



WASTE-ECON

"Making waste work for the economy"

Volume 2 - 7/2001

A. NEWS AND ACTIVITIES

1. The Second National Planning Conference

The Second National Planning Conference of the Waste-Econ Project was held at the Headquarters of the Environmental and Resource Institute, Ho Chi Minh City, from 22 to 23 February 2001.

The conference was attended by representatives from Canadian partners, members of the Project Steering Committee and Secretariat, guests invited from local management agencies and universities, and Mr. Khampha Keomanichanh, representative from the State Committee for Science, Technology and Environment of Laos.

Key reports and/or papers presented at the Conference include:

- Review of outputs achieved from the First National Planning Conference of the Waste-Econ project;
- The project's training performance review;
- Preparation of materials for two week Waste-Econ training courses to be delivered at selected provinces;
- Monitoring and evaluation of the project's activities implemented;
- Planning of pilot research projects;
- Studies in Vietnam by Canadian students;
- The project's activities in the period of 2001-02.

The second year work plan (2001-02) of the Waste-Econ project was agreed upon at the conference, including following activities:

- A workshop on " Waste-Econ curriculum development in Vietnam";
- A training workshop on " Waste Management Economics, Part II";
- A seminar on " Gender and Waste- Econ";
- Three 2 week Waste-Econ training courses to be delivered in Ho Chi Minh City, Da Nang and Thai Nguyen;
- Five pilot research groups to be established and operational;
- Study-tours;
- Vietnamese postgraduate students to be sent to Canada;
- Five Canadian students to be sent to Vietnam;
- Publication of Waste-Econ Newsletter; and
- Meetings of the project's National Steering and Coordinating Committees.

(Tang The Cuong)

2. National Workshop on Waste-Econ Curriculum Development in Vietnam

The first two day workshop on a " Waste-Econ curriculum development in Vietnam" was held in Hanoi from 14-15 May, 2001. At the workshop, ten papers were presented and discussed by participants. The workshop has concluded the necessity of Waste-Econ curriculum to be included in the national formal education system. A national Waste-Econ curriculum framework development has been initially agreed upon by both national and international professionals. Prior to the event, a task force was established by the project to be responsible for the framework development, and will continue working to complete the framework.

(Tang The Cuong)

3. Waste Management Economics Workshop

This is a short-term training workshop on waste management economics organized in Hanoi, from 22-24, May 2001. It aimed at providing local Waste-Econ trainers and researchers of pilot-projects within the framework of the Waste-Econ project with additional specialized knowledge on waste economy issues. The workshop was delivered by Prof. Amrita Daniere from the Geography Department, University of Toronto and attended by 21 participants including eight women. The participants comprise eleven university teachers, and ten researchers and managers.

Three major topics - private and public sectors in basic environmental services; economics of tiny and small sized enterprises; and community based environmental projects - were the focus of the training workshop.

(Nguyen Thi Anh Thu)

4. Preparatory Activities for Provincial Level Short-term Training Courses

Within the Waste-Econ project framework, a set of two week training materials has been prepared by a group of teachers to serve as resource materials for a series of short-term Waste-Econ training courses which are expected to be delivered at Ho Chi Minh City, Da Nang, Thai Nguyen and Son La.

An overriding goal of the courses aims at providing participants with basic knowledge on:

- Waste-Econ theory and principles;
- Environmental Economics - Costs and Benefits Analysis;
- Urban and industrial solid waste management planning and treatment technologies;

Lectures to be presented focusing on following specific topics:

- Waste-Econ theory and principles;
- Waste-Econ research methodologies;
- Introduction of waste management economics;
- Community health education;
- Urban solid waste management planning and treatment technologies; and
- Industrial waste management.

In addition, other topics on waste management issues in rural, agricultural and forestry sectors may be delivered according to specific provinces and target audiences.

The target audiences would include those managers, researchers and trainers who work at provincial departments of Science, Technology and Environment, environmental research institutions, and environmental companies across the country.

It is expected that the participants would be enabled to adopt basic knowledge to their daily work upon completion of the courses.

(Tran Hieu Nhue)

5. Pilot Research Projects

With scientific consultations and support provided by professors from the two Canadian Universities of Toronto and Waterloo, five pilot research projects have been carried out by Vietnamese researchers within the Waste-Econ Project. Following are summaries of these projects.

5.1 Organic Waste Pilot Project at Bai Chay Beach, Ha Long city

This pilot project focuses on organic waste management at Bai Chay Beach Resort, Ha Long, with the goal of maintaining its clean and healthy environment to achieve environmental protection and sustainable development of Ha Long Bay, the World Natural Heritage.

The project starts from 2001 and shall be completed by 2003. The project has defined its study area covering the whole Bai Chay resort comprising both terrestrial and aquatic activities of Bai Chay harbor (such as tourist boats). It is chaired and implemented by the Center for Environmental Engineering of Towns and Industrial Areas (CEETIA), Hanoi University of Civil Engineering.

5.2 Industrial Waste Pilot Project in Ho Chi Minh City

This pilot project aims at various objectives including provision of scientific and practical rationales for constantly integrated industrial waste management in Ho Chi Minh City; support for the City's industrial waste mitigation program and action plan and enterprises' waste economy awareness promotion and industrial waste management effectiveness enhancement through training courses and demonstration projects organized at selected industries; development of industrial waste recycling techniques / technologies appropriate to the City's practical conditions; and orientation toward a center for waste exchange to be established in Ho Chi Minh City.

The pilot project will be implemented in two years, from 2001 to 2002. Target industries that the project aims at include small and medium sized enterprises scatterly located outside industrial estates across the City.

The pilot project is chaired and implemented by the Environmental and Resource Institute, National University of Ho Chi Minh City.

5.3 Municipal Solid Waste (MSW) Landfill Pilot Project in Da Nang

A goal of this pilot project is to study and propose a sanitary landfill planning and technical design, as well as Da Nang City's MSW treatment and recycling. The project is chaired and implemented by the Da Nang University's Environmental Protection Research Center.

5.4 Gender Outreach Pilot - Project for Women Involved in Waste Collection and Recycling in

Truong Minh ward, Hai Phong city

Objectives of this pilot-project are aimed at improving income and living standard for women in particular and their households in general through provision of seed capitals and enhancement of knowledge and experience in waste economy, health protection, labor safety, and environmental sanitation among local women, children and communities involved in solid waste collection and treatment, contributing to environmental quality improvement in Truong Minh ward, Ha Phong City.

The pilot-project will be implemented within three years and its target beneficiaries are woman waste collectors and owners of solid waste recycling facilities. The pilot project is chaired and implemented by the Family and Women's Life Board, Vietnam Women's Union.

5.5 Awareness Pilot-Project for Child Waste Pickers at Nam Son Landfill, Hanoi

This pilot project aims at raising environmental and waste awareness among local child waste pickers, and through this it is expected that their living, learning and working conditions would be better improved.

The pilot- project will be implemented within two years from 2001-02 and divided into two phases. Phase I starts with research activities with the involvement of local children and communities. In Phase II the pilot-project will focus on adoption of relevant community development based options.

The pilot-project is chaired and implemented by the Youth Research Institute, Central Youth Union.

(Tang The Cuong)

6. Feedback on the Six Week Waste-Econ Training Course (Hanoi, 24 July - 31 August, 2000)

6.1 By Participants

The project's policy is to encourage the participants of the six week training course to access information on the project's activities, and in return, they report their application of relevant knowledge and experiences gained to their day-to-day work every six months. Initially, feedback has been received from 14 participants who confirmed that the knowledge is very useful to their work and many of them have had opportunities to translate the knowledge into their teaching, research and management activities, namely:

- Four participants who have included waste-economy issues into teaching material outlines and lectures on urban environment (Ng. Duc Toan, Hanoi University of Civil Engineering); economics and business management (Ng. The Chinh, National Economics University of Hanoi, and Ng. Quoc Tien, University of Trade); and Environmental Engineering (Do Trong Mui, Hanoi University of Technology);
- Two participants have participated in preparing training materials for provincial level two week waste-econ training courses (Hoang Xuan Long, NISPASS, and Ng. The Chinh, National Economics University of Hanoi);
- Seven participants have applied knowledge and experiences in waste-economy into their studies on waste and environmental management related issues, such as provincial state of the environment reporting, economic valuation of solid waste collection, adoption of cleaner production (Ng. Thi Thuy Loan, Le Thi Hai Anh, Cao Xuan Tuan - Da Nang City); Environmentally friendly technologies for small and medium sized enterprises (Ng. Hong Viet, NISPASS); Industrial waste water prevention and mitigation options, environmental impact assessment report of certain investment projects (Van Thi Tam, Ministry of

Industry); inclusion of health and environmental issues into gender studies (Phan Thi Hoa, Viet Nam Women's Union); methods on environmental compensation definition, development of pollution control procedures (Ng. Duc Toan, Hanoi University of Civil Engineering).

(Nguyen Thi Anh Thu)

6.2 By Resource Persons

In August 2000, Dr. Cleo Leland Boyd and I co-taught a one week course on public health science and community education as necessary components of modern waste management. The course combined content and process to show that facts are interpreted through ideological screens and interpersonal communication. Education and development depend not only on **what** is communicated, but also on **how** information (e.g., theories, research, facts) is communicated and received. Waste management practitioners and community educators need to understand their own personal philosophies about community collective well-being, including their belief and commitment to equity and social justice, before they can support or promote policies and programmes for others in their community.

This framework for public health and community education offers a different perspective for understanding modern waste management. While waste is a necessary and unavoidable by-product of human existence and community living, how that waste is managed is a sure indicator of the values of that society: values which reflect how all citizens are treated, regardless of income level, social standing, gender, age and/or racial background. Students in the course were taught techniques of problem identification and problem solving. They were then sent in collaborative groups to observe people and their waste production and collection in different sections of Hanoi (e.g., the market, a park, a residential neighbourhood and the lake side. They were evaluated on the quality of what they described, how they analysed and communicated their findings and how they worked together as a team to provide a seamless, relevant and useful report.

We found that the students in the course mirrored their society. Their own value systems (ideologies) were reflected in what they saw, how they interpreted what they saw, what they communicated (i.e., their findings) and how they communicated these and, most importantly, how they worked together as a team to identify and solve problems.

As instructors, we were very pleased not only with the quality of the report produced, but also with the quality of the students selected to take the course. While a very small minority did not work as a team and/or had a different agenda, by and large the majority focused on public welfare and providing strategies for promoting equity and social justice.

(Catherine G. Chalin)

B. INVESTIGATIONS - RESEARCH

1. Investigations - Research by Canadian Students in Vietnam

During 2000-2001, five Canadian students have studied various thematic issues in Vietnam, including:

- Solid waste management and environmental education by James Gray- Donald;
- Small credit schemes for women in informal waste collection sector by Zoe Meletis;
- Industrial waste minimization and management by Angela Palladino;
- Community roles in waste management by Nguyen Thi Lan Huyen;

- Landfill planning by Joe Herrington.

These five studies have been completed with supports given by local partners, and the students have since returned home for completion of their Masters essay writing.

(Tang The Cuong)

2. Investigations - Research by Participants of the Six Week Waste-Econ Training Course

Following is a summary of eight reports on investigations- research prepared by the participants during the six week training course (Full reports may be obtained at the Waste-Econ office):

- i. Solid waste collection in Hanoi: a study on community based waste collection model, carried out by Ng. The Chinh Dr., Le Thanh Binh M.Sc., Phan Thi Hoa B.Sc., Hoang Xuan Long Dr., in Nhan Chinh Ward, Thanh Xuan District, Hanoi.
The report presents an overview of solid waste collection status and management criteria in Hanoi; a description of JICA's proposal on solid waste collection process; and an analysis of the feasibility, rationality and constraints of the Nhan Chinh's community based waste collection model in suburban Hanoi.
- ii. Analysis of "win-loss" factors in Duong O paper recycling village : was carried out by Pham Ngoc Anh B. Sc, Van Thi Tam B.Sc, Ng. Duc Tan M.Sc., and Ng. Hong Viet B.Sc.
Economic, Environmental and social benefits from the paper recycling village are presented in the report. At the same time, "losses" have been analyzed to identify major causes and environmental responses.
- iii. Waste plastic recycling workers in Hanoi's waste-economy: A casestudy of Trieu Khuc Village - was carried out by Ng. Quang Tuan M.Sc., Ng. Ngoc Dung B.Sc., Cao Vu Phuong Khanh B.Sc., Tang The Cuong Eng.
The report presents waste plastic recycling and business in Trieu Khuc Village, Tan Trieu commune, Thanh Tri District, Hanoi. Fact findings on social and environmental impacts of these activities on the sustainability of the village's recycling sector are also presented and interventions have been proposed by the group to improve the village's social and environmental conditions.
- iv. Biogas Eco-efficiency for sustainable rural development in Vietnam: was carried out by Ng. Thi Hai Hoa M. Sc., Pham Kim Ngoc M.Sc., Ng. Thanh Lam Eng., Ng. Quang Vinh M.Sc.
The report presents preliminary judgments of a biogas model adopted in Phuong Tu commune, Ung Hoa District, Ha Tay province. The report also advises several suggestions to replicate the model province-wide and to other provinces.
- v. Improvement of MSW collection and transport in Ho Chi Minh City: was carried out by Le Thi Hai Anh B. Sc., Nguyen Thi Thuy Loan B.Sc., Nguyen Thi Thanh My M.Sc., and Cao Xuan Tuan B.Sc.
The report gives an overview of the city's current status of MSW management system, in particular its MSW collection and transport system; analysis of constraints facing the city's MSW collection and transport system and its comparison with a model proposed by JICA are also presented. Several recommendations on improving the efficiency of the city's MSW collection and transport are given in the report by the group.
- vi. Potential of the Nam Son landfill gas recovery for local fuel consumption demand: was carried out by Do Trong Mui M.Sc., Ng. Thuong Hien Eng., Tong Quan Hung Eng., and Ng. Mai Ngoc B.Sc..
The report provides a general description of the Nam Son landfill, a flowchart of Hanoi's MSW management system, an analysis of solid waste compositions, and landfill gas potential and recovery

mechanisms. Landfill gas recovery options are also proposed in the report.

- vii. Solid waste and its impact on Tay Ho Urban District, Hanoi: was carried out by Dang Anh Tuan M.Sc, Truong Xuan Sinh Eng., Dinh Tu Anh B.Sc., and Ngo Huy Toan B.Sc.

The report describes an identification of solid waste generation sources, volumes and compositions from Tay Ho urban district, Hanoi. An analysis of local solid waste management problems and several recommendations on responsive actions are presented in the report.

- viii. Preliminary assessment of solid waste issues in Hoan Kiem Lake area and management options: was carried out by Ng. Quoc Tien M.Sc, Luu Duc Cuong B.Sc., Ng. Thi Hien B.Sc., and Ng. Diep Tu B.Sc.

The report presents current status of solid waste and its management in Hoan Kiem Lake area including generation sources, compositions and estimated volumes. An analysis of solid waste collection, transport and treatment activities and proposed options for improving local solid waste management capacity are also included in the report.

(Nguyen Thi Anh Thu)

3. Investigations - Research by Vietnamese Researchers

1) Three studies including (i) *Tram Than industrial waste treatment facility development planning*; (ii) *its feasibility study*; and (iii) *its environmental impact assessment in Tram Than commune, Phu Ninh district, Phu Tho province* have been carried out by a group of ten researchers from the Center for Research and Planning on Urban and Rural Environment, Ministry of Construction.

The Tram Than facility has an area of 62,4 hectares, 40 km north of Viet Tri city. In Phase I, an area of 23,8 hectares will be used to develop the facility that would provide waste treatment service for 29 industries located at Viet Tri city, Phu Tho provincial town, and Thanh Ba, Lam Thao, and Phu Ninh districts. These studies are to be reviewed by the provincial People's Committee in June, 2001.

The group of researchers was led by an individual who benefited from the six week Waste-Econ training course organized in July and August 2000 by the Waste-Econ project.

(Luu Duc Hai)

2) *Craft villages and their wastes that pollute the environment is a research program chaired by the National Environment Agency in which the Institute of Environmental Science and Technology (IEST), Hanoi University of Technology* was assigned to carry out environmental impact assessment of craft villages over three provinces, namely Bac Ninh, Hung Yen and Ha Tay in 2000.

More than 40 craft villages involving in food processing, textile and dye, waste recycling, building materials, and art and handicraft manufacture were included in the study. The assessment focused on the existing production processes and their associated effects of specific wastes that potentially pollute the environment.

Pollution levels caused by these craft villages were ranked by heavy, moderate and light categories. As a result, 16 and 13 craft villages were regarded as heavily and moderately polluting craft villages respectively, with the remaining being lightly polluting.

Additionally, six guidance handbooks on environmental improvement and waste mitigation for six categories of craft villages that heavily pollute the environment have been prepared. These handbooks are expected to serve as a useful tool for villagers and local authorities in solving waste problems and sustaining rural economies and societies.

(Dang Kim Chi)

3) A study on *inclusion of waste-economy and environmental management issues into undergraduate and graduate environmental engineering courses* has been carried out by the Center for Environmental Engineering of Towns and Industrial Areas, Hanoi University of Civil Engineering.

Initially, thematic issues and several selected credits are to be introduced into its training program.

(Tran Hieu Nhue)

C. EXCHANGE OF VIEWS AND EXPERIENCES

1. Waste-Econ Curriculum Development in Vietnam

As the result of exchange of experiences and discussions among relevant scientists, educators and managers, the Waste-Econ project's working group has developed initial ideas on a framework of Waste-Econ curriculum to be introduced in Vietnam. The framework includes:

- Target audience: undergraduate students;
- Timing: six credits (90 hours) initially estimated;
- Goals: general and basic knowledge on the waste economy and environmental management would be transferred for general and specialized graduate students respectively;
- Structure: includes three parts: Part I: transfer of general knowledge and basic rules of economics and environmental economics; Part II: provision of waste economy basic principles; and Part III: transfer of waste management basic knowledge.

On the basis of the curriculum framework, a compilation of a post-graduate waste -econ curriculum framework (or Part IV) will be developed for doctoral and masters degree training courses.

- Nature: This is a core and open curriculum, this means that it is selective by target audiences and universities in accordance with their specific needs.
These parts of the curriculum are being made concrete by the project. More information will be published in the next issue.

(Nguyen Danh Son)

2. Practice of Waste Economy Training in Vietnam

The inclusion of waste economy into tertiary level education system is one of the major activities of the Waste-Econ project. This inclusion has been intensively discussed by the project Steering and Management Committees at various meetings. To make the inclusion possible, however, requires resources and support from relevant ministries and agencies, particularly the Ministry of Education and Training.

At present, some research institutes and universities have introduced this waste economy training course into their training programs with the goal of providing students with basic knowledge on waste economy. However, several requirements are to be addressed, including:

- Waste economy curricula for different training (undergraduate and postgraduate) programs and relevant trainers; and

- Specific waste economy curricula for specific universities and/or faculties.

It is acknowledged that a number of institutes and universities have already included waste economy issues into their training programs while a complete waste economy curriculum has not been formally developed. These include Hanoi Universities of National Economics, Technology, and Civil Engineering, and NISPASS.

(Le Thanh Binh)

3. Canadian University Level Curriculum on Waste Economy

Waste economy curriculum at Canadian universities was presented by Dr. Prof. Virginia Maclaren and Prof. Philip Byer, University of Toronto, Canada, at a Workshop on Waste Economy Curriculum Development held in Hanoi in May, 2001.

Following are summaries of the papers presented by these professors. For more details please contact the project office.

Undergraduate training curriculum

Urban waste management training course includes (1) geographic distribution and waste compositions; (2) waste management strategies; (3) Socio-economic and behavior aspects of waste management; and (4) application of urban waste management models and policies.

Topics to be presented in this course include:

1. Waste Disposal;
2. Determination of waste management conditions;
3. Waste generation and compositions;
4. Waste minimization at source;
5. Waste reuse;
6. Waste recycling;
7. Waste treatment;
8. Small scale initiatives;
9. Hazardous and industrial wastes; and
10. Urban waste economy

(To be continued)

(Nguyen Danh Son)

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