

asean

# BIODIVERSITY

ISSN 1655-0471



The newsmagazine of the ASEAN Centre for Biodiversity



**Kitanglad: Investing  
in Nature Pays Off**

**Promoting business  
engagement**

**Biodiversity  
conservation  
through ecotourism**

# Biodiversity is Everyone's Business

**Plus!  
Focus**  
A pull-out section  
on featured species

# The ASEAN Centre for Biodiversity

## ASEAN's Response to the Biodiversity Conservation Challenge



### Biodiversity Facts about the ASEAN Region

- ASEAN occupies only 3 percent of the world's total land area, but 18 percent of the plants and animals assessed by the IUCN live in its mountains, jungles, rivers, lakes and seas. Biodiversity is our source of food, medicine, shelter, clothing and livelihood.
- The region has 3 of the 17 known mega-diverse countries (Indonesia, Malaysia, and the Philippines); has several bio-geographical units (Malesia, Wallacea, Sundaland, Indo-Burma, and the Central Indo-Pacific); but it has 4 of the world's 34 biodiversity hotspots (Indo-Burma, Philippines, Sundaland and Wallacea).
- ASEAN has 34 percent of the world's 284,000 square kilometers of coral reefs. Indonesia, Malaysia and the Philippines are part of the Coral Triangle - home to 75 percent of the world's reef-building corals. But 88 percent of the region's coral reefs are at risk due to destructive fishing practices and coral bleaching.
- Thirty percent (2,517 out of 8,613) of the plant and animal species assessed in the region are threatened.

### The ASEAN Centre for Biodiversity

The ASEAN Centre for Biodiversity (ACB) is an intergovernmental regional centre of excellence that facilitates cooperation and coordination among the ten ASEAN Member States and with relevant national governments, regional and international organizations on the conservation and sustainable use of biological diversity, and the fair and equitable sharing of benefits arising from the use of such natural treasures.

As a regional centre of excellence, ACB's goals are:

1. To serve as an effective coordinative body to facilitate discussion and resolution of cross-country biodiversity conservation issues;
2. To provide a framework and mechanism for sharing information, experiences, best practices and lessons learned for efficient access of ASEAN Member States;

3. To implement a pro-active approach in monitoring and assessing biodiversity conservation status as a strategic approach towards identifying critical issues and future trends;
4. To deliver/facilitate conduct of capacity-building services and technology transfer through engaging relevant and appropriate expertise;
5. To enhance common understanding of biodiversity conservation issues, strengthening ASEAN regional positions in negotiations and in compliance with relevant multilateral environmental agreements;
6. To promote regional public awareness to develop champions and enhance support at different stakeholder levels on biodiversity concerns; and
7. To undertake innovative resource generation and mobilization measures to pursue high-impact activities that will enhance biodiversity conservation in the region.

### What we do

The ACB supports ASEAN Member States in the following thematic concerns that are of global and regional importance:

1. Agriculture and food security, including food certification and biodiversity
2. Access to, and fair and equitable sharing of benefits from biological and genetic resources
3. Climate change and biodiversity conservation
4. Ecotourism and biodiversity conservation
5. Payment for ecosystems services scheme and valuation of biodiversity
6. Wildlife enforcement
7. Managing invasive alien species
8. Peatland management and biodiversity
9. Global Taxonomic Initiative
10. Support to the Programme of Work on Protected Areas
11. Managing biodiversity information and knowledge
12. Business and Biodiversity



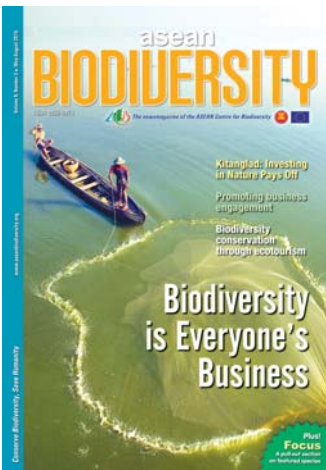
**ASEAN CENTRE  
FOR BIODIVERSITY**

3/F ERDB Building, University of the Philippines Los Baños Forestry Campus  
Los Baños, Laguna 4031, Philippines  
Telephone Numbers: +6349 536-3989 / +6349 536-1739  
Telefax Number: +6349 536-2865  
E-mail: [contact.us@aseanbiodiversity.org](mailto:contact.us@aseanbiodiversity.org)

[www.aseanbiodiversity.org](http://www.aseanbiodiversity.org)

# INSIDE

VOL. 9 ■ NO. 2 ■ MAY - AUGUST 2010



Cover photo by **Kyaw Kyaw Winn** (Myanmar), finalist in the ASEAN-wide photo contest "Zooming in on Biodiversity"

The photo shows fishermen casting a net in Myanmar's Ayeyarwaddy river. It highlights biodiversity's usefulness to the people of the ASEAN region. Since biodiversity provides a number of livelihood and business opportunities, the business sector should take part in conserving biodiversity. After all, biodiversity is everyone's business.

## SPECIAL REPORTS

- 6** Business: Global Partner in Biodiversity Conservation
- 11** Biodiversity CSR: Conservation, Sustainability, and Resources' Use
- 14** Biodiversity Conservation in Business  
Key to Success for Sustainability
- 18** The Green in SM's Blue
- 20** JBIB: A Japanese Corporate Initiative to Biodiversity Conservation
- 24** Payment for Ecosystem Services  
Easing Poverty and Ensuring "Green" Progress
- 28** Biodiversity Conservation Through Ecotourism
- 32** Kitanglad: Investing in Nature Pays Off

## NEWS

- 37** Saving the world one tree at a time
- 38** TeleTech holds fun run, donates to the ASEAN Biodiversity Fund
- 39** Biotech crops a \$10.5-billion business
- 40** 3rd ASEAN Heritage Parks Conference:  
ASEAN takes steps to conserve natural heritage
- 42** Global Biodiversity Outlook 3:  
New vision required to stave off dramatic biodiversity loss



## PROFILES

- 45** PHILIPPINES  
Pamilacan Marine Protected Area
- 49** BRUNEI DARUSSALAM  
Ulu Temburong National Park
- 53** MALAYSIA  
Pulau Kukup Johor National Park

## BOOKMARKS

- 57** ASEAN strengthens wildlife law enforcement to protect the region's biodiversity
- 58** Press Statement on the Occasion of World Environment Day 2010  
Save Plant and Animal Species.  
Save Our Planet. Save Our Future.
- 59** Biodiversity 101 Forum at the National Press Club
- 60** ACB and SM Supermalls promote biodiversity conservation
- 61** ADB Green Bag Seminar  
Biodiversity in SEA: Issues and imperatives for action



- 62** Philippine media discovers Mt. Kitanglad's rich biodiversity
- 63** Path set for linkage between science and policy on biodiversity
- 64** GBIF and ACB strengthen sharing of biodiversity data in Asia
- 64** Ring a bell for biodiversity
- 65** The CBD Website  
Enhanced communication tool for new biodiversity era
- 66** World leaders to discuss biodiversity crisis
- 67** A new HOPE for the Quezon National Forest Park
- 68** Voice of the Youth  
Think and act green!
- 70** May 18: Plant Conservation Day
- 70** World celebrates first Water Hour
- 71** World Oceans Day  
Our oceans: Opportunities and Challenges
- 72** UNEP launches policy series on ecosystem management
- 72** Senior environmental officials meet in Viet Nam

## 73 CONSERVATION NEWS

- 77** ASEAN Champions of Biodiversity  
The First Awards Program to Recognize Outstanding Biodiversity Conservation Projects by Business, Youth and Media in the ASEAN Region

Rodrigo U. Fuentes  
Publisher

Rolando A. Inciong  
Editor-in-Chief

Leslie Ann Jose-Castillo  
Managing Editor

Sahlee Bugna-Barrer  
Head Writer and Researcher

Nanie S. Gonzales  
Designer, Graphic and Layout Artist

Estelita T. Macalum  
Angela Rose Crissie A. Metin  
Circulation Assistants

EDITORIAL BOARD

Clarissa C. Arida  
Rodrigo U. Fuentes  
Rolando A. Inciong  
Wilfredo J. Obien  
Monina T. Uriarte  
Sheila G. Vergara

ASEAN Centre for Biodiversity (ACB)

Headquarters

3F ERDB Bldg. Forestry Campus  
University of the Philippines-Los Baños  
College, Laguna, Philippines  
Telefax: +632.584-4247  
+6349.536-2865

E-mail: [contact.us@aseanbiodiversity.org](mailto:contact.us@aseanbiodiversity.org)  
Website: [www.aseanbiodiversity.org](http://www.aseanbiodiversity.org)

ACB Annex

Ninoy Aquino Parks and Wildlife Center  
North Avenue, Diliman,  
Quezon City 1156  
Philippines

Printed by: Dolmar Press, Inc.  
No. of Copies: 2,000

**Disclaimer:** Views or opinions expressed herein do not necessarily represent any official views of the European Union nor the Association of Southeast Asian Nations (ASEAN) Secretariat. The authors are responsible for any data or information presented in their articles.

\*\*\*

Letters, articles, suggestions and photos are welcome and should be addressed to:

The Editor-in-Chief

ASEAN Biodiversity Magazine  
ASEAN Centre for Biodiversity  
College, Laguna

E-mail: [rainciong@aseanbiodiversity.org](mailto:rainciong@aseanbiodiversity.org)  
[lajose@aseanbiodiversity.org](mailto:lajose@aseanbiodiversity.org)  
[sbbarrer@aseanbiodiversity.org](mailto:sbbarrer@aseanbiodiversity.org)

# Biodiversity is Everyone's Business.



People everywhere depend upon biodiversity for their food, medicine, shelter, livelihood, and their quality of life.

Companies too depend on biodiversity. It helps to stabilize the climate and provide clean air and water, services vital for a stable operating environment. It provides raw materials, technology and business opportunities.

Biodiversity, or the variety of life and natural systems, is disappearing all across the globe faster than ever before. This loss of biodiversity represents a business risk. As diversity disappears, so do the opportunities for new products, new technologies and new business opportunities.



As users and beneficiaries of biodiversity, businesses are encouraged to be involved in biodiversity conservation.

## LETTERS TO THE EDITOR

I got a copy of the ASEAN Biodiversity Magazine from your exhibit at SM The Block. The issue focusing on illegal wildlife trade is very interesting as it raises people's awareness about the need to protect Southeast Asia's various animal and plant species from unscrupulous hunters and traders. The various articles, in fact, presented shocking facts.

Allow me to commend Freeland, the ASEAN Centre for Biodiversity, and ASEAN-WEN for their initiatives that aim to curb illegal wildlife trade.

As for the ASEAN Biodiversity Magazine, I hope that you will continue to feature relevant issues such as illegal wildlife trade. Your magazine helps the public understand biodiversity through feature stories and news articles.

More power!

**Karla B. Tecson**  
[karla.tecson@gmail.com](mailto:karla.tecson@gmail.com)

\*\*\*

Our library is interested in your journal "ASEAN Biodiversity."

InWEnt-Capacity Building International, Germany, is a nonprofit organization with worldwide operations dedicated to human-resource development, advanced training and dialogue. InWEnt is commissioned by the German Federal Government, the German business sector, and the German Länder.



Please tell me, if our institution can get a print version of the journal for free. "ASEAN Biodiversity" would be very useful for our work and our staff. Of course, I have seen the pdf files on your website. But the print version is much better for archiving.

Thanks for your trouble, and greetings from Germany.

**Rolf Menke**

Librarian  
Abt. E-Learning, Internationale Wissensgemeinschaften und Dokumentation Div. E-Learning, International Knowledge Communities, Documentation  
InWEnt - Internationale Weiterbildung und Entwicklung gGmbH  
Capacity Building International, Germany  
Friedrich-Ebert-Allee 40, 53113 Bonn, Germany  
Fon +49 228 4460 1743  
[rolf.menke@inwent.org](mailto:rolf.menke@inwent.org) / [www.inwent.org](http://www.inwent.org)



An exposure trip to Charoen Pokephand Group's Native Species Conservation Center at Chonburi Province in Thailand Photo by Leslie Ann Jose-Castillo

# BUSINESS: GLOBAL PARTNER IN BIODIVERSITY CONSERVATION

■ By **ROLANDO A. INCIONG**

According to the United Nations Environment Programme (UNEP), there are 5 to 30 million distinct species on Earth. Humankind's prosperity and survival depends on benefits from a multitude of resources and processes that are supplied by natural ecosystems and the species living in them. Collectively, these benefits are known as ecosystem services. These services were formally described by the United Nations Millennium 2005 Ecosystem Assessment, a four-year study involving more than 1,300 scientists worldwide.

The scientists grouped ecosystem services into four broad categories: provisioning, such as the production of food and water; regulating, such as the control of climate and disease; supporting, such as nutrient cycles and crop pollination; and cultural, such as social, spiritual and recreational benefits. These services provide us with a wide range of products, including: food, pharmaceutical goods, building materials, fuel (wood, fuel crops, and fossil fuels created from breakdown of biologically diverse matter over millions of years), and genetic resources for medicines, foods and other products.

Services include purification of air and water; detoxification and decomposition of wastes; stabilization and moderation of the Earth's climate; moderation of floods, droughts and temperature extremes and creation of drainage systems; generation and renewal of soil fertility; prevention of soil erosion; nutrient cycling; pollination of plants that provide products and services; control of pests and diseases; and capacity to regenerate and recover after damage (both from human and natural causes).

Nature provides us a healthy living environment, resources for education and recreation, aesthetical value, spiritual meaning, and artistic inspiration. All these services depend on biodiversity.

What has biodiversity got to do with business? A lot!

Investment, profit and growth rate are components of business. But there is an unknown ingredient that is crucial to sustained business productivity—BIODIVERSITY.

Business depends on biodiversity. Plant and animal species and their ecosystems provide business with both

raw materials and products: clean air and water, food, medicine, building materials, paper, fuel, fiber; and services mentioned earlier, which are vital for a stable operating environment.

Nature provides business with the fundamental components for long-term profits and survival. As biodiversity is life itself, the loss of biodiversity knows no geographical, economic, social, cultural and political boundaries. Therefore, biodiversity conservation is everyone's concern, including business. The business sector is an integral part of the solution to biodiversity loss.

It pays when business considers biodiversity in its operations and corporate social responsibility (CSR) programs. It contributes to conservation of the very source of raw materials, thus, ensuring business sustainability. Such action contributes to a positive public image, which could help enhance a company's relationships with government regulators, environment organizations and the community where the business operates.

Consumers are increasingly getting conscious of products and services that bring negative impact to the environment. A company involved in conservation has a special place among environment-conscious customers. Add to this the self-satisfaction that every employee feels when they take part in activities that help make our world a better place to live in.

Ignore biodiversity and the environment and your business will suffer the consequences. Biodiversity loss could result in business losses and economic downturn, which could trigger hunger, illness, disasters and social disruptions. Ignore biodiver-

sity and suffer from the loss of raw materials, prosecution and fines for violating the law, tough government restrictions, bad press which could lead to loss of customers, and lawsuits from affected parties and environment crusaders.

While businesses can have direct or indirect impact on biodiversity, they also have relevant biodiversity-related knowledge, expertise and resources needed to conserve biological resources. Thus, the business sector is an integral part of the solution to biodiversity loss.

### **Institutionalizing business participation in biodiversity conservation**

The loss of biodiversity is a major threat to business survival. As biodiversity disappears, so do the opportunities for new products, new technologies and new business opportunities. As users and beneficiaries of biodiversity, businesses are increasingly becoming involved in the conservation and sustainable management of biodiversity.

Two major products of the 1992 United Nations Conference on Environment and Development (also known as the Earth Summit): Agenda 21 and the Convention on Biological Diversity (CBD), recognize the role that companies play in conserving biodiversity.

The CBD has three objectives: biodiversity conservation, sustainable use of biodiversity, and access and benefits sharing of utilization of genetic resources. All are important aspects of business sustainability. Agenda 21 is a global action plan that aims to bring about progress that considers the environment. Both the CBD and Agenda 21 call for the private sector's active engagement.

**THE LOSS OF BIODIVERSITY IS A MAJOR THREAT TO BUSINESS SURVIVAL. AS BIODIVERSITY DISAPPEARS, SO DO THE OPPORTUNITIES FOR NEW PRODUCTS, NEW TECHNOLOGIES AND NEW BUSINESS OPPORTUNITIES. AS USERS AND BENEFICIARIES OF BIODIVERSITY, BUSINESSES ARE INCREASINGLY BECOMING INVOLVED IN THE CONSERVATION AND SUSTAINABLE MANAGEMENT OF BIODIVERSITY.**

In 2008, business involvement in biodiversity conservation took center stage when a conference on business and biodiversity known as the Business and Biodiversity Initiative (BBI) preceded the 9th Meeting of the Conference of the Parties to the CBD in Bonn, Germany. The BBI, which formalized the partnership between private sector and biodiversity, drew 34 international companies that initially signed the Leadership Declaration, which signifies their commitment to the three objectives of the CBD.

### **Best practices in business and biodiversity**

Today, companies all over the world, big and small, are taking steps to protect our natural treasures.

The *Business and Biodiversity Efforts in Key Industry*



**CEMEX's Adopt-A-Species Program focuses on protecting species such as the whale shark.**

Photo courtesy of Conservation International

*Sectors*, a background paper prepared by Emma Duncan for the CBD's Third Business and the 2010 Biodiversity Challenge Conference and DTIE's 2009 Business and Industry Global Dialogue held in Jakarta, Indonesia, from November 30 to December 2, 2009, mentioned a number of best practices focusing on developing principles, good-practice guidelines and tools related to minimizing the environmental impact of various activities and promoting sustainable production methods:

**Mining.** Mining is a major industry that contributes to the economy of many countries. It involves the extraction of minerals from the Earth's crust, including coal, metal ores, rock, industrial minerals, and gemstones. These are raw materials for

agriculture, communication, construction, energy production, household goods, manufacturing and medicines, among many others.

Various international mining associations have made broad policy statements on, or set broad objectives for, environmentally sound mining operations, including the International Council on Mining and Metals (ICMM). Seeking to promote sustainable development and improve environmental performance in the mining industry, ICMM has developed detailed sustainable development principles for mining operations, one of which includes contributing toward biodiversity conservation. The ICMM has developed good practice guidance for the industry as a whole, including guidelines on inte-

grating biodiversity conservation into mining operations, a toolkit for planning mine closures that includes biodiversity considerations.

**Energy.** Energy keeps the world going. Global demands for energy are growing rapidly, from industries to households. The demand for energy for lighting and heat, water generation and cooling systems, transport and communication, mechanical power, and simple cooking all rely on nature's ingredients.

A number of energy associations have developed, or are developing, specific guidelines and tools for reducing impacts related to the development of different energy sources. For example, the Energy and Biodiversity Initiative (EBI) has developed guidance and other resources for integrating biodiversity

conservation into oil and gas development. The Roundtable on Sustainable Biofuels is currently developing best practices for sustainable production of these crops. Similarly, the US National Wind Coordinating Collaborative has published a range of tools and guidance for assessing, minimizing and eliminating negative impacts of wind farms on wildlife.

**Agrifood and fisheries.** The agrifood and fishing industries are crucial to global food security. They support the livelihood and subsistence of millions of farmers and fisherfolks. Agrifood refers to the mass production of agricultural commodities, such as farming of food crops, poultry and livestock, and processing them into food and drink. Similarly, the fishing industry involves processing into food

items of wild and farmed fish.

The Sustainable Agriculture Initiative, the Sustainable Food Laboratory, CropLife International, the World Cocoa Foundation and the Sustainable Tree Crops Program are among the groups that have formulated general definitions of sustainable agriculture.

**Construction and forestry.** The construction industry, which relies on the forestry industry for timber and wood products, covers all facets of building, assembling, repairing and demolishing commercial, industrial, residential, and public buildings and infrastructure. The industry uses cement, gravel, sand, iron and rocks derived from the mining industry.

Most sustainable construction tools and initiatives by industry players are indirectly related to biodiversity, through, for example, promoting energy efficiency and/or measures to reduce waste, pollution and/or natural resource use. Examples of such tools and initiatives include the Associated Gen-

eral Contractors of America *Contractor Toolkit for Recycling and Using Recycled Industrial Materials*, various publications by the European Cement Association and the World Business Council for Sustainable Development Cement Sustainability Initiative on sustainable cement production.

**Tourism.** Tourism has been described as the world's largest industry, based on its contribution to global gross domestic product (GDP), the number of people it employs and the number of clients it serves. In 2008, these figures were 9.5 percent of global GDP, registering over 200 million jobs and 924 million international travellers.

The Global Partnership for Sustainable Tourism Criteria has developed specific criteria for sustainable tourism that include biodiversity conservation, interactions with wildlife and the use of species harvested from the wild.

**Pharmaceuticals.** The pharmaceuticals industry develops, manufactures and sells a variety of products for

the medical diagnosis, cure, treatment, and prevention of human and animal disease. It is biodiversity that provides the main ingredients of the industry.

Two industry groups have developed guidelines for bioprospecting that are aligned with the CBD: the International Federation of Pharmaceutical Manufacturers and Associations, and the Biotechnology Industry Organization. The European Federation of Pharmaceutical Industries and Associations has published case studies for good business practice related to bioprospecting.

**Cosmetics.** The cosmetics industry manufactures and sells items such as makeup, fragrances, skin creams, toiletries and hair care products: all aimed at enhancing the appearance and/or scent of the human body. Ingredients of most cosmetic products are derived from petrochemicals but there is a growing trend to use food ingredients, making the industry increasingly dependent on biodiversity for continued supplies of plant-based ingredients.

A regional trade association for natural products in southern Africa, PhytoTrade Africa, has developed a charter that includes specific actions for biodiversity conservation and access and benefit sharing. The Cosmetics Valley industry group based in France has recently released an eco-responsibility charter that includes general commitments to biodiversity protection and improved environmental performance of manufacturing operations.

**Fashion.** The fashion industry manufactures and sells textiles, clothing and accessories. Most clothing is made from synthetic and natural fibers. Cotton, silk, wool and linen are the leading natural fibers while other biodiversity-dependent ingredients of the fashion industry include leather, rubber, cashmere, mohair, angora, fur, wood, hemp, jute and resins.

The Better Cotton Initiative has produced production principles and criteria for cotton production that include general biodiversity considerations, and is working with farmers and other stakeholders in the supply chain to share best practice and knowledge.

The *Business and Biodiversity Efforts in Key Industry Sectors* briefing paper for the Business and Biodiversity Conference held in Jakarta in November 2009 concluded that biodiversity would be greatly affected by the way in which the industries presented in the paper grow and develop. This is especially the case for biodiversity in developing countries, where several industries are predicted to expand.

### The BioTrade Initiative

A move that strongly supports the CBD is the BioTrade Initiative, which focus-



Atty. Darwin Mariano, public affairs director, Philippines and Asia, CEMEX Asia Pte. Ltd., briefs stakeholders about the company's Adopt-A-Species Program.

Photo courtesy of CEMEX



## Saving Your Business and Biodiversity

Businesses need not think of complicated policies and strategies to get involved in biodiversity conservation. Start with these basic steps:

- Turn off and unplug. Turn off (not standby) your equipment (computers, monitors, printers, etc) when not in use. Unplug them after office hours. This will save both electricity and money.
- Cut paper consumption. Print on both sides of paper. Communicate by e-mail. You save money and forests.
- Check dripping faucets. Close them tightly after use. (One drop wasted per second wastes 10,000 liters per year.)
- Install displacement toilet dams in toilet reservoirs. Placing one or two plastic containers filled with stones in the toilet's reservoir will displace about 4 liters of water per flush.
- Use recycled paper and reuse packaging materials.
- Use energy-efficient equipment and appliances.
- Reward your employees for their contributions to conservation. ■

es on the promotion of trade and investment in biological resources. Participating countries include Bolivia, Brazil, Colombia, Ecuador, Peru, Uganda, and the southern African countries of Botswana, Malawi, Namibia, Mozambique, South Africa, Swaziland, Zambia and Zimbabwe. Under development are BioTrade Initiative activities in Indonesia and Viet Nam.

Biodiversity products supported by the Initiative include natural ingredients and products for cosmetics: essential oils, natural dyes, soaps, creams and butters, moisturizers, etc; for pharmaceuticals: extracts and infusions from medicinal plants, natural medicine capsules, etc; and for food: fruits, cereals, grains, tuberos, nuts, cocoa, fish products, jams, sweets and snacks,

jellies, pulps and juices, spices and sauces, teas and infusions, food supplements, etc, among many others.

The BioTrade Initiative has provided a platform where representatives from government, businesses and those involved in the conservation and sustainable use of biodiversity have converged and work together to contribute to sustainable development, and the objectives of the CBD and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

### Challenges

The involvement of the business sector in biodiversity conservation is a successful achievement of the 2010 target. On the global level, multilateral environmental agreements (MEAs) should provide the business sector with opportunities for regular dialogues and cooperation with governments and other stakeholders. In short, governments should listen to the private sector as business has the resources to support conservation efforts. Successes of the business sector in biodiversity conservation should be properly documented and shared with countries whose business sector is lagging behind in conservation involvement.

On the national level, governments should facilitate enabling policies and environment conducive to biodiversity conservation by business. Environment watchdogs face the challenge of advocating changes or modification of consumers' or business customers' consumption patterns to complement business efforts on biodiversity conservation.

While government are expected by MEAs to mainstream biodiversity into their

countries' development plans and programs, the business sector should be encouraged and supported to include biodiversity in their corporate strategies and decision-making process, beyond the traditional corporate social responsibility.

Rodrigo U. Fuentes, executive director of the ASEAN Centre for Biodiversity believes that investing in biodiversity conservation is sound business sense.

Maurice Strong, conference secretary general of the 1992 Rio Earth Summit eloquently elaborates, *"After all, sustainability means running the global environment—Earth Inc.—like a corporation: with depreciation, amortization and maintenance accounts. In other words, keeping the asset whole, rather than undermining your natural capital."* ■

### References:

- www.unep.org  
 Convention on Biological Diversity (CBD)  
 CBD Secretariat  
 Emma Duncan, Business and biodiversity efforts in key industry sectors: an overview. Background paper. CBD's *Third Business and the 2010 Biodiversity Challenge Conference and DTIE's 2009 Business and Industry Global Dialogue*, 30 November – 2 December 2009, Jakarta, Indonesia (with inputs from Niclas Svenningsen (UNEP), Stefanos Fotiou (UNEP), Nicolas Bertrand (UNEP), UNEP FI's Biodiversity and Ecosystem Services Work Stream, Mônica Barcellos Harris (UNEP WCMC), Sharon Elizabeth Brooks (UNEP WCMC), Valeria Piani (UN PRI), Andrea Athanas (IUCN), Eduardo Escobedo (UNCTAD) Katrina Brandon (Conservation International), Christine Copley (ICMM), Anne-Marie Fleury (ICMM), James Griffiths (WBCSD), Lars Laestadius (WRI), and Kerry ten Kate (Forest Trends; formerly at Insight Investment, Mark Radka (UNEP), Daniel Puig (UNEP), Heidelore Fiedler (UNEP), Helena Rey (UNEP), Amos Bien (UNEP), James Lomax (UNEP), Ravi Sharma (CBD) and Oliver Hillel (CBD)

BioTrade Initiative



Visitors look over PTT Public Company Limited's vast mangrove plantation

Photo by Leslie Ann Jose-Castillo

# BIODIVERSITY CSR: CONSERVATION, SUSTAINABILITY, AND RESOURCES' USE

■ By REYNALDO MOLINA

**T**he United Nations Conference on Environment and Development in 1992, also known as the Earth Summit, resulted in the Convention on Biological Diversity (CBD). More than 160 governments signed the CBD which accepts the responsibility of conserving biodiversity, using biological resources sustainably, and fairly sharing the benefits arising from their use.

Agenda 21, a global action plan for the 21st century, was another important result of the Earth Summit. Agenda 21 aims to bring about more sustainable development in the next century, i.e., development which respects the environment while meeting present and future social and economic aims. Both the CBD and Agenda 21 call for the private sector's active engagement.

The Conference of the Parties (COP) to the CBD has invoked "the engagement of and collaboration with key actors and stakeholders, including the private sector, as partners in the implementation of the CBD, and integration of biodiversity concerns into their relevant sectoral and cross-sectoral plans, programs, and policies".

The business sector, as an important partner in the implementation of the three CBD objectives of biodiversity conservation, sustainable use of biodiversity, and equitable access and benefits sharing of utilization of genetic resources, has become apparent at various COP meetings, especially during the COP 8 in Curitiba, Brazil.

For the first time in the history of the Convention, the COP in its ninth meeting in Bonn, Germany, was preceded by a conference on business and biodiversity known as the Business and Biodiversity Initiative (BBI). The initiative formalized the partnership between private sector and biodiversity. There were 34 international companies that initially joined the BBI and signed the Leadership Declaration which signifies their commitment to the three CBD objectives.

The BBI aims to involve the private sector more closely in achieving the CBD objectives, through: 1) active participation of companies and their organizations in UN meetings; 2) voluntary commitments by companies, consortiums and sectors regarding concrete contributions to the objectives of the Convention; and 3) presentation at UN meetings of outstanding examples of specific commitments by companies or consortiums to the global public. To date, a total of 38 global companies have voluntarily signed the Declaration.

The companies which joined the initiative gained significant benefits, such as high media coverage before an international public, participation in fora and specialist events on the margins of UN meetings, ceremonial signing of the leadership declaration, public relations activities in the framework of the meetings (e.g. press discussions), documentation of case studies, and first-hand information through direct contact with politicians, experts, non-government organizations (NGOs) and the press.

## ASEAN Business and Biodiversity

Recognizing the contribution of biodiversity to businesses and the need for biodiversity conservation, participating companies in the BBI are setting an example of instituting ways, methods and instruments for integrating and mainstreaming biodiversity into business management and activities. These global companies can influence governments to implement the CBD, promote public awareness and generate public support for conservation.

BBI encourages corporate social responsibility (CSR) that includes social entrepreneurship, and the conduct of environmental research and impact assessment of various business activities to inform their management system and decision-making.

To ensure that the ASEAN Member States and businesses become key players in the BBI playing field, the ASEAN Centre for Biodiversity (ACB), together with the

Royal Government of Thailand, have been working to chart the directions for the expansion of cooperation and engagement of businesses in Southeast Asia.

ACB co-organized with the Ministry of Natural Resources and Environment of Thailand the *Regional Workshop on Business and Biodiversity: Exposing Links, Exploring Opportunities, and Encouraging Partnership* on July 20-22, 2009 in Thailand. The workshop promoted and strengthened partnerships between governments and the business sector in support of the BBI.

The workshop recommended the following: (1) active role of governments in encouraging businesses to undertake activities in line with biodiversity conservation; (2) development of biodiversity guidelines for the private sector; (3) support for the business sector in mainstreaming biodiversity conservation into their business plans and regular activities; and (4) creation of a forum where best practices



Organizers and speakers at the Business and Biodiversity Workshop in Thailand in 2009

Photo by Leslie Ann Jose-Castillo



**A workshop participant reads about the link between business and biodiversity**

es in biodiversity conservation can be shared by the private or business sector.

To further promote the BBI, ACB participated as exhibitor, speaker and participant in various local, regional and international conferences on CSR and business and biodiversity related events.

Together with the Japan Business Initiative for Biodiversity (JBIB), ACB co-organized a *Seminar on Business and Biodiversity as a side event during the Asian Forum on Corporate Social Responsibility* held on November 18, 2009 in Manila, Philippines. Attended by development partners and private companies from Thailand, Japan and the Philippines, the seminar raised awareness on the various initiatives of businesses on biodiversity conservation. It served as a venue for sharing and exchanging information and experiences, and encouraging collaboration between and among the participants with similar undertakings.

Participation in the sessions provided ACB with an opportunity to network with heads of business organiza-

tions and to discuss possible areas of collaboration. It also provided more knowledge and information about CSR initiatives of local and international NGOs, as well as corporations and foundations associated with the environment and natural resources sector. The seminar concluded that there is a need to provide a forum where businesses can share and exchange information on biodiversity conservation activities.

The companies which shared their initiatives on biodiversity were PTT Public Co. Ltd. from Thailand; Absolute Chemicals Inc. from the Philippines; and G-Project Inc., Saraya Co. Ltd, and Response Ability Inc., all from Japan. The development partners who attended the seminar included the United Nations Development Programme, Deutsche Gesellschaft für Technische Zusammenarbeit, Japan International Cooperation Agency and Japan Bank for International Cooperation.

ACB also participated as exhibitor in the Asian Forum on Corporate Social Responsibility on November

19-20, 2009, as well as co-organized with JBIB a Meeting of Minds on Business and Biodiversity on November 20, 2009. These activities further promoted the importance and relationships of business and biodiversity.

ACB participated in the SCBD-sponsored Third Business and the 2010 Biodiversity Challenge Conference in conjunction with the UNEP Business and Industry Global Dialogue on November 30 to December 2, 2009 in Jakarta, Indonesia. Through the conference, ACB was able to expand its network of potential partners, establish contact with international private corporations interested to include biodiversity conservation in their CSR activities.

The following CBD priorities beyond 2010 were recommended during the conference: (1) increased private investments in biodiversity business; (2) focus on small and medium enterprises to have the highest standards in terms of poverty eradication; and (3) create global markets for biodiversity needs for global standards and global campaign.

In October 2010, ACB in collaboration with the United Nations University-Institute of Advanced Studies, the Department of Environment and Natural Resources of the Philippines and the ASEAN Secretariat, are organizing the *3rd ASEAN-Plus-Three Leadership Programme on Sustainable Production and Consumption* to be held on October 6-7, 2010 at the Bayview Hotel in Manila. The programme is offered to business and industry leaders and managers from the ASEAN Member States plus China, Republic of Korea and Japan. The objective is to equip business and industry leaders and managers with the necessary knowledge, skills and tools to develop strategies for sustainable development and corporate social responsibility in their own organizations.

Back to back with this is a *Business and Biodiversity Forum entitled Business Opportunities in Biodiversity* scheduled on October 8, 2010 at the same hotel. The forum will be organized by ACB in response to the growing interest to have a forum on business and biodiversity. The forum aims to increase awareness on the importance of biodiversity and the need for biodiversity conservation through the involvement of businesses and private sectors. The forum will feature presentations about biodiversity and its current situation in the region. It will focus on business impact and initiatives on biodiversity through the studies conducted by international organizations involved in the BBI, and case presentations by selected corporations from Japan and Southeast Asian countries. ■

■ *Reynaldo Molina is a resource mobilization specialist at the ASEAN Centre for Biodiversity.*



PTT's mangrove plantation

Photos courtesy of Advanced Thailand Geographic

## BIODIVERSITY CONSERVATION IN BUSINESS KEY TO SUCCESS FOR SUSTAINABILITY

■ By PRASERT SALINLA-UMPAI, SRISURANG MASSIRIKUL  
AND PICHAPONG POKAPUN

**A**mid current economic turmoil and environment dilemma both in and outside Thailand, PTT Public Company Limited (PTT) continues its mission of being a good corporate citizen. It minimizes environmental impact by conforming to international standards and taking part in upgrading the quality of life of the society and the community, especially by enhancing the business and biodiversity conservation efforts.

## Business and corporate social responsibilities

Under the vision of the “Thai Premier Multinational Energy Company,” PTT over the past three decades has been strengthening national energy and economic security in parallel stewardship with the society, community and the environment so that all sectors can prosper in unison in a sustainable manner.

PTT believes that its contribution to a sustainable development, i.e. business conduct with commitment to maintain the balance of corporate social responsibility (CSR), corporate governance, and commitment to a high performance organization, will enable the company, together with other sectors, to sustainably overcome all obstacles.

PTT’s strategy is committed to developing its CSR operation based on international standards. A framework and

**PTT’S STRATEGY IS COMMITTED TO DEVELOPING ITS CSR OPERATION BASED ON INTERNATIONAL STANDARDS. A FRAMEWORK AND APPROACH OF ACTIVITIES, AS WELL AS RELATED PRACTICAL STANDARDS, HAVE BEEN CAREFULLY DEFINED. BIODIVERSITY WAS CHOSEN INTO PTT’S CSR FRAMEWORK UNDER THE THEME “SOCIAL INVESTMENT AND COMMUNITY DEVELOPMENT.”**

approach of activities, as well as related practical standards, have been carefully defined. Biodiversity was chosen into PTT’s CSR framework under the theme “Social Investment and Community Development.” It covers six important strategies: education, community development, urban environment, spiritual volunteer, network development and biodiversity.

## Biodiversity conservation and reforestation

The One Million Rai Reforestation Project in honor of the King of Thailand on the occasion of the 50th Anniversary of his accession to the throne in 1994 has become a well-known project that makes PTT a major volunteer on biodiversity conservation. The company has planted one million Rai (360,000 acres; 2.5 Rai is equivalent to 1 acre) in 416 Forest Plantation Targets covering 48 provinces nationwide.

The environmental assessment of the reforested area under the project found the outcome impressively remarkable. From 1994 to 2008, the trees absorbed a cumulative volume of 18.17 million tons of carbon dioxide and time released 14.5 million tons of oxygen.

Some of the FPTs are being developed in order to bring back the richness of natural resources, water, soil, wildlife and biodiversity which can serve as valuable role models to inspire people countrywide.

## Natural life returns

FPT 29 and 29/3 cover an area of 786 Rai in Pak Nam Pran subdistrict, Pranburi District, Prachuapkhirikhan Province, which used to be an abandoned shrimp farm. After the concession issued by the government had expired,

the area was included in the FPT under the One Million Rai Reforestation Project in 1997. Before the tree planting, soil improvement was conducted with guidance from experts.

The newly-planted mangrove trees grew very well. With a large number of new trees, both flora and fauna returned to the area. Upon accomplishment of the project, PTT bestowed the land to the King on 16 November 2001, along with an area of one million Rai forest nationwide.

During the bestowal ceremony, the King of Thailand emphasized that the forest plantation must benefit the villagers. “We were grateful when the King and Princess Sirindhorn paid their royal visits to the Reforestation

Project Bestowal Ceremony.” On such a delightful occasion, we realized the utmost importance of the task to develop the mangrove area to contribute more to Pranburi and Thai people,” then PTT President said.

PTT invited Dr. Sanit Aksornkoae, a reputable researcher, and his team to conduct a research from 2004 to 2005. The research showed that various kinds of species that disappeared during the shrimp farm period have returned.

## Sirinath Rajini Mangrove Ecosystem Learning Center

On the occasion of the Queen’s 72nd birthday in 2004, PTT constructed a mangrove ecosystem learning center. The Queen bestowed



1996



2002

**Twenty species of flora, 65 species of marine benthos, 15 species of birds and 19 species of fishes can be found in Sirinath Rajini Mangrove Ecosystem Learning Center's area.**

Type	Amount (species)	Example
Seedling	20	Rhizophora apiculata, Rhizophora mucronata, Avicennia alba, Avicennia marina, Sonneratia alba, Lumnitzera racemosa, Bruguiera cylindrical, Ceriops tagal, Ceriops decandra, Xylocarpus granatum, Xylocarpus moluccensis, Excoecaria agallocha, Hibiscus tiliaceu, Acanthus ilicifolius, Acrotichum aureum, Derris trifoliola, Clerodendrum inerme, Finlaysonia maritima
Marine benthos	65	Mangrove crab (10 species), Fiddler crab (4 species), Mud crab, Hermit Crab, Snapping Shrimp, Black Tiger Prawn, Shell (23 species)
Bird	15	White-Throated Kingfisher, Purple Seron, Grey Seron, Oriental Magpie Robin, Great Cormorant, Olive-Backed Hunbird, Black-crowned Night-heron, Black-winged Stilt, Common Greenshank, Chinese Pond Heron, Intermediate Egret, Great Egret, Pied Fantail, Black-backed King fisher, Collared Kingfisher
Fish	19	Elops machanata, Megalops cyprinoides, Sardinella albella, Mystus gulio, arius acutirostris, Chelon tade, Neostethus lankesteri, Dermogynys pusilus, Ambassis nalua, Leioganathus decorus, Gerres oyena, Terapon jarbua, Oreochromis mossambicus, Butis butis, Boleophthalmus boddarti, Periophthalmodon schlosseri, Scatophagus argus, Cynoglossus bilineatus



**Volunteers help plant mangroves**

the center with the name “Sirinath Rajini” The center formally opened in August 2006.

Today, the once-abandoned shrimp farm has been turned into a lush mangrove area with rich mangrove natural resources and biodiversity. At the learning center, visitors can discover the story of how this mission was realized. The exhibition showcases a history of revitalization and forest

plantation, benefits of mangrove forest, Pranburi life, and plants and animals found in the area.

In addition to the meeting room and an office, a one-kilometer long natural trail, complete with signage, was built to enable the local community, general public, youth and other visitors to learn about the mangrove. The center serves as a destination for ecotourists and a venue

for research and public activities. Opened all-year round to visitors from 8:30 a.m. to 4:30 p.m., the learning center has continuously received a number of field-trip visitors and distinguished guests from both local and international organizations.

### **Participatory management**

A key factor in the project’s success was the collaboration with the local communi-

ty and consideration of public opinion. A public forum was conducted to brainstorm ideas from all stakeholders which showed the need to establish a mangrove ecosystem learning center.

With respect to center management, cooperation from every party concerned, including the land owners, national and local governments, private sector, schools and temples in Paknampran, is of paramount importance. Apparently, these sectors are responsible in safeguarding, developing and managing as well as utilizing the forest.

As PTT aims to become an exemplary model of mutual and integrated work experience among every party in conserving the natural resources, representatives from every sector in Paknampran sub-district have participated in a management committee. A monthly meeting is conducted regularly to report the center’s accomplishments and discuss problems. The meetings produce solutions for better management and further improvement, enabling the center to serve as an ecosystem learning center in a sustainable manner. In this regard, PTT has taken its role as a budget sponsor and head of the center’s management.

### **From the past to present and into the future**

Approximately 100,000 visitors come to the center every year. PTT joined hands with the International Union for the Conservation of Nature to raise the potential of Sirinath Rajini Committee in its studies on wastewater management, lifestyle and local wisdom of Pranburi fishing community, lesson learned from rehabilitating mangrove in abandoned shrimp farm, solid-waste management to reduce the effects to mangrove

forest, and the development of biodiversity site-specific management.

As it continues with its mission on social and community development, PTT this year has focused on enhancing knowledge with communities and related network to form a firm foundation for self-reliance and expand a network at the regional level on biodiversity. At the ASEAN Conference of Biodiversity organized by the ASEAN Centre for Biodiversity and the Singapore National Parks Board in October 2009 in Singapore, PTT had an opportunity to share with companies from other ASEAN Member States its experience on biodiversity and mangrove conservation from running the Sirinath Rajini Mangrove Ecology Learning Center.

### Role model on biodiversity

PTT's appreciation of biodiversity is translated

into a strong endeavor in safeguarding it by drastically curbing deforestation, and instigating preservation and reforestation, including knowledge management support. In every CSR project, the company always involves local communities as partners in its environment protection mission. The Sirinath Rajini Mangrove Ecology Learning Center now serves as a knowledge-resources hub, serving as role model on biodiversity conservation and advocacy.

The company's strong commitment to biodiversity conservation and advocacy is also reflected in a number of projects throughout the country. For example, PTT has a "Green Globe Award" for individuals, youth, communities and mass media with outstanding initiatives in community forest and environment conservation under the theme "A Self-Sufficient Way, Sharing, Rela-

tionship of Soil, Water and Forest."

Other major CSR activities are: "PTT Volunteer Club" to engage executives and employees to volunteer in CSR programs for a better future; "Development and Utilization of Vetiver Project" aimed at conserving soil and water; and "Biodiversity Resources Management Projects" in cooperation with Biodiversity Research and Training Program to provide area-based study in Thailand.

PTT implements an "Air Detectives Project", implemented in the belief that biodiversity could be the most invisible indicator of the sustainable development on environment. The company, hence, supports and cooperates with Green World Foundation and Thailand Research Fund in a Participatory Action Research and Investigation of Lichen Diversity in Bangkok in a Biological Assessment of

Air Quality. The project aims to create awareness among urban communities so they can apply air-quality assessment methods in places near their homes and target areas.

"A fruitful result of our endeavor in biodiversity conservation projects is clearly witnessed by a growing public awareness nationwide. Nevertheless, we will continue our business credo while we never relinquish our biodiversity and environment conservation which is a key success to achieve sustainable development," PTT President Mr. Prasert Bunsumpun emphasized. ■

■ *Mr. Prasert Salinla-umpai, Vice President, Corporate Social Responsibility Department; Mrs. Srisurang Massirikul, Environmental Improvement Division Manager; and Mr. Pichapong Pokapun, Corporate Social Responsibility Officer, PTT Public Company Limited.*



One of PTT's gas stations



Organizers and participants at SM's Green Film Festival

# THE GREEN IN SM'S BLUE

**S**M Supermalls has always been committed to environmental conservation, even before going green became a trend. Documenting its goals allows SM to gauge its process and to recognize areas where it can innovate, but most of all, be transparent in its endeavors. This creates a system of accountability and responsibility not only to the environment, but also to the community that it serves.

SM Supermalls has always been committed to environmental conservation, even before going green became a trend. Documenting its goals allows SM to gauge its process and to recognize areas where it can innovate, but most of all, be transparent in its endeavors. This creates a system of accountability and responsibility not only to the environment, but also to the community that it serves.

For energy efficiency, SM Supermalls has adopted a new system called Focus Enterprise Building Automation System (Focus EBAS). It adjusts consumption based on its varying needs—higher in the afternoon when it's hot, lower in the evening when it's cool. Since its installation, the Focus EBAS has saved SM Supermalls 50 million kilowatt hours a year.

Malls, like any large structure, consume a lot of water. Installation of tertiary treatment plants saved about 2.5 billion liters of water, while the switch to waterless urinals allows the management to save 315 million liters of water every year.

SM is proud to highlight the other equally significant activities it initiated or co-sponsored as its contribution to the efforts to conserve biodiversity:

► The Earth Hour (March 27) and Earth Day (April 22) celebrations were bigger in the Malls as partnership were cemented with the Department of Environment and Natural Resources (DENR), World Wide Fund For Nature (WWF), and other supportive nongovernment organizations. Earth Hour's 60 minutes of dimmed lights for climate change awareness made it a much-awaited night for people from all over the world.

► On Earth Day, SM Prime Holdings was awarded at the Zero Basura Olympic for business, being outstanding in the reuse/recycling category. This is especially heartening for the environment committee, which institutionalized the three-year-old "Trash to Cash" recycling market. Notably, by June, SM Supermalls will donate segregated trash bins to public schools in partnership with the Department of Education.

► The Philippine Business for the Environment (PBE), SM Supermalls' partner in the "Trash to Cash," has jointly published with SM for the first time an issue of its magazine. Featuring the greening of the Malls, PBE showcases the four-peat program of the SM Environment Committee and the various actions taken to conserve its resources, from sustainable ar-

chitecture to waterless urinals, from tree planting to waste segregation.

► The ASEAN Centre for Biodiversity (ACB) conducted a photo exhibit in Malls, namely, SM Megamall, SM North EDSA and SM Mall of Asia. It presented the winning entries and finalists of the recently concluded ASEAN-wide photo contest "Zooming in on Biodiversity." The photos featured the relationship of biodiversity with basic issues. The exhibit was initially showcased in Singapore during the ASEAN Conference on Biodiversity. It was viewed by over 400 biodiversity stakeholders from Southeast Asia and elsewhere in the world. A series of public forums on biodiversity conservation will be conducted in major SM malls. For this, SM received the "Friend of Biodiversity" award from ACB.

► On March 15, 2010, the "10 Million Movement" (10MM) under the Earth Day

Network Philippines, started its campaign in a number of areas, including the SM Supermalls. The 10MM enlisted the commitment of 10 million Filipinos, for a start, to take positive action to help address the environmental crisis.

► The "Bio-Fuel Seminar" held in the Malls was intended for FX operators and drivers for taxis, jeepneys and other public transport vehicles that use fuel. The orientation introduced the importance of renewable fuels that will help address some of the growing concerns about the environment, particularly global warming and the harmful effects of greenhouse gases.

► SM's "Bike for a Change" in Mall of Asia promotes the use of non-motorized transportation and aids in the reduction of carbon emission. SM has pledged to install bicycle racks across its Malls.

► The SM Green Film Festival (GFF), in coopera-

tion with Adopt-a-School of the Department of Education, began its limited run in 2009 and was simultaneously conducted in all Malls starting in June. The target was to reach and educate one million students to make an impact in the country's future. Apart from the youth, the Malls have an objective for the tenants—listen to the Green Retail Agenda (GRA) speakers and learn about the best corporate environmental practices. The GRA has become an annual event as well as a Mall-wide initiative for tenants to start learning from each other and improve their businesses in the environmental sense.

► Customers gain from partnerships with the Department of Energy through the Compact Fluorescent Light (CFL) Exchange Project where close to one million incandescent bulbs and counting have been switched for efficient CFLs in booths across all Malls. Another ongoing project is its involvement in the Asian Biodiversity Group for exhibit and campaign-awareness activities.

► As a fitting event in tandem with World Environment Day in June, SM hosted the seminar, "Leader as an Environment Steward—Al Gore Live in Manila" at the SMX Convention Center. Former US Vice-President Al Gore presented an updated version of "An Inconvenient Truth" in multimedia, with focus on Asia. Truly bigger and more projects are lined up to make this year even better and greener than the last.

► In November 2010, SM will also co-organize the Science Film Festival in the Philippines. An activity under the International Year of Biodiversity, the festival seeks to promote the appreciation of science by using "edutainment." ■



**SM partners with conservation organizations for various environment-related activities.**



A company meeting on business and biodiversity initiatives

# JBIB: A JAPANESE CORPORATE INITIATIVE TO BIODIVERSITY CONSERVATION

■ By DR. ADACHI NAOKI

**T**he biodiversity crisis the earth is facing now is mainly brought about by human activities. Corporations are growing in their scale of activities and influence. At the same time, not a single company can continue their business without depending on ecosystem services that biodiversity provides.

However, business activities have significant impacts on biodiversity loss through their products and services. Biodiversity loss, accordingly, accelerates climate change and water scarcity, worsens air quality and lack of food supply, and thereby, eventually threatens the sustainability of corporate activity itself as well as the existence of humankind.

In the 8th Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD/COP8, Curitiba, Brazil in 2006), it was acknowledged that there is a need to promote the engagement of the private sector in the implementation of the Convention—because the private sector is recognized to have serious impacts on biodiversity.

In Japan, the government has recognized the significant role of business in biodiversity conservation. The government has initiated various policy moves toward this realization. It revised in 2007 the National Biodiversity Strategy of Japan,

which emphasized the need for more involvement by the private sector. The 3rd Environmental Reporting Guideline in 2007, issued by the Ministry of the Environment, also required the companies to report their contributions on conservation and sustainable use of biodiversity. The following year, the government issued a new law, the “Basic Act on Biological Diversity,” which clearly identifies corporate obligations. All of these documents and law encouraged private sector to engage in the conservation and sustainable use of biodiversity.

### **Japan Business Initiative for Conservation and Sustainable use of Biodiversity (JBIB) established**

Individual companies in Japan have been trying to meet the international requirements for the conservation and sustainable use of biodiversity in order to promote their independent contributions. However, such activities have

apparent limitations in scale if companies carry them out only by themselves, although they might have collaboration with nongovernment organizations. It was recognized that if a number of companies and various stakeholders, such as local citizens and civil society organizations, could work together and share their knowledge, resources and action plans, it would certainly make more meaningful and effective contributions. Besides, it would also be helpful to reduce business risks relating to biodiversity.

Thus, the companies got together after they have realized that they should collaborate to get better informed on international trends, to have more frequent and more open dialogues with each other and with stakeholders, and to promote their own activities which truly contribute to biodiversity conservation.

With this realization, the Japan Business Initiative for Conservation and Sustainable use of Biodiversity (JBIB) was

established on 1 April 2008, to promote the conservation and sustainable use of biodiversity toward the 10th Meeting of the Parties of the CBD (COP10) in October 2010 in Nagoya, Japan. It was initiated by 14 Japanese companies which were all highly motivated for biodiversity conservation.

### **Objectives**

The JBIB has five objectives which guide the organization in its tasks. These are: to develop effective knowledge of the conservation and sustainable use of biodiversity; to promote communication with stakeholders for sharing information of the conservation and sustainable use of biodiversity; to provide stakeholders with good practices of the conservation of biodiversity to motivate all relevant sectors; to enhance research and development for methods, indicators, and guidelines to monitor and evaluate the conservation of biodiversity; and to advocate biodiversity policies to governments and local authorities.

### **Activities**

JBIB has a Research and Development (R&D) Group and a Communication Group which coordinate with each other in conducting activities.

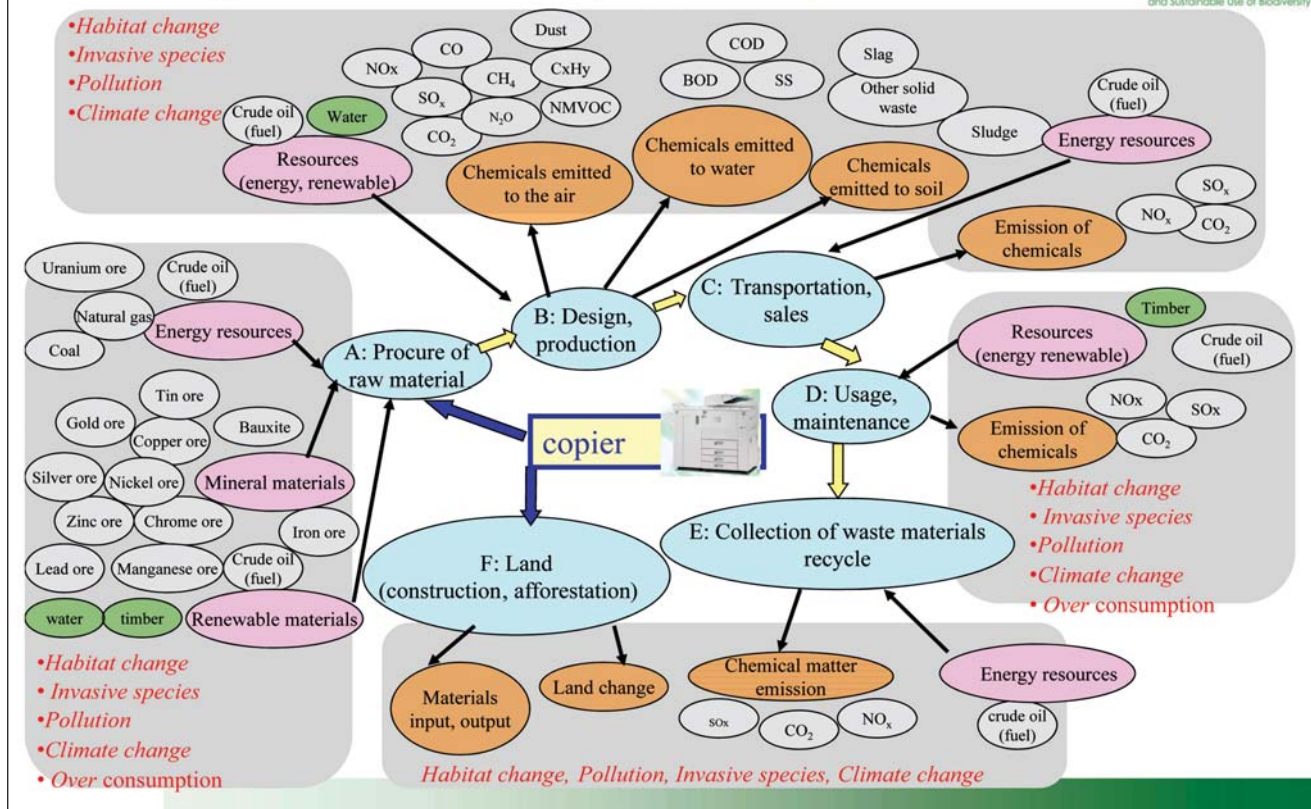
The R&D Group aims to enhance the knowledge of national and international projects and initiatives for the conservation of biodiversity, and to develop JBIB’s own methods, indicators and guidelines to monitor and evaluate corporate activities.

The group currently conducts research of business impacts on biodiversity through the supply chains, and has developed a method to make explicit illustrations to show the relationship. This illustration is called the “Relevance Map.”



**Forest conservation forms an important part of Japanese companies’ business and biodiversity initiatives.**

## Relevance diagram of Business and Biodiversity ★ Case of a Copier



JBIB developed this methodology as a tool to visualize both dependence and impacts of business on biodiversity in a schematic diagram or map. With the use of the diagram, any product or service can be analyzed with regard to its whole life cycle from material procurement to recycling or disposition. It also covers the relationship regarding land use and alternative relevant facilities, such as offices and factories.

The objectives of the Communication Group are to raise awareness, both inside and outside the companies, on the importance of biodiversity by holding symposiums, events and publications. It also aims to popularize the activities of Japanese companies in the conservation of biodiversity to both domestic and international stakeholders. The Communication Group plans to introduce

the world the Japanese spirit and wisdom of craftsmanship utilizing biodiversity.

### Members

The members of JBIB come from diverse industrial sectors. It currently has 33 companies. They are: Ajinomoto Co. Inc. (food, amino acid); Akimura Co. Ltd., Kajima Corporation and Takenaka Corporation (construction); Askul Corporation (mail-order business); Brother Industries Ltd., Hitachi Ltd., Panasonic Corporation, Ricoh Co. Ltd. and Seiko Epson Corporation (electronics); Cosmo Oil Co. Ltd. (oil refining and sales); Daiwa Securities Group Inc. (Securities brokerage); Dentsu Inc. and Hakuhodo Inc. (advertising agency); Fujitsu Ltd. (technology solutions, ubiquitous product solutions, device solutions); Fuji Xerox Co. Ltd. (document

processing); Toppan Printing Co. Ltd. (Printing); Green Wise Co. Ltd. (landscape gardening); INAX Corporation, Sekisui House Ltd. and Tostem Corp. (housing materials, equipment and construction); Shimizu Corporation; JSR Corporation (chemistry); Kao Corporation (chemicals, toiletries); Teijin Ltd. (chemicals, plastic, fibers); Mitubishi UFJ Trust and Banking Corporation and Sumitomo Mitsui Banking Corporation (banking); Mitsui Sumitomo Insurance Co. Ltd. (nonlife insurance); Nimura Genetic Solutions Co. Ltd. (bioprospecting); NTT Resonant Inc. (telecommunications services); Saraya Co. Ltd. (detergent, public hygiene); Sojitz Corporation (general trading); and Sumitomo Forestry Landscaping Co. Ltd. (forestry services). JBIB also has 13 network members (sub members).

### Practices by Japanese companies

Below are some examples of practices for conservation and sustainable use of biodiversity by member companies of JBIB.

**Ricoh Co. Ltd.** Ricoh is fully committed to every aspect of environment management. It is regarded as one of the leading environment companies in Japan. Its commitment began in the late 1990s when its top management recognized that the business totally depends on the existence of the planet's ecosystem and the business cannot continue without it. The company made it a rule that it would pursue the balance of "Three Ps"—profit, planet and people.

Ricoh placed special emphasis on the importance of forest ecosystems. This led to the conduct of environmental conservation activities in

forestry ecosystems in about 10 countries for more than a decade. Forest conservation may sound like a classical practice of social contribution, but Ricoh's projects are unique because they always choose the most important forest ecosystem in each area and engage with local citizens and nongovernment organizations.

Some of its early projects were terminated when the original targets were successfully attained. Its conservation activities are all highly regarded both locally and internationally.

In 2003, Ricoh established a policy of paper procurement to reduce their direct impact on biodiversity, and made sure it would procure and sell only environment-friendly paper.

In March 2009, the company made the "Ricoch Biodiversity Guidelines" to promote the biodiversity conservation in its whole business process in addition to paper procurement. Ricoh made eight commitments that in-

clude the development of new technologies reflecting the idea learnt from ecosystems and the nature of living things, and the involvement of all employees and various stakeholders.

#### **Kajima Corporation.**

As one of the largest general constructors in Japan, which makes not only buildings but also huge infrastructures like dams, roads and railways, Kajima Corp. has relatively large impacts on ecosystems. This is one of the reasons why Kajima recognized biodiversity as an important issue—realizing it ahead of other companies in other sectors.

Kajima made "The Kajima Ecosystem Conservation Guideline" in 2005 to minimize the impacts to ecosystems during its construction work. It was the first of its kind by a Japanese construction company. The guideline was later revised as Kajima Biodiversity Guideline in 2009.

The company prepared a database of biodiversity

on the corporate intranet to share the knowledge among its employees, such as engineers and construction workers, who could not tell which species they need to preserve or what kind of care they need to take. The database enables all the employees to share such technical information among themselves and minimize possible risks and loss of biodiversity during construction operations.

Besides minimizing impacts during operations, Kajima is developing new measures to restore lost ecosystems in urban areas and the suburbs. In a pilot study, wild birds, such as woodpeckers, were used as an indicator species to monitor the biodiversity restoration in urban areas.

**Sekisui House Ltd.** Being one of the largest house builders in Japan, Sekisui House Ltd. procures a lot of timbers for its daily operations. This led the company to have its own wood procurement policy for a responsible

procurement. It is important to note that Sekisui House forged collaboration with an environmental NGO, FoE Japan. Such collaboration is not very common in Japan but Sekisui House did so because it recognized FoE Japan as an expert in the field.

Another unique initiative made by Sekisui House is the gardening concept of "Five Trees in Your Garden." Under this concept, it proposed to its customers to increase the number of indigenous trees in their gardens to foster wild birds and butterflies. Since 2008, they have planted 850,000 trees all over Japan.

Sekisui House is also trying to convey the significance of biodiversity to children through its hands-on learning material "Dr. Forest," which explains the importance of forests. ■

■ *Dr. Adachi Naoki is the Executive Director of Japan Business Initiative for Conservation and Sustainable Use of Biodiversity*



**A meeting of the Japanese Initiative for Conservation and Sustainable Use of Biodiversity**



PES workshop participants in Da Lat visit Lam Dong province to get first-hand information on the successful implementation of a pilot PES project.

Photo by David Bonnardeaux

# PAYMENT FOR ECOSYSTEM SERVICES EASING POVERTY AND ENSURING “GREEN” PROGRESS

■ By **ROLANDO A. INCIONG**

**T**here is an emerging tool for sustainable development, poverty alleviation and biodiversity conservation. It’s called Payment for Ecosystem Services (PES).

Ecosystem services are benefits from nature that provide production, regulation, supporting and aesthetic functions. Ecosystems provide services essential for human well-being and survival. For example, forests help regulate the climate, ensure supply of clean water, control soil erosion, and provide a pleasant environment.

A recent report, *The Economics of Ecosystems and Biodiversity (TEEB)* by the European Commission and German Federal Ministry of Environment, cited a number of very important ecosystem services. Coral reefs, for example, provide genetic resources for medical research and the pharmaceutical industry. The report, however, warned that some ecosystems are likely to be damaged beyond repair. Current trends in the loss of ecosystem services on land and oceans demonstrate the severe impacts that biodiversity loss poses to human health, welfare and survival.

In 1977, global ecosystem services were valued at US\$33.3 trillion while the world's gross national product was US\$18 trillion only. Clearly, the world's income can't even pay for the total estimated value of the services we get from nature.

The PES approach develops economic incentives that enable potential buyers or beneficiaries of environmen-

tal services to secure them from providers, such as farmers, rural and forest communities, etc.

According to the USAID-Asian Regional Biodiversity Conservation Program (USAID-ARBCP), PES can be a sustainable financial tool due to the following considerations: demand for environmental services is increasing as supply is decreasing; large losses of environmental services are expected to increase investment costs to both rural and urban economies; government budgets to support protection are low; development planning and assessment of trade-offs offer important opportunities to capture ecosystem services values that can increase investment values; and local communities can protect ecosystem services and generate enough income to improve livelihoods.

The USAID-ARBCP noted that when invested strategically, income generated from PES can help support the protection of forests and

wildlife habitats, reduce operating costs for hydropower facilities, provide cheaper electricity costs to consumers, and generate additional incomes for poor rural families living in forested areas. Indeed, PES has the potential to be a powerful tool for sustainable economic development, poverty reduction and biodiversity conservation.

Executive Director Rodrigo U. Fuentes of the ASEAN Centre for Biodiversity (ACB) noted that many countries in the region are doubling their national and regional development efforts, resulting in the construction of roads, hydropower systems, and large-scale tourism infrastructure. Most of these developments happen in areas serving as critical habitats to globally significant endangered, endemic and wide-ranging species. They occur in sites associated with ecosystem connectivity and habitat functions that sustain the highest levels of ecosystem services.

He explained that without

the development of sufficient and tangible economic incentives to mitigate economic pressures, fragmentation of natural landscapes, and large losses of habitat and ecosystem functions, further deterioration of environmental services and increased costs to both rural and urban economies are expected.

"Strengthening emerging environmental services markets offers great potential for addressing such issues. But the PES approach in our region is in its infancy stage. The creation of markets for ecosystem services has been theoretically recognized. However, the benefits of promoting biodiversity conservation and supporting local livelihoods are yet to be implemented and documented on the ground," Director Fuentes emphasized.

Several governments in the ASEAN region have shown interest in establishing equitable and effective PES mechanisms at the national level. A huge roadblock, however, is the fact that PES mar-



**PFES-contracted farmers patrol forests in Da Chais commune in the Da Nhim watershed, deterring illegal logging and encroachment of agricultural plots in return for payments of up to 350,000 VND/ha/year.**

Photo by David Bonnardeaux

kets remain underdeveloped and not broadly understood in the region.

Aceh, Indonesia was one of the badly devastated places when a killer tsunami hit the region in 2004. Part of the rebuilding process is a green strategy officially declared by the provincial government. The UN Economic and Social Commission for Asia and the Pacific (ESCAP) is helping the government to establish enabling conditions for the development of a PES policy. Among them are the provision of autonomy over land classification and natural resources management; moratorium on logging of natural forests; and improvement of information access, among others. Pilot activities are being conducted, including the establishment of a PES task force and working groups; drafting of policy and regulations to support PES mechanisms; conduct of PES valuation studies; and capacity building initiatives. The Aceh and Peusangan watersheds were designated as pilot areas.

Cambodia and Lao PDR

are joining the PES bandwagon. Key stakeholder leaders visited the United States to observe how PES is being implemented in Oregon, Washington and New York. The two ASEAN countries are now determining the best practices that can be adopted from the US study tour organized by USAID and Winrock International.

Viet Nam is in the lead pack in jumpstarting PES in the region, with support from the USAID-ARBCP. The PES pilot project was presented at a recent workshop organized by the USAID-ARBCP, Asian Development Bank (ADB), UNESCAP and ACB in Da Lat, Viet Nam.

The Da Lat workshop was the second in a series of workshops designed to share practical experiences in developing sustainable finance, legal, and policy enabling conditions and mechanisms that will secure and support national and regional economic development targets in the ASEAN region and the Greater Mekong Sub-region, including China.

Vietnam has 10 major river systems originating from high mountain peaks and ridges in the North and the West, pouring into the East Sea. Headwater forests of the river basins play an important role in protecting the country's water supply for socio-economic development.

Viet Nam's more than 3,000 kilometers of coastline boasts of excellent mangroves, playing an important role in coastal protection and contributing to sustainable marine and coastal economic development. The country has 10 million hectares of wetlands which are critical for agricultural productivity to ensure food security. It has mountainous and forest areas that are home to 25 million people living in difficult socio-economic conditions. All these conditions make Viet Nam an ideal place to pilot test the PES.

The pilot PES policy is being implemented in Lam Dong, a mountainous province in the south of the Central Highland with a total area of 977,219 hectares. Lam

Dong has 1.2 million people with 40 ethnic groups living in 400 villages. It has 637,189 hectares of forest land.

Forests in Lam Dong are diverse in type and possess high biodiversity, playing an important role in the socio-economic development of the province. Besides the benefits from forest products, tourism and recreation, Lang Dom's forests also bring benefits to agriculture, cold water aquaculture and hydropower development. The area has large, medium and small-scale hydropower plants that have been or are being built as planned with a total capacity of 10 billion kilowatt hour a year.

At the same time, forests supply water, ensure upstream protection, protect the landscape, regulate the climate, and perform soil protection against erosion for the region and the coastal provinces of the Central and Southeast regions, Ho Chi Minh City and the downstream area of the Mekong River.

Forests in Lam Dong contribute significantly to the socioeconomic developments and environment protection that benefit the local communities and the South-eastern provinces—the most dynamic economic area of the country. However, in the past many years, livelihoods of those involved in protecting and re-generating forests in Lam Dong, mostly ethnic communities, are still poor with incomes much lower than those in other parts of the country.

People have been protecting forests from fire and deforestation to allow a forest growth rate of 3 to 4 percent a year, increasing by 4 to 6 cubic meters of timber per hectare annually, or an equivalent income of VND 12-18 million a year. For such services,



Consultation process on the implementation of Payment for Forest Ecosystem Services in Lam Dong, Viet Nam

ARBCP photo



**A field trip to a successful PES project in Viet Nam**

Photo by David Bonnardeaux

they have received only VND 100,000 to 200,000 per hectare a year from the state budget. This is lower than the value of the labor they spend or the value that forests bring.

Recognizing the situation, the Prime Minister of Viet Nam issued Decision 380/QD-TTg dated April 10, 2010, on PES, and selected Lam Dong as one of the two pilot provinces. With support from USAID-ARBCP, the government established the Forest Protection and Development Fund and put the operational structure in place to receive payments for water regulation and supply services from Da Nhim and Dai Ninh hydropower plants and environmental fee from nine ecotourism businesses. Payers and payees for ecosystem services were identified. Mechanisms for forest contracting for protection were developed and responsibilities and benefits of payers and payees determined. The plan for the management and use of income from PES was also developed.

Allocations of 203,335 hectares of forests were made to 8,022 households with an average payment of VND 270,000 to 290,000 per hectare,

which is 2.8 times more than current payment. Thus, livelihoods were improved and forests became better protected.

Under the pilot PES policy, two hydropower facilities committed to pay US\$2.8 million to more than 2,000 poor forest-dwelling households to protect 188,000 hectares of forests. As a result of the PES, incomes for these mostly ethnic-minority households are expected to increase by about 350 percent.

The USAID-ARBCP reported that after two years of implementation, people in the pilot areas now have high awareness of the value of forest ecosystem services (FES). Payers recognize that to invest in forest protection is to invest for sustainable production of hydropower, water supply and tourism. Forest protectors now understand the value of FES and their responsibilities in supplying them.

Livelihoods of forest laborers have improved and the number of poor households was reduced by 15 percent due to increased employment opportunities. Forest loss was reduced, forest quality increased and environmental offenses reduced by 50 percent.

Pressure for converting forest land was reduced and technical and management capacity of forest owners improved.

Addressing the Da Lat workshop, Viet Nam's Deputy Prime Minister Hoang Trung Hai cited that after two years of pilot-testing the PES policy, it has attained a high degree of consensus among the stakeholders from the national to local level, especially the ethnic and the poor households.

"Receiving payment from businesses using forest environmental services resulting from their labor, people have understood the meaning of forest protection and that the values resulting from their labor can be traded in the marketplace. Payment for forest environmental services has become an important part of income of poor households that helps improve their livelihoods, contributing to the significant reduction of the incidence of forest offenses. The PES policy of Viet Nam has revealed a good potential in achieving the goal desired by the government that forests are better protected and livelihoods of people directly involved in forest protection are improved," the Deputy

Minister explained.

At the first PES workshop held in Bangkok in 2009, Winston Bowman, Regional Environment Director of the USAID Regional Development Mission/Asia, lauded Vietnam for demonstrating that "mobilizing financial investments through the development of environmental services markets can help conserve biodiversity and reverse the trend of environmental degradation."

Mr. Bowman considered Viet Nam's feat a "triple win"—a win for the communities that receive payments, a win for the hydropower facilities that save money, and a win for the environment.

Stakeholders from Lam Dong have recommended to the government of Viet Nam to issue a decree that will enable the PES policy to be implemented in the entire province and across the country. Through the USAID-ARBCP, in collaboration with ADB, UN ESCAP and ACB, efforts are being made to promote collaboration and exchange of experience to encourage replication of Viet Nam's successful experience in other countries. ■

■ *Mr. Rolando A. Inciong is head of communication and public affairs at the ASEAN Centre for Biodiversity*

#### References:

- The Economics of Ecosystems and Biodiversity, European Commission and German Federal Ministry of Environment
- Costanza, R. et al. (1997) The value of the world's ecosystems services and natural capital. *Nature* 357: 253-260
- USAID-Asian Regional Biodiversity Conservation Program
- Asian Development Bank
- UN Economic and Social Commission for Asia and the Pacific
- ASEAN Centre for Biodiversity
- Winrock International

# BIODIVERSITY CONSERVATION THROUGH ECOTOURISM

■ By **FILIBERTO POLLISCO JR.**

*In 1998, Carlos Libosado Jr. once said: “No matter how many conservationists view it, ecotourism should still be treated like a business enterprise, requiring quality, as well as dependable and innovative ideas on facilities and services operations.”*

**T**his statement implies that conservationists treat ecotourism as an activity that caters to the need of nature-loving people in enjoying what nature has to offer but not recognizing ecotourism as a business activity.

Who can blame them when many ecotourism activities started out in many government-managed protected areas that were conducting business activities back then against many government rules?

Also, the first few definitions of ecotourism did not have any “business enterprise,” or an implication, mentioned except for the term “tourism.” Case in point was the definition of ecotourism by Lascrain in 1986 defining it as “tourism that consists of travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestation found in the area.”

As the definition evolved along with the changing times, the one that caught my attention was the definition developed by the Philippines when the Department of Tourism and the Department of Environment and Natural Resources joined hands in a National Ecotourism Project funded by the New Zealand Agency for International Development. This definition integrates the “business” side of ecotourism, to wit: “A form of sustainable tourism within a natu-

*ral and or cultural heritage area, where community participation, protection and management of natural resources, culture and indigenous knowledge and practices, environmental education and ethics, as well as economic benefits, are fostered and pursued for the enrichment of host communities and the satisfaction of visitors.”*

Emphasized here are the “economic benefits” and the “satisfaction of visitors” for business sustainability of ecotourism. Economic benefits would accrue



to the many stakeholders in the area, including the local community, the local government, tourism service providers, and others; while the satisfaction of visitors would ensure a sustainable economic benefit flow from the influx of visitors. As such, if the venture is profitable, then it is sustainable.

### Where are we?

According to the [www.ecotourismlogue.com](http://www.ecotourismlogue.com) in 2008,

The International Ecotourism Society (TIES) Report cited that “nature tourism and ecotourism make up 20 percent of the international tourist travel and is steadily growing at 10 to 30 percent annually,” while the rest of the travel (mainstream tourism) remains flat at 5 percent. The website goes on to say that the World Trade Organization estimates that the “direct impact of nature travel, including ecotourism, runs

into hundreds and billions of dollars”.

In Southeast Asia, of the 10 countries that make up the Association of Southeast Asian Nations (ASEAN), only Singapore, Malaysia, Indonesia and Thailand have taken advantage of ecotourism, and the rest, at varying paces, are gradually catching up.

As reported by the Philippine Star (March 7, 2009), a national newspaper, the Third Annual Report on

Tourism and Travel Competitiveness of the World Economic Forum (2008-2009) ranks Singapore as one of the top 10 countries (10th) followed by Malaysia (32nd), Thailand (39th), Brunei (69th), Indonesia (81st), Philippines (86th), Viet Nam (87th) and Cambodia (88th) in terms of competitiveness and level of human and natural resources development for tourism, out of 133 countries surveyed.



Unfortunately, the survey was not able to include Lao PDR and Myanmar. However, with Luang Prabang in Lao PDR and the many cultural and natural attractions in Myanmar already getting the attention of the travel industry, these two countries would not be far behind from the other ASEAN Member States.

### Some good business practices in Southeast Asia

*Research in support of business operation and natural resource management.* One good practice in support of business operation is to conduct bio-physical, social and market research for ecotourism and resource management. Results of these researches are used in the education of the ecotourists, for information about the national parks and for promotional materials. Other information generated through research is the influx of visitors through time for adjusting visitor manage-

ment and regulation strategies, for operational policies, and for marketing strategies. Although research is not new in the private sector, especially in big corporations, research is still one aspect that is usually inadequately or not done, especially in cost-cutting exercises, but has the same importance as the other management components in ecotourism endeavors.

*Corporate-like operations and management of protected areas.* The Johor National Parks Corporation of Malaysia, although not entirely a private group, is like a government-owned or controlled corporation that has the task of managing the network of national parks in Johor Bahru. The corporation was established by virtue of 1989 Johor National Parks Corporation Enactment-Section 4 to carry out and implement action plans for the parks, to preserve and protect its natural heritage, and, through its

utilization, promote the education, health and recreation of the people. National parks are managed and operations are run like a private corporation and business enterprise to provide visitor satisfaction in terms of services and facilities that include management of the natural resource.

*Multi-stakeholder cooperation and systematized ecotour operation.* Success stories include ecotourism in Puerto Princesa in Palawan, Philippines, where ecotour packages and operations are handled by local tour associations comprised of land and water transport groups and local government. Communities are also part of the system wherein they provide the guides, the boats in going to island destinations, and the local government, which are linked to the city and provincial government and eventually to the national level, and where other stakeholders like airlines and national travel

agencies and tourism-service providers also do their part.

Each stakeholder has a responsibility to perform and operate autonomously from the others but they function as an element of a whole to keep the system operational.

Other examples include the cultural tours in Luang Prabang, Lao PDR; the Angkor Wat temples in Siem Reap, Cambodia; the different tour packages in Thailand; Halong Bay tour in Hanoi, Viet Nam; and nature tour packages in Singapore, Indonesia and Malaysia. Hence, in setting up an ecotour venture, it is best for all stakeholders to be cooperative and involved.

*Corporate social responsibility.* A buzzword in the corporate world, corporate social responsibility (CSR) has a wide range of activities that include biodiversity conservation. Some companies started out with their CSR as a social responsibility but ended up with an ecotourism venture



that is self-sustaining. This is a plus factor for the company wherein they fulfil their social responsibility and, at the same time, earn profits.

A good example is the PTT Ltd. Co., a petrochemical organization in Hua Hin, Thailand. It started out rehabilitating an abandoned fishpond farm into a mangrove forest as a CSR activity and ended up with an ecotourism facility visited by school children, foreign tourists and the King of Thailand.

### Important success factors in ecotourism as a business

According to Van der Plueg and Taggug (2003), there are 18 factors that need to be considered in determining if a community-based tourism enterprise can contribute to biodiversity conservation and generate revenue for the local people. Some of these are:

*Link with biodiversity.* Salafsky, et.al. (2001) cited

from Van der Plueg and Taggug (2003) that “when there is no perceived linkage between the tourism enterprise and biodiversity, the enterprise strategy will not work.” This is due to the fact that biodiversity or the natural resource is the main attraction for ecotourism. If the natural-resource base is gone or is not utilized as the ecotourism attraction, by definition, the tourism activity is not an “ecotour.”

*Time frame.* Benefits have to flow back to the local stakeholders in the shortest possible time. By doing so, it will improve the commitment of all stakeholders, especially the locals to the enterprise.

*Leadership.* The insights, ingenuity and the commitment of socially dedicated individuals in position of influence and leadership prove to be instrumental in setting up a viable ecotourism business (Murphree 2001 cf Van der

Plueg and Taggug, 2003). Leadership is essential, especially so if there is political will to implement policies.

*Enforceability.* It is practically important for stakeholders to have the ability to enforce rules and regulations to safeguard the natural resources and the tourists on which their enterprises ultimately depend.

### Ecotourism for biodiversity conservation

The idea of getting profits from any tourism activity makes the stakeholders very enthusiastic. Commitment becomes very high to the point that the excitement would allow the speedy implementation of tourism programs. However, ecotourism is a different sector of mainstream tourism because biodiversity conservation is an inextricable part, which often is masked or altogether forgotten in the excitement of planning and implementing

the ecotourism program.

As Dr. Perry Ong once said, “The increasing interest in ecotourism is an offshoot of the signing of the Convention on Biological Diversity in Rio de Janeiro, Brazil in 1992. Thus, ecotourism should be seen in the light of biodiversity conservation, and not for its own sake.” ■

■ *Dr. Filiberto Pollisco, Jr is a program development specialist at the ASEAN Centre for Biodiversity*

#### References:

- Libosada, Carlos M. Jr. 1998. Ecotourism in the Philippines. Bookmark Inc. Philippine Star, March 7, 2009 issue
- Van der Ploeg, Jan and Jouel T. Taggug. 2003
- Ecotourism as a potential strategy for the integration of conservation and development in the Northern Sierra Madre Natural Park. In Proc. The Sierra Madre Mountain Range: Global Relevance, Local Priorities. CVPED 2003. Golden Press pp. 353-369.
- www.ecotourismlogue.com 2008



# KITANGLAD: INVESTI

■ By JONATHAN L. MAYUGA

**A**s the Philippines joins the world in celebrating 2010 as the International Year of Biodiversity, biodiversity conservation effort is taking its peak in Mount Kitanglad, one of the few remaining rain forests in the Philippines and host to one of the most important diverse species of rare and endemic wildlife.

Biodiversity conservation in Mount Kitanglad highlights the effort of various stakeholders, the experiences and lessons learned with people living in communities who share the bounty of its vast natural resources and play a crucial role in environmental protection.



# NG IN NATURE PAYS OFF

Central to this effort is the pooling together of resources by national and local government units, nongovernment organizations, people's organizations, indigenous peoples and various private institutions—in order to protect it from further destruction and degradation, and rehabilitate it and promote sustainable development.

Mount Kitanglad became the 28th ASEAN Heritage Park and the third Philippine mountain to earn such distinction during the 11th ASEAN Ministerial Meeting on En-

vironment on October 29, 2009, in Singapore. The first two are Mount Apo in Davao, the highest mountain in the country, and Mount Iglit-Baco in Oriental Mindoro, home of the Philippine tamaraw.

The ASEAN Centre for Biodiversity (ACB), which recently co-organized a three-day media tour to Mount Kitanglad, underscored the importance of biodiversity conservation, particularly when the world is beginning to feel the adverse impacts of global warming and climate change.

## The perils are real

In Southeast Asia alone, 500 million lives are threatened by biodiversity loss, according to Filiberto Pollisco Jr., program development specialist of the ACB.

To be labeled an ASEAN Heritage Park is an honor, he said, but it carries a big responsibility.

"The park is accepted on behalf of ASEAN to be a showcase example for the protection of certain habitat and species features. It is the country and manager's responsibility to ensure that

the best possible level of protection is afforded to the site, but the site will also benefit from assistance in this role from the ASEAN Heritage Parks Programme," he told participants of the three-day orientation trip to Kitanglad.

ACB facilitates the application of each of the 10 ASEAN countries under the ASEAN Heritage Parks Programme, which will endeavor to ensure that such heritage parks benefit from the best practices of management available.

The program includes features for capacity development, information-sharing network, technical exchange, facilitation for available international funding, promotion of tourism, participation in joint research, a biannual conference of managers and management improvement.

The ASEAN Heritage Parks Programme aims to generate greater awareness, appreciation, enjoyment and conservation of the region's rich natural heritage by creating a regional network of representative protected areas.

The program promotes greater collaboration among ASEAN members in the preservation of their common natural heritage. The ACB serves as the secretariat of the Heritage Parks Programme.

The parks, said Pollisco, "are educational and inspirational sites of high conservation importance, preserving a complete spectrum of representative ecosystems of the ASEAN region. The parks embody the aspirations of the peoples of the ASEAN Member States to conserve their natural treasures that represent the bounty and diversity of living organisms of their nations."

According to Pollisco, the abundance of these diverse biological resources also ensures the continuous flow of goods—such as food, shelter, fiber and medicine—and ecosystems services like water, for the benefit of the present and future generations.

Known as the habitat of the critically endangered national bird, the Philippine Eagle, Mount Kitanglad is considered the country's last frontier in biodiversity.

According to the Philippine Eagle Foundation (PEF), it is the perfect release site of the bird of prey, whether it is rescued and rehabilitated, or

bred in captivity. Kitanglad's forest makes it perfect for hunting, particularly for juvenile Philippine eagles. In fact, because of its vast expanse, the PEF discovered a third pair of eagles, says Jayson Ibañez, its research and conservation director.

Despite its ecological, economic and cultural significance, Mount Kitanglad remains a biodiversity hot spot owing to past "environmental crimes" that caused its destruction many years ago. Poaching of wild animals and birds and the reckless use of its resources remain a problem, threatening the habitat and a wide variety of flora and fauna.

In fact, two of the captured and rehabilitated Philippine eagles that were released in Mount Kitanglad by the Department of Environment and Natural Resources (DENR) and the PEF—a nongovernment organization advocating the protection of the critically endangered species and of their natural habitat—were killed within the supposed "protected area".

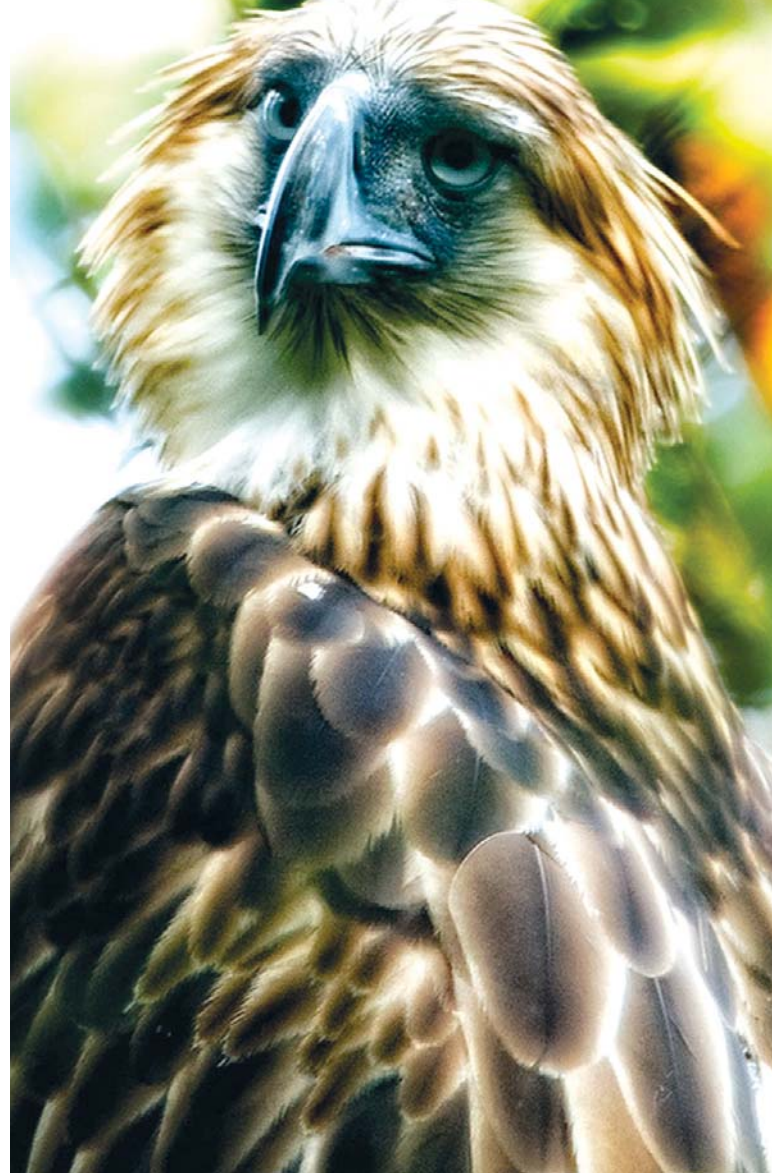
"There are plenty of rats, snakes, monkeys for the Philippine Eagle to survive in Mount Kitanglad, that's why we use the area as release site," he said.

According to Ibañez, they are now in search of the nest of the third eagle, so as to protect it from poachers.

"It is important that the nest is found so that we can mark it and prevent people from going anywhere near the nest," he said.

Because of the bird's territorial nature, a pair of eagles requires a minimum area of 7,000 to 13,000 hectares of forests with abundant wild animals, birds or even snakes to prey on to survive.

The PEF has in its care 30 Philippine eagles, includ-



**Philippine Eagle (above), a viewing tower allows researchers to get a good glimpse of the Philippine eagle (right).**

ing three adult pairs used for breeding. It also takes care of rescued Philippine eagles, mostly injured by hunters. Once rehabilitated, these birds are later released.

According to Ibañez, over the past few years, the PEF recorded relative successes. One of the eagles, Kalabugao, a young female eagle released inside Mount Kitanglad in October 2009, was found by monitoring teams with the help of a tracking device. She was found to be well-adjusted to a new habitat along the forested area near the Kulan River.

Two years ago, Kalabugao was rescued by a bikers' club from Cagayan de Oro City—starving, untidy and dehydrated. She had been caged and kept in a hut by

her captors. An x-ray later showed she had a broken collar bone, indicating she was shot down.

She was brought to the Philippine Eagle Center in Davao, where she was treated from her trauma, and slowly rehabilitated. With the permission of the DENR and the Protected Areas and Wildlife Bureau (PAWB), Kalabugao was released.

However, Ibañez said they are still doing further studies to improve their release protocol in the wake of the deaths of two eagles earlier released in 2008 and 2009, Kagsabua and Hineleban. Kagsabua was the ill-fated Philippine Eagle that was shot and cooked by a farmer-hunter, while Hineleban was smashed in the head and turned into *pulutan* by

four drunken ex-convicts.

“From our experience, it is not only important to educate the people, especially those in communities around Mount Kitanglad. We need to make an example of those who hunt them for food even though they know it is prohibited under the law. Such act can be considered premeditated murder, because the ones who killed Hineleban planned well how to catch and kill him.”

According to Ibañez, Hineleban was seen by four drunks when he perched on a tree in one of the trails leading to Kitanglad’s peak. “They waited ’til dark and they hit the eagle in the head, killing him. They know it’s a crime to kill a Philippine Eagle but they did it, nevertheless, to have *pulutan*,” he lamented.

A fourth eagle was recaptured by the PEF because the

eagle—Tinuy-an—is no longer wild. “Because of his exposure to humans, he became domesticated. He’ll no longer survive in the wild,” Ibañez said.

The majestic Mount Kitanglad is the second-highest mountain in Mindanao and the third highest in the country—after Mount Pulag in Northern Luzon. Because of its importance in terms of biodiversity, it was declared a protected area in 2000 by virtue of Republic Act 8978, which gave its name the Mount Kitanglad Range Natural Park.

Mount Kitanglad covers 47,270 hectares, composed of 31,326 hectares of protected area and 16,034 hectares as buffer zone.

It straddles parts of the municipalities of Baungon, Talakag, Lantapan, Impasugong, Sumilao, Lobona, Manolo Fortich and Malay-

balay City, all in the province of Bukidnon.

Mount Kitanglad is the major watershed that provides water for irrigation, power generation and domestic use for Bukidnon and nearby province of Misamis Oriental.

It is the headwater source of several river systems feeding north and central Mindanao. The creeks and rivers flow in a radical pattern and feed the Cagayan, Tagoloan and Pulangui rivers. Among its water tributaries are the Timago, Tugasan, Maagna, Alanib, Kulasihan and Manupali.

The Manupali River provides irrigation to low-lying areas of Valencia City, while Pulangi is being used by the National Power Corp. to provide hydroelectric power.

The vast mountain range of Mount Kitanglad is home to the Talaandig, the Higaonon and the Bukidnon tribes.

It has been identified as one of the most important parks in the Philippines and considered as a priority site for protection by the DENR.

Biodiversity conservation effort in Mount Kitanglad is getting the much-needed boost from the provincial government of Bukidnon.

Since 2001, under the leadership of Gov. Jose Zubiri, the local government has been implementing a “no mining” policy in the province.

Zubiri, father of Sen. Juan Miguel Zubiri, said he also rejected mining companies’ offer to do business in the province, owing to mining’s destructive nature.

“I don’t believe in mining. If you allow big mining companies in Bukidnon, trees will be cut down and the forest will be destroyed. There’s also

no logging here [Bukidnon],” he said.

Zubiri said instead of mining and logging, the provincial government provides support to farmers (separate provides and support), particularly upland dwellers, by teaching them how to make their land productive without unnecessarily cutting down trees or destroying the environment.

The provincial government also provides financial support for the livelihood of upland dwellers and allowance of the Kitanglad Volunteer Guards who act as forest rangers. Last year it allotted P1.2 million—P1 million for livelihood programs being initiated by the DENR, the Provincial Environment and Natural Resources Office (Penro) in Region X, and the Protected Area Management Board, a multisectoral body composed of representatives from local government units (LGUs) with territory within the protected area, tribal communities, nongovernment organizations and community organizations and other government agencies in the management of protected areas such as the Department of Agriculture, Department of Tourism and the Philippine National Police.

According to Zubiri, even without the promised economic benefit of mining, the provincial government of Bukidnon increased tax collection from P33 million in 2001 to P300 million in 2009.

Protected Area superintendent Felix S. Mirasol Jr. said despite its limited resources, Mount Kitanglad Range Natural Park is one of the most protected areas because of the active involvement of the communities.

In fact, one of the most successful reforestation projects, the Cinchona Refores-



tation Project in barangay Kaatuan in Lantapan, Bukidnon, is a living testament to the kind of protection that Mount Kitanglad receives.

The Cinchona Forest Reserve has a total land area of 1,994 hectares planted with cinchona, albizzia, Benguet pine, eucalyptus, Ceylon tea and rattan. It is one of the two nesting sites currently being monitored by the DENR and the PEF.

Managing the operations of the Mount Kitanglad Range Natural Park, he said, is easier said than done.

There are around 11,000 people living in a total of 28 barangays in six towns and a city covered by Mount Kitanglad, but there are only 344 volunteers who receive nothing but a monthly allowance. Kitanglad Volunteer Guards share among themselves P3,000 a month allotted for each of the 38 barangays within Mount Kitanglad.

“Had it not been for the support of LGUs, we will not be able to protect the park,” he said.

Mount Kitanglad receives only around P150,000 to P300,000 from the Office of the Secretary of the DENR every year.

According to Mirasol, a study conducted in 2000 revealed that to be able to protect the park and develop its ecotourism potentials, at least P8 million should be allotted every year.

With the help and support of LGUs and various partners, education, information and communication campaign, as well as seminars and training to highlight the importance of Mount Kitanglad were conducted in 10 of the 28 barangays.

Last year, through a congressional initiative, Mount Kitanglad was allotted P10 million, but the fund has

not yet been released by the Department of Budget and Management. This year, it was again allotted P10 million.

The La Liga Policy Institute (La Liga), a nongovernment organization which acts as the secretariat of the environment cluster of the Alternative Budget Initiative (ABI), has been calling for the immediate release of the fund for protected areas and national parks, including Mount Kitanglad.

The amount, according to Mirasol, should cover various projects, including livelihood for indigenous peoples, and generate jobs for the people living within Mount Kitanglad. “Thanks to the support of the LGUs and the communities, we are able to do our job of protecting Mount Kitanglad,” he said.

According to Mirasol, there is a need to increase the number of forest rangers or Kitanglad Guard Volunteers to ensure the protection of the forest and its habitat from poachers.

Training on contour farming should be continuously undertaken, so farmers will not resort to the highly destructive slash-and-burn, or *kaingin*.

Such program is the purpose of the establishment of the Mount Kitanglad Agro-Ecological Techno-Demo Center (MKAETDC), one of the projects of the Mount Kitanglad Range Natural Park. The center is within the buffer zone of Mount Kitanglad in barangay Imbayao, in Malaybalay City.

The MKAETDC is a 22-hectare farm showcasing improved upland farming system owned by the family of Maputi, a farmer-scientist. It is a joint project of the Imbayao Multipurpose Cooperative headed by Maputi himself.

The site is among the renowned demonstration farms in the country awarded as the “Most Outstanding Farm Family of the Philippines” during the 2006 Search for National Gawad Saka of the Department of Agriculture.

Members of IMPC, since the farm’s establishment, have changed their way of life—from plowing down the slopes to organic farming that adapts to their kind of environment so as not to destroy or cut down trees and other features of the forests.

MKAETDC’s management practice involves minimal use of inorganic fertilizers and chemical pesticides, employing natural and organic-farming technology system, no burning of waste materials, composting, segregation of waste materials starting from the kitchen to farm surroundings, essential oil production and plantation, and secondary forest-management preservation.

To generate additional income, MKAETDC offers services such as agritourism, training and farm-tour package, camping, rainforestation and nature trekking, horseback riding, tea-tree plantation tour, and production and sale of souvenir items.

Ecotourism, which provides alternative sources of income, is being pushed by the DENR to boost environmental protection and biodiversity conservation efforts in Mount Kitanglad.

Even private individuals, like businessman Elpidio Paras and his brother Ruben, find investing in the environment a good business. Elpidio, a mechanical engineer, developed a 50-hectare property in barangay Dahilayan, Manolo Fortich, which he bought early in 2000 and turned into an adventure park

now known as the Dahilayan Adventure Park.

The Dahilayan Adventure Park is now attracting local and foreign tourists. The park offers outdoor adventure, including Asia’s longest zip line, the 840 meter flying fox dual zip line.

According to Elpidio, the development of the property, just outside the buffer zones of Mount Kitanglad, started in 2001. “It was bare when I bought it. For five years, we did nothing but plant trees and let them grow. It was only recently when we developed it into an adventure park,” Elpidio, a private pilot, said. Today, Elpidio has reforested two hectares of the 50-hectare property with about 20,000 pine trees and spent around P10 million for the adventure park’s amenities, which include horseback riding and a track for all-terrain vehicles. A three-story hotel is now being constructed to accommodate tourists for an overnight stay or two.

Elpidio plans to plant more trees, but this time, a diverse variety of trees and possibly, spend an additional P20 million for more outdoor-adventure amenities in the next 10 years to accommodate the increasing number of visitors all the way from Manila and different parts of the country. “I find investing in the environment very rewarding, not only financially. It makes me feel good to help promote nature and the environment,” he said.

His brother, a real-estate developer, on the other hand, has put up a picnic ground and a restaurant at an adjacent property, for the dining pleasure of Dahilayan Adventure Park’s visitors. ■

■ *Jonathan L. Mayuga is a Reporter of BusinessMirror, Philippines*



Organizers of “One Tree at a Time” (left), Mr. Zaenal Arifin of Malaysia’s Embassy to the Philippines (inset), Eco-warrior and “Born to be Wild” host Kiko Rustia (above), Mr. Tan Chandaravuth of the Royal Embassy of Cambodia to the Philippines (above, right).

Photos by Larry Doctor and Leslie Ann Jose-Castillo

## Saving the world one tree at a time

What do people do to save the world from environmental degradation? Some support conservation projects. Some recycle. Some save on water and electricity. Some join clean-ups. Some plant trees.

Saving the world by planting one tree at a time was the theme of the tree planting held by Tagaytay Highlands, the ASEAN Centre for Biodiversity and Lifestyle Asia on 22 May, the International Day for Biodiversity.

Over 150 officers and employees of the three groups planted 200 fruit-bearing trees, such as rambutan, atis, chico, duhat, lanzones, santol, star apple and macopa near The Country Club at Tagaytay Highlands.

Officials from the embassies of Cambodia, Indonesia and Japan to the Philippines also took time off from their diplomatic duties to join the tree planting.

The activity, accredited as a project under the global Green Wave campaign of the Secretariat of the Convention on Biological Diversity, was part of the vision of Tagaytay Highlands founder,

Mr. Willy Ocier, to plant one million trees in 50 years inside the Tagaytay Highlands Complex.

In the last 16 years, a series of tree planting have been conducted inside the exclusive complex for a greener Tagaytay Highlands. Last year, it moved to make the leisure destination a natural sanctuary by partnering with Lifestyle Asia magazine for the tree planting, “Plant Hope Gardens.”

This year, the leisure complex took its commitment to the next level by joining the global Green Wave campaign with the ASEAN Centre for Biodiversity (ACB).

“Without trees, there will be no air to breathe and without air, there will be no life to live,” Mr. Ocier said.

Blessed with abundant natural surroundings, Tagaytay Highlands is giving back to Mother Nature and doing its share on saving the environment in many ways.

For Mr. Rodrigo U. Fuentes, executive director of the ACB, “The effort to plant one tree at a time will go a long way in conserving our environment. By planting trees, we can help lessen the

impact of climate change. An average tree can absorb up to 48 pounds of carbon dioxide each year and an acre of trees can take in a cumulative 26 tons of carbon dioxide. Trees can indeed make a difference in emissions and may be able to slow the impact of global warming. Trees’ roots also prevent soil erosion. They will also provide Tagaytay Highlands’ various species of birds and insects a new home. More important, they will pass on an important legacy to the future generation.”

Under the leadership of its club president, Mr. Jerry Tiu, Tagaytay Highlands has initiated several other activities to conserve the environment. Apart from planting trees, the leisure complex also conserves energy in significant respects.

During off-peak days, leisure destination splits up the lighting of the street lights and turns on the lights only in the important areas to minimize electricity consumption. To reduce this even more, incandescent lights have been replaced by compact fluorescents, which cut down energy usage up to 60 percent.

Likewise, heavy equipment are operated and maintained on a set schedule to minimize electricity and fuel consumption.

The leisure complex also promotes the use of renewable resources. The exclusive complex has its own Sewerage Treatment Plant that converts wastewater to usable water that is being used for irrigation and maintenance of Tagaytay Highlands and Tagaytay Midlands surrounding landscaped areas. It is also proud of its conscious efforts in promoting its clean air campaign by means of converting its golfers’ transport vehicles to LPG power, which is more economical and also pollutant-free.

For Mr. Tiu, “Doing these efforts doesn’t just safeguard the environment, but our future.”

For these efforts, Tagaytay Highlands was recognized by the ASEAN Centre for Biodiversity as a Friend of Biodiversity. The award is given to individuals and organizations that help conserve biodiversity through environment-friendly initiatives. — Leslie Ann Jose-Castillo

# TeleTech holds fun run, donates to the ASEAN Biodiversity Fund

TeleTech Philippines recently partnered with the ASEAN Centre for Biodiversity (ACB) in organizing a fun run on June 5, 2010 at the TeleTech Sta. Rosa Delivery Center (DC).

In celebration of the World Environment Day 2010 and the International Year of Biodiversity, about 50 officers and employees of the Sta. Rosa Delivery Center and ACB donned their running shoes and joined the seven-kilometer and 14-kilometer categories of the fun run.

TeleTech donated proceeds of the fun run to the ASEAN Biodiversity Fund, making TeleTech the first corporate donor to the Fund.

Raffy Macapagal, TeleTech executive director, Operations, and site lead of Lipa and Sta. Rosa delivery centers, said the fun run is their contribution to the celebration of the World Environment Day. "It is part of our annual activity that engages our employees in social and environmental responsibility, helps the communities where we operate and at the same time reduces impact of our operations on the environment."

ACB awarded TeleTech with a "Friend of Biodiversity" plaque in recognition of its support for biodiversity conservation.

"We celebrate our partnership with TeleTech Sta.

Rosa DC, a prominent member of the business sector. At first glance, people do not realize the crucial connection between business and biodiversity. Business is perceived to be detached from biodiversity. However, biodiversity knows no boundaries, cutting across all sectors--the business sector included," Reynaldo Molina, resource mobilization specialist of ACB, said.

He added that "business depends on biodiversity by relying on plant and animal species and ecosystem services for their products. While businesses can have direct or indirect impact on biodiversity, they also have the re-

sources to conserve biodiversity. The business sector is an integral part of the solution to biodiversity loss."

He encouraged TeleTech to continue to support the global Business and Biodiversity Initiative, which promotes corporate social responsibility on biodiversity conservation, sustainable use of biodiversity, and access to and benefits sharing of genetic resources.

As a company, TeleTech believes that socially and environmentally responsible behavior is good for the communities where it operates, its employees, and its business. It just makes good sense! – *Leslie Ann Jose-Castillo*







Dr. Vann Monyneath, Chair of ACB's Governing Board, addresses participants of the 3rd AHP Conference.

### 3rd ASEAN Heritage Parks Conference:

## ASEAN takes steps to conserve natural heritage

Natural heritage experts from the ASEAN region discussed ways to strengthen the management of the 28 ASEAN Heritage Parks (AHP) and promote cooperation in protected area management when they met in Bandar Seri Begawan, Brunei Darussalam from June 23 to 25, 2010.

The 3rd AHP Conference gathered park managers, members of the AHP Committee and relevant national experts in an effort to enhance on-site management of the AHPs.

This year's conference, with the theme "Moving Forward Toward Effectively Managed ASEAN Heritage Parks," provided participants with a venue to share experiences and the indigenous solutions they had developed to effectively manage their own parks.

Opening the conference, Haji Mohd Rozan Bin Dato Paduka Haji Mohd Yunos, Permanent Secretary for Administration and Finance of the Ministry of Development

of Brunei Darussalam, challenged the participants to initiate steps that can be taken individually and collectively to develop and promote effective management and conservation of the AHPs.

"Effective management and conservation should pro-

vide the means to enable local people to become part of the solutions to ensure effective management of the parks. Alongside with the natural wealth and beauty of a place, the most important aspect about the AHPs is its benefits to local people and the local

economy," Haji Mohd Rozan emphasized.

He added that local communities should have a voice in sustainable development, share revenue flows, and earn their livelihoods with minimal impact on the environment of the AHPs.

Conference outputs included the establishment of a network of AHP managers. The participants crafted a regional work plan for AHPs which covers resource assessment and monitoring, including species identification and habitat management, ecotourism, law enforcement, Possible financing windows, donors and partners in the implementation of the different activities of AHPs were identified.

Prior to the conference, the AHP Committee approved 12 proposals for funding by the ASEAN Centre for Biodiversity (ACB). The projects will be implemented in various AHPs to improve conservation and management of the parks



Dr. Vann Monyneath, Chair of ACB's Governing Board; Ms. Clarissa C. Arida, ACB Director for Program Development and Implementation; Mr. Haji Mohd Rozan Bin Dato Paduka Haji Mohd Yunos, Chairman ASOEN-Brunei Darussalam and Permanent Secretary for Administration and Finance of Brunei's Ministry of Development; Mr. Haji Mohd Zakaria Bin Haji Sarudin, Director, Department of Environment, Parks & Recreation, Brunei's Ministry of Development; and Dr. Raman Letchumanan, Head of Environment Division, ASEAN Secretariat.



Participants shared experiences on the effective management of AHPs



An exhibit on the 28 ASEAN Heritage Parks was featured during the conference

covering law-enforcement training, promoting environmental education, capacity development of protected area management boards, ecotourism, management effectiveness assessment and planning, pilot village level lake restoration, and development of management plans.

The AHP Committee also recommended the following: establishment of a network of AHP managers; setting up of an AHP Portal within the ACB website; and an AHP information corner in each ASEAN Heritage Park to promote all other AHPs.

The ASEAN Heritage Parks are educational and inspirational sites of high conservation importance, preserving a complete spectrum of representative ecosystems of the ASEAN region.

Under the ASEAN Declaration on Heritage Parks, the ten ASEAN Member States agreed that “common cooperation is necessary to conserve and manage the ASEAN Heritage Parks for the development and implementation of regional conservation and management action plans, as well as regional mechanisms complementary to national efforts to implement conservation measures.” The AHPs

generate greater awareness, appreciation, enjoyment and conservation of the region’s rich natural heritage. The 28 ASEAN Heritage Parks are home to many of the world’s most enigmatic species. The abundance of these diverse biological resources also ensures the continuous flow of goods and ecosystems services for the benefit of the present and future generations.

Resource persons at the three-day conference were: Dr. Graeme Worboys, Vice Chair, Mountains Biome Theme, International Union for Conservation of Nature-World Commission on Protected Areas; Ms. Cristi Marie C. Nozawa, Regional Director, BirdLife International Asia; Dr. Madhu Rao, Regional Technical Advisor for the Asia Program Wildlife Conservation Society and Coordinator for Asia, UNEP; and Dr. Raman Letchumanan, Head, Environment Division, ASEAN Secretariat.

The conference was hosted by Brunei Darussalam’s Department of Environment, Park and Recreation and organized by ACB.

For more information about the ASEAN Heritage Parks, visit [www.aseanbiodiversity.org](http://www.aseanbiodiversity.org). ■



Organizers and participants of the 3rd AHP Conference

## Global Biodiversity Outlook 3

# New vision required to stave off dramatic biodiversity loss

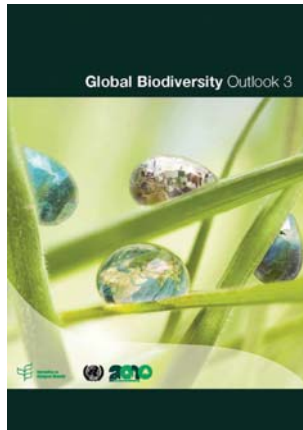
Natural systems that support economies, lives and livelihoods across the planet are at risk of rapid degradation and collapse, unless there is swift, radical and creative action to conserve and sustainably use the variety of life on Earth. This is one of the principal conclusions of a major new assessment of the current state of biodiversity and the implications of its continued loss for human well-being.

The third edition of Global Biodiversity Outlook (GBO-3), produced by the Convention on Biological Diversity (CBD), confirms that the world has failed to meet its target to achieve a significant reduction in the rate of biodiversity loss by 2010.

The report is based on scientific assessments, national reports submitted by governments and a study on future scenarios for biodiversity. Subject to an extensive independent scientific review process, the publication of GBO-3 is one of the principal milestones of the UN's International Year of Biodiversity.

The Outlook will be a key input into discussions by world leaders and heads of state at a special high-level segment of the United Nations General Assembly on September 22. Its conclusions will also be central to the negotiations by world governments at the Nagoya Biodiversity Summit in October.

The Outlook warns that massive further loss of biodiversity is becoming increasingly likely, and with it, a severe reduction of many essential



services to human societies as several "tipping points" are approached, in which ecosystems shift to alternative, less productive states from which it may be difficult or impossible to recover.

Potential tipping points analyzed for GBO-3 include:

1. The dieback of large areas of the Amazon forest, due to the interactions of climate change, deforestation and fires, with consequences for the global climate, regional rainfall and widespread species extinctions.
2. The shift of many freshwater lakes and other inland water bodies

to eutrophic or algae-dominated states, caused by the buildup of nutrients and leading to widespread fish kills and loss of recreational amenities.

3. Multiple collapses of coral-reef ecosystems, due to a combination of ocean acidification, warmer water leading to bleaching, overfishing and nutrient pollution, and threatening the livelihoods of hundreds of millions directly dependent on coral-reef resources.

The Outlook argues, however, that such outcomes are avoidable if effective and coordinated action is taken to reduce the multiple pressures being imposed on biodiversity. For example, urgent action is needed to reduce land-based pollution and destructive fishing practices that weaken coral reefs, and make them more vulnerable to the impacts of climate change and ocean acidification.

The report notes that the linked challenges of biodiversity loss and climate change

must be addressed by policymakers with equal priority and in close co-ordination, if the most severe impacts of each are to be avoided. Conserving biodiversity and the ecosystems, it emphasized, can help to store more carbon, reducing further buildup of greenhouse gases; and people will be better able to adapt to unavoidable climate change if ecosystems are made more resilient with the easing of other pressures.

It outlines a possible new strategy for reducing biodiversity loss, learning the lessons from the failure to meet the 2010 target. It includes addressing the underlying causes or indirect drivers of biodiversity loss, such as patterns of consumption, the impacts of increased trade and demographic change. Ending harmful subsidies would also be an important step.

GBO-3 concludes that society can no longer see the continued loss of biodiversity as an issue separate from the core concerns of society. Realizing objectives, such as tackling poverty and improving the health, wealth and security of present and future generations, will be greatly strengthened if governments finally give biodiversity the priority it deserves.

The Outlook points out that for a fraction of the money summoned up instantly by the world's govern-



The Torngat Mountains National Park of Canada

ments in 2008-2009 to avoid economic meltdown, a much more serious and fundamental breakdown in the Earth's life-support systems can be avoided.

In his foreword to GBO-3, United Nations Secretary-General Ban Ki-moon writes: "To tackle the root causes of biodiversity loss, we must give it higher priority in all areas of decision making and in all economic sectors. As this third Global Biodiversity Outlook makes clear, conserving biodiversity cannot be an afterthought once other objectives are addressed—it is the foundation on which many of these objectives are built. We need a new vision for biological diversity for a healthy planet and a sustainable future for humankind."

UN Under-Secretary General and Executive Director of the United Nations Environment Programme Achim Steiner adds that there have been key economic reasons why the 2010 biodiversity target was not met.



The Okavango Delta in Southern Africa

"Many economies remain blind to the huge value of the diversity of animals, plants and other life-forms and their role in healthy and functioning ecosystems from forests and freshwaters to soils, oceans and even the atmosphere. Many countries are beginning to factor natural capital into some areas of economic and social life with important returns, but this needs rapid and sustained scaling-up. Humanity has fabricated the illusion that somehow we can

get by without biodiversity or that it is somehow peripheral to our contemporary world: the truth is we need it more than ever on a planet of six billion heading to over nine billion people by 2050," observes Dr. Steiner.

The Executive Secretary of the CBD, Dr. Ahmed Djoghlaif, says, "The news is not good. We continue to lose biodiversity at a rate never before seen in history — extinction rates may be up to 1,000 times higher than the historical

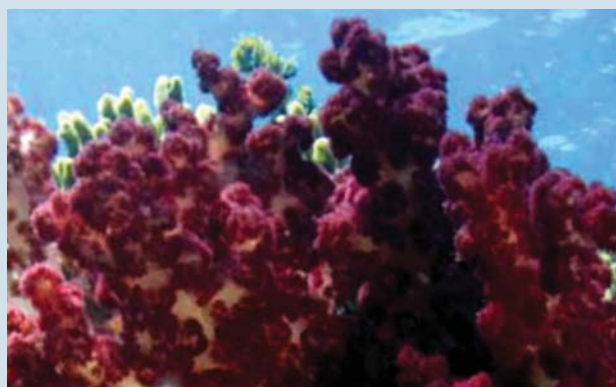
background rate. The assessment of the state of the world's biodiversity in 2010, as contained in GBO-3 based on the latest indicators and over 110 national reports submitted to the Convention Secretariat and scenarios for the 21st Century, should serve as a wake-up call for humanity. Business as usual is no longer an option if we are to avoid irreversible damage to the life-support systems of our planet."

"The Convention's new Strategic Plan, to be adopted at the 2010 Nagoya Biodiversity Summit, must tackle the underlying causes of biodiversity loss. The linked challenges of biodiversity loss and climate change must be addressed with equal priority and close cooperation. Joint action is needed to implement the Conventions on Biodiversity, Climate Change and to Combat Desertification—the three conventions born of the 1992 Rio Conference. The Rio+20 Summit offers an opportunity to adopt a work plan to achieve this," Dr. Djoghlaif emphasized. ■

## GBO-3 KEY FINDINGS

GBO-3 uses multiple lines of evidence to demonstrate that the target set by world governments in 2002, "to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level," has not been met. Based on a special analysis of biodiversity indicators carried out by a panel of scientists, as well as peer-reviewed scientific literature and reports from national governments to the CBD, key findings include:

1. None of the 21 subsidiary targets accompanying the overall 2010 biodiversity target can be said definitively to have been achieved globally, although some have been partially or locally achieved. Ten of 15 headline indicators developed by the CBD show trends unfavorable for biodiversity.
2. No government claims to have completely met the 2010 biodiversity target at the national level, and around one-fifth states explicitly that it has not been met.
3. Species that have been assessed for extinction risk are on average moving closer to extinction, with amphibians facing the greatest risk and coral species deteriorating most rapidly in status.



Coral reefs

4. The abundance of vertebrate species, based on assessed populations, fell by nearly one-third on average between 1970 and 2006, and continues to fall globally, with especially severe declines in the tropics and among freshwater species.
5. Natural habitats in most parts of the world continue to decline in extent and integrity, notably freshwater wetlands, sea-ice habitats, salt marshes, coral reefs, seagrass

beds and shellfish reefs; although there has been significant progress in slowing the rate of loss of tropical forests and mangroves, in some regions.

6. Crop and livestock genetic diversity continues to decline in agricultural systems. For example, more than 60 breeds of livestock are reported to have become extinct since 2000.
7. The five principal pressures directly driving biodiversity loss (habitat change, overexploitation, pollution, invasive alien species and climate change) are either constant or increasing in intensity.
8. There has been significant progress in the increase of protected areas both on land and in coastal waters. However, 44 percent of terrestrial eco-regions (areas with a large proportion of shared species and habitat types), and 82 percent of marine eco-regions, fall below the target of 10-percent protection.

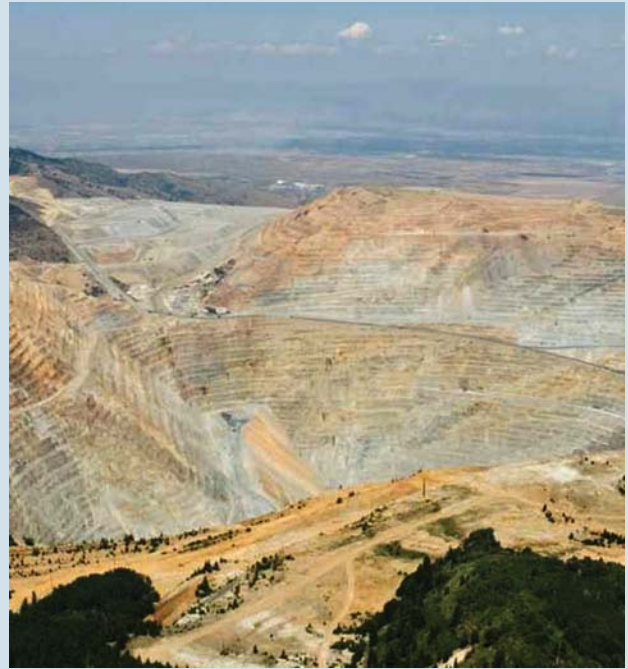
### Biodiversity in the 21st Century

Scientists from a wide range of disciplines came together as part of the preparation of GBO-3 to identify possible future outcomes for biodiversity during the current century, based on observed trends, models and experiments. Their principal conclusions include:

1. Projections of the impact of global change on biodiversity show continuing and often accelerating species extinctions, loss of natural habitat, and changes in the distribution and abundance of species, species groups and biomes over the 21st century.
2. There is a high risk of dramatic biodiversity loss and accompanying degradation of a broad range of ecosystem services if the Earth system is pushed beyond certain thresholds or tipping points.
3. Earlier assessments have underestimated the potential severity of biodiversity loss based on plausible scenarios, because the impacts of passing tipping points or thresholds of ecosystem change have not previously been taken into account.
4. There are greater opportunities than identified in earlier assessments to address the biodiversity crisis while contributing to other social objectives; for example, by reducing the scale of climate change without large-scale deployment of biofuels and accompanying loss of natural habitats.
5. Biodiversity and ecosystem changes could be prevented, significantly reduced or even reversed if strong action is applied urgently, comprehensively and appropriately, at international, national and local levels.

### Towards a strategy for reducing biodiversity loss

GBO-3 sets out a number of elements that could be considered in a future strategy to reduce biodiversity loss, and avoid the worst impacts of the scenarios analyzed in the Outlook. It is likely to form the basis of discussion of the strategic plan currently being considered for the next decade of the CBD, and due to be agreed at the 10th meeting of the Conference of Parties to the CBD in Nagoya, Japan in October



**Kennecott Utah Copper's Bingham Canyon Mine is the world's largest man-made excavation.**

2010. The elements include:

1. Continued and intensified direct intervention to reduce loss of biodiversity, for example, through expanding and strengthening protected areas, and programs targeted at vulnerable species and habitats.
2. Continued and intensified measures to reduce the direct pressures on biodiversity, such as preventing nutrient pollution, cutting off the pathways for the introduction of alien invasive species, and introducing more sustainable practices in fisheries, forestry and agriculture.
3. Much greater efficiency in the use of land, energy, fresh water, and materials to meet growing demand from a rising and more prosperous population.
4. Use of market incentives, and avoidance of perverse subsidies, to minimize unsustainable resource use and wasteful consumption.
5. Strategic planning to reconcile development with the conservation of biodiversity and the maintenance of multiple services provided by the ecosystems it underpins.
6. Restoration of ecosystems to safeguard essential services to human societies, while recognizing that protecting existing ecosystems is generally much more cost-effective than allowing them to degrade in the first place.
7. Ensuring that the benefits arising from use of and access to genetic resources and associated traditional knowledge, for example, through the development of drugs and cosmetics, are equitably shared with the countries and cultures from which they are obtained.
8. Communication, education and awareness-raising to ensure that as far as possible, everyone understands the value of biodiversity and what steps they can take to protect it, including through changes in personal consumption and behavior. ■



## PHILIPPINES

# Pamilacan Marine Protected Area

**P**amilacan Island is a small coral island which is part of the municipality of Baclayon in Bohol, Philippines. Fossilized seashells can be seen on the island's rocky hill. It is surrounded by a "fringing reef" and marine species include starfish, seagrasses, crinoids, crown of thorns and cleaner wrasses. The prized Gloria Maris seashells abound in its surrounding waters.



In the local dialect, Pamilacan means “resting place of the mantas,” though some local folk say that the name of the island was derived from the word pamilac or pilak, which means harpoon, a common fishing implement used to capture whale sharks, manta rays and dolphins.

The island is only a one-hour ride on pump or outrigger boat from the town proper of Baclayon. It has three sitios or villages, and is home to a small and closely knit fishing community. In the past, the island served as a watch station against the intrusion of pirates and enemies of the Spanish colony as evidenced by the 200-year-old Spanish fort on the northeast side of the island.

The Pamilacan Island Marine Protected Area was established in 1985, which covers an area of 11,902 hectares. It is part of the Bohol Marine Triangle (BMT), which encompasses 15 marine protected areas.

### Marine life

The sea around Pamilacan is frequented and said to be a breeding ground of whale sharks, manta rays and dolphins. The large whales often spotted are the Bryde’s whales and the sperm whales. Bryde’s whale (*Balaenoptera edeni*) was last sighted in Balicasag and

Pamilacan Islands in 1996. In November 2002, a short-finned pilot whale was seen off Pamilacan Island. The best whale watching time begins in March until the onset of the rainy season in June or July.

The 10 cetacean species recorded around Pamilacan Island include: Spinner dolphin, Spotted dolphin, Bottlenose dolphin, Risso’s dolphin, Fraser’s dolphin, Pilot whale, Melon-headed whale, Pygmy killer whale, Dwarf sperm whale and Pygmy sperm whale.

### Threats

The local people used to hunt dolphins, whales, whale sharks and manta rays but these animals are now fully protected by law in the Philippines. The jaws and bones of marine mammals and whale sharks still adorn a number of homes in the village. Hunting still occurs, but in lesser numbers.

The dolphins and whales that have given renewed vigor to tourism on the island are threatened by tour operators that have little knowledge of whale and dolphin interaction. Instead of waiting and watching from a distance, some motorboats chase whales and dolphins that have been spotted. Such behavior causes stress among the whales and dolphins.

### Conservation Program

The deep sea around the BMT range from 32 to 57 meters, and provides the migratory route for whales and dolphins. Studies have recorded the presence in the area of eight of 22 known species of marine mammals in the Philippines. There are 125 fin fish species recorded in Dauis, 65 in Baclayon, and 305 in Panglao. Recorded macrofauna totaled 108 invertebrate species.

In 2001 the Foundation for Philippine Environment (FPE) started a five-year project aimed at conserving the world-class marine life within the Bohol Marine Triangle. Called the BMT Project, the initiative targeted community training and education in all aspects of marine conservation, with the assistance of local and national government agencies. Local leaders were also trained in the conduct of Biodiversity Monitoring and Evaluation (BIOME), which provides the baseline data necessary for all activities in the BMT.

The last year of the FPE BMT Project focused on the transition from project to ongoing program. The executives of the municipalities of Panglao, Dauis and Baclayon, along with the concerned national agencies and various business, civic and



private nongovernment organizations, got together to establish the present PADAYON BMT Management Council as a joint body for the purpose of continuing the critical work of protecting, preserving and enhancing the biodiversity of the BMT Protected Area.

BIOME has been conducted in the 15 MPAs in the BMT. All of the BMT MPAs are established by municipal ordinances of the three cooperating local government units comprising the BMT area.

### Ecotourism: Pamilacan Island Marine Tour

The many attractions of Pamilacan Island, such as the rich marine life, ancient Spanish fort, the Santa Cruz at the chapel's altar and the white beaches have generated a lot of interest in the island. This has also led to projects by the Department of Tourism (DOT) to boost local ecotourism.

Whale and dolphin watching are popular activities, and this generally occurs during the summer months, from March to June in Pamilacan, and March to October in Tañon Strait. This has led to the development of the Pamilacan Island Marine Tour with support from the New Zealand-Philippines Technical Assistance Programme and the National Ecotourism Project (2002-2009). The project involved the following components: community ecotourism enterprise development in cooperation with the Inter-Agency Task Force on Marine Mammal Conservation; training on tourism skills for boatmen and guides; tourism awareness programs for Pamilacan Island Dolphin and Whale Watching Organization; product evaluation and enhancement programs; marine life tour packages; and intensive marketing and promotions.

The project began with a Product Feasibility Check to



determine the quality of the product or the marine life tour; assess the project contribution of the local community and other stakeholders; seek the cooperation of local government units; promote a healthy tourism industry; and seek the acceptance of the project by the community.

Pamilacan's Dolphin and Whale Watching became the first pilot project in the implementation of the Philippine National Ecotourism Strategy. This led to the establishment of the Pamilacan Island Dolphin and Whale Watching Organization (PIDWWO), which employed local residents and families. After an assessment of the marine tours formerly offered at Pamilacan, efforts were made to improve the organization and operations of the tour.

PIDWWO became a cooperative. A limited number of crew was engaged to run the tour and revenue generation became one of the objectives of the organization. Services were also professionalized with product-knowledge enhancement and training for guides. A number of staff also became certified scuba divers. Various equipment and facilities essential to the tour, such as boats and information

centers, were also upgraded.

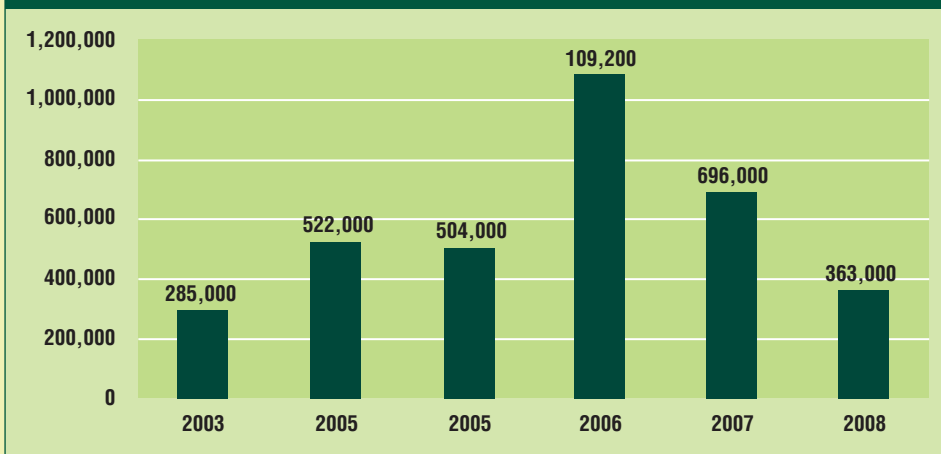
PIDWWO developed a business plan, which focused on intense marketing and promotion, programmed contributions to the community and local government, and contributions to the tourism industry and environment. Marketing involved product branding, production of promotional materials, installation of banners at strategic points, and partnerships with tour operators. Community members worked on rotation as part of the tour crew.

The tours supplemented the local government unit's environmental fund; provided funds for the installation of mooring buoys and hiring of additional staff; and supported secondary businesses. The project also contributed to the tourism industry and the environment with the development of guidelines on Tourist Safety in the Waters and on Cetacean Interaction.

Improvements within the PIDWWO and the Pamilacan Marine Island Tour have led to greater income, with benefits accruing to the tour operators, local environment, and the marine habitats and wildlife of Pamilacan Island.

The organization's efforts have not gone unnoticed. As

**Income of Pamilacan Island Marine Life Tour (2003-2008)**



part of Bais City's Environmental Management Project, the tour won the 1996-1997 Gawad Galing Pook for 10 Best Local Government Programs. The Pamilacan Island Marine Life Tour also won 2nd Place in the Conservation Category at the 2006 World Tourism Conservation Awards. It is also one of three international awardees for the conservation category at the British Airways Tourism Awards.

Many activities undertaken by PIDWVO in the conduct of the tour have also gained recognition as examples of best practices in marine conservation. It has upheld safety standards through the development and implementation of Cetacean Interaction Guidelines for Boaters, Paddlers and Viewers.

Activities have contributed to the protection of Pamilacan Island as a marine sanctuary. Continuous trainings of staff have led to professionalization of services of the tour crew and accreditation of the tour guides and nature interpreters. The establishment of a visitor center has improved management and monitoring of visitors.

There is greater partnership with the government and private sector. A sound business plan has led to increased income not only for PIDWVO members but also for the local government. The development

of a marine life training and operations manual also ensures consistency of services, high operational standards, and guarantees the safety of both visitors and marine mammals.

The User's Fee is used for environmental conservation. Generally, visitors do not mind paying extra for conservation as long as it is used for the purpose. A rain-water collection system has also been established on the island to better service the needs of the community.

There are various plans to increase appreciation of the marine life tour. These include: expansion of the one-day tour package into a 2-3 day package to encourage tourists to prolong their stay and generate more business for the local community; establishment of tourism facilities and amenities such as hotels, restaurants, airport and seaport that comply with international standards; improvement of the road network servicing the Bais Bay area; expansion of the tourism office in terms of personnel and logistics; establishment of a tourism display center and souvenir shop; formulation of an innovative, dynamic and market-oriented tourism development program; enactment and implementation of the 10-Year Bais City Coastal Resources Management Plan, Zoning and Regulatory Ordinance (2007-2016); and con-

duct of more public awareness and sustainability campaigns.

### Other interests

The island has a small triangular fort made of rubble with cut coral blocks lining its portal and windows. Round buttresses support the three corners of the structure, and embedded trusses and a triangular pillar in the center indicate that the fort may have had a second floor of wood. A balcony runs around the second floor linking the buttresses which also served as lookouts. While no dates have been established, the fort might have been built in the 19th century. An indication is a large hardwood cross, now housed in a modern chapel nearby, with an 1800s date carved. This stood near the fort. The fort formed a network with the towers or forts at Loay, Baclayon, Tagbilaran and Panglao.

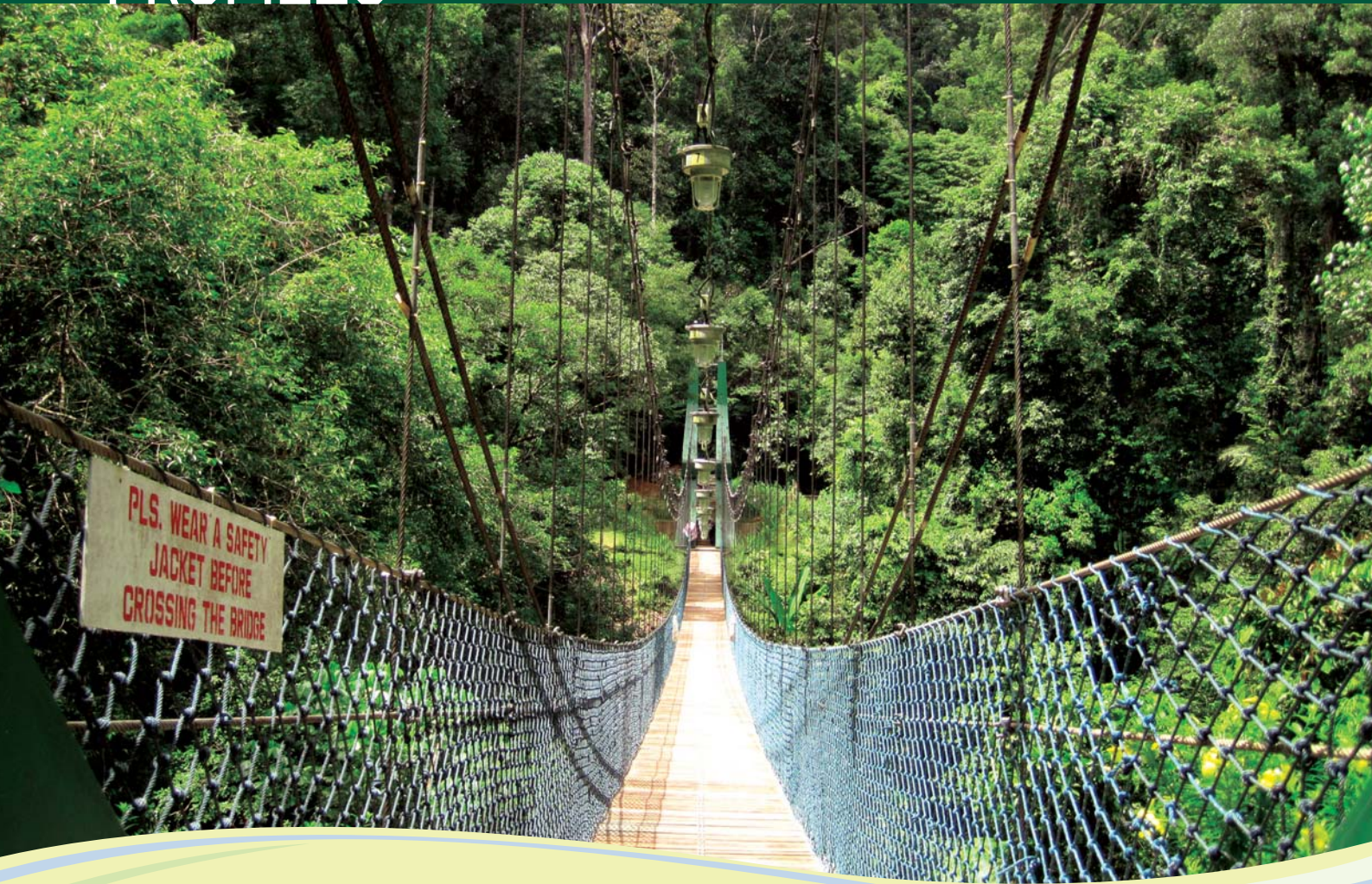
The island has magnificent beaches and dive sites, excellent for snorkeling and scuba diving.

### How to get there

From Manila, visitors can travel by plane to Tagbilaran, Bohol, and from there, take a short ride to the town of Baclayon. This is the jump-off point to the boat rides to Pamilacan Island and the dolphin and whale watching tours. Another option is to travel by plane to Cebu City, and then take the ferry to Tagbilaran, Bohol. ■

### References:

- Ecotourism Development Project: Pamilacan Marine Life Tour. Powerpoint presentation by Priscilla N. Callimag at the ASEAN Centre for Biodiversity Regional Training on Ecotourism for Middle-Level Protected Areas Staff, 7-19 December 2009, Malaysia.
- PADAYON Bohol Marine Triangle Management Council (<http://www.padayonbmt.org/vision-and-mission>)
- Pamilacan Island (<http://www.bohol-philippines.com/pamilacan-island.html>)
- Pamilacan Island Dolphin and Whale Watching Tours (<http://whales.bohol.ph/index.php>)

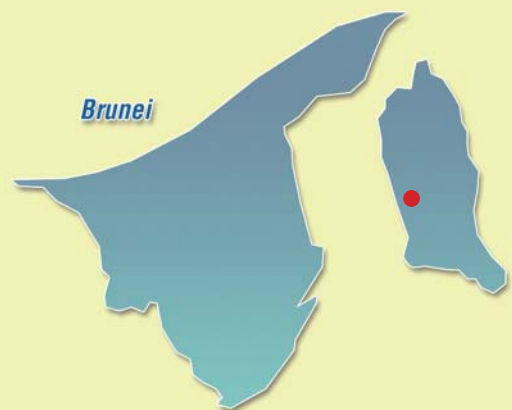


BRUNEI DARUSSALAM

# Ulu Temburong National Park

By SAHLEE BUGNA-BARRER

**B**runei Darussalam is a country of contrasts. The roads are wide, spacious and never ending. The buildings are modern and well equipped. The cars are fast and plentiful. The country is known for its wealth and high standards, but few people are aware that this tiny country also harbors beautiful forests, iconic species and a wealth of biodiversity.





### Limbang River

Brunei Darussalam is becoming an increasingly popular ecotourism destination, one of several stops on a trip to discover the richness of Borneo. No trip to Brunei Darussalam can be complete without a visit to Ulu Temburong National Park, the country's first national park. While preparing for the 3rd ASEAN Heritage Parks Conference, we could not resist seeing what the park has to offer.

Formerly known as the Batu Apoi Forest Reserve, Ulu Temburong National Park is at Temburong District at the easternmost part of Brunei Darussalam. The district is separated from the capital and the three other Bruneian provinces by the Malaysian state of Sarawak.

#### Visiting the park

Visitors can use public transport to go the park, or engage a number of available tour operators. On this opportunity, we took a day tour courtesy of the Ulu Ulu National Park Resort, which manages the resort facilities within the park. The tour includes the services of a tour guide, transport to and from the national park, as well as a buffet lunch.

On the morning of June 21, we were fetched at our hotel by Tom, our guide on our daytrip to Ulu Temburong. A van took us on a short trip to the jetty where we would board a water taxi to Temburong District. From the capital of Bandar Seri Begawan, water taxis take about one hour to ply the route to the main town of Bangar in Temburong District. Part of the attraction of visiting Ulu Temburong National Park is the wonderful scenery en route.

On the way, we caught a glimpse of the mangrove forests, which line the muddy delta of the Limbang River flowing out of Sarawak into Brunei Bay. It was a thoroughly enjoyable trip, with wonderful weather, and beautiful mangrove forests on either side of the river.

Upon reaching Bangar, visitors can take a 30-minute bus ride to Batang Duri, which is the embarkation point for the Temuai longboats, which carry visitors up the Temburong River. We took a van, passed a lush greenery and saw some of the longhouses that are characteristic of the traditional homes of the people of Brunei Darussalam.

The longhouses are not just long—they are huge! Extended families within the longhouses share common kitchens, but separate entryways, to separate living areas. The front part of the house is often elevated on stilts, and the open space in front serves as the garage for the cars of the family members. Some longhouses are more modern, with tile and cement and air conditioning, but our tour guide showed us a traditional wooden longhouse, which we'll visit on the way back to Bandar Seri Begawan.

At Batang Duri, we waited for the longboat that would take us to Ulu Temburong National Park. While visitors can get to Bangar by water taxi or by land, the longboats are the only way to access the park. The longboats are steered by the men and women of the local Iban tribe. Years of experience and knowledge of the river allow them to steer boats without incident, and they manage to avoid sandbars, boulders and submerged logs. When water levels are low, however, the boat drivers and even passengers are expected to climb out of the craft and help push the boat to deeper water.

After an hour or so, visitors will reach the National Park Headquarters near the confluence with Sungei Belalong. The boat can accommodate about seven to eight people, including the tour guide and the driver. The boat drivers are so skilled that passengers barely get wet on the boat ride.

On the way to the park, one is calmed by the gentle waves and the gorgeous view of lush mangrove forests, and majestic trees that line the riverbanks. Everything seems rich, green and warm. The boat ride is too short, and soon enough we find ourselves at the entrance of the national park.

### At the park

Upon entering the park, visitors register and pay an entrance fee. We were treated to welcome drinks and snacks at the information center. Since this is the rainy season, there are not that many visitors. The resort is also mindful of the carrying capacity of the national park, and has set a cap of 100 visitors per day.

The structures at the park allow for the influx of a number of visitors while limiting the impact on the environment. From the national park headquarters, an extensive network of wooden boardwalks leads to the surrounding facilities and

forests. These boardwalks will take you to the beautiful chalets and lodgings, restaurants and other park facilities. Those who want to stay overnight can avail themselves of a variety of lodgings within the park. Scientific groups, natural history societies and school groups can stay at the Kuala Belalong Field Studies Centre, which is just one kilometer upriver from the park headquarters.

A short walk from the headquarters is a short suspension bridge, where visitors can get a different view of the park, and see some of the local wildlife. Majestic hornbills were flying around the suspension bridge at the time, and more can be heard making birdcalls in the forest.

Ulu Temburong National Park also features a canopy walkway, a steel structure that rises 50 meters from the forest floor to the level of the highest trees. The canopy walkway provides a bird's eye view of the surrounding forest, as well Bukit Belalong in the distance.

### Wildlife Flora

The forests of Ulu Temburong are dominated by giants of the *Shorea*, *Dryobalanops* and *Dipterocarpus* genera. The forest floor, on the other hand, has a wealth of gingers, begonias, gesneriads and aroids. Blooms

of the *Ixora* genus are easily found. There are numerous species of rattan, which often take advantage of the bright sunlight reaching the forest floor through breaks in the canopy.

Palms, ferns, mosses and lichens can be found along the river's edge. Fruiting figs, an essential food source for many mammals and birds in the rainforest ecosystem, are also common.

### Fauna

A number of species have been recorded in the park, although one is not likely to encounter them while walking through the rainforest. There were many hornbills flying overhead, and the bushy-crested hornbill (*Anorrhinus galeritus*) is often seen in the park. The rhinoceros hornbill (*Buceros rhinoceros*), however, is more elusive and is more likely to be heard rather than seen. Broadbills, such as the black-and-yellow broadbill (*Eurylaimus ochromalus*), may be found foraging for food, and along the rivers fast-flying swiftlets will be seen hunting for insects.

The Bornean gibbon (*Hylobates muelleri*) can be found in the park, and its loud call may be heard ringing from the trees early in the morning. This grey-brown, tail-less species is completely arboreal,



Long house



Bushy-crested hornbills



Painted tree frog

living in the forest canopy and only occasionally descending to mid-canopy. Visitors may also get to see proboscis monkeys, though they are more likely to be seen in the early morning or late afternoon. Squirrels can be seen at ground level, including the tiny plain pygmy squirrel (*Exilisciurus exilis*).

The amphibians found in the park are also very interesting, and these include the common Kuhl's creek frog (*Limnonectes kuhli*), smooth guardian frog (*Rana palavanensis*), painted tree frog (*Nyctixalus pictus*), black-spotted rock frog (*Staurois nator*) and the striking Wallace's flying frog (*Rhacophorus nigropalmatus*), which has the ability to glide from tree to tree using its webbed fingers and toes.

Snakes, such as Wagler's pit viper (*Tropidolaemus wagleri*), have also been found in Ulu Temburong. Wagler's pit viper is also called the Temple viper, and in some parts of Southeast Asia they are believed to bring good luck to Buddhist temples. The pits or heat-sensitive organs, which lie between the eye and the nostril, are used to detect prey. This is a venomous species, with powerful haemotoxins, although bites are rarely fatal.

While waiting for lunch we saw beautiful butterflies dancing around on the river's edge. There may be as many as 400



Rajah Brooke's Birdwing

species of butterfly in the park. These include Rajah Brooke's birdwing, which is among the most beautiful butterflies in the world. It is named after the "White Rajah", James Brooke, who ruled Sarawak during the colonial era. Another noteworthy species is the tree nymph (*Idea stollii*).

### Threats

Only the Iban tribe is allowed to extract resources from the forest, although this is not enough to create any major impact. There has been poaching of gaharu, which is prized for its scent and is often used in incense, and steps have been taken to prevent harvesting of the species.

### Ecotourism

Visitors can opt to book day or overnight trips to Ulu Temburong National Park through Ulu Ulu National Park Resort, which operates the lodgings and restaurants inside the park. There are other tour operators but bookings for overnight stays have to be coursed through Ulu Ulu National Park Resort.

Besides visiting the canopy walk, and taking the longboat ride, visitors can also go kayaking, rafting and swimming in the beautiful pristine waters of the river. A night jungle walk provides an opportunity to see other species that come out only

under the cover of darkness. A medicinal trail also provides some insight to the wonderful plants that have medicinal value in the park.

On this trip, our tour guide brought us to this charming little waterfall inside the park. There is a bigger one, but is farther away so we opted to see this other waterfall on the fringe of the park. From the riverbank, a short walk will take you through a path with water reaching up to your ankles, and to your knees during the rainy season. Some fish can even be seen in small streams along the path. The walk is peaceful and you can see the beautiful trees and ferns of forest up close. The waterfall is a welcome treat, and most likely many visitors would just love to take a dip in the water and stay a little while longer.

By early afternoon it was time to head back to Bandar Seri Begawan. This was definitely a trip to remember, surely a visit that would highlight any trip to Brunei Darussalam. ■

■ *Sahlee Bugna-Barrer is a senior writer at the ASEAN Centre for Biodiversity.*

### References:

Ecology Asia (<http://www.ecologyasia.com/html-loc/ulu-temburong.htm>)

Ulu Ulu National Park Resort (<http://www.ululuresort.com/>)



## MALAYSIA

# Pulau Kukup Johor National Park

**K**ukup Island is an uninhabited island located in the southwestern region of the state of Johor in Peninsular Malaysia. It is located about one kilometer offshore from the mainland town Kukup Laut. The island is about 647.20 hectares (ha) in size with an 800-ha intertidal mudflat around the island.



### Biodiversity richness of Pulau Kukup National Park

- 27 original mangrove species and 7 associated plant species
- 76 species of birds
- 7 species of mammals
- 5 species of reptiles

## Birds recorded in Pulau Kukup

- Brahminy kite (*Haliastur indus*)
- Common sandpiper (*Actitis Hypoleucos*)
- Common kingfisher (*Alcedo atthis*)
- Grey heron (*Ardea Cinerea*)
- Little green heron (*Butorides striatus*)
- Unidentified plover (*Charadrius sp.*)
- Large-billed crow (*Corvus macrorhynchos*)
- Common flameback (*Dinopium javanense*)
- Greater racket-tailed drongo (*Dicrurus paradiseus*)
- Flyeater (*Gerygone suphurea*)
- White-bellied sea eagle (*Haliaeetus leucogaster*)
- Common redshank (*Tringa totanus*)
- Eurasian curlew (*Numenius arquata*)
- Whimbrel (*Numenius phaeopus*)
- Black-crowned night heron (*Nycticorax nycticorax*)
- Collared scops-Owl (*Otus lempiji*)
- Osprey (*Pandion haliaetus*)
- Stork-billed kingfisher (*Pelargopsis capensis*)
- Lesser-crested tern (*Thalasseus bengalensis*)
- Common greenshank (*Tringa nebularia*)
- Collared kingfisher (*Halcyon Chloris*)



Brahminy kite

This unique ecological wetland is characterized by a high level of biodiversity and is home to a number of endangered species. Pulau Kukup is an important stopover and feeding point for migratory birds plying what is known as the East Asian-Australasian Flyway, and is also the feeding ground for the globally threatened lesser adjutant stork (*Leptoptilus javanicus*).

As a site of tremendous biodiversity, Pulau Kukup was officially gazetted as a State Park under the jurisdiction of the Johor State Park Corp. on March 27, 1997. It was also designated as a Ramsar Site in 2003. Pulau Kukup has become a popular tourism site, with visitors coming mainly from Singapore and Indonesia who visit Kukup town for its famous seafood.

### Flora

Pulau Kukup has 27 original mangrove species, as well as seven associated plant species. Mangrove species include *Rhizophora mucronata* (bakau kurap), *Nypha furticans* (nipah), *Sonneratiaceae* sp. (perepat), *Avicenniaceae officinalis* (api-api), and *Meliaceae* sp. (nyireh). There are also a number of orchids such as spider orchid

(*Cymbidium finlaysonianum*) and pigeon orchid (*Dendrobium cremenatum*). Wild ferns also abound, such as the *Asplenium nidus* (Pokok paku langsuiet).

The following species have also been recorded in Pulau Kukup: *Lummitzera racemosa*, *Barringtonia asiatica*, *Bruguiera cylindrical*, *Bruguiera gymnorhiza*, *Bruguiera parviflora*, *Calamus erinaceus*, *Ceriops tagal*, *Dolichandrome spathacea*, *Excoecaria agallocha*, *Hibiscustiliaceus*, *Xylocarpus moluccensis* *Morinda* sp., *Oncosperma tigillarum*, *Rhizophora apiculata*, *Scaevola tarrada*, *Scyphiphora hydrophyllacea*, *Sonneratia alba*, *Xylocarpus granatum*, *Herriteria littoralis*, *Acanthus ilicifolius* and *Habiscus tiliatus*

### Fauna

As an Important Bird Area, Pulau Kukup is home to 76 species of birds. The island is an important feeding ground for the globally threatened lesser adjutant stork (*Leptoptilus javanicus*). It is also an important stopover for migratory birds, and knots, tattlers, godwits, dowitchers and sandpipers which can be found on Pulau Kukup from September to February. The oriental honey

buzzard can be found here from September to December.

Recorded species also include seven species of mammals and five species of reptiles. Recorded mammals include the dusky-leaf monkey (*Presbytis obscura*), long-tailed macaque (*Macaca fascicularis*) and wild boar. The island also features rich marine life, including a variety of fish, crabs and micro-benthic organisms.

### Threats

The island experienced extensive harvesting for mangrove wood in the 1980s. Fortunately, wood extraction ceased in 1993, and the mangrove forests have been restored. However, challenges remain for park managers. These include balancing the carrying capacity of the park to better manage visitors to the park. There is also a need for infrastructural support to develop park facilities.

### Conservation Program

Pulau Kukup National park is managed by the Johor National Parks Corp. (JNPC), which was established to implement action plans to preserve and protect the natural heritage of the Johor State Parks, as well



**Spider orchid**

as use park values to promote education, health and recreation. JNPC also aims to develop the Johor National Parks and Ramsar Sites through activities focusing on conservation and preservation, research and nature education, and ecotourism and effective management.

Some of the research projects conducted in the park include sea-grass and sea-horse monitoring, and flora and fauna surveys. In 2004, in collaboration with Wetlands International and with funding from

Keidanren Nature Conservation Foundation, JNPC worked on a year-long project on Pulau Kukup mangrove island. The project promoted the importance and significant values of the Kukup mangroves, and implemented an environmental education and awareness program among the local community and visitors to Kukup wetland.

### **Ecotourism**

In June 2003, JNPC developed facilities on Pulau Kukup to promote ecotourism. These

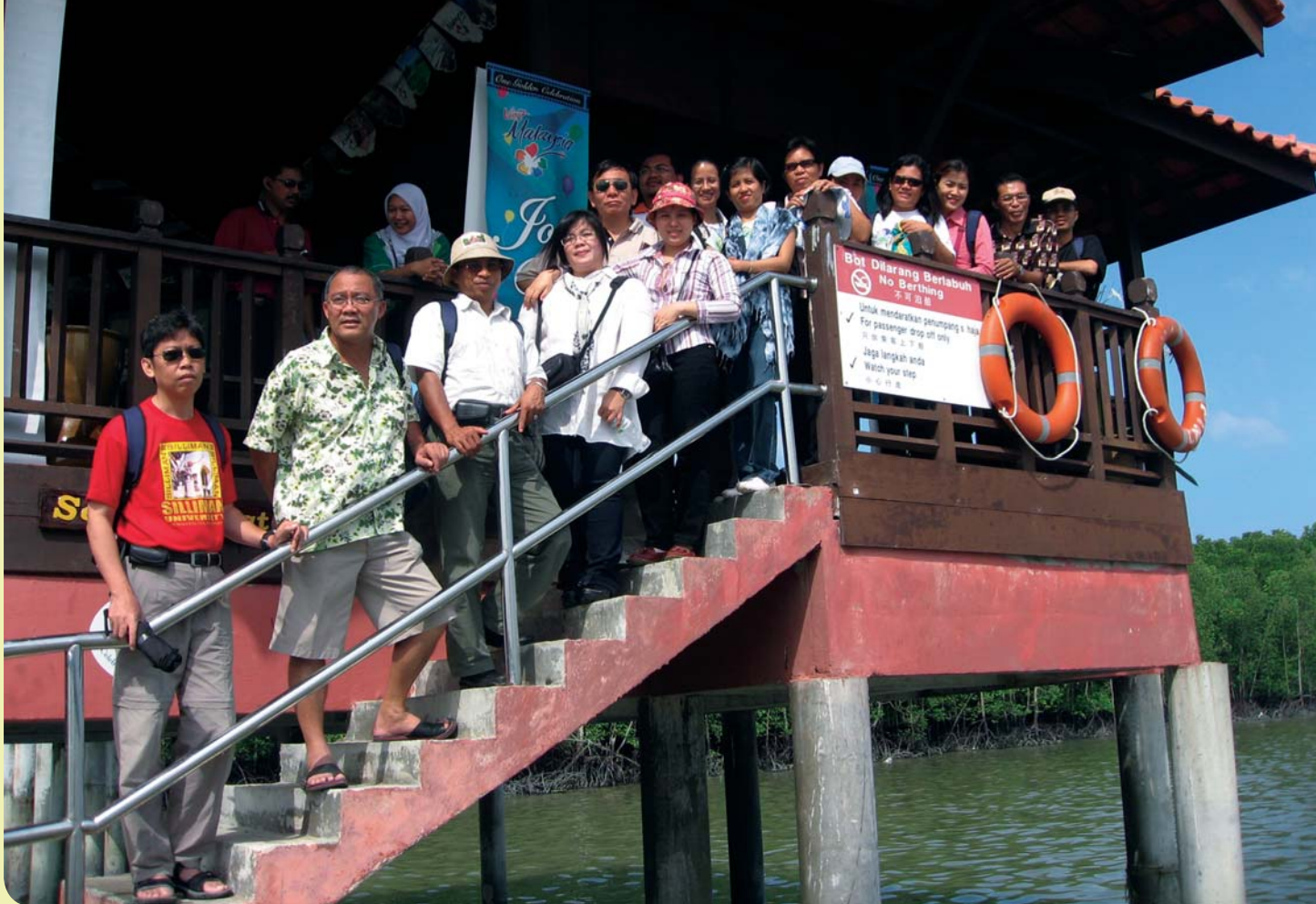


**Dusky-leaf monkey**

include a boardwalk, suspension bridge, an information center and observation towers.

The Visitor Information Centre is located on the mainland, opposite the bus station in Pekan Kukup. The centre houses an Information Gallery and the park office. Practical information on Pulau Kukup, Tanjung Piai Johor National Park, as well as other national parks in Johor, can be found here. Visitors can also make inquiries about guided tours, which should be booked





Visitors at Pulau Kukup Johor National Park

in advance. The Information Gallery houses artifacts and photographs depicting Kukup's rich social history. There is also good information about the mangroves of Kukup.

The jetty is the landmark to the Pulau Kukup National Park, where visitors board boats to the park. The boardwalk in the park enables visitors to observe at close hand the different vegetation that make up the forest. Seeing long-tailed macaques is common, and visitors are sure to see mudskippers hopping across the mudflats, skinks slithering along driftwood and a whole host of aquatic organisms.

Two 15-meter high observation towers are located on either end of the suspension bridge. These offer a great view of the park, and are perfect vantage points for birdwatching.

Another tourist attraction is Pulau Kukup's famous suspension bridge. The bridge straddles Sungai Ular and is 30-meters long. From the middle of the bridge there is a picture-perfect

view of Kukup village on the mainland and the boats at the quay.

Birdwatchers will also enjoy the airy, a six-storey structure that measures 30 meters. The top provides an excellent bird's eye view of the island, the treetops and the neighboring islands.

These facilities make various outdoor activities more enjoyable for visitors to the park. Some of these activities include guided tours or nature walks, bird-watching, cruising and photography. The park management has also conducted various outreach programs to create public interest in conservation, including clean-up days with the support of the local community.

There are other areas outside the park that are also worth visiting. Kukup town is an old Chinese fishing village that is about 120 years old, and is populated with seafood restaurants, aquaculture farms, chalets and homestays. Visitors can visit

aquaculture farms and get fresh seafood at reasonable prices.

### How to get there

Visitors can access Kukup town from various points. Using the North-South Highway, exit at Simpang Renggam toll and turn left towards Benut and proceed to Pontian/Kukup. Another route is from Johor Bahru through Skudai and proceed to Pontian. Visitors from Singapore and Indonesia can access the town through ferry services. From Kukup town, visitors can access the island by tourist boats. Those who plan to visit the mangrove island should first register at the Pulau Kukup Johor National Park office located in the town centre in Kukup, before proceeding to the nearby jetty. ■

### References:

Johor National Parks (<http://johorparcs.com.my/the-parks/pulau-kukup/>)  
Wetlands International Malaysia (<http://malaysia.wetlands.org/WHATWEDO/WetlandsandWaterManagement/PulauKukup/tabid/1078/Default.aspx>)

## ASEAN strengthens wildlife law enforcement to protect the region's biodiversity

Southeast Asian governments and international partners have expressed strong commitments to further foster law enforcement and strengthen collaboration to tackle wildlife crime in the region through the 5th Annual Meeting of the ASEAN Wildlife Enforcement Network (ASEAN-WEN) on May 18 and 19, 2010 in Nay Pyi Taw, Myanmar.

Held in cooperation with the Government of Myanmar, the meeting was attended by delegates from all ten ASEAN Member States, representatives from the ASEAN-WEN Program Coordination Unit and the ASEAN Secretariat. Representatives from the ASEAN-WEN Support Program (FREELAND Foundation and TRAF-FIC), TRACE Wildlife Forensics Network, ASEAN Centre for Biodiversity (ACB) and the State Forestry Administration of the People's Republic of China also participated in the meeting which focused on the network's future, its strengthening, and capacity building for law enforcement and the judiciary.

In his opening remarks, U Tin Tun, Pro-rector of the University of Forestry of the Ministry of Forestry and newly installed Chairperson of ASEAN-WEN, said, "Illegal wildlife trade in the ASEAN region is a big challenge. But, there are also opportunities for us to tackle the challenge. To be successful in crushing illegal wildlife trade, we must have a common vision: wildlife in the region

belongs to every nation in the ASEAN and loss of wildlife is everybody's concern. ASEAN countries should combat illegal wildlife trade with unity."

The Meeting welcomed the recent establishment of the Cambodia-WEN Coordination Unit (CWCU) and partners, which is seen as a major step forward in protecting Cambodia's biodiversity. Cambodia is the fifth ASEAN Member State, after Indonesia, Malaysia, the Philippines and Thailand, to establish a national committee and coordination unit under the ASEAN-WEN.



Organizers and participants of the 5th Annual Meeting of the ASEAN-WEN

Lao PDR's recent workshop to begin discussion of its own national Wildlife Enforcement Network Coordination Unit (Lao-WEN) was also acknowledged, while Malaysia updated the meeting of its national Malaysian WEN (My-WEN) activities.

The Meeting highlighted the strengthening of region-wide efforts to control transboundary trade in wild fauna and flora through the ASEAN-WEN and to implement commitments to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), as it directly relates

to the ASEAN Socio-Cultural Community Roadmap for 2009-2015.

The biggest challenges facing the ASEAN-WEN and its mission were identified. These include: growing global demand for exotic wildlife; developing law enforcement agencies' capacity to respond; and increasing awareness of the scale and impacts of poaching and illegal wildlife trade.

Significant progress was also acknowledged in wildlife crime prosecution, judicial mechanisms and major transnational investigations of African ivory trafficking.

During the meeting, newly developed ASEAN-WEN training management packages and manuals were launched to improve national capacity building and enforcement trainings that can be tailored to each member country's specific needs. These tools include an Enforcement Ranger Manual, Nature Crime Investigators Manual, and packages to guide the implementation of the Enforcement Ranger Training Course, Nature Crime Investigations Course, Wildlife Trade Regulation Course and Judicial Workshop on Protecting Wildlife.

The ASEAN-WEN has

also developed Species Identification Guides in all ASEAN national languages and in English to help front-line enforcement officers identify illegally trafficked wildlife and understand common smuggling techniques.

The meeting welcomed the planned establishment of the ASEAN Wildlife Forensics Network to improve the region's use of forensic science to combat wildlife crime, as well as collaboration between scientists and enforcement officers.

In a related development, authorities in Viet Nam have launched an investigation into what appears to be interconnected ivory smuggling cases, following the discovery of multiple tons of elephant tusks by Customs during two separate seizures at Hai Phong in May 2010. On May 13, they seized 1,665 kilos of elephant tusks hidden on a Hong Kong boat carrying a shipment believed to be from Mozambique. Customs estimated the value of this shipment to be US\$3.33 million.

On May 28, Customs discovered 380 kilos of elephant tusks reportedly hidden in the same way in a shipment from Malaysia, but believed to have originated from Kenya. Customs estimated the value of this shipment to be US\$760,000. In 2009, Customs officials at Hai Phong confiscated over eight tons of elephant tusks, estimated to be worth more than US\$30 million, being smuggled through the port in three major seizures. — ASEAN-WEN

## PRESS STATEMENT ON THE OCCASION OF WORLD ENVIRONMENT DAY 2010

**Rodrigo U. Fuentes**  
Executive Director  
ASEAN Centre for Biodiversity  
04 June 2010

# Save Plant and Animal Species. Save Our Planet. Save Our Future.



Scientists estimate that there are between five to 100 million plant and animal species sharing this planet with us. Thus far, only about two million of these species have been identified. But did you know that 17,291 of these plants and animals are threatened with extinction? In the ASEAN region, 2,517 out of 8,613 or 30 percent of species assessed by the International Union for Conservation of Nature are threatened. Once these species go extinct, we will never see them again as extinction is irreversible.

Drastic environmental changes brought largely by economic activities and irresponsible human practices are causing serious harm to plants, animals and their habitats. The observation of the United Nations Millennium Ecosystem Assessment of 2005 (MA), which cited that “changes in biodiversity due to human activities were more rapid in the past 50 years than at any time in human history,” has never been more apt in the ASEAN region.

We are at the center of biodiversity loss. While human beings are causing the greatest harm to plants and animals, we also have the capacity to save them from further destruction. Conserving biodiversity is akin to saving our own lifeline since biodiversity is the foundation of our survival. The food we eat, the medicine we take, the water we drink, the clothes we wear, and the shelter we live in are all products of biodiversity.

The ASEAN Centre for Biodiversity, our partners at the European Union, and our stakeholders in the ten ASEAN Member States, therefore, encourage you to join the rest of the world in celebrating World Environment Day 2010.

This year’s theme is “Many Species. One Planet. One Future.” The topic is particularly timely as 2010 is the International Year of Biodiversity. This year gives us a special opportunity to learn more about biodiversity and its value in our lives. The more we know about biodiversity, the better we can help conserve it for future generations.

If no action is done to combat biodiversity loss, the peoples of the ASEAN region stand to lose a great deal. Dire consequences in all sectors could seriously hinder Southeast Asia’s sustainable development and poverty reduction efforts.

The good news is that something can still be done.

Join us in conserving biodiversity. Fighting biodiversity loss and its impacts is a shared responsibility among all of us who stand to lose so much—our planet and its various natural treasures that sustain our very existence. There are practical actions that individuals can take:

- Plant trees. This will help create homes for animals. Planting trees can also help curb the impacts of climate change—one of the major drivers of biodiversity loss.
- Save on energy.
- Save on paper.
- Save on fuel.
- Learn more about biodiversity and share it with your family, friends and colleagues.
- Do not patronize wildlife products (fur, tusks, hooves).
- Recycle and re-use. Better yet, spearhead a recycling drive.
- Turn off the lights in an empty room.
- Stop using plastic bags.

There are endless possibilities.

We call on the business sector to help by supporting biodiversity conservation programs as part of their corporate social responsibility initiatives. The academe can incorporate the values of biodiversity in their lesson plans. Governments can strengthen the implementation of environment protection laws, particularly those related to the sustainable use of plants and animal species.

We call on citizens in the ASEAN region to contribute their share in this battle against biodiversity loss. Let us act together now!



Dr. Edwino Fernando talks about the value of biodiversity



Dr. Rodel Lasco explains the crucial link between biodiversity and climate change

## Biodiversity 101 Forum at the National Press Club

In recognition of the media's role as a key partner in demystifying biodiversity, the ASEAN Centre for Biodiversity (ACB), the Mega Manila Bay Press Club and the National Press Club held "Biodiversity 101": A Media Forum on 20 May 2010 at the National Press Club in Intramuros, Manila. The event formed part of the monthly Jose Capadocia Environmental Forum.

"Through the forum, we gave our friends in the media a crash course on biodiversity—what it is, why it is important, and what we can do to conserve it for future generations. The ultimate goal is to develop a cadre of media practitioners who will become active partners in promoting biodiversity conservation through the reportage and analysis of biodiversity-related issues." Mr. Rolando A. Inciong, head of communication and public affairs of ACB, said.

He added: "For the media to effectively report on biodiversity, they have to understand its connection with gut issues, such as health, food security and climate change, among other issues. Media reports should be able to show people that they are entangled

in the web of life that is biodiversity so they'd be more encouraged to act on the problem of biodiversity loss."

The resource persons for Biodiversity 101 were Dr. Rodel Lasco, Philippine Program coordinator, World Agroforestry Centre; Dr. Edwino Fernando, professor, University of the Philippines Los Baños College of Forestry and Natural Resources; Ms. Angelita Meniado, supervising ecosystems specialist, Protected Areas and Wildlife Bureau, Department of Natural Resources; Capt. Robert Lane of the Philippine Coast Guard Auxiliary;

and Mr. Stephen Collins of the Profitable Group, Inc. Mr. Roman Floresca, science and technology editor of the Philippine Star, served as forum moderator.

Dr. Fernando briefed the media about what biodiversity is and explained its economic, ecological and aesthetic benefits. Biodiversity in the Philippine setting was discussed by Ms. Meniado, while Dr. Lasco explained the relationship between climate change and biodiversity.

Captain Lane's presentation focused on the importance of protecting the Philippine's rich marine bio-

diversity. Mr. Collins presented environment-friendly gadgets that make life easier and help protect the environment at the same time.

The forum was held in celebration of the International Year of Biodiversity (IYB) with the theme "Biodiversity is life. Biodiversity is our life." IYB aims to raise public awareness of the importance of biodiversity and the consequences of its loss. It also promotes the engagement of the public and other actors in the implementation of the Convention on Biological Diversity. — *Leslie Ann Jose-Castillo*



ACB's Mr. Rolando A. Inciong (right) with the organizers and speakers of the Biodiversity 101 Forum

## ACB and SM Supermalls promote biodiversity conservation

The ASEAN Centre for Biodiversity (ACB) and SM Prime Holdings Inc. (SMPHI) have joined forces to promote biodiversity conservation nationwide.

Under a recently signed memorandum of cooperation, ACB and SMPHI will conduct a series of activities to create greater public awareness of biodiversity and its importance to human survival.

“We are very delighted to announce this partnership. SM, the Philippines’ largest shopping mall owner and operator, is our first partner from the business sector. Through SM’s chain of supermalls, we can educate millions of mall-goers about the values of biodiversity,” Mr. Rodrigo U. Fuentes, executive director of ACB, said.

The partnership is in line with the Centre’s efforts to encourage the private sector to join the Business and Biodiversity Initiative, a global movement to engage businesses in conserving biological resources.

Fuentes and Ms. Anna Maria S. Garcia, president of SM Supermalls, signed the memorandum of cooperation. SM, as part of its corporate social responsibility initiatives, is supporting activities that promote environmental conservation.

The signing ceremony was witnessed by European Union Ambassador to the Philippines Alistair MacDonald, Senator Juan Miguel Zubiri, Environment Secretary Horacio Ramos, and SM Supermalls Assistant Vice President for Operations (Central) and Environment Committee Chairman Liza Silerio.

Representatives of the embassies of Brunei Darus-



ACB Executive Director Rodrigo Fuentes and SM Supermalls President Ms. Anna Maria Garcia sign the memorandum of cooperation for the joint promotion of biodiversity conservation. Witnessing the signing ceremony are (left to right) SM Supermalls Assistant Vice President for Operations (Central) and Environment Committee Chairman Liza Silerio, European Union Ambassador to the Philippines Alistair MacDonald, Environment Secretary Horacio Ramos, Senator Juan Miguel Zubiri, and SM Batangas Mall Manager Lorenzo Calingasan.



SM Supermalls President Ms. Anna Maria Garcia (second from right) receives the “Friend of Biodiversity” award from ACB Executive Director Rodrigo Fuentes (center).

salam, Cambodia, France, Indonesia, Japan, Romania, Singapore and United Kingdom also joined the event.

Under the partnership, ACB and SM conducted a series of exhibits called “Zooming in on Biodiversity: A Photo Exhibit on the Values of Biodiversity.” The exhibit featured the winning entries from the ASEAN-wide photo contest “Zooming in on Biodiversity”.

Also lined up are mall forums on the values of biodiversity and its relationship with gut issues, such as food security, health and climate change.

“We will make the rounds of the various SM Supermalls to talk to mall goers about the pressing issue of biodiversity loss. We will brief them about the simple things that they can do to help conserve biodiversity,” Fuentes said.

ACB awarded SM Prime

Holdings Inc. with the “Friend of Biodiversity” citation. The award is given to individuals and organizations that help conserve biodiversity through environment-friendly initiatives.

The partnership is part of the collaborative activities for the International Year of Biodiversity with the theme “Biodiversity is life. Biodiversity is our life.” – *Leslie Ann Jose-Castillo*

## ADB Green Bag Seminar

## Biodiversity in SEA: Issues and imperatives for action

The Asian Development Bank (ADB) celebrated World Environment Day 2010 with a Green Bag Seminar focusing on the theme “Many Species. One Planet. One Future” for staff and consultants.

Main speaker, ASEAN Centre for Biodiversity (ACB) Executive Director Rodrigo U. Fuentes, delivered a presentation on “Managing Biodiversity in Southeast Asia: Issues and Imperatives for Action.”

Mr. Fuentes presented a profile of Southeast Asia’s natural assets. He said: “Our region occupies only three percent of the world’s total land area, but we are fortunate that 18 percent of the plants and animals assessed by the IUCN live in our mountains, jungles, rivers, lakes, and seas. However, while we boast of high biological diversity, our region also faces a host of challenges that result in the loss of our biodiversity.”

He said that habitat change, overexploitation, in-

vasive alien species, climate change, deforestation and illegal wildlife trade are the main drivers of biodiversity loss.

“Drastic environmental changes brought largely by economic activities and irresponsible human practices are causing serious harm to plants, animals and their habitats. The observation of the United Nations Millennium Ecosystem Assessment of 2005 which cited that ‘changes in biodiversity due to human activities were more rapid in the past 50 years than at any time in human history’ has never been more apt in the ASEAN region,” Mr. Fuentes said.

He raised a warning over the alarming status of biodiversity loss in the region, underscoring that 30 percent or 2,517 out of 8,613 of the plant and animal species assessed in the region are threatened.

“There could be massive species declines and extinctions if we don’t do something about biodiversity loss.

At stake is the survival of over 500 million people of the ASEAN region,” he added.

Mr. Fuentes discussed the ASEAN region’s responses to the many challenges. Part of the steps undertaken to curb biodiversity loss were the establishment of protected areas to mitigate against climate change and preserve the range of services and goods that forests provide, the Biodiversity Corridor Initiative in the Greater Mekong Areas (GMS), and the Coral Triangle Initiative. Hundreds of marine protected areas were also established. Some ASEAN Member States also have embarked on sustainable forest management and established protected areas to protect their forest resources.

According to Mr. Fuentes, countries also started mainstreaming biodiversity into education and communication to promote a greater awareness of biodiversity conservation. The promotion of better understanding and

quantitative measurement of biodiversity and ecosystem was another crucial step taken. This includes topics such as payments for ecosystems services and resource valuation, business and biodiversity, and managing biodiversity information and knowledge. The 10 ASEAN Member States also began to recognize the links between ecosystems degradation and the persistence of rural poverty.

The ACB head highlighted a number of imperatives for action. “There is an urgent need to support the improvement of capacities for environmental governance. We must also ensure that the national biodiversity conservation framework is supported. The use of science-based decision-making in establishing protected areas must also be encouraged. Finally, we need to design policies based on gaps identified, needs articulated, effective incentive systems and stiff sanctions,” he said. — *Leslie Ann Jose-Castillo*



ACB Executive Director Rodrigo U. Fuentes briefs ADB officers and staff about the status of biodiversity in the ASEAN region.

## Philippine media discovers Mt. Kitanglad's rich biodiversity

**B**ukidnon elders say the Mt. Kitanglad Range Natural Park in Bukidnon got its name from the tanglad plant or lemon grass.

According to a legend, there was once a great flood that submerged the native lands of Bukidnon and only the tip of the mountain, the size of a tanglad, remained visible (kita in Cebuano).

Today, Mt. Kitanglad is highly visible in the ASEAN region after it was declared the 28th ASEAN Heritage Park (AHP) at the 11th ASEAN Ministerial Meeting on the Environment in October 2009. The Park's diverse and rich flora and fauna make it one of the last sanctuaries of the Philippines' natural heritage.

The Mt. Kitanglad Range Natural Park covers 47,270 hectares in the north central portion of the province of Bukidnon, and straddles parts of the municipalities of Banguon, Talakag, Lantapan, Impasugong, Sumilao, Libona and Manolo Fortich and the city of Malaybalay.

It is the major watershed that provides water for irrigation, power generation and domestic use for Bukidnon as well as the province of Misamis Oriental, and the catchment area of the Cagayan, Tagoloan and Pulangi river system. It is, likewise, the ancestral domain of the Talaandig, Higaonon and Bukidnon ethnolinguistic groups that share common historical and cultural ties with Mt. Kitanglad.

Members of the Philippine media encountered Mt. Kitanglad's unique ecological diversity when they visited the AHP on 17 to 19 June 2010. Organized by the Philippines' Department of



**Media visitors and their hosts**

Environment and Natural Resources (DENR) and its Protected Areas and Wildlife Bureau (PAWB), and the ASEAN Centre for Biodiversity (ACB), the tour enabled journalists from the BusinessMirror, ABS-CBN television and the Philippine News Agency to learn more about Mt. Kitanglad and the AHP Programme.

The ASEAN Heritage Parks are educational and inspirational sites of high conservation importance, preserving a complete spectrum of representative ecosystems of the ASEAN region. The parks embody the aspirations of the peoples of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam to conserve their natural treasures that represent the bounty and diversity of living organisms of their nations. The abundance of these diverse biological resources also ensures the continuous flow of goods and ecosystems services for the benefit of the present and future generations.

"By exposing media practitioners to the AHPs and their rich biodiversity, we will have more allies in explaining key biodiversity issues to the general public," Dr. Monina Uriarte, ACB's capacity building specialist and AHP program coordinator, said.

The delegates trekked Mt. Kitanglad to see the nesting place of the Philippine Eagle. The mountain is one of the few remaining rainforests in the Philippines, hosting one of the most important diverse species of rare and endemic wildlife, most especially the Philippine Eagle, the country's national bird.

The Philippine Eagle Foundation (PEF) briefed the media visitors about the rescue and rehabilitation of Philippine eagles. According to PEF, Mt. Kitanglad is the perfect release site of the endangered bird.

The group also visited the 22-hectare Mt. Kitanglad Agri-Ecological Technology Demo Center in Imbayao, the Cinchona buffer zone plantation, and Asia's longest zipline in Dahilayan Zip Zone.

Bukidnon Governor Jose Ma. Zubiri briefed the delegates on how the local government manages the province's agriculture industry, while DENR Regional Executive Director Maximino Dichoso and the Protected Area Management Board of Mt. Kitanglad discussed the status of the region's natural resources and gave a briefing on Mt. Kitanglad.

ACB Program Development Specialist Dr. Filiberto Pollisco, Jr. talked about the AHP Program, highlighting the urgent need to conserve areas rich in biodiversity. A briefing on the International Year of Biodiversity was delivered by Ms. Angelita Meniado of PAWB.

The media tour forms part of the celebration of the International Year of Biodiversity—a global celebration of the web of life and its component species. It is a joint effort by ACB and the government of the Philippines to promote biodiversity conservation by employing informative, interactive and enjoyable methods. — *Leslie Ann Jose-Castillo*

## Path set for linkage between science and policy on biodiversity

A path has been set for the establishment of a mechanism proposed to further strengthen the science-policy interface on biodiversity and ecosystem services, and add to the contribution of existing processes that aim at ensuring that decisions are made on the basis of the best available scientific information on conservation and sustainable use of biodiversity and ecosystem services.

At the 3rd Ad Hoc Intergovernmental and Multi-Stakeholder Meeting on an Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) in Busan, Republic of Korea, representatives of 86 countries, under the auspices of the United Nations Environment Programme (UNEP), recommended the establishment of IPBES. The meeting was held from June 7 to 11, 2010. Participating ASEAN Member States include Cambodia, Indonesia, Lao PDR, Myanmar, Thailand and Viet Nam.

Generally, IPBES is proposed as the biodiversity equivalent of the Intergovernmental Panel on Climate

Change. There are already several mechanisms and processes at the national, regional and global levels that are designed to ensure that scientific information is considered when designing policies or making decisions, such as technical bodies/panels under the environmental agreements, or national research institutions attached to ministries, among many others.

However, there is no ongoing global mechanism recognized by the scientific and policy communities that pulls this information together, synthesizes and analyzes it for decision making. IPBES is meant to fill that gap.

After long negotiations over the functions of an IPBES, its guiding principles and the next steps, delegates adopted the Busan Outcome document which sets the path for establishing an IPBES.

The Busan Outcome states that IPBES will be an independent intergovernmental body, administered by one or more existing bodies of the United Nations. Its functions are to: conduct regular, time-

ly, scientifically credible, independent and peer-reviewed assessments at the global, regional and sub-regional level; analyze thematic issues and new topics identified by science; prioritize key capacity building needs; call for financial support for highest priority needs; and catalyze financing by providing a forum with donors.

Clients of the IPBES will include UN bodies, inter-governmental organizations, international and regional science organizations, environment trust funds, nongovernment organizations and the private sector, governments, multilateral environmental agreements, and regional integration organizations.

The Busan Outcome further states that in carrying out its work, an IPBES should: ensure geographic, gender and multi-disciplinary balance and address special needs of developing countries; collaborate with existing biodiversity initiatives and mechanisms to ensure coherence and avoid overlapping functions and information; be scientifically independent

and transparent; use relevant data and information; recognize and respect contribution of indigenous and local knowledge; be policy relevant but not policy prescriptive; address terrestrial, marine and inland water biodiversity and ecosystem services; and, integrate capacity building in all of its work.

The Busan conference also recommended that the 65th session of the UN General Assembly, to be held from September 20 to 30, 2010, consider the conclusions of the Busan meeting and take appropriate action for the establishment of the IPBES. The UN meeting should be the final step in this long process, which has taken over five years, making it possible to have IPBES launched late 2010, during the International Year of Biodiversity. The report of the Busan conference is available on [www.ipbes.net](http://www.ipbes.net).

The ASEAN Centre for Biodiversity (ACB) participated in the meeting. ACB will inform the ASEAN Member States of the outcome of the IPBES Meeting in Busan and will include IPBES as one of the agenda items for the 10th Conference of Parties of the Convention on Biological Diversity (CBD COP10) Preparatory Meeting for ASEAN Member States.

ACB also plans to participate in the IPBES through UNEP and other intergovernmental organizations as one of the regional organizations that will support IPBES in the areas of assessments of knowledge on biodiversity and ecosystem services; policy formulation and implementation; and capacity building to improve the science-policy interface. ■



Participants to the 3rd Ad Hoc Intergovernmental and Multi-Stakeholder Meeting on IPBES

## GBIF and ACB strengthen sharing of biodiversity data in Asia

Representatives of government agencies, research and educational institutions, and international organizations involved in biodiversity data sharing met in Dehradun, India from June 28 to 30 to discuss collaboration in ensuring the region's access to biodiversity data for scientific research, conservation and sustainable development.

The Global Biodiversity Information Facility (GBIF) Secretariat, in collaboration with the Wildlife Institute of India, organized the GBIF-Asian Nodes Regional Meeting and Biodiversity Informatics Workshop where participants discussed regional priorities and targets; requirements/opportunities for the implementation of the Regional Action Plan; and mechanisms to improve regional coordination, communication, collaboration and participation.

GBIF ([www.gbif.org](http://www.gbif.org)) is an international government-initiated initiative focused on making biodiversity data available to all, for scientific research, conservation and sustainable development. GBIF enables free and open



access to biodiversity data online, and provides three core services and products: an information infrastructure; community-developed tools, standards and protocols; and capacity-building.

Representatives from the University of Tokyo, Korea Institute of Science and Technology Information, Wildlife Institute of India, ASEAN Centre for Biodiversity (ACB), Biodiversity Research Center, International Centre for Integrated Mountain Development (ICIMOD), and BioNet-EASIANET participated in the meeting.

The meeting also discussed suggestions on how to streamline the structure and function of the Nodes Committee; recommendations on how to advance the implementation and uptake of the GBIF Work Program within each region; and regional, national, or thematic priorities

for the 2011 Work Program and the 2012-2017 Strategic Plans.

Available tools and applications from GBIF that are needed to increase efficiency in data sharing in the ASEAN region, and the decentralization of GBIF activities toward building a formal GBIF Asian Regional Node were also discussed.

As a result of the meeting, ACB will use GBIF data publishing tools, specifically the Integrated Publishing Toolkit and the Harvesting and Indexing Toolkit for sharing ASEAN data and information. ACB will also share technical knowledge on data publishing tools with both ASEAN Member States-GBIF participants (Indonesia and Philippines) and GBIF prospective participants (Brunei, Cambodia, Lao PDR, Malaysia, Myanmar, Thailand and Viet Nam).

ACB will continue to work with Asian regional nodes to expand collaboration on data and information sharing, and participate in GBIF Governing Board meeting in Korea to represent ASEAN Member States.

Participation in GBIF

provides many benefits since ASEAN Member States can use GBIF data-publishing tools to disseminate biodiversity data, particularly those found on their national Clearing House Mechanisms, to the larger biodiversity community. GBIF node participants will have access to GBIF data-sharing standards and protocols.

Non-GBIF participants will be represented by ACB in GBIF-led advances in bioinformatics. ASEAN Member States will also be able to access data and information published through GBIF by biodiversity-data-generating organizations like ICIMOD and ESIA-BioNet.

ACB will continue to strengthen its biodiversity database by using GBIF data harvesting and publishing tools, initially on marine and related data from recent ACB collaborations with Fishbase, Sealifebase, Reefbase and other organizations. ACB also aims to strengthen data sharing in ASEAN by working with non-GBIF participants, as well as in participating in further discussions in GBIF to highlight ASEAN issues and concerns. ■

On 22 September

## Ring a bell for biodiversity

The world continues to lose its biodiversity and on September 22, 2010, Heads of States will assemble at the United Nations Headquarters in New York to discuss the biodiversity crisis. Simultaneously, the Secretariat of the Convention on Biological

Diversity (CBD) will encourage the ringing of bells all over the world as an urgent "memo" to rouse the world to action. The bells will also be rung each year on May 22 during celebration of the International Day for Biological Diversity.

This initiative is in-

spired by the United Kingdom-based MEMO Project. MEMO—which stands for Mass Extinction Memorial Observatory—is a collaboration of scientists and sculptors and stonemasons dedicated to communicating the reality of the extinction crisis by creating an ongoing memorial re-



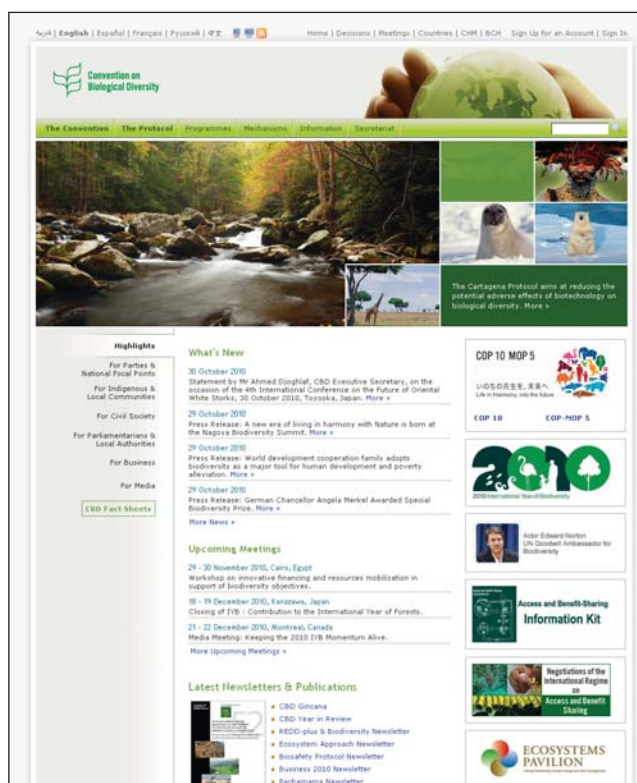
## The CBD Website

# Enhanced communication tool for new biodiversity era

The new look and feel of the website of the Convention on Biological Diversity (CBD) was launched on May 22, 2010, that marked the annual celebration of the International Day for Biological Diversity.

Dr. Ahmed Djoghlaif, Executive Secretary of the CBD (SCBD), said the new design is an important milestone in the ongoing process of maintaining a high-quality CBD website in the rapidly-changing world of Internet communications.

“This initiative aligns the website of the CBD with the most modern trends in web design and offers a clean, user-friendly and accessible layout for the rich content on our site. The design gives us flexibility in announcing key initiatives, events and other information. With the increasing contributions and commitments of our partners, we are delighted to have a platform that allows us to improve the dissemination of information from the dynamic community of biodiversity stakeholders,” Dr. Djoghlaif explained.



The improvements of the website were made possible with support from the Government of Japan, which enabled the SCBD to create a website dedicated to the International Year of Biodiversity ([www.cbd.int/2010](http://www.cbd.int/2010)), as well as a presence on the Facebook social network ([www.facebook.com/iyb2010](http://www.facebook.com/iyb2010)) with more than 30,000 fans.

Further enhancements are planned as resources become available. Priority areas include online services for knowledge-sharing and collaboration in the context of communication, education and public awareness, and in accordance with decision

IX/30 on the clearing-house mechanism.

Dr. Djoghlaif added that making the CBD website available in all six United Nations languages is also a priority, yet challenging. To tackle this issue, the CBD Secretariat is gradually integrating modern translation systems into its web infrastructure, in order to optimize the impact of donor contributions, particularly from the Governments of Spain and Japan, and from the Organisation internationale de la Francophonie.

In 2009, more than 1.2 million visitors accessed the CBD website and more are expected to do so in 2010, the International Year of Biodiversity. The website will also be a key communication tool during major upcoming meetings, such as the High Level Event of the 65th Session of the United Nations General Assembly in New York on September 22, 2010, with the participation of Heads of States and Governments, as well as the Nagoya Biodiversity Summit to be held in Japan in October 2010. – SCBD

cording the carved images of all the species being lost. The project enjoys high-profile scientific support including the rarely bestowed endorsement of the Royal Society.

MEMO will be built on the cliffs of the Isle of Portland overlooking the sailing events of the London Olympics. This is part of the “Jurassic Coast” World Heritage Site whose 95 miles of fossil-rich cliffs already record 185 million continuous years of the

history of life, including two of the “big five” mass extinctions of the geological past. In the middle of the monument will be a great bell to be tolled whenever a species is assessed as extinct from now on.

In preparation, a bell was cast in 2009 directly from a mould of Portland limestone, the fossiliferous ground of the island, and so quite literally, from the fossils of ancient extinct species. The United Nations building in New York is

faced with the same Portland stone. On September 22, the bell will be rung in New York echoed by others around the world.

Last May 22, the International Day for Biological Diversity, at the Royal Manor School on Portland, stonemasons started to shape the mould for the big bell nearly 10 feet in diameter. The aim is to cast it this year.

At the same time in Nairobi, Kenya, a second

MEMO bell will form part of the global celebrations taking place with the participation of the government and people of Kenya, the international community, and the United Nations.

For more information on MEMO, contact Sebastian Brooke MEMO, Project Director at [seb@memoproject.org](mailto:seb@memoproject.org) or visit <http://www.memoproject.org>. – SCBD

## World leaders to discuss biodiversity crisis

Biodiversity will catch the world's attention on September 22, 2010, as the Heads of State will gather at the United Nations Headquarters in New York for a special General Assembly (UNGA) Session on biodiversity.

Dr. Ahmed Djoghlaflaf, Executive Secretary of the Secretariat of the Convention on Biological Diversity (SCBD), said the event is a special biodiversity day, offering a unique chance to raise the world leaders' awareness on the loss of biodiversity and for them to push for political support to a global response to the challenge of biodiversity loss.

"Many topics relating to the CBD will be raised. This also provides an excellent political forum to seek out more effective synergies among the three Rio Conventions," Dr. Djoghlaflaf said.

To emphasize the importance of the International Year of Biodiversity 2010, the UN General Assembly decided to host a Special High Level Session on the topic of Biodiversity on September 22, 2010, on the eve of the opening of its 56th general session.

Topics for the UNGA Special Session include post-2010 objectives of the CBD, biodiversity and climate change links, reduction of poverty and development, biodiversity and the achievement of Millennium Devel-

opment Goals (MDGs).

The session will provide an excellent political forum to seek out more effective synergies among the three Rio Conventions. The results of negotiations regarding the creation of an intergovernmental political/scientific platform on biodiversity and ecosystem services will also be discussed.

The special session is taking place one month before the 10th meeting of the Conference of the Parties (COP-10) of the CBD in Japan. The results of the UNGA discussions will be sent to the High Level Segment of the COP (October 27 to 29, 2010) and will play an important role on global decisions on biodiversity. COP 10 is expected to adopt a new Strategic Plan for the Convention for 2011-2020 that will address the underlying causes of biodiversity loss in a way that will permit national implementation within a global framework.

In a related development, the final push toward a biodiversity accord was made at the UN meeting in Cali, Colombia, where some 500 delegates hammered out an international agreement on access to the Earth's genetic resources and the fair and equitable share in benefits from their use, one of the key objectives of the CBD.

"Access and benefit-sharing" (ABS), refers to the way

genetic resources—whether plant, animal or microorganism—are accessed, and how the benefits that result from their use by various research institutes, universities or private companies are shared with the people or countries that provide them. The concept of ABS has historically been a source of tension between developing countries and companies in sectors, such as pharmaceuticals, agriculture, horticulture and biotechnology.

The discussions to finalize the ABS documents at the working group meeting in Colombia was the last formal negotiating session before the Nagoya Biodiversity Summit in October, where the document is expected to be approved.

"A new spirit of cooperation has emerged and there is a growing appreciation that the accord represents a win-win situation for all countries," said Timothy Hodges of Canada and Fernando Casas of Colombia, co-chairs of the negotiating committee, looking ahead to Japan.

Meanwhile, at the annual summit of the Group of Eight (G8) in Muskoka, Canada, held on June 25-26, 2010, G8 leaders emphasized the critical importance of biodiversity to human well-being, sustainable development and poverty eradication, and highlighted the serious threat posed by

the current rate of biodiversity loss.

Regretting that the international community is not on track to meeting its 2010 target to significantly reduce the rate of loss of biodiversity, G8 leaders underlined the importance of adopting an ambitious and achievable post-2010 framework.

In the G8 Muskoka Declaration, Recovery and New Beginning, leaders noted that: "In 2010, the UN International Year of Biodiversity, we regret that the international community is not on track to meeting its 2010 target to significantly reduce the rate of loss of biodiversity globally. We recognize that the current rate of loss is a serious threat, since biologically diverse and resilient ecosystems are critical to human well being, sustainable development and poverty eradication.

"We underline our support for Japan as it prepares to host the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity this October and, in particular, we underline the importance of adopting an ambitious and achievable post-2010 framework. We recognize the need to strengthen the science-policy interface in this area, and in this regard we welcome the agreement to establish an Intergovernmental Platform on Biodiversity and Ecosystem Services." ■

*For in-depth information and news on biodiversity  
across Southeast Asia, log on to*

**[www.aseanbiodiversity.org](http://www.aseanbiodiversity.org)**

## A New HOPE for the Quezon National Forest Park

A groundbreaking pilot program may quietly reap tremendous benefits for the biodiversity rich Quezon National Forest Park (QNFP), Quezon Province, Philippines.

The 983-hectare QNFP, only four hours drive south of Manila, is the country's largest remaining example of the giant Dipterocarp forests that once swathed millions of hectares across the archipelago. QNFP is an incredible biodiversity hotspot now recognised by the Department of Environment and Natural Resources (DENR) through its encouragement of a program called HOPE (Hands On Protection of the Environment).

HOPE is the pet project of former Quezon Governor Eddie Rodriguez and he would like to see the program fully operational by 2011. He argues that protecting biodiversity must first start with effectively protecting and appreciating the value of our National Parks and their ancient trees.

He also argues that up to now this has not been happening.

"Our most urgent environmental issue is protecting what is left of our ancient forests because that is the home of biodiversity. And yet illegal logging and poaching activities continue within our Park system despite the best efforts of the DENR to stamp out such behavior" he says. "The HOPE program at the QNFP is showing how selected organisations can work with the DENR for better environmental outcomes. We would like to set an example that could be replicated in other parks across the country'.

HOPE - QNFP revolves



Left to right, Andrew Onley, Dr. Phoebe Pelobello and former Governor Eddie Rodriguez chatting at CTEC.



Pastor Noel Suministrado explaining rope skills to students while ARESCOM Chief Engr. Gerry Lontok looks on.

around a scenic two-hectare campground at the base of QNFP, the Camp Training Environment Centre (CTEC). It is a portion of the Park entrusted by law to the Girl Scouts of the Philippines (GSP), now slowly being developed into the QNFP information centre and campground. CTEC is the centerpiece where all the trails within the Park will begin, and all the relevant information will be provided to walkers and program participants.

Program sustainability is provided through the 'will to succeed' shared by the primary organisations involved – GSP Quezon, Quezon's Army Reserve Command and the UPLB College of Forestry and Natural Resources. Each of these organisations will assist the DENR to adequately protect the Park through their hands on participation in park activities. All will benefit from the interactions with each other.

For example, the GSP Quezon has approximately 60,000 active Scouts with boundless enthusiasm to assist in their environmental future. Every week, selected Scouts will gather at CTEC to participate in park activities ranging from trail clean up to flora/fauna surveys and monitoring. GSP staff and the Army Reservists will supervise all activities and the DENR will benefit from the extra monitoring the Reservists, Scouts and other participants bring to the Park. An eventual memorandum of agreement between the organizations will clearly define roles and reporting channels.

"Our weekly HOPE involvement will allow fantastic training and focus for the Reservists", commented Capt. Gerry Lontok who has helped design the program, to include GPS-tracking of the trails, park features and defining physical boundaries of the

Park. "We want our children to have a decent environment when they grow up. This program is a great way for my ARESCOM unit to contribute to that. It has also given real stimulus to our recruitment drive".

University of the Philippines Los Baños, the country's leading Forestry and Environmental University, is only 2.5 hours drive from QNFP. The HOPE agreement will see the DENR developing their park management plans with the assistance of UPLB expertise. The QNFP on the other hand will provide UPLB students with invaluable hands on laboratory for learning and research.

"Such field laboratory brings further credibility to the University programs. Combined with DENR support and the increased scouting activity and monitoring role by the Reservists, we will surely discourage illegal behavior within the Park", Rodriguez continues.

"However, just as importantly, it's going to be a very cost effective, sustainable program. It's mostly about a change in attitude and I appreciate how the DENR has supported this type of mutually beneficial interaction. I believe, under HOPE, that the DENR will cease being known as enforcers of regulations and be considered more as development workers ensuring a healthy and safe park system".

In the meantime, the HOPE team has committed to meeting with the new DENR Secretary Ramon J.P. Paje at his earliest time to discuss a national approach to this program.

For more information, visit [www.camptrining.com](http://www.camptrining.com). – Andrew Onley

## Voice of the Youth

# Think and act green!

In this fast-changing world where our lives are driven by technological advancements, more and more people tend to forget the value of our natural world. Known as biodiversity, our natural world is rich in magnificent wonders that supply our daily needs, from air to water, food to medicine, clothing to shelter and livelihood to leisure.

But man's selfishness and his never-ending quest for more acquisitions at the expense of nature is driving planet Earth to a possible deadly doom. More and more species of known plants and animals are becoming endangered. What about the unknown and unnamed species? They could be extinct before they are even discovered.

Unfortunately, many of the youth today who are supposed to be the inheritors of our future are unaware of the grim effects of biodiversity loss. Most, if not all, are more concerned with online gaming and social networking than caring for the very nature that nurtures us. Funny but true, it's amazing how technology can be so pervasive in our lives that we sometimes neglect our natural world in exchange for a virtual one.

But for some students of the Visayas State University (VSU) in the island of Leyte, Philippines, advocating for the environment takes center stage. The members of the Terrestrial and Aquatic Restoration by Students Immersed in Environmental Reforms (TARSIER) lead the youth and their communities in rehabilitating, protecting and preserving the environment. The organization is named after the tarsier, one of the

smallest primates on Earth found on the islands of Samar, Leyte, Bohol and Mindanao in the Philippines.

TARSIER is the only environmental group in VSU and has constantly been awarded as the No. 1 interest group in the campus. It implements sustainable activities and strategies by organizing innovative programs that generate knowledge and awareness on environmental issues that affect us today.

TARSIER has conducted and facilitated a number of activities, such as environmental quiz, rainforest reforestation, tree planting, establishment of tree parks, organizing environmental camps, awareness campaigns (e.g. solid waste management, global warming, etc.), and seminars on environmental conservation (e.g. Project Learning Tree for Terrestrial and Water Education for Teachers for Aquatic Ecosystems) within and outside the university.

According to Mary Annilyn Villar, current president of TARSIER, "Being part of the organization is such a fulfilling duty for me as a student. Before I joined this group, I was so passive and unaware of the troubles and issues that our environment faces today. Now with TARSIER, my environmental awareness skyrocketed. With this knowledge, I am able to share what I've learned with my fellow youth and nearby communities as well; like teaching them ways on how to preserve and protect our thinning supply of natural resources and why it is important."

Ezra Mendoza, previous president of the organization adds, "Our experience



as members of TARSIER is a great avenue for students to learn social skills, passion and a sense of responsibility that makes a good individual better. You can also visit our website [tarsier.ning.com](http://tarsier.ning.com) for more details about how we work and get funds for our activities."

Randy Omega, Pia Fleur Labastilla and Marlito Bande, faculty members of VSU's Institute of Tropical Ecology (ITE), have constantly guided the group in achieving its goals and objectives in preserving and protecting the environment.

Youths all over the Philippines and the ASEAN region need not be members of TARSIER to make a difference. All we need to do is join TARSIER in their cause by changing our ways of life and being environmentally concerned in our homes, schools and communities. We can do our share in preserving our biodiversity through our own, little and simple ways starting right in our homes through

the following actions:

Switch to reusable bags! By using reusable bags, especially during grocery time, you are actually helping minimize the production of cellophanes and plastics. These materials take a longer time to decompose and they are also made from materials unsafe for our environment.

Eat your veggies! Eating less meat and more fruits, grains and vegetables can help the environment more than you realize. Eating meat, eggs and dairy products contributes to global warming because raising animals for food produces more greenhouse gas emissions than growing plants.

Drive less, drive smart! Every time you leave your car at home, you reduce air pollution. Walk or ride a bicycle for short trips or take public transportation for longer ones. When you do drive, take a few minutes to check if your engine is well maintained and your tires properly inflated.

Conserve water! Water is life but unfortunately we



have less potable water today than in three decades combined. Everyone needs water for drinking, watering plants, washing clothes, etc. It is important that we close faucets when not in use, use a glass when you brush your teeth, and take a shorter shower.

Save energy! Using less energy means we need to take less from the earth, which makes it possible to preserve ecosystems and habitats. Turn off appliances that aren't in use: the TV, your radio, the light in your room or in the bathroom, your computers. Make sure you are using energy in a smart way: wash clothes in warm, instead of hot water. When you heat or cool your house, check to see that no energy is escaping, by having good insulation.

Recycle and reuse! Make the most out of the things you use. Use both sides of the paper. Use a lunchbox instead of a paper or plastic bag. Recycle newspapers and magazines—even if you don't have curbside recycling in your

town, you can take them to a community recycling center, donate them to hospitals, libraries or shelters.

Be a smart shopper! Buy recycled paper products like toilet paper, napkins and envelopes. When buying other products, choose the ones that have the least amount of packaging, that way there is less materials used in making the product and less waste after we use it. Also, check the active ingredients of detergent soaps, shampoos, conditioners or any other toiletries, and make sure that the manufacturer uses lesser amount of chemicals so that such products will have a minimal effect on our environment. Because anything that washes off from our face and body goes to our oceans and its inhabitants are the ones most affected by it.

Don't buy things made from endangered animals! International law protects many animals. But people kill these animals and sell the products. Wallets, belts or boots are often made from the skins of

reptiles that are endangered. Many fur coats are made by killing endangered snow leopards, tigers and jaguars. Coral jewelry and trinkets are taken from the fragile coral reefs, which are home to so many marine species. Tortoise shell products, like ashtrays and jewelry are made at the cost of sea turtles' lives. And ivory products come from the tusks of endangered elephants. Make sure you know where these products come from and that no endangered animals have been killed or harmed in the making of the products you intend to buy!

Don't buy products tested on animals. Many beauty products like make-up and other cosmetics are tested on animals before declared safe on human skin. By not buying these products, you are actually helping stop animal cruelty and promoting animals' right to live. Send letters to your favorite cosmetic line and ask them not to test products on animals and limit amounts of chemicals that

harm the body like lead on lipsticks. You can look on the Internet for a list of product lines that were not tested on animals. If you don't see your favorite line on the list perhaps it's high time to make a phone call.

Use social networking tools! Use social media, such as Facebook, Twitter, Multiply and Friendster, including the circulation of biodiversity-inspired PowerPoint presentations, to promote biodiversity conservation and share information with your family, your friends and your school about environmental problems and how we can all help. Get them involved in your efforts—it is easier to make big changes with more people!

Write letters. We always hear politicians say that the youth is the hope of our future. It's time for them to listen to the voice of the youth. Write letters to our political leaders and ask them to craft laws that are pro-environment and pro-biodiversity. Write to our governors and mayors and ask them to strictly implement environmental laws. Write to media and government agencies to report violations of laws that affect our environment. Write to civic organizations and ask them to support our pro-environment activities.

Remember, even the tiniest effort can serve as a tipping point and eventually a big leap to preserve the ecosystems of millions of creatures around the world! We are all responsible for keeping our planet as biologically diverse as we found it. We have only one earth and it's our job to keep it up and running.  
— *Shanemie Carelle O. Daquio*

■ *Ms. Daquio is a student of Development Communication at the Visayas State University in the Philippines*



## May 18: Plant Conservation Day

Plants took center stage on May 18, 2010 when the world celebrated Plant Conservation Day. The event provided an opportunity for everyone to celebrate and explore the utmost importance of plants on life on Earth.

The observance of Plant Conservation Day was started in 2001 by the Association of Zoological Horticulture in the United States, which joined forces with Botanic Gardens Conservation International in 2006. This partnership has expanded Plant Conservation Day celebrations worldwide and developed resources for organizations, groups and individuals dedicated to enjoy-

ing and conserving the world's plants. Since 2001, the Plant Conservation Day has been an important opportunity to raise awareness about the need to preserve the diversity of plant life on Earth.

Plants form the foundation of all life on Earth, regulating climate and purifying water and air. Plants enrich the soil and mitigate erosion. They provide the essential ingredients for human sustenance, well-being, and survival as they provide food, medicine, shelter and clothing. Plant's aesthetic value gives people comfort.

However, the world's plants are facing serious

threats. Plant species continue to diminish, accelerating negative impacts on the humans, wildlife and ecosystems.

The clear value of plants to human survival led the Parties to the Convention on Biological Diversity (CBD) to adopt in 2002 the Global Strategy for Plant Conservation. Its long-term objective is to stop the ongoing loss of plant diversity. At the same time, it strives to incorporate sustainable use and benefit-sharing into plant conservation while contributing to poverty alleviation and sustainable development.

The Secretariat of the CBD has reported that the Strategy

has thus far garnered the support of a wide range of organizations and institutions—governments, intergovernmental organizations, conservation and research organizations (including protected-area management boards, botanic gardens and gene banks), universities, research institutes, nongovernmental organizations and their networks, and the private sector.

The Secretariat announced that the Convention is in the process of developing a Global Strategy for Plant Conservation toolkit, which will go a long way toward facilitating the implementation of this important initiative. ■

## World celebrates first *Water Hour*

It was 8 p.m., June 11, 2010. Sixty-six different environmental organizations celebrated the first Water Hour. Picture all the water in the world filling up a one-gallon pail. Now picture one tablespoon from this pail. That tiny proportion is all that's available for human use! And because of population, pollution, over-use and evaporation caused by global warming, this precious little amount is dwindling at an alarming rate.

This challenge prompted Ecologos, a research and action network of volunteers based in Toronto, Canada, to launch the Wa-



ter Hour as part of its strategy to create transformative experiences for a sustainable future, using fun interactive websites and exhibits that resonate with deepest emotions about environmental issues.

Water Hour is a facet of the Water Alive! program, which includes [water-alive.org](http://water-alive.org)—a cutting-edge hub for water-action projects worldwide, a place to connect with others, and support projects that pro-

tect drinking water. Harnessing the massive power of social networks, the most amazing projects are voted to the home page for funding and exposure. [Water-alive.org](http://Water-alive.org) is currently in development, in partnership with the Centre for Sustainable Watersheds in Canada.

Water Hour was a moment to celebrate water, to create a torrent of messages and an outburst of action for water. The celebration tapped into the enormous power of social networks like Twitter, Facebook, Flickr and YouTube, connecting people across the globe to create awareness on the values of water.

Ecologos said Water Hour

is not a one-shot celebration.

“Our water moment is like an emotional spark that ignites the fuel, and the Water Hour celebration is the explosion of creativity and outreach that follows. Now the engine is running—so declaring our commitment to take action carries the inspiration of Water Hour forward to make a difference year-round,” Ecologos explained.

Individuals and organizations can continue to post their moments, ideas, comments and declarations throughout the year through [www.waterhour.org](http://www.waterhour.org). ■

## World Oceans Day

# Our oceans: Opportunities and Challenges

The oceans were given special attention when the World Oceans Day was celebrated by the international community on June 8, 2010.

The day marked the 15th anniversary of the adoption of the Jakarta Mandate in the Ministerial Statement of the Second Meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD) as a global consensus on the importance of marine and coastal biodiversity.

This year's World Oceans Day is only two years away from the target year set at the World Summit on Sustainable Development for the establishment of representative networks of marine protected areas.

Oceans are at the center of life. They provide crucial goods and services required by human beings and other creatures. They regulate climate and serve as refuge and home to so much life on Earth. Yet, oceans are under siege more today than ever before. There is now an urgent need to stop unsustainable practices, focus



on oceans' vast reservoirs and look at them as an important part of the web of life.

The third edition of the Global Biodiversity Outlook (GBO-3) launched worldwide in May 2010 describes the current state of world biodiversity, including marine and coastal biodiversity. Multiple indicators demonstrated continuing biodiversity loss at unprecedented rate. The report also identified global climate change as one of the most important driving forces behind the continuing decline of biodiversity.

GBO-3 reported that coastal habitats, such as mangroves, seagrass beds, salt marshes and shellfish reefs, continue to decline in extent, threatening highly valuable ecosystem services. Such de-

cline also diminishes their ability to remove significant quantities of carbon dioxide from the atmosphere. About one fifth of the world's mangroves, covering 36,000 square kilometers, were lost between 1980 and 2005. The quantity of carbon buried each year by vegetated coastal habitats has been estimated at between 120 and 329 million tons.

GBO-3 revealed that tropical coral reefs, which contribute significantly to the livelihoods and security of coastal regions, have suffered a significant global decline in biodiversity since the 1970s. Between 500 and one billion people rely on coral reefs as a food source. Coral reefs also support approximately 25 percent of all marine fish species. This important habitat, how-

ever, faces multiple threats including overfishing, land-based pollution, destructive fishing, and bleaching due to increased sea temperatures.

GBO-3 warned that rising carbon-dioxide concentrations in the atmosphere will result in sea-water becoming more acidic, reducing the biocalcification of tropical and cold-water coral reefs as well as other shell-forming organisms, such as calcareous phytoplankton, and impacting the entire marine food chain. However, the magnitude and frequency of such risks are not clearly known yet.

GBO-3 also warned that if the Earth's ecosystems are pushed beyond certain thresholds or tipping points, there is a high risk of dramatic biodiversity loss and accompanying degradation of a broad range of ecosystem services.

Dr. Ahmed Djoghlaif, Executive Secretary of the CBD Secretariat said the Parties to the CBD will adopt in Nagoya a new Strategic Plan for the period 2011-2020, which contains strategic goals and targets for mobilizing urgent and comprehensive action at the international level in order to reverse the tide of rapid biodiversity loss.

"Actions that specifically address the degradation of ocean ecosystems will be central to the meeting. We already know that some of the actions can have multiple impacts. Saving biodiversity can help us combat climate change. Saving biodiversity can be a route to sustainable development and protect the livelihoods of communities and economies that rely on the oceans," Dr. Djoghlaif said. ■



## UNEP launches policy series on ecosystem management

The United Nations Environment Programme (UNEP) has launched a new Policy Series that seeks to facilitate dialogue on policy issues related to ecosystem management. The site (<http://www.unep.org/policyseries>) targets governments, civil society organizations, and the academic and scientific community.

Besides enabling UNEP to communicate with stakeholders, the policy series also provides an opportunity for readers to engage in UNEP's work by discussing issues covered in the featured articles. It also serves as a feedback loop from stakeholders.

The Policy Series is accompanied by an online blog where readers can post their comments, ask questions, and suggest topics for future issues in the series. The blog is available on the UNEP website at [www.unep.org/policyseries/](http://www.unep.org/policyseries/)

[Sustainable\\_integrated\\_Solutions.pdf](#).

The Policy Series is published quarterly and distributed mainly electronically. A few hard copies will be printed for targeted distribution. If interested in receiving hard copies, please send your full postal mailing details to [kavagi@unep.org](mailto:kavagi@unep.org).

The first issue of the UNEP Policy Series on Ecosystem Management is titled "Integrated solutions for biodiversity, climate change and poverty" and has four key messages:

1. Biodiversity is key to how well people can adapt to climate change. The poor will need to be involved in any planning and decision-making and must ultimately be able to derive sustainable livelihoods from these resources.
2. We need to set different policy directions,

change incentive structures, reduce or phase out perverse subsidies and engage business leaders in a vision for a new economy. Holistic economics—or economics that recognize the value of nature's services and the costs of their loss—is needed to set the stage for a new "green economy."

3. Environmental limits need to be established in order to ensure society remains within them in order to achieve sustainability. This is based on four principle criteria: long-term environmental effectiveness, equity consideration, cost effectiveness and overall institutional compatibility of the policy combinations
4. Ecosystem-Based Adaptation (EBA) is an emerging approach that

works with nature to help vulnerable communities and build resilience of their ecosystems and livelihoods being threatened by climate change impacts. It can also generate significant multiple benefits, such as social, economic and cultural.

UNEP invites policy makers and experts to make use of the Policy Series in addressing policy matters that would be of interest to their stakeholders/areas of work on ecosystem management. Please send your inputs and suggestions to Mr. Ibrahim Thiaw, Director, Division of Environmental Policy and Implementation at e-mail: [Ibrahim.Thiaw@unep.org](mailto:Ibrahim.Thiaw@unep.org) with copy to Vijay Samnotra who is the focal point of the Policy Series. His contacts are: e-mail [Vijay.Samnotra@unep.org](mailto:Vijay.Samnotra@unep.org), phone: +254-20-7623395. ■

## Senior environmental officials meet in Viet Nam

About 150 representatives from the 10 ASEAN Member States and six dialogue partners gathered in Hanoi, Viet Nam, for the 21st meeting of the ASEAN Senior Officials on the Environment (ASOEN) on August 4 and 5.

ASEAN Member States include Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam. The ASEAN dialogue partners are Australia, China, India, Japan, New Zealand and the Republic of Korea.

Dr. Bui Cach Tuyen, Director General of the Viet Nam Environment Administration at the Ministry of Natural Resources and Environment, underscored that the Meeting was significant as ASEAN moves forward to becoming a prosperous and sustainable ASEAN Community. He pointed out the need for ASEAN Member States to boost regional cooperation to effectively respond to regional and global environmental challenges.

Mr. Vann Monyneth, ASOEN Chairperson and Deputy Director-General of Technical Affairs of the Ministry of Environment

of Cambodia, highlighted the importance of working together to address environmental challenges, such as the impacts of global warming and climate change. He called upon the ASEAN Member States to strengthen collaborative efforts to tackle the new and emerging challenges.

The delegates discussed a range of topics concerning the ASEAN region, such as climate change, transboundary-haze pollution, water-resources management, environmental education and cooperation on environmentally sound technologies.

They also discussed vari-

ous updates on the ASEAN Centre for Biodiversity (ACB), a unique mechanism created by the ASEAN Member States to conserve the region's threatened biodiversity.

The environment leaders noted the Centre's various activities on biodiversity conservation in the ASEAN region. They also recognized the need to sustain the operations of the ACB by noting a number of steps that can be undertaken. Among the proposals were rightsizing of staff and secondment of staff from the ASEAN Member States to ACB. ■

## Logged forests in Borneo retain considerable biodiversity

A new study in the Proceedings of the Royal Society B found that forests in Borneo which have undergone logging in the past, sometimes even twice, retain significant levels of biodiversity. The researchers said the findings should push conservationists to protect more logged forests from being converted into oil palm plantations where biodiversity levels drop considerably and endangered species are almost wholly absent. The study also found that birds endemic to Borneo were unaffected by the first round of logging, but nearly half were impacted by the second. IUCN Red List threatened birds were also impacted by logging, but not nearly as much as by conversion into palm oil. According to the study, endangered birds had “a 200-fold higher abundance” in logged forest than in palm oil plantations. While once or twice logged forests were often considered “degraded lands” and were handed over to palm oil and other plantation companies for conversion, the new study shows that logged forests hold vital conservation potential. There is also the potential that once or even twice logged forests might eventually see the return of lost species. The island of Borneo contains some of the Earth’s most biodiverse rainforests—over 16,000 species have been identified, excluding insects—but has lost half of its forest cover in the last 50 years to logging, plantations and subsequent fires. — *mongabay.com*

## Orangutan populations collapse in pristine forest areas

Researchers reported that orangutan encounter rates have fallen six-fold in Borneo over the past 150 years. They found orangutans much rarer today even in pristine forest areas. Recent interviews of nearly 7,000 villagers in Kalimantan, Indonesia revealed that over

a thousand orangutans were killed annually by local people, of which more than 50 percent was for food. It was found that there is also a correlation between orangutan densities and the distance from villages: more remote forest areas have more orangutans. Introduced disease could also be a factor in the apparent decline in orangutan populations, although there is no evidence to date of epidemics in wild orangutans. The study stresses the need to address the hunting of orangutans to ensure their survival. — *mongabay.com*

## Myanmar creates world’s largest tiger reserve

Myanmar has created the world’s biggest tiger sanctuary by setting aside the entire Hukaung Valley, stretching around 21,970 square kilometers, as a reserve for the endangered big cats. The move was a major step forward in saving the world’s wild tiger population, which is thought to have fallen as low as 3,000, according to wild cat conservation group Panthera and the Wildlife Conservation Society. The Hukaung Valley has the potential to hold several hundred tigers, but illegal hunting of both the animals and their prey meant there could be as few as 50 in the region. As many as 100,000 tigers prowled the forests and grasslands of Asia just a century ago, but numbers have slumped dangerously low mainly because of poaching and loss of habitat. The Hukaung Valley is said to be one of the last examples of a closed forest in the region and the reserve could also protect other large mammals like clouded leopards and Asian elephants. Tigers can make a comeback if hunting of the creatures and their prey is effectively and immediately addressed. — *Agence France-Presse*

## Meru Betiri Park prepares to host REDD pilot project

The Meru Betiri National Park in Jember, East Java has been chosen to host a pilot project for a tropical forest conservation plan as part of an initiative

on Reducing Emissions from Deforestation Degradation (REDD). The project is in the preparatory stage, which includes reforesting and replanting 58,000 hectares of barren fields inside protected forest areas. By the end of 2012, park management will hopefully be able to know how much carbon can be traded from the forest. Under REDD, forest nations that halt deforestation would be compensated by developed nations through a carbon-credit scheme. — *The Jakarta Post*

## Endangered otter rediscovered in Borneo

A camera trap took photos of the endangered hairy-nosed otter (*Lutra sumatrana*) in the Dermakot forest in Sabah, Malaysia. The species hasn’t been found confirmed in Sabah for over a century. The photos were taken as part of the Conservation of Carnivores in Sabah (ConCaSa) program, which began in 2008 to study the state’s carnivores, including wild cats, civets and otters. The hairy-nosed otter is listed as endangered by the IUCN Red List and is considered one of the world’s most threatened otters. Individuals have been found in a number of other Southeast Asian countries, including Thailand, Viet Nam and Cambodia, yet the otter is most threatened by poaching for meat and traditional medicinal uses. It has also been hit by pollution, habitat destruction, and loss of prey due to overfishing. — *mongabay.com*

## Wildlife trafficking hubs identified in Indonesia

Researchers reported at a meeting of the Association for Tropical Biology and Conservation that the bulk of illegally traded wildlife moves through two “triangles” that span the Indonesian archipelago. Indonesia is said to have two major smuggling circuits—the Manado-Ambon-Sorong Triangle in eastern Indonesia and the Medan-Palembang-Pontianak Triangle in the western part of the archipelago—and several hub cities, including Jakarta, Medan and Surabaya. While significant quantities of wildlife are consumed domestically, substantial volumes are destined for Asian markets, including China, Viet Nam, Taiwan, Malaysia and Japan. Unfortunately, the trade is difficult to control due to porous borders, lack of awareness among consumers and authorities, and the high value of wildlife products. The Indonesian government, with the support of nongovernment organizations, has increased wildlife enforcement in recent years, seizing contraband and leveling fines on traffickers. — *mongabay.com*

## Indonesia survey finds many unaware that orangutans are protected

A survey by the Indonesian Primates Association and The Nature Conservancy showed



**Hairy-nosed otter.** Photo by Mohamed & Wilting, SWD, SFD.

that a quarter of villagers living near orangutans in Indonesia's Kalimantan province are not aware the rare primates are protected and say orangutans have been killed in their village. Only a handful of orangutans are left in the wild, mostly in forests in the Indonesian provinces of Sumatra and Kalimantan, where logging and palm oil expansion have driven the primates close to extinction. The survey collected responses from 6,872 people in 725 villages near suspected orangutan communities in western, central and eastern Kalimantan. It found 24.8 percent of respondents knew of orangutans being killed in or near their villages, with most in Central Kalimantan saying the animals were killed for the meat. This reveals a need for translating national policies into a local context, so the community will understand and support orangutan conservation efforts. — *Reuters*

## Tiger countries meet in Indonesia to map rescue

Representatives from 13 tiger-range countries met in Indonesia to draft a global recovery plan ahead of a summit in Russia in September. The plan will focus on the mitigation of human-animal conflict and better law enforcement, including stiffer penalties, to stop poaching and forest destruction. Only six remain out of the nine tiger subspecies in the world. The plan drafted in Bali will be used as the basis for discussion at a tiger summit in St. Petersburg from September 15 to 18.



Sumatran tiger

In Indonesia alone, only the Sumatran tiger still exists, while the Javan and Balinese subspecies have become extinct. Only about 400 Sumatran tigers are left in the wild, which are threatened by poor law enforcement and poaching. Estimates state that the global population of wild tigers of all species has fallen from about 100,000 to an estimated 3,200 over the past century. — *Agence France-Presse*

## Guidebook on coral reef protection launched

The Coral Reef Monitoring for Management Guidebook is a comprehensive and easy-to-use guidebook produced by EcoGov, Fisheries Improved for Sustainable Harvest Project of the Philippines' Department of Environment and Natural Resources, and the Department of Agriculture's Bureau of Fisheries and Aquatic Resources. The guidebook can be used by government units and fisherfolks in the Philippines to measure the effectiveness of initiatives, especially in marine protected area (MPA) management and planning succeeding programs. The guidebook is a highly visual publication that provides step-by-step instruction on drawing up a reef monitoring plan, survey methods, conducting a fish visual census, recording human activities, and natural disturbances that could impact on the marine environment and monitoring fish catch. There are also instructions on how to do a simple MPA perception survey, which helps MPA managers measure whether or not stakeholders believe that they are benefiting from the resource management efforts. — *Manila Bulletin Online*

## US to spend \$136M on climate change programs in Indonesia

The United States will spend \$136 million over three years on environment and climate change programs in Indonesia. Indonesia is regarded as a key player in the fight to slow climate change because its tropical forests and carbon-

rich peatlands trap huge amounts of carbon dioxide but its rapid deforestation rate has sparked concern among environmentalists. The US would allocate \$119 million toward a partnership called SOLUSI, which stands for Science, Oceans, Land Use, Society and Innovation. SOLUSI also covers clean-energy development programs and marine research. The amount of \$7 million would go toward the creation of a regional climate change center linking science to policy on strategic priorities in the climate change area, and focusing initially on emissions from peatlands. Another \$10 million would be set aside for associated projects and partnerships, including public-private partnerships focused on addressing climate-related challenges in Indonesia. — *Planet Ark*

## Planting figs could save endangered species in Borneo

In one of the most remote and undisturbed forests of Borneo, the Maliau Basin in the Malaysian state of Sabah, researchers picked a single fig tree (*Ficus caulocarpa*) and surveyed the species feeding from it over a five-day-period. Their findings, published in *Tropical Conservation Science*, shows that a fig tree feeds a high percentage of endangered species, prompting researchers to recommend replanting figs in disturbed forests as a way to save Borneo's frugivores (fruit-eating species) from extinction. Figs produce fruits all year round and provide a constant source of fruit to frugivores. Studies in Borneo have found that 42 percent of known birds and 73 percent of known mammals feed on figs. But the fig-eating animals repay the trees by spreading their seeds—and genetics—across the forest. Over five days of studying the *Ficus caulocarpa* tree, researchers counted 493 visits by 44 bird species and three mammals, all squirrels. Of the bird species, 15 (34 percent of total birds viewed) are listed as near threatened or worse by the



Fig tree

IUCN Red List. The findings showed that this particular fig, which produces smaller fruits, fed a more selective host than many other fig trees in the region. — *mongabay.com*

## Viet Nam pays to protect ecosystems from climate change

Viet Nam is setting a good example with its pilot Payments for Ecosystem Services (PES) program in Lam Dong Province in the Central Highlands (Tay Nguyen) of Viet Nam. Local hydropower plants, water-supply companies and tourism operators have so far paid US\$3.5 million for the new system, with \$2.2 million of this going to 8,000 poor households who have been engaged to protect 200,000 hectares of provincial forests. PES helped put the forestry sector in Viet Nam on the right track, complying with the market economy, creating the right values, and contributing to sustainable development. Efforts to protect forests have also contributed to the global response to negative climate change and biodiversity conservation. — *Agence France-Presse*

## Malaysia probes into killing of tiger

Malaysian wildlife authorities are investigating the killing of a three-year-old tiger. The tiger was killed in northern Perak state after a villager claimed it attacked his poultry and asked a member of the government's volunteer force to shoot the animal. The killing comes as Malaysia tries to double its tiger population to 1,000 by 2020.



**Malayan tiger**

There are only 500 wild tigers left in peninsular Malaysia, a sharp decline from an estimated 3,000 in the 1950s. – *Agence France-Presse*

**Governments approve plan for biodiversity panel**

Governments at a United Nations meeting in Busan, South Korea approved plans for a new international scientific panel dedicated to addressing biodiversity loss and modeled on the Intergovernmental Panel on Climate Change. The Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) is expected to provide international policy makers with detailed research on the social and economic impact of biodiversity loss and environmental degradation. The new panel will produce a series of reports that would not only cover biodiversity and ecosystem trends, but also outline transformational policy options and responses to bring about real change. – *BusinessGreen.com*

**Rescuing ecosystems can save trillions of dollars – UN**

“Dying Planet, Living Planet,” a study released by the United Nations Environment Programme (UNEP) said nations could boost their economies by replenishing dying forests, marshes, coral reefs and riverbanks. A few million dollars invested by governments in restoring nature could prevent far greater losses of the free services that ecosystems provide to people around the world. UNEP estimates that

ecosystem services provide up to \$70 trillion per year of economic benefit. The loss of these services could also lead to a 25-percent loss in the world’s food production by 2050. – *Planet Ark*

**Endangered crocodiles hatched in Cambodia**

Conservationists in Cambodia celebrated the hatching of 13 baby Siamese crocodiles, which crawled out of their shells in a remote part of the Cardamom Mountains in southwestern Cambodia. Experts believe that as few as 250 Siamese crocodiles were left in the wild, almost all of them in Cambodia but with a few spread between Lao PDR, Myanmar, Indonesia, Viet Nam and possibly Thailand. The nest, with 22 eggs inside was discovered in the isolated Areng Valley by researchers from Fauna and Flora International (FFI). Volunteers removed 15 eggs and incubated them in a compost heap to replicate the original nest. The reptiles are being kept in a water-filled pen in a local village in the



**Siamese crocodiles**

jungle-covered mountain range. The indigenous Chouerng people who live there revere crocodiles as forest spirits and consider it taboo to harm them. The Siamese crocodile has suffered a massive decline over the last century, because of a high demand for its soft skin. Commercial breeders also brought them to stock farms where they crossed them with larger types of crocodile, producing hybrids which further reduced the numbers of the pure Siamese. In 1992, it was declared “effectively extinct in the wild” before being rediscovered in the remote Cardamoms in Cambodia eight years later. Siamese crocodiles take 15 years to reach sexual maturity, complicating efforts to revive the population. Only a handful of the 13 new crocs are likely to survive long enough to make a long-term impact on numbers. – *Associated Press*

**Malaysian officials to trap rhino for breeding**

Malaysian wildlife officials have planned to trap a rare female Borneo rhino caught on camera to mate with a lone male rescued in 2008. The officials said captive breeding was the only way to prevent the extinction of the wild rhino, under threat from poaching. The wild female rhino was spotted by remotely set camera traps in eastern Sabah. It followed the release on April 21 of an image of a possibly pregnant female in another part of the state. Just 30 rhinos are known to remain in the wild on Borneo island, which is shared by Malaysia, Indonesia and Brunei, and researchers are only able to monitor the population through images captured by remote camera traps. The Borneo sub-species is the rarest of all rhinos, distinguished from other Sumatran rhinos by its relatively small size, small teeth and distinctively shaped head. The Sumatran rhino is one of the world’s most endangered species, with few left on Indonesia’s Sumatra island, the north of Borneo island and peninsular Malaysia. – *Agence France-Presse*

**Abandoned Borneo baby pygmy elephant rescued**

Malaysian wildlife authorities have saved a second endangered pygmy elephant calf on Borneo island. The discovery of the two-year-old female elephant followed the rescue of a starving six-month-old elephant in another area. Pygmy elephants are unique to Borneo and form a sub-species of the Asian elephant. The elephants have a rounded appearance and males stand only about 2.5 meters (8.2 feet) tall, compared to around 3 meters for mainland Asian elephants. The elephant species is considered endangered, with around 1,500-2,000 left on Borneo island. Wildlife activists have warned that Borneo pygmy elephants are fast losing their natural habitat to deforestation and human encroachment. – *Associated Press*

**Indonesia announces two-year moratorium on deforestation**

Indonesian President Susilo Bambang Yudhoyono said he would introduce a two-year moratorium on deforestation, a large source of income for his country which also contributes heavily to global warming. Indonesia will stop the conversion of peatland and forests as part of a deal reached with Norway, which has agreed to contribute up to \$1 billion to help preserve the Indonesian forests. Together with Brazil, Indonesia boasts one of the world’s largest rainforests, which function as global “lungs” that transform carbon dioxide into oxygen. However, Indonesia also accounts for a large portion of the world’s deforestation, especially on the islands of Sumatra and Borneo. Norway will begin support for Indonesia’s efforts by enabling the country to set up a control mechanism to help fight deforestation, and as of 2014, Norway will offer aid contingent on Jakarta’s progress. The Norwegian aid to Indonesia will come out of the 3 billion kroner (\$460 million) that the country puts aside every year to fight deforestation around

the world. Norway has already signed similar agreements with Brazil and Guyana. — *Agence France-Presse*

## UN urges rich to honor \$30 billion climate aid pledge

The United Nations urged rich nations to keep a pledge to give \$30 billion to poor nations by 2012 to cope with climate change. Yvo de Boer, head of the UN Climate Change Secretariat, also said it was extremely unlikely that a new UN climate treaty would be agreed in 2010 after the Copenhagen summit in December fell short of a full, legally binding treaty. He said that one priority for 2010 was for rich countries to deliver on key elements of the Copenhagen Accord, including a promise of \$10 billion a year in aid from 2010 to 2012 for developing nations, rising to \$100 billion a year from 2020. Poor nations say they will need more cash to shift from fossil fuels toward renewable energies, such as wind and solar power, and to start adapting to impacts of climate change such as more droughts, floods and rising sea levels. — *Reuters*

## Saving forests to maintain biodiversity

Forestry Minister Zulkifli Hasan of Indonesia said his office would restore 300,000 hectares of damaged forest per year to maintain biodiversity, which has come under serious threat from deforestation and development. The Forestry Ministry has issued permits to restore 200,000 hectares of damaged forest in Sumatra and East Kalimantan in 2010. The ministry would also prioritize increasing the population of endangered species over the next four years. Forest restoration in Sumatra could protect falling numbers of Sumatran tigers, elephants, orangutans and rhinoceroses. The ministry also launched a national action plan for protected areas, which will be used as a basis for conservation management to promote sustainable development in the country. The document was drafted by the government and a group of NGOs

including WWF Indonesia, Burung Indonesia, Flora Fauna Indonesia, the Nature Conservancy and Conservation International. The action plan is also aimed at meeting the government's commitment under the Convention on Biological Diversity (CBD) to allocate protected areas both in terrestrial and maritime areas. — *The Jakarta Post*

## Malaysia introducing tough new wildlife laws

By the end of 2010, Malaysia is expected to enforce its new Wildlife Conservation Act 2010, including stiffer penalties for poaching and other wildlife-related crimes, such as first-time punishments for wildlife cruelty and zoos that operate without license. The bill will replace the Wildlife Protection Act of 1972. To better combat ongoing poaching problems, penalties have been boosted: killing a Sumatran rhino, a Malay tiger, a clouded leopard, or any protected wildlife will be meted a maximum fine of RM 100,000 (US\$31,000) and five years in jail or both if the animal killed is young or a female. The maximum fine drops to RM 50,000 (US\$15,500) for male animals. In addition, for the first-time, setting snares, hunting, or keeping certain species captive—such as rhinos and tigers—comes with mandatory jail time. The bill also expands protection to more species, including the Asian elephant. The success of the new bill in protecting these species will largely depend on implementation. Many countries have stiff penalties for poaching and strong wildlife laws, but fail to catch poachers or punish

them with much more than a slap on the wrist. Enforcement agencies—police, customs, army—must work together to infiltrate poaching networks. — *mongabay.com*

## Outcry over death of rare Javan rhino

Local people reported finding the remains of a Javan rhino—one of the rarest large mammals on Earth—in Viet Nam's Cat Tien National Park. It was believed the rhino was a victim of poachers. An examination by the World Wide Fund for Nature (WWF) and park authorities found it had been shot and the horn removed. Rhino horn is a highly valued commodity in the illegal wildlife trade. Rhino skin and faeces are also used for alleged medicinal purposes. There are fewer than 60 Javan rhinos left in the world, and an undetermined number survive in Viet Nam. With such a small population of Javan rhinos left, every single animal is critical. It is hoped that this death will spur the Vietnamese government to clamp down much harder on



Rhino bones



Bornean Rhino Photo by Jeremy Hance

wildlife crime before it is too late for the rhino and many other endangered species at risk of extinction in Viet Nam. — *WWF*

## Climate change to hit Viet Nam's mangrove forests

Impacts of climate change would severely affect the biodiversity of mangrove forests across the country. In a forum on climate change and biodiversity, experts said sea levels are expected to rise 1 meter by the end of this century, which will flood up to 12 percent of Viet Nam. This will affect coastal wetlands, especially in Ho Chi Minh City and the Mekong Delta; cause flooding in eight national parks and 11 nature reserves; and kill many species of flora and fauna. Experts are saying that impacts of climate change are now evident in some national parks, citing the proliferation of invasive alien species, such as apple snails and mimosa pigra, as well as changes in temperature and rainfall. There were calls for new laws on climate change to encourage contributions from decision makers, local authorities, scientists and environmentalists at a grassroots level. — *Bernama*

## Indonesian rangers nab notorious tiger poacher

Indonesia's forest rangers have notched a major victory against tiger poachers with the arrest of a notorious figure who claims to have killed more than 100 of the endangered animals. The man and his son were caught in a sting operation with the pelt and skeleton of a Sumatran tiger at Kerinci Seblat national park. There are believed to be about 500 of the animals left in the wild, down from tens of thousands at the beginning of the 20th century. The arrests follow a two-month undercover investigation led by rangers from Fauna & Flora's tiger protection and conservation unit with backup from city police. Villagers can earn the price of a new motorbike for a tiger. But the deterrent of anti-poaching operations is starting to take effect. There are now about 140 tigers in Kerinci Seblat national park. — *guardian.co.uk*



## ASEAN CHAMPIONS OF BIODIVERSITY

The First Awards Program to Recognize Outstanding Biodiversity Conservation Projects by Business, Youth and Media in the ASEAN Region

**Deadline of Submission of Entries: 28 February 2011**

The ASEAN Champions of Biodiversity is a recognition program for ongoing projects on biodiversity conservation and advocacy in the 10 ASEAN Member States: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam.

- The award is aimed at generating greater leadership, public and media awareness of the problems facing the region's rich but highly threatened biodiversity and the need for a concerted effort in biodiversity conservation and advocacy.
- Three awards will be given:
  1. **Business/Corporation** – Most Outstanding Biodiversity Conservation and/or Advocacy Project by a Private Business/Corporation
  2. **Youth Organization** – Most Outstanding Biodiversity Conservation and/or Advocacy Project by a Youth Organization
  3. **Media** – Most Outstanding Biodiversity Reportage by a Media Organization



## ARE YOU AN ASEAN CHAMPION OF BIODIVERSITY?

Are you ready to rise up to the challenge of being an Ambassador of Goodwill for Biodiversity?

Log on to

[www.aseanbiodiversity.org](http://www.aseanbiodiversity.org) or [www.aseanfoundation.org](http://www.aseanfoundation.org)  
for the nomination guidelines and the nomination forms.

For questions, please e-mail [champions@aseanbiodiversity.org](mailto:champions@aseanbiodiversity.org).



Biodiversity is life  
Biodiversity is our life



Convention on  
Biological Diversity



The program is co-sponsored by the ASEAN Foundation through the Japan-ASEAN Solidarity Fund, UNESCO and the European Union.

# *Conserve Biodiversity, Save Humanity!*



**ASEAN Centre for Biodiversity**  
3F ERDB Bldg., Forestry Campus  
College, Laguna 4031 Philippines  
Tel: +632.584-4247, +6349.536-2865  
Email: [contact.us@aseanbiodiversity.org](mailto:contact.us@aseanbiodiversity.org)

# [www.aseanbiodiversity.org](http://www.aseanbiodiversity.org)

*ACB is an intergovernmental institution of the ASEAN with initial funding from the EU.*





## Bintangor (*Calophyllum lanigerum* and *C. tesymannii*)

Bintangor is an exceedingly rare South Asian tree found in Borneo in the state of Sarawak in Malaysia. Its leaves and twigs yield Calanolide, a compound with anti-HIV properties.

Samples of *Calophyllum lanigerum* var *austrororiaceum* were first collected in 1987 on an expedition sponsored by the National Cancer Institute in Sarawak. *Calophyllum lanigerum* var *austrororiaceum* is a rare member of the *Guttiferae* or mangosteen family. In vitro studies have shown that Calanolide A proved to be active against HIV-1, as well as strains resistant to other HIV inhibitors. The compound has also shown to be effective in combination with other anti-HIV drugs.

Once it was determined that *Calophyllum lanigerum* var *austrororiaceum* showed activity against HIV, researchers returned to the original kerangas forest near Lundu in Sarawak, Malaysia, to gather more plant matter. However, the tree was gone, most likely used by locals for fuel wood or building material. Fortunately, the Singapore Botanic Garden has several plants collected by the British over 100 years earlier. Sarawak banned the felling and export of *Calophyllum* shortly thereafter.

These species grow in a wide number of habitats, from ridges in mountain forests to coastal swamps, lowland forest and even coral cays. They are large hardwoods, attaining 30 m in height and 0.8 m in diameter. It presents shiny and leathery leaves.

The tree bark is grey or white and separates in large thin strips. The wood is light in weight, the heartwood pink-red, or almost brown, while the sapwood varies from species to species, often from yellow, brown (often with pink tints) to orange. The lightweight hardwood of these species is used in boatmaking for masts and spars, as well as in luxury furniture and flooring.

There is a low prevalence of Calanolide A in *Calophyllum lanigerum* var *austrororiaceum* and only 0.05% can be extracted from the twigs and leaves. This plus the rarity of the tree make Bintangor all the more significant to human well-being. As such, a pharmaceutical company have developed and patented a process for the total synthesis of the Calanolide compound so that it can be used to treat patients with HIV.

A related species, *Calophyllum teysmannii* var. *inophylloide*, produces a compound called *Costatolide* that also exhibits activity against HIV. Now known as Calanolide B, the compound is present in the latex, so the tree needs not be felled in order to collect the compound.

### References:

[agroforestry.net \(http://www.agroforestry.net/tti/Calophyllum-kamani.pdf\)](http://www.agroforestry.net/tti/Calophyllum-kamani.pdf)

[mongabay.com \(http://rainforests.mongabay.com/10anti\\_HIV.htm\)](http://rainforests.mongabay.com/10anti_HIV.htm)



## Cone Snails (Genus *Conus*)

Highly prized by seashell connoisseurs, cone snails are marine gastropod mollusks that live in the shallow waters of tropical oceans.

A cone snail has a cone-shaped shell, a fleshy foot, a head and tentacles. More than half of the world's cone snail species can be found in Southeast Asia. In the Philippines, there are eight endemic cone snail species.

Cone snails are extremely valuable as sources for new medicines and in biomedical research.

Cone snails use venom to paralyze their prey, including fish, marine worms and other snails. The venom does this by blocking certain channels in the body, which are related to how brains perceive pain.

Scientists have been able to separate toxins from the venom, sequence and purify the peptides, and modify the toxins to work only on certain channels related to pain. Drugs are being developed from this venom that can block specific pain that is otherwise untreatable or poorly managed. Each type of venom contains roughly 100 to 200 different agents. With over 700 species of cone snails, conus venom is a real gold mine of over 100,000 neuroactive molecules.

In the 1970s, Prof. Lourdes J. Cruz, of the Marine Science Institute of the University of the Philippines, was one of the first to research the toxins of these marine snails. For her discovery of marine snail toxins that can serve as powerful tools to study

brain function, Prof. Cruz was one of the five exceptional women scientists around the world who received the 2010 L'ORÉAL-UNESCO Award in the Life Sciences.

Drugs developed from cone snails include Prialt, a more powerful alternative to morphine but without the side effects, which is used for the treatment of severe pain, particularly in patients with cancer or certain types of neuropathies. Another toxin, conantokin, is being studied for its potential as an anticonvulsive for treating epilepsy.

Another cone snail drug is ziconotide, developed by Filipino Prof. Baldomero Olivera of the University of Utah. It is 1,000 times more potent than morphine but is not addictive. It is aimed at people suffering from severe, chronic pain and is a synthetic version of the venom used by *Conus magus*, the Magician's Cone Snail.

### References:

DaigPinoy (<http://daigdigpinoy.com/index.php/Filipino-Achievers/Lourdes-J.-Cruz-an-exceptional-Filipina-Scientist.html>)

Environment News Service (<http://www.ens-newswire.com/ens/jun2005/2005-06-13-02.html>)

guardian.co.uk (<http://www.guardian.co.uk/science/2008/apr/27/genetics>)

The Cone Snail (<http://www.theconesnail.com/explore-cone-snails/medicinal-uses>)



## Lagundi (*Vitex negundo*)

*Lagundi* is a shrub that grows in the Philippines and is traditionally used to treat cough.

The plant can grow up to five meters tall and can be described as a cross between a shrub and a tree with a single woody stem or trunk. Among the plant's distinctive features are the pointed leaves with five leaflets set like a hand.

*Lagundi* has been clinically tested to be effective in the treatment of colds, flu, bronchial asthma, chronic bronchitis and pharyngitis. Studies have shown that it can prevent the body's production of leukotrienes, which are released during an asthma attack.

*Lagundi* contains Chrysopenol D, a substance with anti-histamine and muscle relaxant properties. Research also shows that lagundi contains properties that make it an expectorant and it has been reported to function as a tonic as well.

Most of the parts of the lagundi plant have medicinal value. A decoction (boiling in water) of the roots and leaves of lagundi are applied to wounds, and used as aromatic baths for skin diseases, such as dyspepsia, boils and leprosy. Boiled seeds are eaten in order to prevent the spreading of toxins and venom from bites of poisonous animals. Juice extracted from the flowers of lagundi plant is taken in as an aid for disorders like fever, diarrhea, liver disorders and cholera. Today, *lagundi* is available in capsule form and syrup for cough.

### References:

Philippine Herbal Medicine (<http://www.philippineherbalmedicine.org/lagundi.htm>)

Medical Health Guide (<http://www.medicalhealthguide.com/articles/lagundi.htm>)

PROSEA Herbal Techno-Catalog ([http://www.pcarrd.dost.gov.ph/prosea/proseaherbal/lagundi\\_doc.htm](http://www.pcarrd.dost.gov.ph/prosea/proseaherbal/lagundi_doc.htm))



## Sea Squirt (*Diazona angulata*)

*Diazona angulata* is a sea squirt that is a few inches wide and looks like a translucent doughnut. It lives in colonies anchored to rocks.

The species was discovered off the coast of central Philippines in 1990 as scientists were looking for species that might lead to useful drugs. In 1991, from a few specimens, scientists from the William Fenical Chemistry Lab at the Scripps Institution of Oceanography extracted a tiny amount of a toxin, Diazonamide A, which the animal probably uses to repel predators. This natural defense mechanism has now been utilized to treat cancer in humans.

Preliminary bioactivity screens showed that the new compound killed lab-cultured colon cancer cells. More detailed biomedical evaluation was hindered by a lack of source material and failed efforts to locate and collect more of the rare species from which the compound was isolated.

The structural complexity of the molecule made laboratory synthesis difficult, but funding from organizations like the American Cancer Society and the efforts of more than a dozen organic chemistry labs ultimately led to the development of a synthetic compound.

Diazonamides now forms a new class of anticancer agents, which are potent inhibitors of cancer-cell growth. Apparently, the toxin blocks uninhibited reproduction of human cancer cells while leaving healthy cells unaffected. In mice, it has shown none of the side effects of other cancer drugs that make cancer chemotherapy so difficult.

### References:

marinebiotech.org (<http://marinebiotech.org/diazonamidea.html>)

Marine Biotechnology: Bioactive Natural Products and their Applications. Trivesh S. Mayekar, Amod A. Salgaonkar, J.M.Koli, PravinPatil, AjitChaudhari, AnupMurkar\*, SameerSalvi\*, DevendraSurve\*, RakeshJadhav\*, Tousifkazi\*. Central Institute of Fisheries Education, Mumbai.College of Fisheries, Ratnagiri.

ScienceDaily.com (<http://www.sciencedaily.com/releases/2007/02/070206095628.htm>)

Southwestern Medical Center (<http://www.utsouthwestern.edu/utsw/cda/dept37389/files/341797.html>)