The Loggerhead

A regional Southeast Asia newsletter
covering issues on environment, science, technology and health

In this March 2009 Issue

The U.S. Department of State's Southeast Asia Regional Environmental Affairs Office publishes this newsletter for informational purposes only and the articles contained herein should not be construed as official U.S. government position.

The Southeast Asia Regional Environmental Affairs webpage:

bangkok.usembassy.gov/embassy/reo.htm

Freshwater fish species that typically carry the Ov. Parasite and are commonly used in semi– and raw fish dishes in the Mekong Basin.

Typical setting for the preparation of koi plaa after early morning fish catches have been brought in.

Koi Plaa Dish.

Parasites, Fish and Public Health in the Mekong

The Case of OpistH Orchis Viverrini

Text & Photos by Carl Grundy-Warr

Opisthorchis viverrini is commonly known as liver fluke, which is one of the parasite flatworms that infect millions of people in Southeast Asia. In some of the people it infects, it causes a deadly liver cancer. Food-borne trematode (parasite) infections are particularly prevalent in the wetlands of the middle and lower reaches of the Mekong region. Suitable ecological conditions allow the proliferation and dispersal of parasites. Furthermore, the life-cycle of parasites like *O.viverrini* are enhanced by the fishing and food cultures of local people who like to eat spicy dishes with raw, semi-cooked and fermented fish.

In Isan of northeast Thailand, where knowledge of the disease caused by liver fluke is relatively widespread, there remain literally thousands of food-stalls in almost every town and village selling delicious raw and semi-cooked fish treats such as *koi pla* and the

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famous mango salad (*som tam*), which sometimes contains uncooked fish. As Mr Chadit, a fish trader who lives beside the reservoir of Ubonrat Dam near to Phu Wiang in Isan says, "After the fish come in, we love to go and eat *koi pla* washed down with *lao koa* (rice whisky)."

Dr Paiboon Sithithaworn of the Liver Fluke Cholangiocarcinoma Research Center (LFCRC), Faculty of Medicine at Khon Kaen University in Northeast Thailand, has been researching the cholangiocarcinoma (CCA) or bile duct and liver cancer associated with *O.vivereini* infection for 25 years. He says that there are many local misconceptions such as adding large amounts of *nam manao* (lemon juice) to *koi pla* or drinking *lao kao* will kill the worms in food.

The cancer associated with *O.viverrini* takes 30 to 40 years to develop after infection. Once CCA is diagnosed, victims have no cure and death occurs within three to six months after diagnosis. The World Health Organization (WHO) has advocated the use of the drug called praziquantel, an effective chemotherapy for Opisthorchis parasite infection. But Dr Paiboon warns that this drug does not prevent re-infection through eating raw and semi-cooked fish dishes, and repeated treatment with strong drugs may actually weaken the body's resistance over time. In addition, infection with *O.viverrini* is chronic, and whilst it may not lead to cancer in all cases, it does cause other hepatobiliary diseases. The fact is that many people do not know they have parasitic infections until the disease is actually diagnosed, and in spite of the risks, eating dishes such as *koi pla* remains a deeply rooted cultural tradition.

Opisthorchis viverrini, along with other food-borne trematode problems requires in-depth knowledge of the lifecycle, ecology and environmental conditions that promote infection. One of the immediate hosts of *O.viverrini* is the Bithynia snail, whose numbers are prolific in several wetland areas and rice paddies. After a while, the *O.viverrini* develops into cercariae that swim and penetrate the tissues of various cyprinid species of fish. Humans become infected with

O.viverrini by ingesting metacercariae in uncooked fish, which eventually end up in the bile duct where they develop into sexually mature adult worms. Humans may then release eggs back into the environment through faeces for a whole new life-cycle to begin. The situation is further complicated by the presence of other hosts for *O.viverrini*, such as cats and dogs. Understanding the human and physical properties of such wetland landscapes is essential in the ongoing research on parasites, prevalence and spread of infections, and human health.

Dr. Ross Andrews, a specialist in parasites and ecology, who has many years of research experience in northeast Thailand, argues passionately that we still do not know enough about the *O.viverrini* and complex ecology-society relationships. His research with other scientists has helped to uncover hotspots for prevalence of the parasite within different wetland areas, considerable variations in disease presentation in human populations, and distinct genetic groups of parasites associated within different wetland systems.

According to Dr Andrews, major health organizations and funding agencies have tended to underestimate the widespread nature of food-borne trematode infections, including *O.viverrini*, compared to problems such as HIV/AIDS, bird flu and malaria. "It is true that people may not die of liver cancer for 30 years", says Andrews, "but I have watched many children eating raw and semi-cooked fish. Infections are high, and there is a need to urgently tackle this problem to prevent future deaths from the disease."

Dr Andrews believes that much more funding and research on parasitic food-borne infections is needed within the Mekong region and Southeast Asia.

To tackle such infections, there is also a need to take health care education and interventions directly into the hot-spots of risk and infection. Researchers in Khon Kaen University's Faculty of Medicine have helped initiate projects to spread awareness of parasitic infections amongst ordinary people, and they have implemented useful primary care projects.

One such scheme is a health screening project supported by the Thai National Institute of Health (NIH), which seeks to treat people with known parasite infection. Teams of young medical students regularly visit various villages in Khon Kaen province with ultrasound equipment, blood-testing kits and medicine to monitor, test and treat villagers with infection who have consented to participate in the scheme.

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One of the senior health professionals involved is Dr Eimorn Mairiang of the Department of Radiology, who devotes most Fridays to this village-based initiative. She argues passionately that such schemes are needed throughout the Isan region and beyond, elsewhere in Thailand and in neighbouring countries.

"I want to show the younger generation that they can do this. Young doctors should visit the 'crime scenes' (of infection) in small villages," says Dr Eimorn, adding that direct actions are necessary to help alter the attitudes of local people to food-borne parasites and their own health.

In addition to improving public health at local levels, research that combines scales of analysis from the microbiological world of parasites to much larger environments may also be critical for understanding fundamental changes and processes that relate to the health of our planet.

She is not alone. "Research on the links between parasites, environments and human beings is very dynamic," says Ross Andrews, who maintains that there is a growing need for intimate linkages between high-technology lab-based work, sophisticated scientific models, and the ever changing dynamics within the human-physical environment.

India's New Initiative on Improved Biomass Cookstoves

India's Ministry of New and Renewable Energy (MNRE) is launching a new initiative on biomass cookstoves, with the primary aim of enhancing the availability of clean and efficient energy for the energy deficient and poorer sections of our society.

An estimated 80% of the residential energy in India comes from biomass, much of it burnt in traditional cookstoves. The adverse health and socio-economic implications of this form of energy supply are enormous, with women and children at particular risk. The burden of biomass fuel collection and processing for cooking also falls mainly upon women and children (mainly girls), who spend significant time gathering fuel resources every day.

The starting point of the current exercise is the user. The solution on offer should, first and foremost, be easy to use and maintain and conform to local cooking habits across the country. Its adoption must make economic sense to the household. The program is conceived not as a handout to poorer households, but rather as an economically sustainable business solution.

This new initiative is also based on the recognition that cookstove technology has improved considerably in the past few years. But further advances are still possible and, indeed essential. Under this Initiative a series of pilot-scale projects are envisaged using several existing commercially-available and better cookstoves and different grades of processed biomass fuels. This will help in exploring a range of technology deployment, biomass processing, and delivery models leveraging public-private partnerships.

At the same time, it will set in motion a series of activities that are designed to develop the next-generation of household cookstoves, biomass-processing technologies, and deployment models. This may include an innovative global contest to develop combustion units with high thermal efficiency and low pollution characteristics and, in parallel, appropriate biomass-processing devices. The Initiative will aim for a significant enhancement of technical capacity in the country by setting up state-of-the-art testing, certification and monitoring facilities and strengthening R&D program in key technical institutions. An independent monitoring and evaluation component is envisaged to assess the activities and fine-tune them on an ongoing basis. And, last but not the least, it will welcome and promote participation by civil society and private actors to make it a true public-private partnership.

The technologies and delivery models that will be developed through this Initiative will be useful for other developing countries in Asia, Africa, and Latin America whose populations also suffer from health and other problems related to biomass use in household cooking. Therefore success of this Initiative could well have a transformative impact for the energy poor in other developing countries.

Note: The U.S. organized a cook stove conference at AIT in November 2009 [see previous loggerhead edition]. The conference looked at the combination of new technologies, and case studies of successful implementation projects. Conference results can be found on the AIT website. The woman's refugee commission held a workshop on appropriate cook stove fuels in January 2010 for refugees in Thailand. Woman's Refugee Commission plans to hold other workshops in Asia and Africa. To learn more visit http://www.womensrefugeecommission.org/

Official Statement from the World Bamboo Organization

World Bamboo Day was declared by the Thai Royal Forest Department on **18 September** in Bangkok, during the 8th World Bamboo Congress held at the Imperial Queen's Park Hotel. This declaration is an

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effort to increase the awareness of bamboo globally. Where bamboo grows naturally, bamboo has been a daily element, but its utilization has not always been sustainable due to exploitation. The World Bamboo Organization wants to bring the potential of bamboo to a more elevated exposure - to protect natural resources and the environment, to ensure sustainable utilization, to promote new cultivation of bamboo for new industries, as well as promote traditional uses locally and for community economic development." The 8th World Bamboo Congress in Thailand was attended by over 350 participants from over 41 countries. To celebrate World Bamboo Day, a ceremonial bamboo planting took place nearby Bangkok where a representative from each country had the honor to plant a bamboo seedling as a symbolic gesture of our mission.

The bamboo plants, grown and provided by the Royal Forest Department, were planted in Prachin Buri at the Khao Hin Sorn Royal Development Study Centre. Next year, and every year, we hope you will remember bamboo on World Bamboo Day, **18 September**, and do something good for the Earth. Plant a bamboo! Talk bamboo! Build with bamboo! Sing with bamboo!

Wear bamboo! Eat bamboo! Feed bamboo! Breathe bamboo! Walk among the bamboo, and feel good.

Excerpt from Magazine of the American Bamboo Society December 2009 Vol. 30 Issue 6

United Nations Environment Program on Atmospheric Brown Clouds

Recent scientific studies have revealed a new atmospheric issue: Atmospheric Brown Clouds (ABC). The brown haze is caused by air pollution, mainly the sub-micron size aerosol particles, emitted from a wide range of anthropogenic and natural sources. Through the studies initiated under ABC project, scientists now have an overall view of the major sources and the global scale nature of the brown cloud problem.

To read more click here.

Chinese Dams Expose Fault Lines

By Marwaan Macan-Markar

CHIANG MAI, Thailand, Dec 9 (TerraViva) – A heated debate about the future of the Mekong River at a media conference in this northern Thai city exposed a fault line triggered by the regional giant China's plans to build a cascade of dams on the upper stretches of South-east Asia's largest waterway.

To read more click here.

Water Management in the lower Mekong River Workshop

Regional Environmental Officer feeds pomfret species at floating fish farm on the Mekong River near Can Tho, Vietnam.

On Dec 8-12 US Geological Survey (USGS) and Can Tho University hosted a workshop in Can Tho to ascertain the science gaps for water management in the lower Mekong River.

Scientists and natural resource managers from Cambodia, Laos, Vietnam, Thailand and China worked to give program direction to the USGS DRAGON program, a Lower Mekong Initiative activity that will use data integration and modeling to inform water management and decision-making for the lower Mekong countries.

The program included a site visit to a rice paddy to examine water management as it relates to flooding and pest control for the Mekong Delta that is threatened by sea level rise. There was also a fish farming visit which looked at water quality issues and food security for Mekong delta aquaculture.

Some of the other activities covered in the workshop include hydropower dam effects and preserving biodiversity and food security in the Mekong from China to Vietnam.

Interesting Reads:

Critical States: *Environmental Challenges to Development in Monsoon Southeast Asia*

Edited by Louis Lebel, Anond Snidvongs, Chen-Tung Arthur Chen, and Rajesh Daniel

Critical States provides transboundary "state-of-the-science" reviews, case studies, and assessments of issues in the environmental change-development nexus, including: governance and institutional challenges, urbanization, climate change, poverty, as well as land, energy, and water use.

For more information click here

New East-West Center publication on the changing land-use dynamics in the Golden Triangle *The following is a new title in the Asia-Pacific Issues publication series. Click on the link below for further information or to download the PDF file free of charge.*

Crossing Borders, Changing Landscapes: Land-Use Dynamics in the Golden Triangle, by Jefferson Fox. **AsiaPacific Issues**, No. 92. Honolulu: East-West Center, December 2009. 8 pp. Paper, $2.50.

Over the last half-century, public policy has affected land-use practices across the borders linking China, Thailand, and Laos. Political and economic reforms have facilitated labor mobility and a shift in agricultural practices away from staple grains and toward a diverse array of cash crops, rubber being one of the foremost. China has promoted the conversion of forests to rubber agroforestry in southern Yunnan--profitable for farmers, but a concern in terms of biodiversity and long-term viability. In Thailand, the response is at the other end of the spectrum as the government's concerns about land-use practices and watershed management have led to policies that dramatically constrain land-use practices and limit tenure rights. In Laos the future is not yet clear. Government policies provide weak support for both private land ownership and protected areas. In a global environment where national policy has such a dramatic effect on land use and land cover, the factors behind land-use change merit close examination.

Wildlife Campaign Replicated in Laos

FREELAND designed banners and billboards featuring endangered species targeted by the illegal wildlife trade were part of the campaign materials used in Laos.

FREELAND Foundation joined the Lao Wildlife Trade Working Group to replicate the "Sold Out" Campaign to promote wildlife conservation and prevent illegal trade in Laos. The new campaign was launched by the Lao National Department of Forest Inspection and the Division of Forest Resources Conservation, together with 16 other partners including FREELAND, on November 27, 2009 in Vientiane, to coincide with the 25th South East Asian Games.

FREELAND's "Sold Out" campaign expanded nationally early this year, covering Thailand's customs checkpoints. It's replication in Laos with the support of so many stakeholders represents an important step for building

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public awareness of the existence and impacts of illegal wildlife trade.

Preserving the message "Every time you buy, nature pays", the Lao campaign is directed at citizens and visitors to Laos, reminding them that they can help protect the region's wildlife by refusing to buy, sell or consume wildlife products. FREELAND hopes to expand and replicate these campaigns further in Southeast Asia to help instigate a united community effort to end wildlife crime.

FREELAND helps Thai Police Nab Two Suspected International Ivory Traffickers

The Royal Thai Police announced the arrest of two Thai nationals on November 16 on suspicion of illegally trading African ivory after a tip-off by U.S. authorities.

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Illegal African ivory trade drives poaching of wild elephants

Their capture followed a year-long joint Thai-U.S. investigation supported by FREELAND Foundation and the ASEAN Wildlife Enforcement Network (ASEAN-WEN).

The alleged crime, which spanned three continents, indicates Asia is an evolving international transit point, not just a source, for illegal trade in endangered species and their derivatives. More than 10 metric tons of endangered African elephant ivory has been seized in Southeast Asia over the last year, but no traffickers had been caught until the arrests in Bangkok.

This joint Thai-U.S. law enforcement success underlines the importance of international cooperation to tackle illegal wildlife trade through networks such as the ASEAN-WEN. More than 180 print and online news publications around the world, including the Washington Post covered the arrests.

South Korea to Launch Global Climate Change Institute

In his December 16 keynote address at the Copenhagen climate conference, President Lee Myung-bak announced plans to launch an international institute early next year to spearhead global efforts to fight climate change and also help provide developing countries with mitigation plans and necessary technology. The institute, tentatively named the Global Green Growth Institute (GGGI), "can act as a global think tank and bridge between advanced and developing countries," the South Korean leader said. The Office of the President announced on December 17 that the institute will be established in South Korea in the first half of next year and at least five branch offices will be opened in advanced and developing countries before the end of 2012 jointly funded by the host countries. The institute will bring together the world's top scientists and climate experts to come up with what Lee called "workable solutions" to environmental problems.

Fair Earth Farm in Thailand promotes community supported agriculture that grows grain, vegetables, fruit, eggs, fish and a wide range of agroforest products and indigenous herbs. They aim to connect farmers directly to buyers so that farms are paid up front and consumers know the source of their food. Check out their latest video!

Links of Interest:

- What's Ahead @ ESCAP
- Association of Pacific Rim Universities (APRU) World Institute
- START Global Change System for Analysis Research, and Training
- Mekong River Commission (MRC) for Sustainable Development
- 2010 International Ministerial Conference on Animal and Pandemic Influenza: The Way Forward (IMCAPI)
- Fair Earth Farm, bringing good food to good people from good farms at good prices, and telling the story
- Mekong Tourism
- ASEAN Biodiversity Updates

Methane to Markets (M2M)

M2M project in Ratchaburi, Thailand

The Methane to Markets Partnership is an international initiative that advances cost-effective, near-term methane recovery to use as a clean energy source. The goal of the Partnership is to reduce global methane emissions in order to enhance economic growth, strengthen energy security, improve air quality, improve industrial safety, and reduce emissions of greenhouse gases.

M2M has active Asia programs in Thailand and Vietnam were pig feces are converted to biogas for cooking and electricity.

Government of Vietnam Increases Environmental Fines

Violators of environment laws will be fined up to VND 500 million (approximately $28,000), much higher than the current maximum of VND 70 million (approximately $4,000), according to a new Government decree. The new decision, which will come into effect as of March 1, is part of the government's efforts to raise public awareness of environment protection. In addition to paying fines, those individuals and enterprises damaging the environment may have their working licenses revoked or be forced to restore the environment depending on the seriousness of their offences. The minimum fine is VND 100,000 VND (approximately $6). ***Vietnam News Agency (January 9)***

WaterLinks: Philippine Water Operators Support Indonesia in Expanding Water Services to the Urban Poor

From February 1-4, 2010, the two water concessionaires serving Manila assisted the water operators serving Surabaya and Medan, Indonesia's second and third largest cities, to improve their capacity to provide water services to the urban poor.

Two staff representing Maynilad Water Services and its NGO partner provided training to Medan on community partnerships and assessed the progress of Medan's program to expand piped water to 17,500 low-income households.

The Manila Water Company hosted a delegation from Surabaya at its headquarters and field sites to share experience on procedures for applying community management systems to serve water to the poor, as well as on enabling field staff to work directly with low-income communities.

Manila Water is helping Surabaya achieve its 2010 goal of providing water services to over 15,000 low-income residents under a World Bank output-based aid grant. USAID supports these WaterLinks partnerships through its Environmental Cooperation-Asia (ECO-Asia) program.

IUCN Workshop Fosters Integrating Business Skills into Ecotourism Operations

The International Union for Conservation of Nature (IUCN), in conjunction with the Cambodia Community-Based Ecotourism Network (CCBEN) hosted an exceptional training workshop from 17-21 January 2010 at the Kirirom Resort, on the outskirts of Kirirom National Park, south of Phnom Penh. The objectives were to help enable regional conservation organizations to better understand the risks and opportunities of developing ecotourism, create awareness of the importance of analyzing tourism potential, understand the market and marketing tools as well as pay attention to the health and safety aspects when developing a tourism business.

The event also aimed to enhance the capacity of conservation organizations to design or improve ecotourism products so that they become economically viable and positively contribute to biodiversity conservation. The workshop was attended by ecotourism and community-based tourism operators from Cambodia, Thailand, Vietnam, Laos and the Philippines, and instructors from IUCN, Exotissimo Travel, Lonely Planet Publications, MARSH and the Mekong Tourism Office.

The three-day workshop was followed by a visit (and homestays) at the Chambok Community-based Ecotourism site.

Upcoming Events

China:

- Public Health: Chronic Non-Communicable Diseases Program and Workshop: June 16-19

India:

- Methane to Markets Partnership Meeting: March 2-4

Indonesia:

- Pacific Rim Cities: Climate Change Mitigation and Adaptation Strategies: March 16-19
- 20th Annual Asia-Pacific Military Medicine Conference: May 3-7

Laos:

- Mekong River Commission 1st Basin Development Plan Lao Sub-area Meeting – Upper Sekong Basin: February 25-26
- Lao Wildlife Expert Network Workshop:

Tanzania:

- 2010 Annual PEPFAR Meeting: May 19-21

Thailand:

- Thailand Technical Consultation for the FAO Bioenergy and Food Security (BEFS) Project: March 11
- Asian-Pacific Regional Conference on Practical Environmental Technologies: March 24-27
- UN ESCAP World Water Day Conference: March 22
- MRC Mekong River Summit: April 2-5
- Mahidol University Tropical Wetland Management Training: August 2-13
- SEA-START and East-West Center for Asian Pacific Network: Climate Change Vulnerability Assessment and Urban Development Planning for Asian Coastal Cities: August 23-September 1

USA:

- Global Tiger Initiative Executive Leadership Forum: April 15-21
- Public Health: Chronic Non-Communicable Diseases Program: June 23-24
- Forging Public Health Partnerships in Response to the Global Economic Crisis: June 25-26
- Deltas 2010 Conference in New Orleans: Oct 18-20
- American Bamboo Society Annual meeting: Nov 4-7

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Upcoming Events

Vietnam:

- International Conference on Environmental Pollution, Restoration, and Management: March 1-5
- National Workshop on River rehabilitation: March 4-5
- GMS Economic Cooperation Program, ADB 16th Greater Mekong Subregion Ministerial Conference: March 25-26
- Training the Trainers Course Conflict Resolution and Negotiation Skills for IWRM: 28 March – 3 April
- University of North Carolina, Environmental Change Ag Sustainability and Economic Development in the Mekong Delta: March 31-April 2
- Vietnam 2010 International Ministerial Conference on Avian and Pandemic Influenza: April 19-21
- International Ministerial Conference on Animal and Pandemic Influenza: April 19-21
- Mekong Environment and Climate Symposium 2010: April 26-27
- Lower Mekong Infectious Disease Conference: June 17-18
- 5th annual Agent Orange/dioxin Joint Advisory Committee Meeting: August/September
- 7th Joint Commission Meeting under bilateral S&T Agreement: September or November

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* **March 22 World Water Day**
* **March 24 World Tuberculosis Day**
* **April 7 World Health Day**
* **April 22 Earth Day**
* **April 25 World Malaria Day**
* **May 28 International Day of Action for Women's Health**
* **May 31 World No Tobacco Day**
* **July 29 has been declared as tiger awareness day**
* **September 5 World Environment Day**
* **September 21 Alzheimer's Day**
* **September 25 World Heart Day**
* **October 10 World Mental Health Day**
* **October 15 Global Hand Washing Day**
* **October 16 World Food Day**
* **October 24 World Polio Day**
* **November 2 World Pneumonia Day**
* **November 14 World Diabetes Day**
* **December 1 World AIDS Day**

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