

## UNEP/IETC and GEC's Workshop on 'Water Footprint'

### UNEP/IETC and GEC organized the 'Consultative Workshop on Water Footprint, Neutrality and Efficiency'.

The decline in the quality and quantity of available freshwater has become a serious issue around the world. In many cases, freshwater problems stem from water consumption and pollution due to human activities to render products and services. Since globalization has boosted the cross-border trade of products and services, the consumption of products in one area often leads to water stress and aquatic environmental degradation of different areas.

The water footprint has been proposed as an indicator of the direct and indirect water use of products and services, while also considering consequent water pollution. However, various methodologies for calculating water footprint have been proposed from different perspectives so the ISO has commenced the process of standardizing water footprint accounting.

The application of the water footprint concept has the potential to provide an innovative tool to enhance water efficiency and water quality among potential competing uses, and to drive governments, businesses, and consumers to implement measures to improve environmental performance and make more informed decisions about water-intensive investments.

Recognizing the water footprint concept's potential as well as the need to further develop relevant methodologies, UNEP has launched a project entitled 'Water Footprint, Neutrality and Efficiency (WaFNE)' in 2009. The project entails the refinement of water footprint and related concepts, as well as pilot applications of the associated methodologies and tools in



Open session

selected geographical areas and industries.

From 1 to 3 June 2010, UNEP/IETC held the 'Consultative Workshop on Water Footprint, Neutrality and Efficiency' in Osaka, Japan. GEC co-organized the workshop in support of UNEP/IETC. Experts from the Water Footprint Network; an organization developing and promoting the water footprint concept, the convener of ISO Working Group on Water Footprint, and representatives from Sri Lanka, Tunisia and Viet Nam were invited to the workshop to review the progress on the WaFNE project, including refinement of water footprint methodologies and tools, to discuss the merits and challenges for broader applications of water footprint particularly in developing countries. GEC representatives presented a summary of their survey and review on water footprint based on current Japanese perspectives.

In addition, an open dialogue session for the public and private sectors was held on 3 June. In the session, the guest panelists introduced the concept of water footprint and its applications, corporate initiatives, opportunities and challenges,

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and updates on the ISO process to participants from the public and private sectors, NGOs, civil society groups, and the media. Following these presentations, the panelists answered several key questions raised by the audience such as 'What is the significance and objective of water footprint accounting?' and 'Should water footprint be applied to the protection of aquatic environments?'

This water footprint project is being implemented by UNEP's three units, namely IETC, the Sustainable Consumption and Production Branch (Paris), and the UNEP Finance Initiative (Geneva) in collaboration with various partners and via networks with government, industries, and practitioners.

 Presentation materials of the workshop are available at the GEC website.

## COLUMN What is Water Footprint?

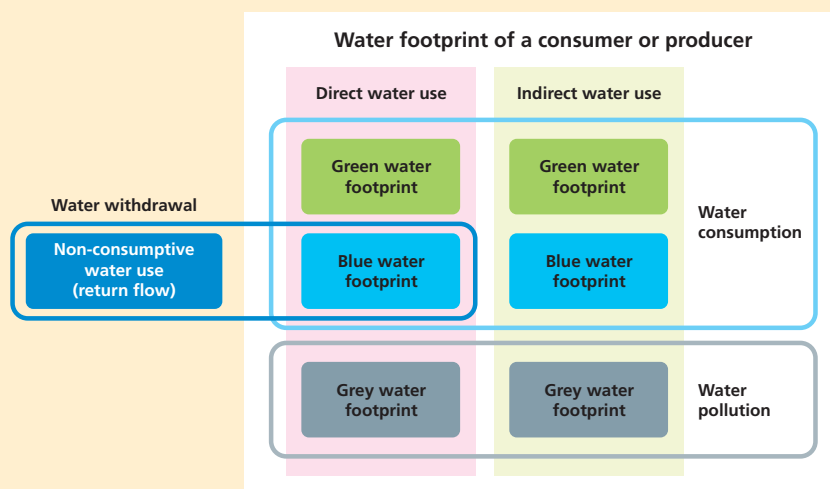
The water footprint of a product is the volume of direct and indirect freshwater consumption and pollution generated throughout the entire production and supply chains, including cultivation and production of raw materials, processing, manufacturing, transportation, distribution, and consumption.

According to the definition given by the Water Footprint Network, the total water footprint consists of three components: 'blue water footprint' which refers to loss of surface water and groundwater that occurs when water is incorporated into products, evaporates, and returns to different catchment areas or the sea; 'green water footprint' which refers to loss of rainwater stored in the soil as soil moisture; and 'grey water footprint' which refers to pollution defined

as the required water volume for assimilating waste based on ambient water quality standards.

For example, even if the direct water consumption of a cup of coffee is 0.125 litres, when we calculate the

indirect water consumption water including cultivating the coffee trees and processing the beans, the total water footprint over the entire supply chain comes to 140 litres.



[ A. Hoekstra et al. (2009), Water Footprint Manual State of the Art 2009, Water Footprint Network ]

## GEC NEWS

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# GEC Conducts 'Indonesia Urban Environmental Management Course'

**GEC conducted the 'Indonesia Urban Environmental Management Course' JICA Training Programme for Young Leaders from 19 February to 4 March 2010. The programme was attended by 16 young leaders.**

In this youth training project, JICA invites young personnel under the Japanese Government's technical cooperation programme with the aim of fostering young human resources responsible for future nation-building in developing countries. In 2009, GEC conducted the 'Urban Environmental Management Course' targeting young leaders in Indonesia at the commission of JICA.

The training aims to teach the participants about the environmental conservation measures used to overcome Osaka City's past pollution problems so that they can learn how to apply them to environmental issues in their own country.

The participants attended lectures on various urban environmental problems including air, water, noise & vibration pollution and odours. In light of the amendment to Indonesia's



Visit to Maishima Incineration Plant

waste management law in 2008, the training curriculum placed a particular emphasis on the topic of waste through lectures on Japan and Osaka City's waste and 3R measures, an exercise on waste composition analysis, and visits to an incineration plant, recycling centre and a resource recycling-based regional development facility. The participants also divided into groups and held environmentally-themed discussions with various members of Japanese society, which allowed them to understand how Japanese citizens perceive the environment.

Although the training course was short at around two weeks, the participants expressed a great deal of interest in all parts of the curriculum until completion. The training culminated with the participants dividing into three groups to present the Action

Plans, all of which were prepared and presented based on highly significant subject matter. We have high expectations for the future activities of the 16 young leaders who participated in the training course.

## Interview with Training Course Participants

**GEC conducted the 'Environmental Policy and Environmental Management System in Nigeria' training course from 4 to 26 March 2010. To that end, we spoke to training course participants Mr. Giwa Adebowale Adetokunbo and Mr. Sunmonu Kenneth Similoluwa about Nigeria's environmental problems.**



*Mr. Giwa Adebowale Adetokunbo, Director/ Administration/ Finance, Oyo State Water & Sanitation Project*



*Mr. Sunmonu Kenneth Similoluwa, Chief Engineer/ Nigeria Integrated Water Resources Management Commission*

**GEC: What is the most serious environmental issue in your country?**

Participants: One of Nigeria's most serious environmental problems is the pollution of aquatic environments. In northern Nigeria, the desert is also expanding at a rate of one square kilometre every year, while the south is prone to floods in the monsoon season, causing severe soil erosion in some areas. Crude oil spills have also contaminated the ocean.

**GEC: Are efforts being made to address these problems at a federal or local government level?**

Participants: Yes, the federal government is implementing a reforestation initiative to address the desertification issue. Tree planting and awareness-raising activities are also being undertaken at national and local government levels.

In addition, the federal, state, and local governments each formulated water and sanitation policies in 2004 to mitigate environmental issues. The federal government is attempting to create a statistical framework to implement its water and sanitation policies.

**GEC: Statistical data is crucial to improving the environment. For instance, Oyo State's regional water sanitation project which began in 2002 has used donated excavators to dig numerous wells, but have statistics been collected on the number of wells dug or the volume of water supplied?**

Participants: Efforts are being made to create a database using a water information management system. There is also a similar information management system for sanitation. It is therefore possible to collect statistical data on the position of the wells and the number of people using them.

Residents were previously plagued by waterborne infectious diseases such as Guinea worm\* disease and onchocerciasis but grant aid from Japan was used to purchase excavators



which have dug deep wells in the state so the Guinea worm infection rate has fallen to zero in just two years. There have been no reported cases of infection with the Guinea worm disease in Oyo State for the past four years. The state's public health bureau, the Ministry of Health, local governments, and the water and sanitation project that I am involved in all record information about the Guinea worm. This information is then published and conferences are held to share information. Federal government agencies and NGOs are also coordinating to monitor the situation under a plan known as the Nigeria Guinea Worm Eradication Program.

**GEC: What are your impressions of Japan?**

Participants: I feel that Japanese people are respectful when interacting with others, and this culture of respect leads to peace. Nigeria is inhabited by 250 ethnic groups speaking 150 different languages so English is the official language. On the other hand, there is only one language in Japan so there is a sense of solidarity.

**\* Guinea worm**  
The Guinea worm inhabits water fleas as larvae which are transmitted to humans through unboiled water and can grow up to one meter long in 6-12 months. Upon reaching adulthood, the (female) Guinea worm travels around the human body then breaks through the skin in an attempt to leave the body and release its eggs. This causes excruciating pain to the human host characterized by difficulty walking and loss of appetite and in severe cases may even result in death.

## Hosting of Follow-Up Seminar in Peru

**GEC hosted a follow-up seminar in Lima, Peru from 23 to 25 February 2010.**

GEC co-hosted a seminar with JICA from 23 to 25 February 2010 in Lima, Peru to follow up on the 'Waste Effluent Pollution Control Caused by Mining and Manufacturing Industries for Central and South America' JICA country-specific training course which ran for three years from 2007 to 2009.

The training course selected three participants from different organizations in each of seven nations in Central and South America and the Caribbean (Argentina, Bolivia, Chile, Colombia, Cuba, Peru and Venezuela) each year, eventually training nine participants from each nation over the course's three years history up to 2009. Each year, the three participants from each nation prepared a group Action Plan (AP).

This follow-up seminar was conducted to scrutinize the progress of each country's AP, provide advice via the training course's steering committee, and call on the participants' organizations to continue promoting the APs. After listening to the AP progress reports from the participants who attended the seminar (21 participants from 6 nations) and a discussion among all of the seminar participants, we could see that each



*Inspection of the Graciela Mine*

country's AP initiatives were proceeding smoothly.

On the second day of the seminar, we inspected the Graciela Mine upstream of the Rimac River on the outskirts of Lima with the participants. Although the mine is currently being prepared for closure, the adoption of proper effluent processing practices over several years has improved the environment and there is even a lagoon on the site inhabited by abundant flora and fauna. The former mine site, which is being transformed into a tourist facility and learning centre, proved to be very insightful to the other nations' participants.

In the future, we intend to host more follow-up seminars to monitor the progress of participant initiatives.

## Support for Building a Community-Based Recycle-Oriented System in Viet Nam's Ha Long Bay Area: Hosting of Local Stakeholders Seminar

**GEC visited Ha Long Bay, Vietnam in January and March 2010 to carry out field surveys and hold a local stakeholders seminar.**

This project was initiated in October 2009 in conjunction with Osaka Prefecture University as a JICA grassroots technical cooperation project with the aim of supporting the eco-conservation activities of Ha Long Bay's floating communities and tour boat operators. GEC and Osaka Prefecture University conducted field surveys from 18 to 23 January and 8 to 13 March and co-hosted a local stakeholders seminar on 11 March.

The seminar was attended by several counterparts including the Ha Long Bay Management Department, Women's Union, and Youth Union as well as target groups, namely Ha Long Bay's floating communities and tour boat operators, and featured reports on the outcomes of previous surveys in five initiative areas (waste and wastewater countermeasures, water

quality monitoring, environmental activity leader education, and mangrove reforestation activities) as well as discussion on the feasibility of future action plans and local requests.

The reported outcomes of field surveys carried out to date revealed that a tour boat operator was working to protect the environment by preparing all of their food on land and using food waste as pig feed to reduce the volume of raw garbage and wastewater generated on board their boats.

There were also proposals that the local cement factory may be able to accept used coal briquettes from the floating communities for use in cement production and that Ha Long's composting plant could accept their raw garbage, while others voiced their interest in using acrylic scrubbing pads if it would help to save water and detergent, thus demonstrating several options to address the floating communities' raw garbage and wastewater.

Based on these outcomes, in 2010 we plan to commence actual waste/wastewater recycling initiatives suited to local conditions and to host training programs in Vietnam and Japan to foster local environmental activity leaders while actively involving local counterparts.



*Local stakeholders seminar*



*Ha Long Bay's largest floating community Cua Van Village*



## One Year on Since Donation of Chopping Machines in Bandung, Indonesia

In March 2009, GEC presented the city of Bandung in Indonesia with two raw and plastic waste chopping machines purchased with public donations collected for a global eco-conservation charity at the Nakanoshima Music Carnival '07 held in September 2007. The chopping machines have since been used by the 800-strong population of Sekeloa village's 13th district community.

In March 2010, one year since the machines were installed, GEC received the following report from Bandung City outlining their usage to date.

### 1. Improved installation

Bandung City cooperated with the local residents to build an enclosure around the chopping machines. This has eliminated the risk that the machines pose to children and has reduced their noise emissions.



Donated chopping machine



Chopping machine enclosure

### 2. Reduced landfill waste

Ever since Bandung's Leuwigajah waste disposal site situated in the city's outskirts was closed since the waste collapse incident in 2005, significant expense has been incurred by

the transportation and processing of local waste to distant landfill sites. Bandung City and local residents therefore started composting organic waste in an attempt to reduce the volume of processed waste, and the chopping machines have facilitated the composting of large organic waste as well as reducing the volume of waste plastics. In this way, the community has helped to curtail the volume of transported and processed landfill waste.



Crushing of organic waste (input & output)

Based on the report by Bandung City, we ascertained that the local community values the chopping machines which have been operating without incident, and that they have been helpful in curbing waste.



Composting efforts

UNEP/IETC is proceeding with an eco-town project in Bandung and GEC is continuing to contribute to the city's sustainable urban development through activities in support of this project.

## Eco-Towns: GEC Participates in 6th Asia-Pacific Eco-Business Forum

Kawasaki City hosted the '6th Asia-Pacific Eco-Business Forum' from 2 to 3 February 2010. This event aims to introduce Japan's eco-conservation experiences and cutting-edge corporate green technologies to developing nations and to promote the exchange of information on the environment. It is also a forum for presenting and sharing the outcomes of UNEP/IETC eco-town projects. The forum was attended by some 50 participants from eco-town candidates Penang in Malaysia, Bandung in Indonesia, and Shenyang in China as well as other overseas cities. GEC participated in this event as a supporting organization and presented a summary of the 'Eco-town Environmental Technology Database Creation Project for Building Resource Recycling-based Society in Developing Countries' as well as the findings of environmental technology needs assessments conducted in Bandung and Penang as part of our support for IETC. The participants provided suggestions on information they would like to see added to the database



Asia-Pacific Eco-Business Forum

and the possibility of collaboration on other projects. All of the forum sessions introduced various proposals and concepts from Japanese national and local governments, international organizations, and experts as well as lively discussions geared towards the creation of eco-towns in the Asia-Pacific region.

## GEC Co-Hosts Regional Workshop on Waste Agricultural Biomass

UNEP/IETC and GEC co-hosted an international workshop to promote the use of waste agricultural biomass from 2 to 5 March 2010, welcoming nine experts from 5 Asian nations.

Seeking to promote IETC's agricultural waste biomass demonstration project, GEC co-hosted the 'Regional Workshop on Waste Agricultural Biomass' with IETC from 2 to 5 March 2010 in Osaka.

At the workshop, participants from various Asian nations identified optimal technologies to be targeted by the demonstration project and a meaningful discussion was held between organizations carrying out similar projects.

The first two days of the workshop featured presentations from participants from Nepal, Pakistan, Sri Lanka and Philippines under the common theme of 'Baseline Information on Agricultural Waste Biomass (target area, population, and generated waste volume etc.)', and an 'Outline of Pilot Project Technology Options' as envisioned by each of participating national representatives. A lively debate ensued in which the content of each project was closely scrutinized.

On the third day, seven Japanese agricultural biomass experts including university professors and national research institute researchers also participated in the forum. Representatives from Asian nations gave presentations under the theme 'Briefing on Demonstration/Pilot Projects', while the Japanese experts reported the findings of their individual research on agricultural waste biomass. The forum therefore provided an opportunity to share the latest knowledge and valuable experiences on an



*A scene from the workshop*




*Participants in the workshop*

Asian regional level.

On the final day of the workshop, each of the participants visited the Yagi Bio-Ecology Centre in Kyoto. The centre receives livestock excrement and tofu manufacturing waste known as okara or soy pulp from nearby farms and factories which it then subjects to anaerobic fermentation to produce methane gas used to generate electricity, while the digested sludge is returned to farming land as compost and liquid fertilizer. The participants inspected the anaerobic fermentation tanks and the advanced effluent processing and power generating equipment then listened to an explanation from the centre's supervisor on the municipal subsidy for the cost of processing one tonne of livestock excrement.

Based on the workshop discussions, Malaysia is conducting survey research towards the manufacture of methane gas and bioethanol using palm biomass with the collaboration of Japanese and Malaysian affiliates, while Asian partners are applying the knowledge garnered from the workshop's research presentations and excursions to help promote local biomass usage.

 Please refer to the GEC website for details.

## GEC hosts international symposium commemorating Shanghai World Expo

Osaka Prefecture is operating a pavilion at the Shanghai World Expo 2010 based on the theme 'Osaka: An Environmentally-Advanced Water Metropolis' to share with the world its experiences and technologies for overcoming various air and other pollution problems and promoting environmentally-friendly urban development. With this in mind, GEC hosted an international symposium to commemorate the Shanghai World Expo entitled 'Towards the Realization of Low-carbon Societies in Japan & China' in Osaka City on 15 June.

The symposium's lectures introduced specific initiatives

towards the Shanghai World Expo and the creation of low-carbon societies. Meanwhile, the panel discussion addressed the challenges and measures for Japan and China to build low-carbon societies in partnership, and concluded that although Japan possesses individual environmental technologies, it lacks an organized system capable of sufficiently harnessing these technologies in China and elsewhere, and that the future challenge lies in how the Kansai region; a hub of environmental technology, can assimilate these technologies into a system that can be applied overseas.

## Hosting of Biodiversity Symposium

GEC co-hosted the 'Biodiversity Symposium - Enjoying Life with Animals in Osaka' on Saturday, 7 August in Osaka City with three affiliated organizations.

The symposium's lectures introduced changes to the global and regional environments through animals as well as various



*Scene from the symposium*

initiatives for conserving Osaka's natural environment. The subsequent panel discussion yielded comments and opinions on various issues, such as the need for citizens' participation in order to achieve biodiversity, the need for the government to create a 'grand design' for biodiversity, and the need for

an information platform for organizations involved in nature conservation activities.

GEC plans to report the symposium's results at the 'Interactive Fair for Biodiversity' to be held in conjunction with COP10 in Nagoya in October of this year.

## Global Platform on Waste Management

National government representatives from all over the world have shown a keen interest to build national and local capacity in waste management. This is reflected in UNEP Governing Council Decision 25/8. To meet this demand and to accelerate the pace of and coordinate the international efforts on waste management, UNEP is preparing to establish a 'Global Platform on Waste Management (GPWM)' to support partnerships among various international, regional, national and local stakeholders. To get the consent of national governments and other stakeholders for the structure and modus operandi for

GPWM, UNEP IETC has organized consultation workshops and side events at important occasions in Geneva, Bali and New York. Based on the feedback during these events, a final draft will be prepared to launch GPWM.

### What is GPWM?

The GPWM will be a Platform for international agencies, governments, private sector, institutions and various forums including inter-governmental, public-private, and non-governmental forums. The focus of GPWM is:

- To collect and disseminate knowledge
- To support and facilitate policy level dialogues
- To facilitate building partnerships and cooperation
- To explore and facilitate the financing options
- To support and facilitate the implementation of multilateral environmental agreements (MEA) and decisions taken by Governing Councils of various UN agencies and programmes on waste management, and CSD18 for waste management
- To promote replication and scaling up
- To serve as a forum to present and discuss emerging issues from global assessment and studies



Consultation workshop

## Message from IETC's Incoming & Outgoing Staff

**IETC's outgoing staff were Programme Officer Vicente Santiago in March and Senior Programme Officer Chizuru Aoki in June 2010, while incoming staff were Project Officer Ryuichi Fukuhara in December 2009 and Administrative/Fund Management Officer John Peter Oosterhoff in May 2010.**



### Message from Ms. Chizuru Aoki, Senior Programme Officer

During the 7 years I spent at IETC, I was privileged to work on various initiatives related to water and environmentally sound technologies (ESTs) with GEC, including the Iraqi Marshlands project and water footprint project. I would like to take this opportunity to thank GEC for the cooperation and assistance it extended to me during my tenure. I am particularly grateful to the GEC staff, both current and former, who made great professional and personal contributions to organize the Iraqi Marshlands training workshops. I hope that the cooperation between IETC and GEC will grow further in the future, with even greater benefits in the field.



### Message from Mr. Vicente Santiago, Programme Officer (Chief of Freshwater Management Unit)

Through almost fourteen years in IETC I have witnessed the enormous changes which the Centre has gone through. From the golden years when funding was abundant and projects were flourishing, to the most difficult times when painful readjustments and bureaucratic procedures have become the order of the day.

In the Shiga Office where I spent my entire tenure, many successful activities were undertaken; some in collaboration with ILEC and others with the Osaka Office and GEC through cross-cutting topics. These were indeed the most dynamic and productive years. I will miss my many colleagues in IETC, ILEC, GEC and, yes, this wonderful country and the Japanese people too. *Sayonara.*





**Message from Mr. John Peter Oosterhoff,  
Administrative/Fund Management  
Officer**

My name is John Peter Oosterhoff and I joined IETC on 5 May as Administrative Officer. I have been with the United Nations for more than 23 years working in mostly administrative functions. Prior to this assignment, I worked with UNEP in Washington, D.C. (2000–2008) and with the UN Secretariat in New York (1986–2000). During that period I also served five interesting years in peace-keeping related operations in countries such as Somalia, Liberia, Italy, Croatia, and Iraq. I am a Dutch citizen.



**Message from Mr. Ryuichi Fukuhara,  
Project Officer**

I joined UNEP/IETC Shiga Office last December as Project Officer for the UNEP-UNESCO Iraqi Marshland World Heritage Project. I specialize in water resources management, specifically cross-border water issues in the Middle East. After spending several years in the Middle East, I am pleased to return to my home region although I did not expect to come back so soon. At IETC, I will be working on the water and sanitation pillars, including decentralized sanitation utilizing ESTs and water footprint application, which are all intended to improve water use efficiency and water quality. It will be another challenge for me to work on water issues in developing countries from here in Japan, but our collaboration and partnerships will lead to successful interventions so I am looking forward to cooperating closely with you all.

**CDM/JI**

## Adoption of Feasibility Study Proposals for GHG Reduction Flexible Mechanisms in 2010

From 28 June to 16 July 2010, GEC invited applications for Feasibility Study (FS) proposals on GHG reduction flexible mechanism projects from various Japanese entities. This year, in addition to FS proposals for CDM/JI projects, GEC also sought FS proposals for new flexible mechanism projects and activities which may be implemented under the post-2012 framework. As a result, we received 44 CDM/JI submissions from 36 organizations and 5 new flexible mechanism submissions from 5 organizations. Of these submissions, 16 CDM/JI FS proposals and 3 new flexible mechanism FS proposals were officially adopted.

GEC suitably manages the progress of these feasibility studies with the aim of promoting their realization and helping to examine their scheme design. In particular, three expert task forces have been established to provide advice and direct consultation in support of new flexible mechanism studies.

CDM/JI Feasibility Studies			
Aim	Project Category	Company/Organization	Host Country
To expand scheme applicability	Reforestation	Hitachi Zosen Corporation	China
	Waste Management	PEAR Carbon Offset Initiative, Ltd.	Bangladesh
	Biomass Utilization	Mitsubishi UFJ Research and Consulting Co., Ltd.	Viet Nam
	Energy Efficiency Improvement	Kyushu Electric Power Co., Inc.	China
To develop new methodologies	Transportation	Japan Weather Association	China
		Pacific Consultants Co., Ltd.	Viet Nam
To realize highly-feasible projects	Waste Management	Ichikawa Kankyo Engineering Co., Ltd.	Viet Nam
		Yachiyo Engineering Co., Ltd.	Malaysia
		Eight-Japan Engineering Consultants Inc.	Philippines
		EJ Business Partners Co., Ltd.	China
	Biomass Utilization	EX Corporation	Sri Lanka
		Industrial Decisions, Inc.	Thailand
	Renewable Energy	Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.	Ecuador
	Energy Efficiency Improvement	E & E Solutions Inc.	China
	Others	Tepia Corporation, Japan	China
PEAR Carbon Offset Initiative, Ltd.		China	

New Flexible Mechanism Feasibility Studies			
Type	Project Category	Company/Organization	Host Country
Nationally Appropriate Mitigation Actions (NAMAs)	Waste Management	Pacific Consultants Co., Ltd.	Thailand
	Transportation	Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.	Lao P.D.R.
	Others	Shimizu Corporation	Indonesia



**Published by the Global Environment  
Centre Foundation**

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