

WASTE-ECON

Making Waste Work for the Economy
through the Development of Integrated Waste
Management Capacity in Cambodia,
Vietnam, and Laos

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Introduction to Waste-Econ

The five-year project, which began in Vietnam in 2000, will last until 2004 and is funded by the Canadian International Development Agency (CIDA). The project began activities in Cambodia and Laos in July of 2002.

Solid waste has been a major issue in all nations, especially developing countries such as Cambodia, where infrastructure and technical capacity are struggling to keep pace with the increasing quantities of waste brought on by economic development and changing consumption patterns.

The waste economy consists of all economic flows associated with the production, reduction, reuse, recycling, collection and disposal of wastes. The **Waste-Econ** program, through its promotion of Integrated Waste Management (IWM), supports a vibrant and just waste economy that provides enhanced earnings and working conditions, while promoting sustainability, waste reduction and recycling.

The **main goal of the Waste-Econ program** is to contribute to the creation and adoption of better waste policies and practices that contribute to improved economic opportunities, environment and quality of life for all communities in Cambodia, Laos and Vietnam especially low-income waste workers.

To meet this goal the program has **5 main objectives**:

- 1) To increase the capacity to teach, develop curricula and conduct research on integrated waste management at the Royal University of Phnom Penh and other academic institutions in Vietnam and Laos.
- 2) To train professionals to use integrated waste management approaches in their working environments
- 3) To develop and disseminate model integrated waste management practices and policies within Cambodia, Laos and Vietnam.
- 4) Increase the knowledge of Canadian partners about integrated waste management in the three participant countries.
- 5) To have professionals in Cambodia, Laos and Vietnam learn from each other about integrated waste management policies and practices.

Waste-Econ's Major Activities

The program has 5 major sets of activities, which it will be conducting within the next two years:

- 1) Training of individuals from universities, NGOs, governments and industry through Six and Two-week training courses on concepts and practices of Integrated Waste Management.
- 2) Pilot Projects with leadership from the RUPP, advisors from the University of Toronto. Activities related to the pilot project will include research, reports and newsletters, workshops, conferences and community outreach.
- 3) Curriculum development at RUPP and other training institutions. The training of teachers and researchers will be achieved through six-week training courses, pilot projects, special workshops, Master's degree and Post-Master's degree short course work, Language Training, International conferences and Publications .
- 4) Training of Canadian researchers by sending Canadian students to Cambodia to conduct research and collaboration between Cambodian and Canadian faculty on research and pilot projects. Canadian faculty will then be able to integrate Cambodian waste management case studies into university courses, public lectures and seminars.
- 5) International cooperation and collaboration among researchers and professionals in Cambodia, Laos and Vietnam through international study tours, workshops and International Conferences, the first of which will be held in March of 2003.

Six-week Waste Management Training Course: July and August of 2002.

Canadian and Vietnamese experts in various fields of Integrated Waste Management were assisted by faculty members from the Department of Environmental Science in delivering a Six-week Training Course to 34 Cambodian participants. Participant were selected from the Ministries of Environment and Tourism, The Department of Public Works and Transportation, Municipal Departments of the Environment, Agronomy and Land Improvement, lecturers and students from the Royal Universities of Phnom Penh and Agriculture and NGO representatives from the Khmer Children Center, The Cultural and Environmental Preservation Association (CEPA), and The Community Sanitation and Recycling Organization (CSARO).

One week lecture series were delivered in: Waste Planning and Technology, Research Methodology on Waste Economy, Industrial and Hazardous Waste Management, Introduction to the Economics of Waste Management, Health and Waste and Recycling and the Informal Sector (Theories and Principles of the Waste Economy). Lectures were complemented with field trips to the municipal dumpsite, the Community Sanitation and Recycling Organisation and various waste generators where participants learned skills such as waste composition studies, human health impact assessments and basic interview and survey skills. Participants were evaluated through exams and assignments and also completed small research projects, presenting their findings on the final day of the course.

Participant conducted research on: The health problems of waste pickers at Steung Meanchey Dumpsite, Drainage and Waste Water Disposal in Phnom Penh, Child Waste Pickers within Phnom Penh, The Role of Women in Waste Work at Steung Meanchey Dumpsite, Organic Waste Composting in Phnom Penh and Waste Generation, Collection and Recycling in Chamkarmorn District

Information and experiences from these 6 weeks will inform the 2-week training courses which will be instructed by faculty from the Department of Environmental Science and will be offered in Siem Reap and Sihanoukville this summer.

The Pilot Project

Starting in 2003 the Waste-Econ program will be initiating a pilot project on integrated solid waste management in Cambodia. Under the leadership of the Royal University of Phnom Penh (RUPP) the pilot project group members will be drawn from other universities or institutions, local, provincial or national governments, NGOs and community organizations. The Cambodian Coordination Committee, with input from Steering Committee Members and guests at the National Planning Conference, discussed four issues which could be addressed through the pilot project: **1) Community Participation in Waste Management in the Town of Siem Reap:** Within Siem Reap several communities have access to waste collection services, however participation with these services is low. Many households dispose of their waste in the Siem Reap River which runs through town; **2) Improving Environmental Conditions at Sihanoukville Beaches:** The beaches of Sihanoukville are host to increasing numbers of tourists who generate large quantities of waste, much of which is left unmanaged and disposed of in the coastal areas. This threatens both public health the fragile marine ecosystems of the area; **3) Health Care Waste Management in Phnom Penh:** Poorly managed health care waste is a significant problem in Phnom Penh where it is commonly mixed into the municipal waste stream and disposed of at Steung Meanchey dump site. Those under the greatest health risk are those in the informal recycling sector who retrieve, sort and sometimes clean materials for resale and recycling; **4) Introducing Integrated Waste Management Practices at Angkorian Temple Sites in Siem Reap:** The Angkorian temple sites in Siem Reap are seeing an ever increasing amount of national and international tourists. These visitors are generating huge amounts of solid waste which, without proper management pose a threat to public and environmental health and will eventually threaten the sustainability of tourism at the temple sites. A pilot project would focus on public awareness and work with local authorities to introduce integrate solid waste management practices.

Education and Training

Waste-Econ in its objective of increasing the capacity of Cambodian scholars is sending Spaonn Vin, lecturer from RUPP to the Asian Institute of Technology to complete Master's work in Urban Environmental Management. Vin has completed his Bachelors in Geography and has been an instructor of Introductory Environmental Studies for the past year.

RUPP will also be sending lecturers from the Department of Environmental Science to go to the University of Toronto for special enrollment into four month studies which will include english training.

In November 2002, Cambodian participants from The Royal University of Phnom Penh, Phnom Penh Waste Management (PPWM) and the Community Sanitation and Recycling Organization (CSARO) attended training courses in Phitsanulok, Thailand on Recyclable Waste Separation. Since then concepts and practices from these courses have been integrated into waste separation activities at CSARO.

First Annual National Planning Conference Sihanoukville, Feb. 22, 2003.

The conference was designed to bring together the Cambodian Coordination Committee, Steering Committee, the Canadian Program staff and professionals involved in waste management to discuss the project's goal's and work plan for this year. In depth discussion was conducted on project management and evaluation, pilot project options, 2– week training courses and curriculum development.

The conference was presided over by His Excellencies: To Gary, Secretary of State of the Ministry of Environment, Pit Camnan, Director of RUPP and Brak Sihara Deputy Governor of Sihanoukville and was attended Steering Committee members Heng Lay Orn, Governor of Phnom Penh Waste Management, Pascal Patrice Director of CINTRI, Phnom Penh's municipal waste service provider, Heng Yon Kora Director of the Community Sanitation and Recycling Organization as well as key representatives from the Ministries of Environment and Health, the Institute of Technology, MLUPP Baitong and the Departments of Environment in Sihanoukville and Siem Reap.

Current Research

Curtis Puncher, an Internship Student from the University of Toronto is near completion of field work for a two month study on Recycling in Phnom Penh. The study will be used to complete an undergraduate thesis, some of which will be integrated into curriculums in Toronto and Phnom Penh

The study will describe the current situation of recycling in Phnom Penh, focussing on material flow information and the socio-economic conditions characteristics of those involved in informal recycling work.

A research team conducted structured interviews with several hundred waste pickers and waste buyers from Khans Chamkarmorn, Toul Kork and Meanchey, including 97 waste pickers at the Steung Meanchey dumpsite and 72 child waste pickers (under 16). The study team also conducted interviews with the owners of surveyed waste depots and recycling industries. Results will be available in the fall of 2003.

Special Workshop on Industrial Waste Management

OCETA, a private sector, not-for-profit organization is committed to the delivery of programs to promote the adoption of sustainable development, eco-efficiency and cleaner production practices by Canadian-based manufacturing companies. OCETA is interested in sharing its experiences and success stories in Cambodia by preparing a training session for industry, government and academic stakeholders on the benefits to companies of implementing an Environmental Management System (EMS), introducing eco-efficiency practices to reduce the consumption of energy, water, materials and toxic substances, and to discuss tools and methodologies that will lead to cleaner production practices. The intention will be to improve the understanding and provide information on the value brought about by these activities and how to actually implement actions leading to sustainable development. Raising awareness that improved environmental performance will lead to improved economic performance should be of interest and benefit to companies.

JICA Funded Study on Solid Waste Management in Phnom Penh

The consulting firm Kokusai Kogyo Co., Ltd will be conducting several surveys on various aspects of solid waste management in Phnom Penh. The main objective of their study is to formulate a Master Plan for the Municipality, which will guide policy and activities until the year 2015. A study team, along with subcontractors will be conducting research on: waste quantities, chemical composition, public opinion, collection timing, medical waste, industrial waste, recycling markets, social environmental survey in and around the dumpsite, cleaning service workers and topographical survey of existing disposal site. In addition to these studies the team will be installing a weighbridge at Steung Meanchey dumpsite and conducting pilot projects in priority areas.

Web sites related to Integrated Waste Management

·Waste-Econ project website: <http://ots.utoronto.ca/users/WasteEcon>

·Waste Wise Resource Centre: www.wwresourcecentre.net

·WASTE/ Urban Waste Expertise Programme: <http://www.waste.nl/>

Program office in Cambodia: Royal University of Phnom Penh, Department of Environmental Science, Room 112, Russian Blvd, Phnom Penh, Cambodia. Phone/ Fax: (855) 023-884-523

Program office in Canada: University of Toronto, Department of Geography, 100 St. George St.,
Toronto, Canada. M5S 3G3