WASTE-ECON

Volume 9 – January 2005

A. NEWS AND ACTIVITIES

1. Meetings within the framework of the Waste-Econ Project

The Project Coordinating Committee met in Hanoi on September, 12th 2004 to review past activities and discuss future steps to be taken. Discussions focus on the implementation of the Take-over Strategy for the Waste-Econ Program. The waste-econ curriculum development team also discussed specific work assigned for each team member.

The 4-party International Conference took place in Hanoi on October 31st and November 1st, involving delegates from Canada, Cambodia, Laos, and Vietnam. The Conference included a workshop to share experiences in the development of the waste-econ curriculum and the training of waste economy and a meeting to discuss the implementation of the "take-over" strategy for the Waste-Econ Program. Representatives from the partner countries presented highlights of their own waste-econ curricula and their discussed their plans for the "take-over" strategy. Delegates entered into in-depth discussion on coordination in the development of the curriculum and other project activities. The delegates also visited some universities and research institutes in Hanoi involved in the waste-econ curriculum activities.

(Tang The Cuong)

2. Follow-up workshops for 2-week training courses on waste economy in Nghe An and Son La

The workshops were held in Vinh city in Nghe An province on November 4th, 2004 and in Son La on November, 12th 2004 to evaluate the application of knowledge the participants learnt during the training and to share experiences in waste management in different localities. They also aimed to enhance exchanges and cooperation between trainers and trainees.

The workshop in Vinh was attended by 43 participants including 14 women. Twenty-eight of the attendees were former trainees and the remainder were managers from Hanoi and relevant local agencies. The participants shared the view that they have successfully applied the economic approach to waste management projects and promoted the integration of knowledge of environmental protection in tertiary education. The participants devoted much of their time sharing experiences in the development of participatory models on environmental protection (Thai Binh, Nghe An, Quang Tri, Ha Tinh) and the implementation of cleaner production in some industries. They also visited some waste collection models in Vinh city's Nghi Thuy ward and a waste treatment plant using SERAPHIN technology.

The Son La workshop drew the participation of 45 delegates including 13 women. The participants' success stories included the inclusion of the waste economy as a subject in the curriculum of the Son La Teachers' Training College, particularly in the faculties of Geography and Biology. They have also promoted the transfer of knowledge through workshops, communication activities to improve public awareness, the application of knowledge in daily work and advocacy among local leaders in designing strategies and legal documents on environmental protection. The participants also shared their experiences in landfill planning, plastic waste recycling, compost production and the expansion of environmental protection activities. A visit to the Son La hydro-power plant formed part of the workshop agenda.

(Nguyen Thi Anh Thu)

3. Workshop "Solutions to improve the environment in Trang Minh ward, Kien An district, Hai Phong city"

A workshop entitled "Solutions to improve the environment in Trang Minh ward, Kien An district, Hai Phong city" was held in Hai Phong city on August 1st, 2004 by the Vietnam Women's Union and the Hai Phong city Women's Union.

Attending the event were representatives from the Vietnam Women's Union, the WASTE-ECON Management Board; the Hai Phong city People's Committee, the local Department of Science and Technology, Department of Natural Resources and Environment, Department of Public Health, the Transport and Public Works Service, the Urban Environment Company, the Kien An district People's Committee, the Division of Public Health, the Environmental Management Division and relevant authorities and organizations of Trang Minh ward and Prof. Virginia Maclaren from the University of Toronto.

Ms. Cao Hong Van, Head of the pilot project in Hai Phong presented a report on the outcomes of a survey conducted in June, 2004, to explore people's awareness of environmental issues and environmental sanitation in Trang Minh. Over seventy one percent of the respondents said that the local environment has improved over the past 3 years. People's awareness of waste management has been taken up a notch while the number of women using personal protective equipment when collecting waste has been on the rise (71%). This is attributed to the proactive role the ward Women's Union has played in communication activities, which encourage local women to contribute to maintaining environmental sanitation though the pilot project. However, Trang Minh ward is facing some problems as a result of rapid urbanization such as the growing volume of waste and increasing waste trading activities. Only 25-30% of locals have access to running water due to a high cost of water pipe installation.

The participants at the workshop agreed to promote communication campaigns to improve public awareness, particularly of the need to use personal protective equipment while working, address the issue of clean water shortage, rally all available resources to upgrade roads and water supply and sewage systems, as well as provide more waste collection and transport equipment. They also stressed the need to build sanitary lavatories and to develop a central location for storage of recyclable wastes in order to reduce negative environmental impacts in the residential areas.

The project will host workshops and discussions among local residents on building a common waste storage area in Trang Minh ward and delivering training on environmental sanitation. Vice Chairman of the Hai Phong city People's Committee, Duong Anh Dien pledged more effective measures to improve environmental sanitation in Trang Minh ward, including financial assistance for water supply for the poor.

(Cao Hong Van & Tran Thu Ha)

4. Pilot Research Projects

4.1. Awareness Pilot Project for Child Waste Pickers at Nam Son landfill, Hanoi

The "Awareness Pilot Project for Child Waste Pickers at Nam Son landfill" has completed after 3 years of implementation. Results of a recent survey demonstrated that the project has had a positive impact on local child waste pickers, notably, a sharp reduction in the number of children working at the landfill. The project team is finalizing a book on the outcomes of the project.

A workshop on survey data processing and analysis was held from 4th to 6th of August 2004, during which the Canadian Waste-Econ Project Director, Professor Virginia Maclaren demonstrated how to use SPSS software to 21 project staff. Professor Maclaren is expected to deliver further training in statistical analysis to the participants in February, 2005.

The project team and their Canadian partners are also organizing art exchanges between elementary school pupils from Nam Son and their peers from Toronto, Canada.

(Pham Bang)

4.2. Gender outreach pilot project for women involved in waste collection and recycling in Trang Minh ward, Hai Phong city

Since the mid-term review in April 2004, the project has continued to progress well, focusing on credit-saving activities. By the end of 2004, the project had been in the 3rd loan cycle and had benefited 450 poor women with accumulated capital of 2,312 million VND and accumulated savings totaling 165 million VND. All the borrowers have invested the loans in waste collection and recycling and have been actively participating in center meetings as well as training courses on gender, health, and environmental sanitation held by the project. The project team conducted a survey of the local environment status and people's awareness of environmental sanitation and health in June, 2004, targeting loan borrowers and local authorities and social organizations. A workshop on solutions to

improve the environment status in Trang Minh ward was held in August the same year with the participation of parties concerned.

In November 2004, Gems of Hope Director, Vida Dhaniram visited and worked with the project team, the Hai Phong city Women's Union and the borrowers. She acknowledged improvements in environmental sanitation in Trang Minh ward, which are expressed in improved clean water supply, a proposed project to move waste collected and stored in local households to a common storage area as well as people's improved awareness of environmental sanitation. Director Vida Dhaniram and the project team also discussed future plans for the use of credits after the project comes to an end. The project team is expected to invite the Canadian Waste-Econ Project Director, Professor Virginia Maclaren, to deliver training in data processing and analysis and reporting skills to the project team and some officials from the Vietnam Women's Union in February, 2005.

(Cao Hong Van & Chu Nhi Ha)

4.3. Organic Waste Pilot Project in Bai Chay Beach, Ha Long city

The project has started a composting demonstration using organic waste from local restaurants and hotels in order to reduce environmental pollution in this high-tourism area. Organic waste, which is compostable, accounts for 50-60% of solid waste generated by hotels in Ha Long city. The project team has joined forces with the city's Urban Environment Company and the Bai Chay Environment Service to encourage waste separation at source and composting. As a result, the volume of organic waste has been reduced by 70-75% after 3 months while the composting process is said to be simple and cheap. If this model is further extended, it will help reduce waste transportation costs, prolong the life of the local landfill and create a marketable product from waste. The project team organized a training course on waste separation at source and composting techniques from the 6th to the 8^{th,} of November, 2004 in Bai Chay and Ha Long city's landfill. On this occasion, hundreds of leaflets promoting waste separation at source and household composting were distributed to the community. The training course attracted 46 participants including 12 from relevant local authorities and agencies in Bai Chay and Ha Khau wards. After the training, the local authorities and residents were more aware of the need for waste separation at source and compost production using organic waste. The project is cooperating closely with local authorities, the Bai Chay Urban Environment Company, mass organizations (particularly the Women's Union) and hotels in Bai Chay to promote this pilot model. It also assisted student Hoang Phuong Chi in collecting data for her postgraduate thesis at the University of Toronto, Canada.

(Tran Hieu Nhue & Nguyen Quoc Cong)

4.4. Municipal Solid Waste Landfill Pilot Project in Da Nang

In the 2004-2005 period, the pilot project has focused on completing of the GIS software on landfill planning, developing a model on waste collection and transport in Da Nang; waste separation at source, organizing workshops on occupational guidance for waste pickers, and assisting students in their study in the framework of the WASTE-ECON project. By December 2004, the project had:

- collected data on waste collection for 82,000 households
- completed a map of a system of public waste containers to be installed in Da Nang city
- identified the location and capacity of waste transfer stations in the city as well as the distance between them and landfills.
- surveyed waste collection in 100 households located in small alleys inaccessible by waste barrows.
- conducted research on the manufacture of motorized waste collection barrows .
- surveyed the future work plans of 245 waste pickers.
- assisted student Nguyen Thi Thuc Thuy, who is pursuing her master-degree at the University of Toronto, in her study of waste separation at source in 2 residential areas.
- included the subject "*Municipal solid waste management*" in the curriculum of the Da Nang University.
- completed module "*Landfill planning*" in a short TV film "*ENVINDUS: a software in support of industrial environment management*" which was aired on VTV2 of the national TV network and on Da Nang TV in July, 2004.

(Bui Van Ga)

4.5. Pilot project on industrial waste in HCM city

A pilot project on industrial waste in HCM city with a case study on the application of cleaner production prior to end-of-pipe treatment in the Vinh Loi seafood processing factory in Ba Lieu province has yielded some encouraging results.

The project has successfully applied cleaner production prior to end-of-pipe treatment at the factory. This new approach is of great significance in terms of science and technology, socio-economy and environmental protection. The HCM city National University has contributed part of the funding for a waste water treatment station designed and installed by CEFINEA. The project has helped the factory save up to hundreds of millions of VND, which would previously have been spent on waste water treatment and water and electricity consumption. Environmental sanitation has been improved and there have been no more complaints from people living along the Sang Bac Lieu Ca Mau cannel, where the factory's waste water is discharged.

Lessons drawn from the pilot project show that the implementation of cleaner production and end-of-pipe treatment requires patience, consensus of the factory, input from relevant agencies including the Department of Science and Technology and the Department of Natural Resources and the Environment as well as the involvement of workers and the community.

(Nguyen Thi Thanh My & Lam Minh Triet)

5. Activities of 5 small projects on waste economy

During follow-up workshops for 6-week and 2-week training courses held by WASTE-ECON project in 2004, many participants expressed their wish to engage in WASTE-ECON-funded research. 5 projects have been selected from 25 research outlines.

5.1. Project "Developing a participatory model on the collection, transport and treatment of solid waste generated from the Phong Khe paper village Bac Ninh province"

Solid waste has become a serious issue in the paper village of Phong Khe as a source of environmental pollution that has caused social troubles. Some measures have been taken by local authorities to settle the problems but outcomes are still very modest. A project headed by Mr. Dang Anh Tuan from the Center for Resources and Environment Studies (CRES) is aimed at coordinating with local authorities to devise regulations on solid waste collection and treatment, develop a pilot participatory model for solid waste collection, transport and treatment and to analyze the cost and benefit of solid waste collection, transport and treatment in Phong Khe.

By December 2004, the project had conducted overall research, organized 2 field-trips to the paper village of Phong Khe, worked with local leaders and wrote relevant reports. A workshop to discuss the participatory model is expected to be organized soon and a comprehensive report is being prepared. All project activities will be completed by February, 2005.

(Dang Anh Tuan)

5.2. Project "Financial mechanism to encourage the private sector to get involved in waste collection and transport in Hanoi"

This project is headed by Nguyen The Chinh from the Faculty of Environmental Economics and Urban Management of the National Economics University. The project has referred to domestic and international experiences and studied the involvement of the private sector in waste collection and transport in some local areas, for instance, the Huy Hoang Company Ltd in Lang Son province and the Nam Phuong joint stock trading company in Quang Ninh province. In the future, the project team will conduct surveys in Hanoi, explore the operation of some private companies involved in waste collection and transport in Hanoi, handle survey data and prepare relevant reports.

(Nguyen The Chinh)

5.3. Project "Exploring working conditions of street cleaners"

The project is headed by Pham Kim Ngoc from the Center for Gender, Family and the Environment in Development (CGFED) and is being implemented in Cau Giay district and part of Ba Dinh district, in Hanoi. The project aims to explore the specific working conditions of street cleaners, mostly women, in order to promote the need for environmental protection. The project team has employed qualitative and quantitative studies and has conducted 130 interviews. 75% of the respondents were females. The interviews

focused on the actual work and working conditions of street cleaners, their health, occupational diseases, risks such as traffic accidents, interactions between family and work, personal viewpoints on their job, community behavior and attitude as well as well their thoughts and expectations. The project team has received a wealth of information and is now preparing relevant reports. All project activities will be completed by February, 2005.

(Pham Kim Ngoc)

5.4. Project "Model of solid waste management and collection for sustainable development in Nghi Kim commune, Nghi Loc district, Nghe An"

Nghi Kim, an outlying commune of the city of Vinh, Nghe An province, is facing environmental problems as a result of an increasing volume of waste and a lack of effective solutions. The project, headed by Vo Van Hong from the Nghe An provincial Department of Natural Resources and the Environment, aims to improve community awareness of environmental protection and develop a participatory model of solid waste management and collection. The project has studied the status of waste in the area, waste issues, past and possible future conflicts, organized workshops to collect opinions from local people and leaders and worked with local authorities on ways to develop the model. The project has provided waste barrows, containers and personal protective equipment to waste collectors in this effort. The project team will continue to work with the local administrators to mobilize funding from the community for solid waste collection as well as evaluate the sustainability of the model and prepare relevant reports.

(Vo Van Hong)

5.5. Project "Compost production using household and agricultural waste to improve the environment, increase income and reduce agricultural production cost"

The project is headed by Ms. Mai Thi from the Soc Trang provincial Department of Natural Resources and the Environment and is implemented in Phu Tan commune, Phu My district. Past project activities included:

- the organization of a workshop on waste management (waste separation at source, waste collection, transport, reuse and recycle and composting) on October, 30th and 31st 2004, attracting 61 participants.
- the installation of 20 large waste containers in residential areas, health care centers, schools. The Phu Tan commune People's Committee has also provided local households with smaller waste containers for waste separation at source.
- compost production, using organic waste from the local dumping site and agricultural production activities. An experiment on the effectiveness of the compost is being conducted on green bean trees, using (1) 100% of compost; (2) 50% of compost and 50% of fertilizer and (3) 100% fertilizer.

The project team is expected to organize a workshop to discuss its experiences and extend the model in the community as well as distribute leaflets and prepare related reports. The project will be completed by March 2005.

(Mai Thi)

B. INVESTIGATIONS - APPLIED RESEARCH

1. The comparative shadow price of social capital for paper recycling establishments

Social capital has, in recent years, emerged as a dominating concept in explaining different socio-economic phenomena including production and economic development. Social capital is also considered to be one of the inputs for the production process. However, none of the research projects conducted so far has ever initiated a mechanism to assess the value of social capital in relation to other production factors in order to increase the efficiency of the allocation and utilization of social capital.

The linear programming input distance function has helped measure the shadow price of social capital in comparison to fixed capital and labor for 63 paper recycling establishments in Duong O village in Bac Ninh province. Research outcomes revealed that:

(i) Social capital has had a positive impact on the production efficiency of paper recycling establishments

(ii) If the index (indicator) of social capital increases by 1%, the production efficiency of a paper recycling household will increase much more than by investing another one million VND in fixed assets. However, this efficiency is lower than using an additional 100 hours of labor.

(iii) Trust is one of the important components in increasing the production efficiency of paper recycling households. For example, an increase of 1% in the trust indicator will result in an increase in the production efficiency, which is equivalent to investing 5 million VND in fixed assets or using another 57 working hours of the laborers.

(iv) Trust, together with information sharing between households, plays an important role in increasing production efficiency for high-income paper recycling households. Meanwhile, mutual assistance and participation in local social organizations' activities will increase the production efficiency of the group of low-income paper recycling households.

(Nguyen Van Ha)

2. Participatory Planning in Integrated Waste Management: The Formal and Informal Waste System in Ha Long City, Vietnam

Through a field study conducted in Bai Chay Ward, Ha Long City, this study evaluates existing waste management practices, particularly in the tourist-orientated areas. The objectives of the study are to identify and evaluate characteristics of the waste stream and its management (both formal and informal); identify the non-technical aspects that influence the effectiveness, efficiency, and equitability of waste management services to the city; identify a range of potential waste alternatives to improve waste management with emphasis on the implementation of a composting demonstration; and make a broader contribution to understanding the role and significance of partnerships in development planning issues that range from education to infrastructure needs.

The study reveals that waste problems in Ha Long City are the result of a centralized system that does not consider the full spectrum of the waste reduction hierarchy and a range of non-technical aspects. These non-technical aspects include economic, environmental, institutional, legislative, policy, and social issues influencing the effectiveness, efficiency, and equitability of the waste system and waste management practices. As a result of the inadequacies of the formal waste system, local people have resorted to alternative waste strategies including open pit burning, dumping into the sea, and turning to the informal waste economy. Directly linked to the waste issues are basic needs, distribution of resources and power, and ecological considerations.

A range of waste alternatives are identified using an integrated approach to waste management, which range from environmental awareness building of local people and the tourism industry to stimulating linkages between the formal waste system and informal waste economy. In particular, the implementation of a composting demonstration is identified as a waste alternative that demonstrates sustainability. The composting demonstration offers a number of benefits: it proactively addresses the anticipated increase in solid waste generation in Ha Long City; reduces the amount of solid wastes entering the landfill for final disposal; creates a source of income for low-income groups employed to operate the demonstration; and creates a marketable product all to the benefit of the ecological and urban environment.

State-private-civil society partnerships have been identified as a means for improving the efficiency, effectiveness, and equitability of waste collection services. Findings suggest that there is significant potential for the development of partnerships, provided that a combination of institutional reforms and private sector involvement that is acceptable to local people. The study provides insight into integrated waste management, participatory planning, and partnership building between the state-private sector and civil society and the transferability of their principles to other development issues.

(Zeralynne Te)

3. Solid waste generated from craft villages in Vietnam

Vietnam now has 1,450 craft villages, of them, 67.3% are located in the northern region, 20.5% in the central region and 12.2% in the southern region. The composition of solid waste generated from these craft villages is diverse, depending on the specific type of production of each village.

Around 203,600 tonnes of solid waste come from food and foodstuff processing villages (197) each year, mostly from starch production villages

(67.11%). Meanwhile, waste recycling villages (91) mainly deal with paper, plastic and metal recycling. The volume of solid waste generated from paper and plastic recycling is estimated at 10,700 tonnes and 2,715 per year respectively. Metal recycling villages disposed 95,000 tonnes of clinkers and 35,000 tonnes of other waste including hazardous waste annually. Ceramic and construction material villages produce up to 300,000 tonnes of solid waste per year but this type of waste can be used for land leveling or road construction.

The volume of solid waste produced by craft villages in Vietnam is estimated at 770,000 tonnes per year. Ha Tay province tops the list with 165,197 tonnes, followed by Bac Ninh with 140,000 tonnes, Thai Binh with 52,000 tones, Dong Thap with 38,000 tonnes and Binh Dinh with 23,200 tonnes.

(Dang Kim Chi)

4. The Center for Research and Planning on Urban and Rural Environment (CRURE) and research projects on solid waste management

Over the past years, the CRURE has been assigned by the Ministry of Construction to carry out research and pre-feasibility and feasibility study projects on municipal solid waste management. The following are some research projects on waste economy the CRURE conducted in 2004:

- A national-level research on planning of integrated management of solid waste and hazardous solid waste generated from plants and factories in Viet Tri city and Lam Thao district, Phu Tho province in the perspective of waste economy. This research has been accepted and rated as an outstanding project. The research examined integrated management of solid waste and hazardous industrial waste in the perspective of waste economy and assessed solid waste and hazardous solid waste management practices at factories and plants in Viet Tri and Lam Thao. This aims to develop solutions for the planning of solid waste and hazardous solid waste management in Viet Tri and Lam Thao until 2010. This research is the first to touch upon the concept of waste economy in the planning of industrial solid waste management in Vietnam. Its is also the first to deal with the planning of integrated management of solid waste and hazardous solid waste as well as the planning of a pilot area for integrated treatment of solid waste and hazardous solid waste for plants and factories in Viet Tri and Lam Thao.

- Research on the site selection for the removal and upgrading of 3 landfills scheduled for 2005 *(Vung Duc-Cam Pha; Ba Hoa mountain-Quy Nhon; Chau Doc-An Giang)* in response to the Prime Minister's Decision No. 64/2003/QD-TTg, approving a plan to comprehensively settle the problem of severely polluting establishments. The project focused on surveying and assessing the status of the 3 landfills in terms of solid waste collection, management and treatment. These assessments, together with the forecast of the total volume of solid waste to enter the surveyed areas, will serve as a basis for proposed options and methods to address the issue of pollution in each landfill.

- A project on planning for the construction of a sanitary landfill for solid waste in Song Cong township, Thai Nguyen province and a report on the feasibility study for building a sanitary landfill for solid waste in Song Cong township, Thai Nguyen province. This new landfill will be situated in Tan Quang commune with a total area of 26.5 ha. Both projects are expected to be finalized soon.

(Luu Duc Cuong)

5. Activities in coordination with WB and MoNRE in the compilation of VEM-2004 report

WASTE-ECON cooperated with the Ministry of Natural Resources and the Environment (MoNRE) and the World Bank (WB) to produce the 2004 Vietnam Environmental Monitor (VEM-2004) on solid waste. Some members and partners of the Waste-Econ project were directly involved in the compilation of the report. The VEM-2004 report, which touches upon the current state, causes and trends of solid waste in Vietnam, was released by MoNRE and WB on November 24th, 2004. The report deals with solid-waste related issues including collection, disposal and treatment, recycling and reuse, legislation, policy, finance and community participation. The document also identifies future challenges and has received acclaim from Minister of the MoNRE.

(Tang The Cuong)

WASTE-ECON Program Office

National Institute for Science & Technology
Policy and Strategy Studies (NISTPASS)

38 Ngo Quyen Str., Hanoi, Vietnam

Tel: (84-4) 8258035; Fax: (84-4) 9348420

E-mail: vietpro@hn.vnn.vn

http://www.utoronto.ca/waste-econ

http://www.nistpass.gov.vn/wastecon.htm