding people become to accept and respect each other's dignity as a human-being. Thus, the society should change its attitude towards the disabled. This is because the disability is not the social problem, but disability of common imagination in the society fetters the disabled's health conditions.

(A4.2) Peer Support Group: Symbolic key to open dependent lives of people with disability

Athipan Wongwai

Argument: Peer Support Group, PSGi is a symbolic key to changing closed, dependent lives of people with disability to more open, independent lives. PSG is an empowering process which brings about a disability leader, an active self-help group and a disabled people organization to work with other agencies responsible for promoting health of the population.

(A4.3) The Gap between Medical Model Concept and Social Model Concept in Health Service for Disabled People

Praew Eiamnoi

Taking care of, protecting, and supporting the health of people like kids, elderly, and disabled people are always perceived as a responsibility of professionals in the main health service provider. Also, disabled people are always perceived to be a abnormality. Therefore, management of the disability is a process to make it normal so called rejuvenation. However, such concept does not focus on mental aspect. When the world has changed, organization of disabled people are driving for better lives of disabled people under a concept called social model focusing on driving disabled people to participate in taking care of disabled people. Nevertheless, health service providing is not a main issue compared to other issues such as career, education, etc. In addition, they lack of knowledge in health rejuvenation which is required in service system such as treatment of bedsores, urinate tube, watching on illness complication, etc. On the other hand, the current medical service system is trying to understand and change the working concept by focusing and attempting to understand more on dimension of socially mental condition of disabled people but they still lack of attempt to work, connect, and build on the participation of organization of disabled people as they should be.

As a consequence of the gap, it leads to limitations to understand disabled people's health service providing. Such topic need to be discussed more in order to find a solution to manage and build on coordination between health service provider system and organization of disabled people and try to minimize such gap.

(A4.4) The Health Care of Phutthamonthon Independent Living Center

Santi Rungnasuan

Argument: The independent living center conducted by disabled people self-help group still could not handle all their health problems. The strength of independent living skill training focus mainly on spiritual empowering and physical functional skill rather than self health care skills. There also is not a connection between independent living center and health care provider.

(A4.5) Who should be Responsible of the Health Condition of Disabled People?

Arunwadee Limunggul

Argument: The 2007 constitution and the Universal Health Coverage Acts, 2002 have not quarantined health equity for people with disability. Access to health care in terms of traveling, physical environment and basic amenity in health care setting, and communication and information access are unrecognized barriers.

(A4.6) Buddhist Temple and People with Disability: Mediator for inclusion

Sarinee Kaewsawang

The both of physical and mental rehabilitation process is very important for stroke survivors and people with disability, who are recovered and participated in their previously situation. Currently, the gap of long-term rehabilitation in a hospital, physical limitation and cost of transportation for services are impacted their health and caused in term of the health care management. The health care system is interest in intermediate care- services aiming to provide choices other than inappropriate care in hospital- by popular health sectors within the community setting. Furthermore some private organizations, Buddhist temples, are giving many services such as folk and Thai massage, which a monastic in Thai society for the commune, stroke survivors and people with disability. In addition, these operations are facing some problems such as the community, the local government and the health sectors are not continuous supporting and promoting for a long-term rehabilitation.

The health promotion for people with disability in Thai society program and the institute of community based health care research and development are concern about these problems. They were a comparative study of five Buddhist temple services providing co-ordinate, multidisciplinary treatment for stroke survivors and people with disability. This study aims to provide a community based alternative to care for a decision making process of the stakeholder. To develop an appropriate intermediate care system in community setting ought to collaborate with the four parts: Buddhist temple works as a mental rehabilitation, the health sectors work as a rehabilitation co-coordinator, the local government works as a social rehabilitation, and the researcher works as a HIA team. It is important to feedback for empowering- especially of mental and social rehabilitation. To confident of reached the stroke survivors, people with disability, family and carer in the community participation and improved their quality of life.

(A4.7) Art & People with Severe Disability

Nanta Samphong

Severe disabled people from a Project of Join Learning to Empower the Society has a co-objective to create art as its main activity by organizing Peer Support Group (PSG) to create connection and continuity for expanding the skill development result in living through ILP to sever disabled people to change their idea to be more creative, decisive, confident, and expose to the society. There is art community network helping them to release their emotion and mind. Art can help them restoring their mind as called iART-therapy as a pure art created by practice and learn to adapt themselves to have their own proud (from the art gallery show) and to have self-esteem and to desire to develop and change personal attitude among family members and disabled people because art is a tool to achieve all things. Managing art ILP service to severe disabled people achieves objectives of disabled people by designing artwork independently and design their lives to be more objectives which can reflect from their working experience and artist case study. This can communicate and create identity and positive culture of art creative community group. It is a showing of fight by presenting disabled people's body through media based on using culture and media to present selective behavior/ bias thinking that disabled people are encountering. This helps disabled people to create their identity and group up themselves to expand the network and prototype to develop their capability in learning and empowering into personal and network independence. It also leads to create power to reflect experience among groups and pursues to change.



(A4.8) A Gap to Be Fulfilled: Disability field and environmental work

Kamompun Punpuing

There are many groups of people who are effected from environmental conditions; such as from pollution, chemical leaking, food contamination, or accident: having physical or mental impairments, in a medical field called disability. Some people bring the issue into legal process, proving the linkages between environment and the impact and asking for rights to compensation. The process actually takes long time more than a year. During the process, people and their families may not have opportunity to go through learning processes to build up new life skills, facilitating living with disabilities. As a consequence, they can not manage efficiently with obstacles in health care, economics and social matters. Also the society as a whole loses opportunity to obtain productivity from human resources.

In Thailand, the development work on disability is mainly concerned in medical and social welfare field. It is hardly related to environmental work. Self-help groups of people with disabilities and the family can participate creatively in health impact assessment work, such as protection of disability. If the disability occurs, the group can provide services to develop and learning process to people and their families about living with disability. Furthermore, it can be an eye-opening scope of learning, raising awareness about disability and danger from environment and new roles in advocacy and participation in environmental movement as it will have an impact to all people in society.

(A4.9) Family and Community Network for Developing Capability of Disabled People

Supol Boontham Ubonrat Nammaphol

In a condition of family having disabled kids or children with any cause, it can lead to sadness and a burden to the family. Helping disabled children to develop them and able to take care of themselves need family, society, or community they live in. By arranging a network to take care and exchange experience and knowledge and give spirit.

Special education center of Nakorn Sir Thammaraaj, who has a role and responsibility to provide primary help for disabled children since their born or first found, has arranged an activity to group up as a family and community network in order to provide help and develop capability of disabled children in level of sub-district, district, and province by grouping up for family and community with a venue for the meeting. There is a lecture, activity, role play, and setting up a friendly home environment for helping disabled children. The role play, bringing the parents to visit the members' homes, and family camping can create knowledge and understanding to motivate development skills of disabled children, which can provide knowledge and skills to the parents and relevant people in the evaluating their disabled children development as per the academic rules. In addition, there is an activity to provide knowledge in law, benefits, and access to the public service.

The previous project evaluation found that family, society, and community have good attitude and realization to accept and give opportunity for disabled people to participate in the activities of the community. Thus, since most disabled people have good health such as disabled children receive help and care to develop their skill at most capability and help them to study in further level. Disabled people can earn themselves for a living. Therefore, disabled people and their family are no longer the social burden.

(A4.10) Assistive Technology Center and Quality of Life for People with Disabilities

Suleepan Solanda

Disability usually restricts the involvement in meaningful social events of people with disability. It sometimes causes difficulties in even performing the activities of daily living. Rehabilitation training with appropriate assistive devices could make them overcome all difficulties. But with limited knowledge and financial resources, people with disability such as mobility disability receive only physical therapy and standard assistive devices such as gait aids or wheelchair.

The appropriate assistive device could come from specific process of assessment, selecting, prescribing, fitting, training and long-term maintenance. The functional outcome in term of ability to perform some specific tasks for meaningful social

involvement must be evaluated at the end of service.

In this regards after twelve years of the provision of rehabilitation and devices, the real services have been developed by the collaboration of the Sirindhorn National Medical Rehabilitation Center and the National Health Security Office. Eleven centers of assistive technology service have been established and developed as the service network. By this way, not only people with disability would gain functional ability and opportunity in social participation but also the limited rehabilitation resources would be used more efficiently.

(A4.11) Empowering People with Disability: Public policy for basic social welfare

Kitipat Nontapattamadul

Public policy concerning with disabled people always perceive disabled people as disadvantaged group. In fact, everyone in the society has a tendency to become disadvantaged group in one aspect. However, the process of seeing disabled people usually attach with the word of disadvantaged people and make them la beggar-waiting for help which is a repetition the image of disabled people to become worse and worse in sympathetic focused. However, it is found that there is change in strong way under the process of asking for equality and deep understanding for capability and potential and opportunity for disabled people to live freely and not as the social burden, nevertheless, to become an important role to develop the country's economy, society, a nd politics.

The fast development concept of independent living, the grouping of disabled people organization and other relevant network to drive and change the public policy has been growing accordingly. Important evidence is upgrading a public sector concerning disabled people to be a department for the first time i.e. National Office for Empowerment of Persons with Disabilities. Also there is a policy passed as a law to take care of disabled people based on a concept to step away from sympathetic focused i.e. Act to promote and develop disabled people's lives B.E. 2550 with a new paradigm to drive and change sympathetic focused to be equity focused.

The public policy is a policy driven and changed by the process participant (i.e. Policy Stakeholders). It can be said that the social movement is a challenge and drive for the deep sympathetic focused. The pattern of such social movement under the dimension of public policy based on such paradigm are identifying various strategies, connecting disabled people's network, and bringing the problems into the process by identifying a policy and make it practical.

(A4.12) Equity among Differences

Wachara Riewpaiboon

As equity means no gaps or inequality among groups of population who have different health conditions and ways of living in the same society and health is considered as basic human rights that should be accessible to all. In order to make health equity is more achievable, the concept of health should be extended to cover the more comprehensive activity and participation dimensions. The activity dimension would reveal the needs for responding to the personal demands in improving personal capability whilst participation would reflect the needs for adjustment of environmental context in both physical and cultural terms. Whenever such the needs are fulfilled, people living with any kinds of disability would be able to live their lives more meaningfully and satisfactorily. Thus, a balance of health condition is achieved.

The existing health information system could be able to demonstrate only the situations on mortality and morbidity while disability was commonly described in terms of only impairment of the organ function but not the personal activity and participation. Therefore, disability-specific health needs are usually beyond recognition. The rehabilitation service delivery has been operated in very small proportion, 2.8 and 5 % of total out-patient and in-patient hospital services in the year 2005-6. This was consistent with the less than 1 % of universal health coverage budget allocated per year.

In conclusion, the traditional beliefs influencing trust on personal potential and social role expectation of people with disability usually block the imagination of health needs of such the people. Therefore, the disability-specific healthcare needs are still not available and health is not equitable accessed to all. In this regard, the active participation of representatives from each different groups of population should be enhancing in the processes of needs assessment, healthcare design and resource allocation.

B1: HIA and Water Resources Management

(B1.1) Health Impact Assessment on Proposed Dam Developments: A Malaysian methodological perspective

Mazura Sahani
Hidayatulfathi Othman
Shafariatul Akmar Ishak

This paperwork is a methodology on Health Impact Assessment (HIA) in proposed dam developments in Malaysia. The aim of this assessment is to evaluate the potential impacts of the proposed dam development to the health of the local population (residents in the settlements within 10 km radius of the proposed area). The assessment is focused on community health, parasitology, entomology and health risk assessment. In the health impact assessment methodology, the existing human environment and the prediction of the health impact from the proposed development are the methodology being applied. The current health status, socioeconomic, and other health determinants provide the baseline for the existing health status of the local affected population. Impact assessment of any water resource development mainly focused on the vector and waterborne diseases. The vectors are surveyed using the three different techniques; bare leg catch, light trap and larval survey. Some changes in the distribution of mosquito species that taken placed occur could be due to changes in mosquito habitat. Any anthropological activity could increase the potential breeding habitat of Aedes mosquito which could expose the locals to dengue and DHF. For waterborne diseases, the parasitological survey is carried out and the quantitative health risk assessment is applied for water resource development of water consumption. The challenges for health impact assessment on the water resource developments are the quantitative risk assessment for the vector- and water borne diseases which urgently need the attention to be developed. The emerging and re-emerging diseases also need to be addressed and co-operations from the health authorities for the surveillance data are crucial.

(B1.2) NTPC Hydroelectric Project and HIA – Lessons learnt and future

Pany Sananikhom
Aeoudom Silavong
Lattavanh Lattavong
Surinder Kaul

The Nam Theun 2 Hydroelectric Project (NTPC) presents a unique opportunity to develop a commercial enterprise with fully sustainable development opportunities to improve the lives of the Lao people in the Project Areas. Three and half years on, since the construction began, the dam construction is complete and power production will start by the end of next year. Approximately 7000 people are impacted. This population has been resettled in 16 villages; with land entitlements and a variety of livelihood opportunities, better houses with electricity, safe water supply and sanitary facilities; public facilities like schools, community halls and health centers and roads that are passable throughout the year. The Public Health Action Plan is in full implementation and villagers are experiencing the benefits of the program. Paper will present salient features of program interventions and its effect of the population.

(B1.3) No Short – cut for Empowering People: HIA of Thachin short cut canals project for flood protections scheme

Prachem Khonthet
Prapatsorn Khonthet

In August 2006, the long, heavy rains occurred in Chao Praya River basin and its branches. Moreover, many dams in that area also drained with over-abundant water. Therefore, the way to defend Bangkok, the capital of rising economics from being flooded, is draining water to Thachin River basin. All of these reasons bring Nakhon Pathom province and Suphanburi province into the disaster area, called The Policy to be Flooded. 11th February 2007, the Department of Irrigation employed Thammasat

University and Asian Institute of Technology to research how to develop Thachin River basin by using successful process of Short Cut Lad Pho Canal, located in Samutprakram Province (in the case of draining water). The result is to dig two new canals in Nakhon Pathom province, a mega-project which may affect the health of Nakhon Pathom's people.

We love Thachin River Society Nakhon Pathom disseminated the information to people, empowered people for searching for information, making process for studying, which was used in assessing how this process of digging 2 new canals may have impacts on health and what other alternatives could be done. The alternative which is to dig the river from Phopraya Watergate to Thai Gulf (2 km.) was accepted and the result is almost the same as to dig a Short Cut Canal. But the ecosystem and people's way life in this area will not be destroyed.

The leader of consultant team consequently affirmed that there would be no digging of the Short Cut Canal. Also the representative of the Department of Irrigation responded that if this Mega Project had no benefit but effect to people, it would not be proceeded. The result of creating this knowledge process by the people affects the solution proposed by Thammasat University and AIT and has helped halting the digging of the Short Cut Canal Project in Thachin River which would otherwise affect local ecosystem and people's ways of life.

(B1.4) Fecal Contamination and Community Health Impact Assessment (CHIA) of the Mekong River in Chiang Rai, Thailand

Voranuch Wangsuphachart
Narong Surinkul

There is no study/spatial data available for fecal contamination and HIA in Mekong River. We collected water samples from 10 sampling points along the Mekong in Chiang Sean-Chiang Khong during August, 2006–October 2007. Sampling point started from Nam Ruk at golden Triangle to Ban Jam Pong. The last sampling point before it runs into Laos PDR. Eight samples were river water, the other two were at discharges into the Mekong. Physical (pH, temperature, conductivity, DO and turbidity) and biological (total and fecal coliform, E.coli) parameters were analyzed. Concentrations of all parameters increased significantly through seasonal changes in all sampling points. For river water, averaged pH, conductivity and turbidity increased from 6.5–7.5; 40–180 mS/cm; 60–280 NTU. Averaged total coliform (TC) and E.coli increased from 1000 to 2000 MPN/100mL, and 20 to 100 MPN/100 mL. Discharged canals showed similar trend as the Mekong. Averaged TC and E.coli changed from 5,000 to 10,000 MPN/100 mL and 20–2,600 MPN/100 mL. At drainage system, concentrations of TC and E.coli were found at 54,000 and 260 MPN/100mL in the rainy season and 620 and 20 MPN/100 mL in the dry season. These have reflected high contamination from nearby local domestic wastewater. Lack of sanitation system suggests fecal contamination in the Mekong River and can pose possible risk to human health. Need assessment on conducting Community-HIA (CHIA) and dialogues were initiated at municipality level. Main focus is on functioning of domestic wastewater treatment system or lack of it. Small group discussion among interested parties was performed. CHIA–baseline and community profile on current health and wellbeing of local and affected community will be conducted, including social, economic and environmental conditions by community network and research group, given funding from NHCO – HPPF

(B1.5) Hydropower Development and Indigenous People in Sesan River, Cambodia: Impacts, resettlement, and compensation

Meach Mean

Thousands of people, especially indigenous people, have lived and depended on natural resources along the Sesan River in northeastern Cambodia, for hundreds of years. However, in this last decade, the river has been negatively impacted by the 720 MW Yali Falls dam and other hydropower dams being built upstream in Vietnam. These dams were built without proper EIA and have resulted in changes to the rivers flow and water quality. This also has created serious impacts to the natural resources, and the livelihoods and health of the communities who live alongside the river.

Since 1996 many communities have experienced serious flooding. Cattle have died and washed away into the river, people lost their rice crops and people have died. Irregular water fluctuations are common. The water quality has worsened. Communities can no longer drink the water from the river. When they bathe in the river, they often get skin disease and illness. Environmental impacts of the dams have included river bank erosion and crops being destroyed. Communities have reported that fish catches

have declined. Because of these impacts, some communities have lost their livelihood, food security has become a problem and people have become poorer.

Despite the suffering of the villagers on the Sesan River, Cambodia may soon build the 420 MW Lower Sesan 2 hydropower dam with the financial and technical assistance of Vietnam. This dam would be located in Stung Treng province and is currently being studied by Cambodian and Vietnamese consultants. Approximately 5,000 people are expected to be resettled from this dam. Land conflicts may also result from the resettlement. Impacts from this dam are expected to be similar to Vietnamese dams and will further impact communities, as they have yet to receive compensation or mitigation from the upstream dams.

B2: HIA and Urban Development

(B2.1) Urban Developmental Policies Review in Malaysia

Rozlan Ishak

Malaysia is seeing rapid urbanization occurring in this country since the last 2 decades, resulted from rapid economic growth as like other countries in the Asian Region. This rapid population growth, urbanization and industrialization have greatly affected their quality of life and wellbeing of the urban population because of the deterioration in the quality of the living standard and social environment. These scenarios are also faced by many cities in the Asian Region where rapid and unplanned expansion of cities and urban areas have contributed many potential health impact situations especially when some hazardous installations or plants without HIA / EIA were located near residential and public facilities such as school, hospitals and park parks.

The task to rectify such problems is enormous and a step forward is necessary. Therefore, there is a need to review and conduct HIA / EIA on existing policies and developed audit mechanism that will safe guard public safety and protect human health from potential disaster either from hazardous situations.

Long term monitoring of such policies and early identification of policies failures should be incorporated within the HIA / EIA system so as there will be minimal health consequences affecting the public and early remedial measures taken to correct such mistakes. Such mechanism needed strong political support and commitment especially by the cities administrators and the multi government agencies

(B2.2) Health Impacts of Indoor Air Pollution in Two Provinces of Lao PDR

Tayphasavanh Fengthong
Lidia Morowska
Kerry Mengersen

The objective was to assess the health impacts of indoor air pollution. A case-control study nested within a cross-sectional cohort study was adopted. The case-control study design comprised of cases (being children aged 1-4 admitted for ARI), and controls, matched by village, location of kitchen and age. For each house in the case-control study, the PM10, NO2 and CO, were conducted. The cross-sectional study design comprised of a survey of all members of the households in the case-control study and additional households from the same villages. Lung function measurements were conducted and questionnaires gathering information related to indoor air factors, exposure and respiratory and cardiovascular health were also administered. The study was conducted between December 2005 and April 2006 and comprised of pollution measurements within 199 dwellings, in nine districts within two Provinces (Vientiane and Bolikhamxay), in Lao PDR and included 80 cases and 119 control households, as well as an additional 157 households enrolled in the cohort study. The analysis was based on a total of 480 children from 355 households and 388 women from 285 households.

The results showed that the concentrations of PM10, with mean values of 1295g m-3 and 1060n 77g m-3, and the concentrations of NO2, with mean values of 1196 77g m-3 and 574n 77g m-3 in Vientiane and Bolikhamxay, respectively, were extremely high. The CO concentrations were relatively similar, with slightly higher concentrations measured in Bolikhamxay (613 7n77g m-3) than in Vientiane (538 7n77g m-3). The findings also indicated that the time spent close to a fire was positively associated with increased risk of many of the health outcomes of both children and women. The pollution concentration was

found to be higher in houses without a chimney compared to houses in which cooking occurred on a stove with a chimney.

(B2.3) HIV Prevention and Campaign on National Road No. 8 Construction Project

Somsanouk Vongsomphou

The Lao PDR remains highly vulnerable to the spread of HIV due to a number of factors. A 1999 UNDP study identified an increasingly efficient land transportation network, interlinking all five of the neighboring countries of Lao PDR, and by extension, all of mainland Southeast Asia, as a major cause of concern.

Mobility and HIV vulnerability is now firmly on the political agenda resulting in Governments, including the Lao Government, supporting the integration of HIV prevention program to be developed alongside the planned infrastructure project to minimize vulnerability of those living and working along Road No.8. This includes local communities, incoming construction workers.

The MPWT has accepted the need to conduct HIV awareness and build community resilience in association with road construction. Within the MPWT, the Environment and Social Division (ESD) in Road Department now aims to build its capacity to perform this function.

The Road Project started in February 2002 until 2004. It was implementing in Km 20 (Khamkuert District) of Bolikhamxay Province, the length of road is 81 km (from Laos to Vietnam border), throughout 21 villages, 3,459 households. During the project implementing the HIV campaign and awareness was parallel implementing in 6 worker camps (300 people), 100 service women and Youth People in villages along the road side. HIV study began surveillance in January 2002 until at the end of Road Project.

Objectives: Awareness raising on HIV/Aids and STI for Lao and Vietnamese Workers in Project Camps, Service Women in Restaurants and Night Clubs, Local People lived along the Road No. 8. The Project can found the risk behaviors of workers, service women and local people near the project. The lesson learns from this study also gaining.

(B2.4) Effect of Particulate Matter in Asian Dust on the Peak Expiratory Flow Rate of the Schoolchildren in Inner Mongolia of China

Xiaochuan Pan
Dae-Seon Kim
Xiaofang Ye

Some studies have proved that the Asian Dust has adverse impacts on the environment and human health, but it remains unclear that effects of particles from Asian Dust on the lung functions of the exposed schoolchildren. To explore adverse effects of Asian Dust on the pulmonary functions of the subject schoolchildren, a panel study was conducted for 107 schoolchildren in Inner Mongolia of China. The peak expiratory flow rate (PEFR) of the subject children was measured by themselves three times a day for 40 days in the spring season. The daily ambient concentrations of particulate matter < 2.5  m (PM2.5) and particulate matter < 10  m (PM10) in aerodynamic diameter were measured and data of air pollution and meteorological conditions were collected. Linear mixed-effect models were used to estimate the association between air pollution exposures and PEFR values after adjusting the age, gender, BMI, and disease history of subject, as well as for temperature and relative humidity. We found that the mean PEFR value was significantly decreased in association with daily average PM2.5 and PM10 exposures in a lag 0-4 days in our models. For a 10ug/m3 increase in daily PM2.5 and PM10 concentration, the mean PEFR value of the children decreased by 0.255L/min and 0.177L/min, respectively for a 2 lag-day. It suggested that the level of particulate matter from Asian Dust is closely associated with a short-term decrement of PEFR value.



B3: HIA and Industrial Development

(B3.1) Health Impact Assessment due to Producing Industry

Nguyen Thu Ha
Ta Tuyet Binh

The purpose of this study is to assess people's health impact due to producing industry. Some methods were used: to collect a data about working environment of some enterprises belong to the industrial zone of one province in Vietnam during 4 years recently and investigate some effects on the people's health in community.

The results showed that: some working environment factors exceeded TLV were temperature (37.5%), lighting (46.5%), noise (41.9%) and toxic gas (33%). Samples of the humidity, the air velocity and the dust at the time of the measurement were in allowable criteria. 3428 subjects, who lived in the same area were interviewed. Among them 192 subjects had to expose to chemical when working. The mean of age in exposed group was 41 ± 8 and that among non-exposed group was 49 ± 12 . The investigation showed that the rate of subjects having an irritative symptom of body organs in exposed group was higher than that among in non-exposed group significantly ($P < 0.001$). The mainly symptoms were that eye symptoms (eye stinging, running nose 30.7% and 14.0%; eye itches 47.9% and 26.4%; eye red 9.4% and 3.4%), nose symptoms (nose stinging, running nose 30.2% and 15.8%; nose itches, sneezing continuously 26.6% and 16.1%); throat symptoms (throat itches 52.6% and 35.7%; sore throat 55.2 and 34.1%); nauseating 4.2% and 1.7%; tightness in chest 16.1% and 7.4%. However, there was not the difference of the disease rate between two groups ($P \geq 0.05$). The study also finds out the relation between feeling of polluted environmental degree and irritative symptoms clearly ($P < 0.001$).

Specific methods are recommended and applied to improve working condition of the workplace and to enhance the health of community.

(B3.2) Rayong Paradox

Wipawa Chenuchit
Suphunnee Saringkhan
Suphakit Nuntavorakarn

The development of petrochemical industrial complex in Rayong province, particularly in the Mab Ta Phut area, has begun since 1982. Resulting from the rapid industrial growth, Rayong province's Gross Provincial Product (GPP) has been sharply increasing. Its GPP per capita also ranks the highest in Thailand. By the year 2007 the province's GPP per capita is 850,253 baht per year per head, while the country's average is 109,440 baht per year per head.

Several years ago, it has been proved to cause severe impacts to the environment and people's health, while the socio-economic transformations following the fast growth of the industries are increasingly evident. According to development theory, it is generally assumed that development will bring a better quality of life, but in Rayong province local residents have experienced a large gap in income distribution as well as various social problems including HIV/AIDS, crimes and drug abuse, and the decline of social cohesion and some traditional values. A question which emerges from this situation and which is a key research question of the study on Rayong Paradox is whether development is necessarily and truly equal to better quality of life.

To answer the question, a series of researches and public communication and policy deliberation processes, including the HIA of development policy alternatives in Rayong province are planned. This paper will discuss and elaborate more on the health and social impacts from industrial policy and the use of HIA and other tools such as health assembly to propose alternatives for healthy public policy in the development

(B3.3) A Health Impact Assessment on the Bangsaphan Iron Smelting Project in Thailand

Arpa Wangkiat
Penchom Tang

The prospective health impact assessment (HIA) will be conducted to identify the potential health impacts arising from the Iron Smelting development project planned to be built in Bangsaphan district, Prachuapkhirkhan province, Thailand. The Smelter with the capacity of five million tons per year of steel production will be located approximately 300 kilometers south of Bangkok and 800 meters west of the Gulf of Thailand. The study will compose of a team of multidisciplinary professionals who will oversee and conduct the HIA using a participatory action process. It plans to analyze the different sets of environmental samples from water, soil and air being collected in the area to estimate the environmental exposure to the pollution. Moreover this impact assessment will study further to other related areas that would be one way or another affected by the implementation of the project; that are the local ecological system and environment, e.g. wetland, coastal area; the local socio-economic aspects, e.g. community livelihood, tourism and fishery; and the public facility investment, e.g. local infrastructure construction to facilitate the corporate investment in the targeted area. The comprehensive social impact will be assessed through studying of possible changes happening in the local communities that would be the adverse effects caused by both natural and physical environment impact. Social and economic consequences of persons and communities whose surrounding environment would be affected by the proposed project will be comprehensively analyzed. Meanwhile the health study will be quantified in both the exiting data and potential effects. Moreover due to the fact that Thailand has never have the direct experience of the steel smelting development, it is essential to explore the international experience on the health effects caused by steel smelting cases. Finally, the systematically assessment of possible health impacts based on a model

(B3.4) Health Impact Assessment of the South Pradutao Oil Field Development Project in Phitsanulok and Sukhothai Provinces, Thailand

Jaruwan Tabthiang
Boonrak Nuansri
Suthon Pengkhum

The objectives of this descriptive study were to: 1) screen, analyze and collect project site data, 2) establish health relevance of South Pradutao oil field development project in Phitsanulok province (Bangrakam district) and Sukhothai province (Kongkralard district), and 3) develop health impact assessment (HIA) system.

The study was conducted by collecting data from households located within 5 kilometers away from targeted area with sample size of 400, for 7 months from February to September 2008, by using a basic survey form for HIA and focused group discussion. Descriptive statistics and content analysis were used to analyze the collected data.

The results revealed that the project was in phase II with 9 major activities and 4 stages for petroleum production. The critical health areas of concern depended on activity of the project. There were significant changes in the environment, and mental health status. Exposure to potentially hazardous materials was found most in project workforce. The stakeholder group discussion showed that there were 31 items to be concerned, in which 16 out of them (51.6%) can be eliminated in a short term. The assessment of the health impacts of these 4 main factors; quality of life, livelihood, social and culture found that there were both positive and negative effects. The HIA type to be considered was comprehensive HIA.

In conclusion, the implementation of this project posed health impacts on the population in the site and surroundings. Thus, the next steps of HIA process which were scoping and appraisal should be conducted. It required all partners to work together in order to meet the goals of increasing positive health impacts and decreasing negative health impacts of this project as much as possible.

B4: HIA and Agriculture Development

(B4.1) A Case Study of Farmers Practice Regarding the Use of Pesticides and Other Agricultural Inputs on Farmers' Health and Quality of Life of the Farmers Elderly in Sansai, Chiangmai

Injai Wongratanasathian

The purpose of the study is to examine, using qualitative methods, how farmers use and apply agricultural chemicals to gain a

better understanding of how contamination occurs in Sansai Sub District, where more than 90 percent of rice farms used pesticide. This study is conducted through focus group, in-depth interview and participant observation. In this regard, ten well-known practitioners are selected as case studies. It is discovered that some villagers choose to go first to local practitioner as in the past. In case they did not get cared, they will go to see the modern doctor. Otherwise, they may use both services at the same time, but in different contexts. Each farmer had learned and accumulated over times his knowledge and experiences in curing diseases either through direct practice or from kinsmen or elderly healers in face-to-face learning manner. Such practice is usually memorized rather than recording, and it is selected, modified and applied according to individual case. The result of this study showed that most elderly Farmers in Haiy Kaing, Sansai had a high level of quality of life 46.3%. The associated factors related to quality of life in elderly Farmers were male age less than 65, academic level.

(B4.2) Empowering Backbone Collaborations for Healthy and Wealthy Co-operations

**Parichart Visuthismajarn
Krit Prathanrasnikorn**

Bang Kaew community, Pathalung Province has extended a great cooperation to preserve a local variety of rice and to bring back the original organic farming. Data were collected from 2 villages in Khao Chaison district, through document research, field survey, in-depth interview, local forum, and focus-group. During September 2007 to September 2008, three formal meetings were held to solicit from local people their sentiments about the co-operations. The co-operations led to the following achievements: 1) The local people maintain their old tradition for young generations to realise the value of rice, with wealthy family; 2) Community members bring back the Mae Pho Sop, a goddess who is believed to take care of paddy fields; and 3) n Tham Kwan Khaoi, the rituals performed for rice, with healthy community; 3) Co-operative members can preserve the traditional wisdom such as Restoring traditional farming methods and tools, focusing on rice and producing hand – milled unpolished rice by using traditional tools; 4) Members of the social groups have better knowledge of local variety of rice; 5) There are better communication and coordination between community leaders and members; 6) Community members become aware of the necessity of environmental conservation, resulting in better environmental quality, more variety of rice and yields, and less farming efforts. For more sustainable communities, people to be connected as a social group should truly share a vision, and a HIA capacity building and networking should seek to promote farmers as Backbone in which local people are truly proud.

(B4.3) Go Green and Healthier Agriculture: Health impact assessment of chemical agriculture in Bor Ngerm Sub District Administrative Organization, Pathumthani

**Thida Kriwattanaopong
Chairoj Khummongkol
Pimporn Somboonyosdech
Duangjai Rungrojcharoenkit**

Thailand accepted the Green Revolution with the aim to increase the productivities in serving the export oriented economy. Without adequate, effective control mechanisms, high yield does not end up with better quality of life of farmers as expected. There are many evidences showing chemical monoculture has pushed farmers into debt circle and health problems. The demand for improving policy process towards more sustainable agriculture has been echoed in Thai society. According to the risk monitoring data of cholinesterase enzyme in Bor Ngerm Sub District Administrative Organization conducted in 2007, it was found that 25.81 percent of sampling group had high risk from pesticide and 3.76 percent was unsafe. Approximately, this small community annually spends 70 million baht for chemical inputs. Under this situation, local government tries hard to promote organic agriculture as a solution. However, the danger of pesticide is not enough to convince farmers to shift their production pattern. Therefore, HIA applied in this case is not only designed to reflect the health impacts of pesticides but also all concerns given toward a new production pattern. Basing on the participatory approach, farmers played a critical role in assessing health impact and their well being. All concerns raised by farmers are used as key input for designing the supportive skills helping them achieve healthier production. As a result, local farmers are encouraged to create many constructive activities supporting their transition for example the establishment of organic farmer group named 'Kaset Chueng Bani' and demonstrated fields for organic rice etc. These attempts proved that HIA could help local government to successfully translate the idea of organic agriculture basing on the balance of economy, environment and health into real practices.

(B4.4) Biological Diversity Index in Rice Fields with versus without Pesticide Use

**Supaporn Chaigarun
Nusaraporn Kessomboont
Pattapong Kessomboont
Peerayong Khangkhan**

Introduction: Biodiversity might be used in HIA process since it might affect quantity and quality of human food supply – an important health determinant. The degree of biodiversity can be presented as Shannon-Weiner Index (H_i). The index measures both the total number of species in a population and the degree of evenness of the species relative abundances. The pilot study explored the use of biodiversity index as a measure in HIA of pesticide use in rice cultivation.

Objective: To compare the H_i between pesticide used and unused rice fields.

Methods: A field experimental study was performed in the wet season during September 2007–August 2008 at Nampong district, Khon Kaen province, Thailand. Sweep net sampling method was used to collect insects from 2 rice fields according to the standard manual for testing insecticides on rice fields developed by the International Rice Research Institute. A total of 600 samples were collected within 3,200 sq.m. from the 2 sites. Finally, species and number of arthropods were calculated for Shannon-Weiner Index (H_i).

Results: Both of insect pests and benefit insects were found in the 2 rice fields. However, it was found that the aboveground arthropod diversity in the rice field without pesticide use had a significantly greater degree than the rice field with pesticide use (H_i = 1.65 and 1.22, respectively; p<0.05). Conclusion and discussion: Pesticide use significantly reduces biodiversity. Further study on relationship of the biodiversity index to rice yields, food supply, health determinants and health status is needed.

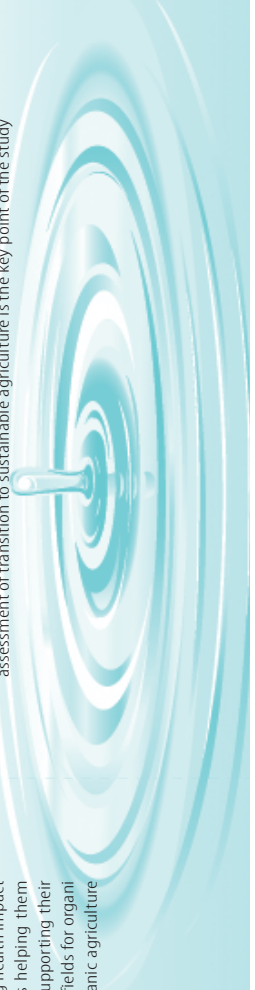
(B4.5) CEO of the Field: HIA of transition to sustainable agriculture

**Buddhina Nuntavorakarn
Duangjai Rungrojcharoenkit
Thunyaporn Surapakdee**

Nowadays it is clear that chemical-based agriculture has caused adverse environmental and health impacts to the people and Thai society as a whole. There have been attempts from several groups of people in the society seeking for sustainable agriculture. Even though sustainable agriculture ideally has more positive impacts than chemical agriculture, but in practice it is very hard for farmers to change their agricultural practices. Since the transition to sustainable agriculture is the critical period for farmers who would like to quit chemical agriculture.

In order to understand how to shift their mode of production from chemical to sustainable agriculture, HIA has been applied in this case. The study shows that farmer needs to control and manage their ehealth capitals, which covers natural, physical, financial, human and social capitals. Therefore, they must be CEO of the field instead of following market incentive only. Due to capital is limited; therefore managing health capitals properly is significant for farmers who are in the transition period. Thus competency in managing health capitals is vital for those who would like to change to sustainable agriculture as it will cause different health impacts to them.

This paper aims to explore how farmers manage their health capital in order to shift their mode of production from chemical to sustainable agriculture and what are significant health impacts of those who are in the transition period. Health impact assessment of transition to sustainable agriculture is the key point of the study



(B4.6) Illusions and Realities of Free Trade Agreement: Lesson learnt from HIA of Thai-Chinese FTA on fruit and vegetable agribusiness

Duangjai Rungrojcharoenkit
Decharut Sukkumnoed
Rungthip Sukkumnoed

After the stagnation in the WTO negotiation in 2001, there are many attempts tried to promote free trade agreement as a function to decompose trading barriers. To respond such global movement, Thai government signed FTA with several countries with the belief that Thai economy will be speeded up from the increasing of trade flows.

The experiences from the FTA between Thai and China implemented since 2003 show that increasing trade flow does not lead to the prosperity as expected. Instead, it also causes serious concerns in its consequences especially the impacts on Thai small farmers in the fragile fruit and vegetable agribusiness.

This study finds that the farmers and consumers do not gain the benefit from this agreement as campaigned because of changes in the supply chains. The farm prices of some main commodities dropped significantly due to cheaper imported products and lower bargaining power in the group of small farmers. Various local entrepreneurs lose their businesses in the new market structures and the mitigation measures released by the government could not help them get through all the difficulties as planned. While, the imported fruit and vegetables increase their market share impressively, they do not lead to higher consumption and nutritional improvement of Thai consumers. Without proper protective and supportive mechanisms, FTA would not yield the health benefits for Thai fruit and vegetable farmers and consumers.

B5: HIA and Informal Worker

(B5.1) Labour in Informal Worker: Scavengers

Jaranya Wongprom

Scavengers have been faced with various risks in terms of health conditions, safety, income and occupation security or social security. The scavengers are marginalised in the society since less people regard their performance relevant to the society. Based on the risk on health issue and safety working, there are various points worth to mention. These are: 1) lack of healthy shelters. Since their houses are located next to the big pile of garbage, the polluted water with nasty smell from garbage pile flows to their houses during rainy season. Meanwhile plenty of plastic bags will blow into their houses if the wind is so strong. 2) lack of safety tools. Their working tools are including of old shirts to cover their mouths and noses, slippers, caps, cloth or rubber gloves, long-sleeves shirts, and rakes. It is obvious that these tools could not prevent themselves from unhealthy materials from garbage piles such as batteries, syringes, razors or broken glasses. 3) lack of knowledge for self-protection. Many people with young children set up the cradles next to the dumping site. They build up the shading to prevent the hot sun or their children and at the same time they use the shading as the materials classification as well.

These are the examples of scavengers phenomenon in which we are regarded them as one group of human beings who contribute usefulness to the society. They help reduce the amount of garbage in the society, while they have to face with so many risks in their lives. In turn, the society should take care of the scavengers and help them to have better quality of life.

(B5.2) Way of Life and Quality of life Migrant Children in Thai Society

Kamonwan Saenthaweekook

As Thailand economy opens to more industrialize and export system, it causes an imbalance and incoherence to the society in the labor level. The government has been trying its hardest to alleviate Thai labor skills and its effectiveness to the Thai labor market which leads to insufficient workforces in 3D jobs sector: Dirty, Difficult and Dangerous jobs. Migrant workers tend to be the answer for that: lacks of workforces for entrepreneurs. Illegal cross-border workforces have been increasingly using by entrepreneurs in Thailand.

Samutsakorn is a province in Thailand that has 95% of all migrants workers from Burma registered legally for working. In 2008, only 76,059 migrant workers and their families have work permits and verifications by the law enforcement while three times of that numbers are still unregistered. At the same time there are many fishery, seafood processing companies/business in the area that still need more labors.

The entering of these migrant workers effects Thai society both in positive and negative ways. One way, these migrant workers become a substitution for insufficient unskilled labors. On the other hand, it causes social problems such as children of these migrant workers become stateless persons and cannot reach to their basic rights including education and health service. The children were excluded from the society and have to live in crowded area. That allows them to be in child labors process and human trafficking in the end. Impacts on migrant workers children show the discrimination and violation of human rights. Their life qualities have been affected in many ways. This study will focus on migrant workers' children health impacts by using descriptive method analyzing from primary and secondary data. It will also focus on an evaluation of those health impacts of migrant workers' children.

(B5.3) Environmental Health Impact Assessment in a Mechanical Craft Village in Vietnam

Vu Xuan Trung

Background: The problem was high potential pollution in craft village and need to have a method of health impact assessment suitable with the craft village in Vietnam.

Objective: Assess the impact of environmental pollution to workers and communities in mechanical craft village. Developing and improving the methodology and environmental health to measure and estimate the environmental burden of diseases.

Methods: Comparative - cross-sectional - studies with participation of researchers, local authorities and local communities. Before doing health impact assessment (HIA), We used difference means of communications to improve communities awareness about environmental health. Collected data from local record books, interview, gathering for discussion, environmental pollution measurements and health check up.

Results: People identified pollution factors by themselves: 78.13% of total interviewee felt unusual and uncomfortable smell and 66.18% believed it came from the production activities. Identified pollution factors by measurement: Environment polluted by dust, heavy metals, noise and etc. The burden of diseases status: Most health indicators of the craft village such as life expectancy, times visit local medical station (2.5 per years), YLD of acute, chronic diseases and accidents, total DALYs (206.51 year/1000 inhabitants) were higher compare with the Agriculture villages. Result of health check up: Digestive and musculoskeletal diseases account for the highest proportion (both 35.7 %) followed nervous diseases (25.2 %), cardiovascular diseases and hypertension (29.4 %) and respiratory diseases (15.8 %). 50 % checked person increased number of serum eosinophilla, 38.2 % increased urine Delta ALA level and 24.1 % showed abnormal ECG signal and 5 cases of silicosis.

Discussion and proposal actions: Environmental pollution and high level of disease burden were problems of the craft village. Improve communities awareness and involve local people and other stakeholders to participate in study were very important ways to assess environmental health in others craft villages.

C1: HIA and Mining and Industrial Policy

(C1.1) Integration of HIA in Strategic Environmental Assessment (SEA): The proposal of HIA and SEA in the cross-border bauxite mining in Vietnam, Laos and Cambodia

Pham Quang Tu

Bauxite is one of the most popular mineral on surface of the Earth and is one of the mineral resources of large reserves in the cross-road border between Central highland of Vietnam, Southern Laos and North-Eastern Cambodia. Bauxite ore used to produce alumina and refine the aluminum. Recently, with the increasing demand of aluminum in the World, especially in China,

the Governments of Vietnam, Laos and Cambodia have policy to allow for joint venture between local and international companies to explore and exploit the bauxite in the region. In Vietnam, Governments allow for Vietnam coal and mineral cooperation (Vina-comin) to joint venture with 4 international companies to exploit bauxite in 4 provinces of the Central highland. In Cambodia, the Government allows BHP-Billiton from Australia to explore bauxite in 100,000 ha in Mondulkiri and in Laos, the Government allows for SLACO, a joint venture between Australia and China to exploit bauxite in 24,600 ha in Champasak province.

Since there are very similarity on natural conditions (plateau, red-basal soil) and ethnicity in the watershed system of Serepok, Sesan and Sekong rivers; there is an increasing worrying that bauxite mining will cause serious negative impacts on social, environment and rural livelihoods of the local community in the region.

This paper will present a general picture of future bauxite mining in the region and drawing out potential negative impacts of mining to social, environment and rural livelihoods. It argues that there is an urgent need to carry out an independent, careful and systematic Strategic Environmental Impact Assessment, in which Health Impact Assessment (HIA) plays very important part in order to help to reduce negative impacts of bauxite mining in the region.

(C1.2) Community HIA for Community Health: Case study of Thung Kham gold mine, Wangsaphung District, Loei Province

Watcharaporn Wattanakum

Due to rich of natural resources, Loei province is therefore a target for investment of many investors as seen by mining of copper, iron, rock, coal, barite, precious rock and gold. However, mining activities are introduced to boost the economic development in the province, it also potentially entails adverse health impacts to the nearby community. Thung Kham gold mine, located in Phu Thapla, Tambon Khaoluang, Wangsaphung District, is an example showing the problems of physical, social, mental and spiritual healths since the project has been operated in 2006 such as;

- Production of rice yields were declined
- Local spring and waterway used for farming were dried up
- Noise pollution from rock explosion
- Cyanide and heavy metal with hazardous level were found in waterways closed to the mining site
- Poor engineering standard in mining was found in 2007
- Some households have to pay for drinking water as a consequence of unconfident in quality of natural water that might be polluted by mining activities
- Eye irritation, eye sore, inflammation of eye tissue and chronic symptoms of allergies and skin rashes occurred to children and adults in the community
- There is conflict among local community which gained different level of positive and negative impacts from the gold mine

Therefore, "People of Loei and the Civic Society Forum" agrees to conduct Community Health Impact Assessment (CHIA) to find ways to solve problems and review a mining policy in Loei Province. This endeavor is initiated by the community in cooperation with civil society, local academic and non-government organization. They join in collecting data of mining impacts, studying community's history, generating an eco-system map and analyzing determinants of health. Knowledge gained will be used to support a decision making on provincial development.

(C1.3) The Environmental and Health Impacts Assessment on Area Strategy of Southern Development Plan Based on Sustainable Development

Sayamol Kaiyoorawong

The strategic environment and health assessment (SEHA) is important with strategic decision making process in the policy level, planning and program so that the environment and health assessment report links with the dimension of sustainable development.



The sustainable development must balancing health, environment, society, economy, technology, and decision making process of stakeholders in accordance with the principle of Constitution 2007 in the third section (rights and liberties of people) and the fifth section (the state policies).

The 10th National Economic, and Social Development Plan/NESP (2007 – 2012), the state policies, Southern Development Plan and provincial strategy are area strategic development planning. This is the background many state and private projects in the South.

Communities must participate with the process of SEHA of Southern Development Plan/SDP that started at accession information of policies and SDP and analyzing linking with community plans and information base of society natural resources environment and health by communities cooperatively study and learn. The result are communities and other sectors in a province are able to planning their future including they propose the future plans to the public and the Government by themselves.

(C1.4) Community Health Impact Assessment by Local People in Response to a Mega Project

Prasitchai Noonmuan

Community Health Impact Assessment (CHIA) is considered as an effective tool for a knowledge management process. It can help a community learn about the potential impacts and signify their way of living for a better life. Nakhonsrihammarach province applies CHIA process at an area where is targeted as a mega development project by the Government and transnational companies. Klai sub-district. The Sala district is a specific area for conducting CHIA with a principle of community initiative in support of the network. The preliminary stage of working discovers notable findings as follows.

1. A community, where is planned for a mega development project, usually has an internal conflict and panic with new comings to the community. Building an understanding to the community is highly important.
2. A community should design a thorough working process by themselves. They can assess a community's situation well enough to know what method is for what situation.
3. A community requires collaboration from various agencies especially from government and academic sectors to create a trustworthiness of and respect for their working process.
4. At a preliminary stage, it is essential to elect a reliable community leader to proceed the work, particularly, building an understanding to the community, so that the work can operate smoothly.
5. Area scoping of CHIA can be made at a large scale, but not in a specific area. The study of health impact perhaps requires studying the surrounding of the study's area. Lessons learnt from the preliminary stage reveal that in a midst of a changing society that may affect the way of living, a community necessitates to have a tool to create knowledge and power, so that they can negotiate for their future.

C2: HIA and Institution and Mechanism

(C2.1) HIA at the Crossroads: Are we ready for the unanticipated impacts of success?

**Marilyn Wise
Elizabeth Harris
Ben Harris-Roxas**

A number of groups are advocating for the increased use of health impact assessment (HIA) at both national and international levels. HIA is characterised by diverse origins and practice. This diversity is increasingly evident in the debate about how HIAs should be undertaken, under what circumstances and even the goal of what we are trying to achieve by undertaking HIAs.

This presentation will describe HIA's diverse origins and practices as they can be observed in Australia, as well as advancing an argument for what we are trying to achieve by undertaking HIAs within a healthy public policy framework.

(C2.2) Implementation Progress of Health Impact Assessment in Lao PDR

Tayphasavanh Fengthong
Soutsakhone Chanthaphone
Onechanh Keosavanh

Lao PDR is stepping into a land-linked country with both opportunities and challenges, and looking to escape from the least-developed country status by 2020 through a National Growth and Poverty Eradication Strategy (NGPES).

Despite its least developed status, our country has a remarkable range of natural resources and environment riches. The health sector is one of the four key sectors of National Growth and Poverty Eradication Strategy (NGPES). Considerable progress has been made over the past ten years in strengthening the health care system and the people health. However communicable diseases remain common such as diarrhea, dysentery, typhoid, ARI, dengue fever, intestinal parasites, while non communicable diseases are rapidly emerging such as drug addiction, cancer, diabetes, hypertension, cardio vascular diseases, neuralgic and mental diseases. Many development projects implemented in Lao PDR such as dam projects, mining projects, road construction projects etc, but some constraints encountered into the health aspects.

The development projects have positive results for socio economic development and improve the living standard of people but many associated risks may impact the environment and health of the people living in the development project areas. Therefore, it is necessary to carry out health impact assessment in parallel with environment impact assessment. The main achievements related to health impact assessment are the following:

- National Policy on Health Impact Assessment approved by Prime Minister
- Establishing a Committee and Task Force
- Establishing health impact assessment unit under Environmental Health Division, Department of Hygiene and Prevention
- Draft Guideline on Health Impact Assessment
- A pilot project on health impact assessment will further develop with the participation of multi sectors including local authorities.
- Capacity building for Task Force members and local authorities will be further strengthened.

(C2.3) Implementing HIA in South Korea

Jinhee Kim

It has been more than 10 years since the Gothenburg consensus paper has been developed, however it is only just recently that the Korean government turned its attention to the application of HIA.

The window of opportunity for institutionalizing HIA in Korea is the enactment of the Environmental Health Act Article 13 which will come into effect in 2010. As with the experiences from other pioneer countries, there is an ongoing controversy on the governance for HIA. The Article states HIA should be conducted on administrative plans and development projects that are already subject to EIA where additional study should be conducted on the effects of environmental risk factors on human health. However, public health advocates are against this narrow version of HIA embedded within the EIA. In this scheme, it is believed that other broader socio-economic determinants of are not considered, and therefore this type of HIA within the EIA will not be multi-disciplinary and comprehensive in content.

We reviewed the established Impact Assessments in Korea and analyzed the feasibility for introducing HIA within the existing system. While the main controversy remains whether HIA should be combined within the environment impact assessment, we are exploring other possibilities as with the strategy the Korean Ministry of Gender Equality is using for the institutionalization of the gender impact assessment. The 4-step strategy is to expand the HIA from health-related policies to broader policies, government-funded projects and private-funded projects.

The paper illustrates the current policy environment for HIA institutionalization in Korea and explores implications from other countries experiences of the HIA implementation process. We have developed short-term and long-term strategies which an

effective HIA that encompasses the broader social determinants of health and influences the decision-making process can be successfully established in the Korean context.

(C2.4) HIA in Southeast Asia: Background, on-ground, and foreground

Suphakit Nuntavorakarn
Wipawa Chuenchit
Thunyaporn Surapakdee
Decharut Sukkumnoed

Southeast Asian people have long history and strong culture of relationship across the border of country. But in the modern world today, the problems of transboundary impact exist in the region and more challenges have emerged. Some examples are the dam in Vietnam that causes impacts to the Cambodian people, many large dam projects in Laos are being built and planned for supplying electricity to Thailand, as well as several Mega-projects on the Mekong river are being push forward by governments of these countries. These plans and projects already cause impacts, and also pose threats and risks, to the environment and ecology, the societies, and eventually health of the people.

On the other hand, Health Impact Assessment is emerging in these countries with the aim to alleviate health risks and support health promotion. In Thailand, Laos, Vietnam, Cambodia, and Malaysia, practitioners from government, academic, and civil society, are working on or related to HIA but in different ways according to the contexts and opportunities in each country. Cooperation on HIA development between these countries is also initiated.

This paper will review the background of HIA development in the five countries and explain the present development in each country in term of practices, capacity building, and institutional development. Consequently, ideas to strengthen regional cooperation and HIA development in each country will be developed. This is to contribute to the challenges of transboundary health impacts and the development of Healthy Public Policy in the region.

C3: Social Perspectives for HIA Development

(C3.1) Rate of Suicide: An index for cumulative health impact assessment

Pattapong Kessomboon
Nusaraporn Kessomboon

Cumulative health impact assessment has been given more attentions by healthy public policy advocators. However, more academic works on this issue are needed to provide theoretical and practical substance for HIA practitioners. The article aims at exploring the use of rate of suicide as one of an index for cumulative health impact assessment.

Methods: An ecological study was performed. Economic and social development data as well as rates of suicide of all 76 provinces in Thailand in 2004–2005 were analyzed using descriptive statistics and Pearson's correlation coefficient.

Results: The gross provincial product per capita significantly correlated with the proportion of gross provincial product in manufacturing sector (p -value < 0.001). However, 2 out of 10 provinces with the highest proportion of gross provincial product in manufacturing sector had the top-ten highest suicide rates i.e. Lumphun and Rayong provinces.

Discussions: Although industrial development provides better income per capita, it does not always imply a better health as measured by suicide rate. Rate of suicide can be an index for cumulative health impact assessment. This approach supports healthy public policy movements.

(C.2.2) The Study of Factors Affecting to Well-being of the Elderly with Spouse in Rongheeb Subdistrict, Bang Khonthi District, Samut Songkhrum Province.

Chakrit Piungam

The objectives of this study are to examine the level of well-being, personal factors, spouse, family support, community support and the factors affecting the well-being of the elderly who had spouse in Rongheeb Subdistrict, Samut Songkhrum Province. The samples consisted of 179 elderly who lived with their spouse, aged between 55-75 years old. Questionnaires were administered to collect the data that were later analyzed with statistical software. Descriptive statistics included the frequency, the percentages, the mean, and the standard deviation. Hypotheses were tested with the t-test, the analysis of variance, the Pearson's product moment correlation coefficient, and the stepwise multiple regression. Statistical significance level was set at 0.05.

The study results indicated moderate levels of well-being and family support among the sampled elderly where the spouse support and the community support were at high levels. When comparing personal factors of the elderly under study, consisting of educational attainment, occupation, monthly revenue, source of revenue, role and/or position in the society and /or the community, and relationship-building activities, it was found that they had significantly different level of well-being. Moreover, spouse support, family support, and community support were highly and positively correlated with well-being of the elderly under study. Such supports could significantly predict as much as 41.1 percent of well-being of these elderly.

(C.3.3) The Application of the Geographic Information System in the Study of the Area of Suicide Risk Surveillance.

Pornitip Dumrongpattama

The purpose of this research was three folds. Firstly, it aimed to construct the database consisting of both spatial and attribute data for the areas of suicide risk and surveillance by applying the geographic information system, secondly, to study Thailand's suicide risk areas, and thirdly, to study the suicide surveillance area particularly in Changwat Chiang Mai which had the highest number of people who committed suicide. The data were derived from the National Statistical Office's 2007 base map showing provincial, district and sub-district boundaries, and suicide data from death certificates processed by the Bureau of Policy and Strategy of the Ministry of Public Health for the years 2003 to 2007.

Research findings indicated that from 2003 to 2007 there were 20,091 people who committed suicide, more males than females of the ratio 3:1; living as a couple (40.51%), followed by single person (39.14%); mostly 30-39 years of age followed by 20-29 years of age; worked as employees (35.47%) followed by engaging in agriculture (33.92%); suicide rates per 100,000 population were between 2003-2007 were 7.13%, 6.93%, 6.31%, 5.77%, and 5.95%, respectively. The provinces that people committed suicides and their domicile had the same suicide risk area were Lamphun, Chiang Mai, and Chiang Rai. Suicide surveillance in Chiang Mai revealed 1,431 cases; more males than females of the ratio 4:1; most of the people who committed suicide lived as a couple (41.02) followed by single person (35.15%), mostly 30-39 years of age followed by 40-49 years old. Most of those who committed suicide in Chiang Mai were engaged as employees (54.79%) followed by engaging in agriculture (20.61%). The months with the highest number of suicide were June (10.41) followed closely by August (10.20%). Suicide rates for 2003-2007 classified by their domicile were 21.44, 18.95, 17.45, 15.09, and 14.42, respectively. The five districts with the highest numbers of suicide in the five year period were Amphoe Mueang Chiang Mai, Amphoe Phang, Amphoe San Kam Phaeng, Amphoe Doi Sa Ket, Amphoe Mae Taeng, respectively. The sub-district with the highest numbers of suicide was Tambon Si Dong Yen in Amphoe Chai Prakan.

(C.3.4) An HIA on a welfare program for low-income children's health improvement

Elunjeong Kang

Background and Purpose: The Dream Start is a comprehensive welfare program for low income children and their family to help these children to develop well and become a well-equipped citizen in Korea. There were 32 Dream Start demonstration centers



throughout the nation in 2008 and the program will be continued during the current administration. The purpose of this HIA was to help the policy makers and the staff working for Dream Start centers to better plan the program for the health improvement of the children. \

Methods: We established a steering committee which consisted of the health impact assessment research team, child health experts, and Dream Start management center staff. In the screening process, we decided to conduct a comprehensive HIA for one HIA center. In the scoping process, the steering committee reached a consensus that the five factors needed to be assessed as the health impacts of the Dream Start: prenatal care, vaccination, nutrition, access to health care services, and child abuse. The scoping process also determined the appraisal methods should include literature review, community profiling, focus group meetings with field staff and parents, and interview survey.

HIA results: For each of the five key health determinants of children, the HIA could obtain several suggestions on the Dream Start for the health improvement of children. For example, policy suggestions on the prenatal care included the increase in the financial support for regular prenatal examinations and nutrition supplement.

HIA Evaluation: This HIA was the first HIA conducted from the perspective of social determinants of health in Korea. All in all, the HIA procedure planned in the scoping stage was carefully performed. However, since the steering committee conducted the appraisal, the lack of independence of the appraisal from the planning was one of the limitations of this HIA.

(C.3.5) Health and Urban Resettlement among Low Income Elderly People in Phitsanulok, Thailand

Angkhanaporn Somngai

Jens Seeberg

Supasit Pannarunothai

This qualitative study explored the implications of urban resettlement among low income elderly people residing in Phitsanulok. Twelve persons participated who had moved from raft houses to an urban periphery area by order of a provincial committee. Key informants were also identified. Data collection (participant observation and in-depth interviews) was conducted during December 2005 to October 2006 and analysis was performed using content analysis. The study showed that the resettlement caused difficulties with adjusting to new living arrangements, economic hardships and physical and mental health problems. Health care was largely managed in the folk and popular sectors. If this was ineffective, the professional sector would be sought. In most cases, the traditional Thai pattern of elderly living with their children was maintained. However, elderly people are particularly vulnerable to illness and regular home visits by health care staff to facilitate communication and treatment of elderly people and health professionals are necessary to improve the quality of care. The authors suggested that a holistic view of resettlement should be adopted that minimizes social costs, sustains existing patterns of social organization, and allows for continuity of social-cultural patterns.

C4: Transboundary HIA

(C.4.1) Climate Change in Australia: A national adaptation plan for human health

Dianne Katscherian

Jeffery Spickett

Australia will potentially experience a climate in the near future that is more variable, more extreme and significantly different from our recent past. These changes are almost certain to impact on our health. The ability to anticipate and adapt to aspects of climate change that may impact on our health is critical. Failure to adopt such a proactive approach may result in an inefficient and costly reactive cycle of responding and recovering from health impacts as they occur.

The type and extent of health impacts that may arise from climate change are a reflection of the unique environmental, climatic and socio-economic parameters of Australia. The Australian Government has, in collaboration with the States and Territories developed a National Climate Change Adaptation framework which includes specific reference to vulnerability assessments and

human health. A National Climate Change Adaptation Research Facility has been established which has produced a draft National Adaptation Research Plan (Human Health). The potential impacts to health from environmental climate change in Australia are considered and the national and international responses to these changes are identified. This presentation provides an overview of the issues discussed in this Research Plan, the methodologies to be used including the potential use of HIA and the challenges identified required to protect the health of communities into the future from the adverse impacts of climate change.

(C4.2) Health Impacts of Climate Change: Case study on rain-fed farmer in Kula Ronghai Field, Thailand

Vichien Kertsuk

Kula Ronghai is the largest area of high quality of jasmine rice or KDM105 rice in Thailand and in the world. Climate change threatens is a new threat to Kula Ronghai. The expected changes in climate would impact on rain-fed agriculture are a particular concern because farm livelihoods that are based on cultivation of rain-fed crop are highly vulnerable to climate stress and rain-fed agriculture is the dominant economic activity of this area, 70.8 percentage of household income is from rice production. Climate change is impacted to main income of farmer. The results from the study found that in the climate stress year, rice yield damage average 45.5 percentages is mean that farmer lose money near 50 percentages of household income. However, in some area rice yields are almost damage. In the present, climate stress year is more frequency than in the past. Climate change impacted to health of farmer in Kula Ronghai both direct and indirect. It found that in the climate stress year, farmer is worry about rice yield which is less than he could get it in the normal year and it affected to household income in this year. Farmer will stress if income is less than outcome. He has to seek a job in downtown for reimburse income in the year. If he can not earn more income is means that he has to load money from a neighbor or the bank. He has a debt all time. It is affected to mental health. In the family which has baby or child, the children have to take care by the older when parent go to work in the city. Some children have malnutrition. It is affected to social and mental health.

(C4.3) Climate Change Impacts on Human Health in Bangladesh

Golam Rabbani

Impacts of climate on human health are an increasing global concern. In reality, various climate change-related hazards like flood, drought, sea level rise (SLR), salinity intrusion, cyclone etc have both direct and indirect adverse impacts on human health in all over the world. It has been estimated that climate change causes 2.4 percent of all cases of diarrhea worldwide and 2 percent of all cases of malaria (WHO, 2006). It was also estimated that climate change was responsible for at least 150,000 deaths and 5.5 million Disability Adjusted Life Years in the year 2000. According to IPCC, global warming would cause increase of vector borne and water borne disease in the tropics (IPCC, 2001 and 2007). Moreover, non-climate issues including poor housing, lack of safe water and sanitation facilities, inadequate or improper health care services would increase the adversity of health problems. This paper would emphasize some recent observations on the impacts of climate related hazards on human health in different risk prone areas of Bangladesh. In fact, this paper will be primarily based on the findings of a recent study conducted to explore correlation between climate factors (e.g. rainfall, temperature etc) and incidences of health diseases in different areas of the country. Both primary and secondary data/information have been used and analyzed to find correlation. In Bangladesh, the recent studies indicate that some of the diseases including diarrhea, kala-azar, malnutrition, skin diseases etc are positively correlated with climate parameters and extreme events. This implies that the effects of climate variability on human health are quite conspicuous. In addition to water borne diseases, mental disorders, malaria, dengue etc affect many people of the country. The incidences of these diseases are on increasing trend with the changing conditions of the climate system in the country

(C4.4) Ban Koum Dam: Transboundary impact on the Mekong River

Montree Chantawong

Ban Koum dam is one of twelve large hydropower dams currently planned in the Lower Mekong mainstream. Ban Koum dam allocates on the Mekong mainstream at the Thai-Lao border in Ubonratchathani province in Thai side and Champasak province in Laos. If built, the dam will establish reservoir on the mainstream river that will take up 100 kilometers length on the river

upstream. With the install capacity of 1,872 Megawatt, an investment capital of the dam is higher than 95 billion baht, according to the pre-feasibility study by Thailand's Department of Alternative Energy Development and Efficiency, Ministry of Energy since March 2008.

Ban Koum dam's reservoir will give negative impact to at least 30 villages in Thailand side and 20 villages in Laos side. Fishery and river bank agriculture will be the most affected issues, as the natural fish migration circle all year round will be blocked, and the reservoir will flood over most of river bank agriculture land that people in both countries are using during dry season and earn sufficient income from selling their products, along with the fish they catch. Both fishery and river bank agriculture are also the most important sources for household consumption, as most landscape in both side of the Mekong is rocky and people have less to none paddy rice field.

Ban Koum dam will cause the severe transboundary impacts to all lower Mekong countries. This report examine various aspects from the dam's impact to Mekong River's communities and ecology to the issue of regional and power policy, and also the issue of transparency, good governance and people participation which is still lack within the proposing process.

(C4.5) Economic Impacts of the Thai-US FTA on Access to Medicines

Nusaraporn Kessomboon
Jiraporn Limpahanont
Vidhaya Kulsomboon
Usawadee Maleewong

Objective: The study aimed at assessing economic impact of the Thai-US Free Trade Agreement (FTA) on access to medicines.

Methods: The FTA text of the 6th round of negotiation 2005 on intellectual property rights (IPR) was interpreted. The impacts were estimated using the macroeconomic model of impact of changes in the IPR, developed by Rovira J. (2007). The impact is the result of the difference between a basic scenario (current situation) and alternative scenarios (different changes to IPR).

Results: The FTA text involves the period of patent extension from TRIPS Agreement. The provisions involving the period of protection which basically have to do with compensation of 2.5 and 10 years for delays in patent registration and/or drug registration; data exclusivity that would result in delays in generic market; and linkage of patent enforcing role of the Thai Food and Drug Administration.

For the worst case scenario, if 10 years patent extension were given due to the compensation for the delays in patent registration and/or drug registration, without measures to mitigate its impacts, could mean the followings: By 2027:

1. A 30 % increase in the price index for medicines was estimated.
2. The spending on medicines would increase from the baseline to approximately 10,840 million US dollars.
3. A total of 3,264 million US dollars would be lost from the reduction of market share of domestic pharmaceutical industry.

Discussions: The end results of all scenarios strongly implied the severely restricted access to medicines for Thai patients. Taking into account of human right obligations, the IPR protection on pharmaceuticals must be excluded from the FTA negotiation.

(C4.6) Health Impacts of the Thai-US FTA: A case study of access to antiretroviral drugs of Thai HIV/AIDS patients

Usawadee Maleewong
Vithaya Kulsomboon
Jiraporn Limpahanont
Nusaraporn Kessomboon
Achata Eksangsi

Objective: The study was aimed to assess the impacts of the Thai-US free trade agreement (FTA) on access to antiretroviral (ARV) drugs and health of Thai HIV/AIDS patients in terms of Life-year gained (LY gained) and Disability-adjusted life year (DALY) averted.



agrochemicals usage in Chiang Mai and Lamphun provinces. During the process, all target population and stakeholders were invited to involve and reflect their opinions on the research results and suggestion for alternative options to solve the health impacts and propose to the policy makers. Concurrent to the research projects, a conference was conducted in order to provide knowledge of HIA, environmental impact assessment, and social impact assessment to master students in Public Health program. The lesson learned from doing research and theory were transferred to student through lecture, discussion, workshop, and field study. As a result, 17 students conducted independent study on HIA projects. The students' experiences gained from independent studies on HIA result in enhancing healthy public policy process in local and national levels.

These results indicated the significance of HIA. The HIA was crucial for health personnel, related organization, stakeholders, and people in society. The participation among these people was key success in HIA. Therefore, the HIA course was initiated as an elective course for master student in Public health program of Chiang Mai University. The contents included health, health determinants, significance of HIA, concept of HIA and healthy public policy, roles of health personnel in formulating healthy public policy.

(P3) Mortality of Population Exposed with the Different Polluted Environment

**Tran Thanh Ha
Tran Van Dai**

A study is carried out on mortality of the population, which are living near factories and are exposing polluted environment (1481 household with 4813 capita of TS Ward as study group) and have the population, which are living far from the factories (1453 household with 3967 capita of GC Ward as control comparison group). Method of the study is surveillance of deaths in last 3 years (8/2004 – 8/2007) by questionnaire in the population.

The study showed that, the crude average fatal rate in a year of TS Ward is 3.12‰ and of GC Ward is 1.51‰. In the causes of the death, the fatal rate from cancer in TS Ward is highest (40%) among this 20% is from lung cancer; the fatal rate from cardiovascular diseases is 17.8%. In GC Ward, the fatal rate from cardiovascular diseases is highest (27.8%), and then from cancer (22.2%). The mortal burden with Years of life lost because of premature death (YLLs) of TS Ward population is higher in comparison with GC Ward population in all 3 disease groups (I group: communicable, maternal perinatal and nutritional diseases, the II group: noncommunicable diseases and the III group: injuries). In TS Ward, the YLLs are highest (YLLs/1000 capita = 498.5) in the age groups of 20–30 years; in GC Ward, the YLLs are highest (YLLs/1000 capita = 93.5) in the age groups of 30–40 years.

The above results showed that population, who are living in more polluted environment have higher mortal burden (crude average fatal rate, YLLs) in comparison with the population, who are living in less polluted environment.

(P4) Diseases Situation of Population by Retrospective Figures of Commune Health Station from 2002 to 2006

**Dam Thoung Thoung
Ta Tuyet Binh**

Retrospective figures in 5 years of 3 commune health stations were used to describe diseases situation of population living near chemical factories. The result showed that:

- In Tho Son commune, the rate of respiratory diseases was highest in all 5 years (61%–73%); follow by cardiovascular diseases (20%–28%).
- In Ben Got commune, the rate of respiratory diseases in all 5 years (69%–76%) was higher than other diseases.
- In Gia Cam commune, the rate of respiratory diseases in all 5 years (4.6%–12.1%) was higher than other diseases.

Comparison the disease situation of Tho Son and Ben Got commune (those affected by South Viet Tri Industry Area) to Gia Cam commune (those less affected) showed that: the rate of respiratory diseases and cardiovascular diseases in Tho Son and Ben Got were significantly higher than those in Gia Cam commune in all 5 years. Those respiratory diseases and cardiovascular diseases related to environmental pollution were higher in the 2 communes affected by the Industry Area.

Methods: A Markov Model was applied to Thai HIV/AIDS patients aged 15 to 65 years to assess the total cost of treatment, LY gained, and DALY averted. Input parameters were extracted from a cohort study from five hospitals in Thailand. The health impacts were compared under the three conditions 1) the situation without compulsory licensing and no patent extension from TRIPS agreement 2) the five and ten years of patent extension from TRIPS Agreement, and 3) the implementation of compulsory licensing for Efavirenz (EFV) and Lopinavir/Ritonavir (LPV/r).

Results: The total cost of HIV/AIDS treatment was highest in the scenario of 10 years of patent extension from TRIPS Agreement while it was lowest under the implementation of compulsory licensing of two ARV drugs. Under the situation that the budget was unlimited, the LY gained and DALY averted of the HIV/AIDS patients who received ARV were 16.24 and 4.52 years, respectively. In the scenario of budget limited, the 10 years of patent extension reduced the access to ARV drugs decline and also reduced the LY gained and DALY averted to be 3.65 and 1.02 years in the year 2025.

Discussions: The results of all scenarios revealed that the period of patent extension from TRIPS Agreement due to Thai-US FTA had the worse impact to the access to medicine and also affected to patients health. The Intellectual Property Right (IPR) protection on pharmaceuticals must be excluded from the FTA negotiation.

P: HIA Poster Session

(P1) Emissions of Carbamate Pesticides from Jasmine's Agriculture in Khon Kaen Province, Thailand

Kallaya Harmpicharnchai

In Thailand, pesticide poisoning illness ranked the highest, when compared with all occupational diseases, ranging from 71.7% to 93.2%. The death rates from pesticide poisoning were also the highest, ranging between 84% and 100% of the total occupational deaths (Division of Epidemiology, 2001). The cross sectional study was to assess the risk of people who used pesticides in Jasmine's agriculture in the area of Sila Sub-district, Khon Kaen Province, northeast of Thailand. They almost used methomyl and carbendazim in Jasmine's agriculture. The aims were determined the concentration of methomyl and carbendazim in the breathing air level that exposed to the people, assessed the inhalation exposure risk.

Samples of subjects were selected on the basis of exposure level from larger pool of farmer, was an efficient strategy because it facilitates estimating exposure-response gradient, especially when farmers from the entire range of exposure are sampled. Air samples were collected by using personal sampling pump with XAD-2 sorbent. The collection method was followed as NIOSH Method No. 5601. All samples were digested and analyzed by High Performance Liquid Chromatography with UV Detector. Result of average concentration of methomyl in the breathing air level that exposed to the subjects (N=24) was 0.183 ± 0.311 mg/m³ and carbendazim was not found. When compared to the standard regulatory on the ambient concentration of methomyl, TLV-TWA from ACGIH defines as 2.5 mg/m³, this study did not exceed the regulation. The average inhalation exposure for methomyl to the subjects was 0.01650 ± 0.03521 mg/kg/day. Moreover, the average hazard index of methomyl was found in low level (0.83) that no effect. Thus, the results showed that there was low level of risk characterization exposed to methomyl and carbendazim.

(P2) Initiation of Health Impact Assessment Course in Master of Public Health Program, Chiang Mai University

**Chomnard Potjanamart
Wilawan Senaratana††
Yuwayong Juntarawijit
Anon Wisutthananon**

Health impact assessment (HIA) course was initiated by aggregation of faculty staff of Chiang Mai University and experts from related fields. In 2002, many multidisciplinary research projects on HIA were conducted including HIA of city and transport development, issues associated with the Ping River, Wang Hang mining project, high rises buildings in Chiang Mai, and



(P5) Health Impacts Assessment from Salt Mine in Sakonakon Province

Parinee Hongsuwan

This study was aimed to set up public scoping for investigation of possible health impacts from the Wanomnivas and Banmong Salt Mining Project, using the participatory approach from public network and other stakeholders for identification health impact issue. Result from literature review on possible health impacts, and data on the living styles of the affected community were used to identify the possible health impacts. Public and other stakeholders were allowed to join the study and provide suggestion for public scoping. It was found 10 issue for health impact assessment in Banmong: 1) income 2) effects to Respiratory tract 3) effects to skin 4) effects to eye 5) effects to Muscle 6) injury and accident from work 7) stress and anxiety 8) effects to water 9) effects to soil 10) dust. Health impact assessment in Wanomnivas was found 16 issue : 1) effects to income 2) effects to Respiratory tract 3) effects to skin 4) effects to eye 5) effects to Muscle 6) injury and accident from work 7) stress and anxiety 8) effects to sleep 9) effects to take energy drink 10) health service 11) effects to water 12) effects to soil 13) dust 14) hot from working conditions 15) relation between salt mining owner and the people 16) relation in family

(P6) Health Problems and Health Management among Children Addicted to Online Games

**Jennara Wongpalee
Pannipa Tomdungkeaw**

Objective: To study health problems and health management among children addicted to online games.

Material and method: There were 95 children who play online games in internet café located in Meung district, Chiang Mai. Que stionnaire for personal information, behaviors regarding playing, health problems and health management. Data was analyzed in frequency, percentage, mean average and standard deviation.

Results:

- 1) There were male (78.9%), aged 11–24, the mean of body weight 60.74 kg, time in games 4.19 hrs. Types of game were frightening (78.9%), strategic plan (77.9%) and advantage (72.6%).
- 2) Health problems which were (i) Muscular system, body ache (29.47%), leg and hand ache (21.05%), shoulder ache (20.0%). (ii) Blur vision (22.11%) and short eyesight (15.79%) (iii) Circulation system, headache (14.74%), fatigue (11.58), tachycardia and dizziness (8.42%), hallucination (2.11%). (iv) Excretory system, passing less urine (5.26%). (v) Digestive system, mouth ulcer (5.26%), stomach ache (3.16%), indigestion (3.16%), nausea (2.11%). (vi) Respiratory tract, sore throat (2.11%) and flu (1.05%). (vii) Others were dehydrated (28.42%), overeating and body weight increases (13.68%), desire to smoke and losing body weight (7.37%).
- 3). Psychosocial health problem were sleepy during daytime (40.0%), isolated (11.58%), stress (10.53%), aggressive (9.47%), sleepless (8.42%), nightmare (7.37%), unworthy (3.16%) and anxious (2.11%).
- 4) Social problems lack of attention in classroom (20.0%), forgetful (12.3%), does not want to study (10.53%), unable to make decision (7.37%), slow in study (6.32%) and negative thought (5.26%)
- 5) Health management to let the symptoms get better by itself (34.74%), watching movies and television (21.05%), sport (2.105%), singing (13.68%) and consults with their parents (16.84%).

(P7) Community Health Problems and Solving by Community Participation, Mae Rim, Chiang Mai

**Prakaikeaw Tanasuwann
Jennara Wongpalee
Roshinee Oupra**

Objective: To study community health problems and solving health problems by community participation, Mae Rim, Chiang Mai.

Material and method: The participatory action research was conducted in 1,985 peoples from five villages. The purposive

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sampling was 30 people representatives of communities, committees from each village. Nominal group process were applied in community members groups in order to (a) study and analyzes community health problems by using SWOT analysis and principles of 5 D which consisted of Death, Disability, Disease, Discomfort and Dissatisfaction, (b) point out community health problems, each person have equal opportunity in making decisions. The researcher and the representative decide and select the process to solve the community health problems which were the training project consisted of screening activity, health services, providing knowledge, exercise demonstration and providing home health care services. The project questionnaires were asking about knowledge, disease perception and satisfaction in participating in the activity. Data were analyzed by using content analysis, mean and t-test.

Results:

1. The health problem which were 1) hypertension, 2) diabetes mellitus, 3) respiratory tract disease, 4) cancer, 5) bone and muscle disease, and 6) digestive disease.
2. From all the disease mentioned, every community members groups had voted that the major health problems were hypertension and decided to improve their health status by Participation in community health project
3. The 181 high risk hypertension people were been screened from each village to participate in the project. As a result, the participants knowledge and awareness regarding hypertension increases significantly ($p < 0.01$). Moreover, the participant were highly satisfied with the project ($X= 4.24, SD=0.55$).

(P8) The Battle for Silence: Health Assembly as an effort to alleviate noise and other pollutions of Suvarnabhumi International Airport

Thanatod Preeprame

Over the last two years since Suvarnabhumi International Airport began operations on September 28, 2006, prompting a huge wave of complaints and protests, the Airports of Thailand Public Company Limited has been playing a game of buying time with its victims. One common response has been to blame the local residents for their ignorance, or worse, greediness. The case of people living near Don Mueang International Airport has been cited repeatedly as a hint that one day those at Suvarnabhumi would develop similar tolerance. No medical doctors have come out to raise noise pollution as an urgent issue.

But the presence of two communities in Lat Krabang district could challenge the notion. A pioneering team of the Lang Suan and Khehanakorn 2 communities has set up their Health Assembly and one of their very first tasks was to compile a history of the researchers own neighborhoods. The emerging narratives reveal not only the checkered saga of the country's largest airport, but also the intertwining ties between one of Bangkok's last farming communities and the very first generation of housing estates on the outskirts of the metropolis.

The Lang Suan-Khehanakorn 2 Health Assembly has searched for people with special skills and collected statistics and tales of people with health problems since the Suvarnabhumi airport went into operation. From stress to rashes, migraines, insomnia, heart palpitations, and in a few cases, untimely death, it appears one airport could generate far more problems than mere noise. The Assembly has reached out to other communities facing similar problems from industrialisation projects as well as with other state and non-governmental organisations. The lessons learned include the need to give space for diversity and genuine public participation, and to share information equally among themselves and other neighbors in order to minimise the distrust and potential conflict.

(P9) Health Impact from Tourism on People in Pai Municipality, Pai District, Mae Hong Son Province

**Veeraya Chaimanakij
Yuwayong Juntarawjitt
Suchada Lueang-a-papong**

This descriptive study aimed to study health impact from tourism on People in Pai Municipality. The samples were divided into 2 groups: the samples of focus group were 30 stakeholders who related to tourism, and 327 people who lived in Pai Municipality, Pai District, Mae Hong Son Province. Focus group discussion, questionnaire, and the meeting for reflecting the result findings and public scoping were conducted for data collection.

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The results showed that; Positive impacts on physical health were 1) increasing safety for people from accidents because the roads were repaired 2) people got the supporting about health activities from government officers. Negative impacts were 1) car parking were not well organized which caused the accidents and air pollution 2) poor quality of water because the water cannot be produced sufficiently.

Positive impacts on mental health were 1) feeling satisfied with the increasing income from tourists 2) feeling satisfied with the tourism because of having the infrastructure. Negative impacts were 1) people have disgust and stress because of noise pollution from tourists 2) worried about life safety and property.

Positive impacts on social health were 1) having the development of transportation and communication 2) having occupations and incomes from tourism. Negative impacts were 1) walking streets were not well organized 2) people moved to other areas because the lands were used for more business. Positive impacts on spiritual health were 1) feeling proud that tourists travel in the community 2) feeling proud that the community was developed. Negative impacts were 1) lost of value because traditional lifestyle was changed 2) decreasing of respect to elderly and strictness in religion.

The results showed that people and stakeholders should participate in setting the regulation of tourism. Furthermore, campaign on conserving the environment and natural tourism in community should be conducted.

(P10) Health Impacts from Solid Waste on People in Lampang Municipality, Lampang Province

**Busara Thatsanawichit
Yuwayong Juntarawijit
Suchada Lueang-a-papong**

This descriptive study aimed to study health impact from solid waste on people in Lampang municipality, Lampang province. The samples were divided into 2 groups. First, 25 stakeholders who participated in a focus group included community leaders, municipal solid waste workers, private business in solid waste industry, scrap collectors, tricycle (Sa-Leng) scrapers, and members of administrative teams involving solid waste management and policy. Second, 382 community members administered questionnaire. Data were collected through focus group discussion and the self-administered questionnaire as well as a meeting for reflection the result finding and public scoping.

The results revealed that: Positive impact on physical health included 1) solid waste would decrease if every households separate solid-waste, and 2) sharp collections might do harm to scrap collectors. Negative impacts included 1) solid waste might contain pathogens with sufficient virulence that could cause human to contact an infectious disease, and 2) burning solid waste might cause odorous smell and air pollution.

Negative impact on mental health included 1) people concern about water quality from contacting solid waste, and 2) were anxious about odorous smell.

Positive impact on social included unemployed people could get a job and earn money from separating solid waste. Negative impact included people left out solid waste on streets that can cause environmental problems.

Positive impact on spiritual health included good management on solid waste provided clean environment and increased a number of tourists. Left out solid waste on streets reflected that people did not have social responsibility and good discipline, and not be a role model for young generations.

The results suggest that Lampang Municipality should promote their community members in separating solid waste and using trash containers provided. People and stakeholders should involve in policies

(P11) Health Impact from Migrant Labour on People in Mae Ai District, Chiang Mai Province

**Chatsuda Tongchaisuwan
Yuwayong Juntarawijit
Suchada Lueang-a-papong**

This descriptive study aimed to study health impact from migrant labor on people in Mae Ai district, Chiang Mai province. The sample was divided into 2 groups; 379 people who lived in the area where migrant labor lived for a questionnaire and 18 stakeholders for focus group. Focus group discussion, questionnaire, and the meeting for reflecting the result findings and public scoping were conducted for data collection.

The results showed that; Positive impact on physical health were 1) Thai people did not have to work risky jobs 2) employers easily found the workers. Negative impacts were 1) sick workers could spread communicable diseases; 2) people inconveniently accessed to the health care services due to the migrant labor used lots of health care services.

Positive impacts on mental health were having migrant labor as neighbors. The negative impacts were 1) worried about life safety and property 2) fear of job competition. Positive impacts on social health were 1) more use of other languages in communication 2) the community received good cooperation from migrant labor. Negative impacts were 1) resulting in more classification of people 2) resulting in insecurity of life and property.

Positive impacts on spiritual health were 1) Thai people more aware in Thai culture 2) resulting in intercultural integration. Negative impacts were 1) loss of community traditional life style 2) Some of the areas lost the beautiful scenery.

The results of this study suggest that policy determination towards migrant labor should limit the numbers of labors working in Thailand.

(P12) A Comparative Study of Health Status between Farmers who Practice Agrochemical Farming and Organic Farming in Sanpatong District, Chiang Mai Province

**Anon Wisuthananon
Sivaporn Aungwattana
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The objectives of this study were to compare health status among farmers who use agrochemicals and to develop health indicators of health status among farmers. The study sample comprised of 102 farmers; 61 farmers who used agrochemicals and 41 farmers who used organic agriculture, and stakeholders. Data were collected using interviews, focus group discussions, health assessments, Acetyl-Cholinesterase [AChE] test and a seminar for data validation and exchange of experiences with farmers and stakeholders. Data were analyzed using descriptive statistics, T-test, Analysis of Variance (ANOVA) and content analysis.

The results demonstrated that 77% of the sample who used agrochemicals and 82.9% of the sample who used organic agriculture perceived their overall health status at a moderate level. Considering each dimension; physical, mental, social and spiritual, it was found that the sample who used agrochemicals perceived and who used organic agriculture their health status in the 4 dimensions at a moderate level (73.8%, 67.2%, 82%, and 83.6% respectively) and (92.7%, 56%, 63.4% and 68.3% respectively). It was also found that perception of health status between the 2 groups was not significantly different ($p > 0.05$), however, it was also found that perception of health status in social dimension between the 2 groups was significantly different ($p < 0.05$). It was also found that the results of the AChE test between the 2 groups was not significantly different ($p > 0.05$).

Conclusion of this study suggests that relevant persons should be made aware of the significance of correct agrochemical usage, furthermore health risk surveillance among farmers should be conducted systematically and regularly. Health information should be disseminated in order to change agrochemical using behavior and for the safety and well-being among farmers, consumers, and the environment and strategies to develop healthy public policy in the local area.

(P13) Increasing Pooris Access to Renewable Energy Technologies through Microfinance : Nepal Case Study

Gopal Raj Joshi



Results showed seven percent of the respondents were detected having chlorpyrifos in their blood. Mean level chlorpyrifos was 7.29ng/ml with standard deviation of 5.48ng/ml. Percentage of respondents having pesticide exposure symptoms was high with seventy five percent of the respondents experiencing at least one of the symptoms studied. However, there was no significant relationship found between those symptoms and the chlorpyrifos blood level among the respondents. In conclusion, the farmers in this study were exposed to hazardous effects of pesticide. It is recommended that specific trainings on safe use and handling of pesticides should be strengthened and given on a regular basis. Monitoring programs and inventory mechanisms should be set up with more stringent control by the government agencies. Further detailed study such as interventional studies should be done to ensure the farmers are protected from the hazardous effects of pesticides.

(P17) Impact of Driving and Working Hours on Commercial Bus Driver's Fatigue and Its Implication to Safety and Health Policy In Transport Sector

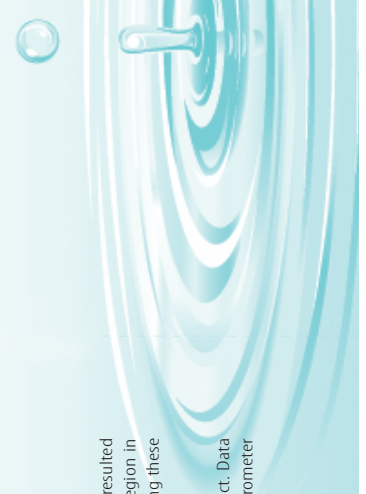
Norlen Mohamed

Introduction: Impact of driver's fatigue on crash risk is well documented. In Malaysia, this is critical especially for commercial bus drivers as their work schedule requires them to work extra hours. It is crucial to determine the optimum driving and working hours so that the preventive policy can be implemented in transport sector to prevent driver's fatigue, thus reduce crash risk.

Method: Commercial bus drivers plying 27 routes covering different types of trips were selected for the study to represent different types of driving and working hours. Fatigue status was assessed twice; before departure of the first trip and at the end of their last trip for the day using the Checklist Individual Strength Questionnaire-CISQ. Multiple logistic regression was performed to determine optimum driving and working hours.

Results: It was found that working and driving hours were significantly associated with fatigue status after considering the effect of age, smoking status and duration of work. The drivers started to experience fatigue at 5 hours of driving and the proportion of drivers experiencing fatigue increases as driving and working hours increase. The probability of experiencing fatigue was explained by the logistic regression equation model.

Conclusion: The study findings indicate that driving and working hours are significant predictors for driver is fatigue. There is a need for establishing a safety and health policy in transport sector, especially that involves commercial bus operators to prevent driver's fatigue, thus reduce crash risk. This study recommends that drivers have a rest after 4 hours of continuous driving and the ideal driving and working hours would be 6 hours and 8 hours respectively as it associated with 4.5% of drivers experiencing fatigue. After considering the practical aspects of commercial bus operations, a 10-hour work period and an 8-hour driving would still be acceptable.



Majority of rural population in Nepal use fuel wood, agricultural residue and animal dung (accounting for 88% of primary energy use. However fossil fuels and renewable energy source account for 11.5% and 0.48% of the total energy budget. This has contributed to enhance problem of energy security, environment and human health. Access to energy is considered to play a vital role in poverty reduction and to achieve the Millennium Development Goals. In this context, Nepal not only needs to promote renewable energy technologies to deal with future energy crisis but also to ensure energy for poor people. Fortunately, Nepal has a huge potentiality for promoting renewable energy technologies (RETs).

The Government of Nepal has given priority to promoting RETs for improving the lives of poor people across the country and also provides subsidies. However rural poor are deprived of the benefits of the technologies and the government subsidy because they lack the ability to pay the upfront cost required purchasing such technologies.

To remove such investment barrier, the concept of micro-financing for RETs has been introduced in Nepal. Micro-finance Institutions (MFIs) are providing credit to rural poor for acquiring RETs. Proven technology, a strong quality control mechanism and favorable economics of the various RETs makes providing loans for them viable, reliable and bankable loan products for MFIs. There is huge demand and opportunity for financing RETs. As other commercial/development banks are also looking for new investment opportunities, MFIs are partnering with these financial institutions to fulfill this demand.

Experiences in Nepal and outside show that interventions made by MFIs have a significant impact to promote RETs among poor. The interventions have resulted increased awareness on technology and financing options, promotion of productive uses of energy for increasing income of the rural poor, conservation of environment and improved public health.

(P14) Management of High Fluoride Content in Community Drinking Water: An HIA application

**Surat Mongkolkehaichai-arunya
Puangtong Pukrittayakamee
Banyen Sirisakulverroj**

Pipe water system has been implemented widespread in villages over the country. But it does not mean water is safe. In Bantamglak, Songkhla dental fluorosis in children was reported. Dental fluorosis is a condition of discolor and disfigure emerging permanent tooth which caused by consistent exposure to high fluoride. Investigation found that community water supply contained fluoride 4.45-6.85 mg/L. HIA approach was used to bring about health improvement and the sustainable development. Rapid appraisal of dental fluorosis in children by health personnel and the survey of drinking water sources by village health volunteers was collected and analyzed. Meetings were held among decision makers (village leaders, member of the local administrative authority, village health volunteers, and head teachers) and the villagers to inform and discuss the advantages and limitation of the alternative measures. All sectors in community agreed to implement a plan according to their functions. Local authorities had provided rain water containers in schools and daycares, and allocated big amount of budget for the new community pipe water system (0.08 F-mg/L). Village health volunteers encouraged people to change their drinking water source. Monitoring and evaluation was done by village health volunteers to do a surveillance on villagers' water consumption and health/dental personnel observe new dental fluorosis cases in children.

(P16) Chlorpyrifos Exposure among Farmers in Sabak Bernam, Malaysia

Rozita Hod

Widespread usage of pesticide in agricultural activities has inadvertently exposed the farmers to a lot of hazards which resulted in health problems. A cross sectional study was conducted on paddy farmers in Sabak Bernam, Selangor, a central region in Peninsular Malaysia. The objective of this study was to gather baseline information on the chlorpyrifos blood level among these farmers and its relationship with various sociodemographic factors.

Samples were collected via multistage random sampling from 2 subdistricts and 4 villages in the Sabak Bernam district. Data was collected using guided questionnaire. Blood samples were taken and analyzed using gas chromatography spectrometer (GCMS). The data was analyzed using Statistical Package For Social Science Version 11.5.

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Thank you for your contributions to HIA 2008.



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