

Not just an academic exercise

Building a new conservation generation in Cambodia

By Jenny Daltry and Emily Woodfield



In 2009 eight students graduated with a Masters of Science degree in Phnom Penh. This might not sound remarkable, but they were the first graduates from the first higher degree course of its kind in Cambodia. This marks an important turning point in the capacity of Cambodian people to take good care of their extraordinarily rich natural heritage.

Many countries complain of a lack of skilled and experienced people to manage their environment, but perhaps nowhere is this problem more acute – and excusable – than Cambodia. Even though the Pol Pot regime was led by educated men, they regarded intellectuals as a threat to their utopian vision of Cambodia as an agrarian, communist state. Scientists, doctors, lawyers, teachers, professors and college graduates were killed or forced to work in labour camps. People were executed for being literate or even wearing spectacles. 80% of educators

died or left the country during the 1970s, and more than half of the written materials were destroyed.

Cambodia's education system has been slow to recover from this devastating blow, and most citizens today are sorely undereducated, with illiteracy levels close to 90% in many villages. In the national environmental agencies fewer than 4% of staff hold degrees. An FFI survey in 2005 found only one-sixth of government staff were able to understand a simple line graph, and barely half could explain what 'sustainable' means.

This has important repercussions. Cambodia still has many of the best remaining forests, wetlands and wildlife populations in Indo-China, but desperately needs skilled human resources to protect them from

escalating, unsustainable pressures. For example, environment impact assessments are mandatory by law for all developments, but too few people are able to carry them out properly. Consequently, many new mines, dams and other major constructions are being authorised without recognising what harm they could cause to the environment or to communities living nearby.

For some government officers, FFI has successfully provided 'on the job' training over several years by involving them in all aspects of a conservation project. Sam Han, a Wildlife Protection Officer in the Forestry Administration, for example, has worked alongside FFI staff since 2001 to become a renowned expert on the ecology and conservation of Asian elephants and Siamese crocodiles. In 2009 Han was recognised

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as a 'Conservation Hero' by the Disney Worldwide Conservation Fund for his skills and dedication to conservation.

Neang Thy, an officer from the Ministry of Environment, has also gained important new skills and experience from his FFI mentors since 2004, and become a leading authority on herpetology and non-timber forest products. His book 'A Field Guide to the Amphibians of Cambodia' was the first such guide in Cambodia, and raised the number of amphibian species known in this country from nine to more than 60.

But while 'on the job' training has worked well for these individuals, this approach could not overcome the skills shortage on a large scale. We realised we would have to go back to college, to give young professionals a stronger education that would equip them to handle multiple challenges.

FFI and the Royal University of Phnom Penh founded the University Capacity Building Project in 2005 with the ambitious aim of building a new generation of conservation professionals. Drawing on the support of university lecturers from around the world, Cambodia's first Master of Science course was launched in 2006. The new Biodiversity Conservation curriculum covers a wide range of applied subjects and is part time, enabling government and NGO staff to study without giving up their essential day jobs. Over 120 students have enrolled on the course to date, and the first group graduated in 2009.

Surprisingly, one of our biggest challenges was teaching students to think and reason for themselves. They astounded our lecturers with their ability to recite long texts after a single hearing, but often struggled to draw conclusions or reject unsupported statements. Those who can overcome this hurdle have proved to have brilliant minds with a real hunger to learn and improve.

One of the first students to enrol, Chey Koulang, said:

"The programme is very important for improving our knowledge of biodiversity... as well as getting a good job in conservation. The students who complete the course are able to conduct their own research, analyse data, and write reports to a high standard."

The FFI course has set high standards, and expects students to study hard to pass their exams. Student Lim Kannitha found this course to be *"more demanding and strict compared to other programmes at the university"*, but she understands this is necessary because *"in the future we will be included in the decision-making process for policies to conserve our resources"*.

For Sister Luise Ahrens, an administrator at the Royal University of Phnom Penh, the programme stands out due to the dedication of its students: *"They really have to want this because it's not easy. They see themselves as doing something good for the future of their country."* Happily, all of the students have swiftly found excellent jobs or been promoted, some of them to technical posts that previously only foreign consultants could fill.

The university project, together with other FFI initiatives in Cambodia, has also been addressing another vital need: reliable information. Cambodia's biodiversity is poorly known, but our staff and students are working hard to find out what is there, and how best to manage it. Studies carried out by the

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J. Dator/FFI

M.Sc. candidates to date have been remarkably diverse, encompassing the illegal bear trade, urban bats and the ecological impact of hydropower development.

Kannitha relishes original research: *"I would really like to be a scientist. If we don't have local researchers, it will be difficult to do good conservation work. This is the first time we had to do research on our own. It's a challenge, but we enjoy it."*

While studying for his M.Sc. thesis Phan Channa discovered a passion for gibbons and is now striving to protect their habitat. Channa has formed a strong relationship with several villages in northern Cambodia and encourages them to preserve the forests:

"I tell them: 'This forest is yours. If it is cut, you will lose the forest. You will lose the wildlife for the next generation. You will not be able to collect food anymore.' I think they listen to me. This is our environmental capital. We need to use it wisely."

Channa is now hoping to embark on a Ph.D. on the endangered yellow-cheeked crested gibbon.

For scientists interested in smaller animals and plants, our team took the unusual step of building the country's first national zoological museum and herbarium. Previously, scientific specimens from Cambodia were sent to collections in the West, where few Cambodians could afford to study and learn from them. The new reference collection, conveniently housed at the Royal University of Phnom Penh, is freely and actively used by all scholars interested in their country's biodiversity.

Until recently it was also difficult for budding conservation biologists like Kannitha and Channa to disseminate their findings. International journals rarely have the time to mentor



▲ *Four new frog species discovered by FFI in Cambodia.*

▼ *FFI trains rangers to manage ever-changing challenges.*

Cambodian authors, few of whom could afford journal subscription fees anyway. In 2008, therefore, FFI launched the country's first scientific journal, the *Cambodian Journal of Natural History*. Novice authors can now benefit from the journal's voluntary network of expert advisers from Harvard, Cambridge and other universities across the world.

Turning paper parks into protected areas

More than one quarter of Cambodia's landscape has been protected by law. Unfortunately, many of the parks are little more than lines on a map, with few, if any, trained staff to manage them.

This was the case with Phnom Samkos Wildlife Sanctuary, established in 1993 but still devoid of staff when FFI first explored it in 2000. Covering over 3,300 square kilometres, this beautiful park is the jewel in the Cardamom Mountains crown. More species have been recorded here than in any other protected area in Cambodia, including more than 50 globally threatened species, such as tigers, Malayan sun bears and green peafowl. FFI's biologists have also made many new discoveries here, including the curious green-blooded Samkos tree frog.

FFI has trained and equipped over 150 park rangers to manage protected areas in the Cardamom Mountains. FFI's Tim Wood currently provides ongoing mentoring and guidance to 42 rangers and community wardens to handle the ever-changing challenges of managing the rugged and densely forested Phnom Samkos Wildlife Sanctuary.



J.Daltry/FFI



R.Palmy/FFI



J.Daltry/FFI

“Without FFI, there would have been a free-for-all. Criminals would be destroying the forests and poaching wildlife unfettered”.

The training programme covers such subjects as map reading and GPS use, environmental law, crime scene investigations, and the correct rules of engagement.

Most of the park rangers were conscripted as child soldiers by the Khmer Rouge, and feel perfectly at home in this vast jungle. Tim is proud of their courage and willingness to ‘go the extra mile’ to do a difficult and sometimes dangerous job. “They have learned to show leadership and professionalism, and have become respected members of their community.” Local villagers often come to the rangers for help when outsiders try to steal land or cut the forests they depend on for their daily needs.

Safeguarding areas like Phnom Samkos has also required extensive policy and legal support from FFI staff in Cambodia. This includes advising on new national legislation and

▲ *Top left: the beautiful Phnom Samkos Wildlife Sanctuary.*

▲ *Top right: introducing poor farmers to rice intensification methods has reduced pressure on the forest.*

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environmental impact assessments for proposed developments. In 2005 FFI worked with local people to produce a park management and zoning plan for Phnom Samkos, which not only reinforced the area’s future protection, but also set the standard for other protected areas in Cambodia.

Grass roots activities

In all parts of Cambodia where FFI works, local villagers are being actively encouraged to participate in and benefit from environmental conservation. After all, an estimated 8.5 million Cambodians depend on wild fish and forest resources for their daily consumption, and even more turn to natural resources during times of hardship. For them, preserving forests and wetlands is not a luxury, but a way of life.

Since 2004 FFI has helped more than 40 villages in the Cardamom Mountains to regain tenure of farmland and create community

forests, or ‘community protected areas’, covering over 100,000 hectares. Every community forest has an elected management committee and wardens drawn from the local villages. Besides construction materials, medicine and foods for home use, the villagers can harvest renewable resources for sale, such as the high-value cardamom spice.

Because the villagers feel a strong sense of ownership of their forests, they have become active in protecting them. In Veal Veng District, for example, trained volunteers from Chamka Chrey Tpong village patrol their 45-hectare forest every week, and have successfully prevented illegal logging since 2006. In Dei Krahom village, another volunteer patrol group is working to prevent the cutting of endangered *Azelia xylocarpa* trees. The fact that the number of illegal logging trucks entering the district has more than halved since 2004 is a clear sign of the people’s will and capacity to tackle deforestation.

A common driver of forest crime in Cambodia is hunger, as poor people may resort to poaching or logging to buy food, or inexperienced farmers can become trapped in destructive cycles of slash-and-burn. With the aid of agricultural experts from the Cambodian Centre for the Study and Development of Agriculture, FFI has been training 20 villages in the Cardamom Mountains to solve their food needs without destroying their environment. A 2009 graduate from the FFI university programme, Oum Sony, now heads the sustainable livelihoods project that benefits over 8,000 people in the Cardamom Mountains.

Among our greatest breakthroughs has been introducing poor farmers in the Cardamom Mountains to the System of Rice Intensification (SRI). This organic method boosts the health and yield of individual rice plants, enabling hungry families to produce all the rice they need without changing their local rice variety, using pesticides, acquiring more land or incurring other costs.

74-year-old Mr Cheam Lour, for example, has a one-hectare field in O'Som village. He used to scatter 180kg of seed and harvest less than one tonne of rice, which fed his family for only seven months a year. He has been delighted with the results of his training: *"I now use only 30kg of seed, put in less work, and can harvest 2.5 tonnes of rice every year! I recommend all the other farmers in my village to use SRI"*. A 250% increase, achieved simply by providing the right know-how, can make the critical difference between a family being well fed or driven to crime.

Threats to Cambodia's precious wildlife do not just come from loss of habitat or poaching. Poor villagers like Mr Lour cannot afford to have their food or equipment damaged by wild animals. Two FFI projects are working to help people avoid losses due to wildlife, and hence reduce the risk of retaliatory attacks on endangered species.

In O'Som, for example, villagers were frustrated when Siamese crocodiles

tore their valuable fishing nets. The Cambodian Crocodile Conservation Programme solved this problem simply by eliciting a common agreement to use only traditional cast nets and fish traps in the affected areas, which crocodiles do not touch. As part of the agreement, the community also created fish sanctuaries to preserve breeding sites and thus boost their overall catch.

Elsewhere in Cambodia, angry villagers used to throw acid at Asian elephants and created lethal traps in retaliation against the destruction of their crops and houses. Tuy Sereivathana heads the Cambodian Elephant Conservation Group, formed by FFI and the Cambodian government eight years ago. His Human-Elephant Conflict team teaches and equips local farmers to repel elephants safely using loud noises, solar-powered electrical fences, and other affordable tools.

"People used to be angry at the elephants and demanded compensation, which the Cambodian government could not afford and would be unsustainable. But thanks to our programme, they can now take care of themselves, and have a greater tolerance and understanding of the elephants. How do we know this works? There have been no elephant deaths in Cambodia since 2005."

Sereivathana was himself a farmer before becoming a government officer and eventually being promoted to project manager.

"FFI really differs from other conservation organisations in how it is so friendly and open with national staff to build their skills and confidence. I was terribly shy at first, but the FFI elephant experts took me to important conferences and, step-by-step, gave me more responsibilities. I have learned a lot about conservation and project management. Recently, I amazed myself by giving a big presentation in the USA about elephant conservation, which held the audience enthralled!"

The legacy of Cambodia's traumatic recent history will not fully disappear in our lifetime, but with generous support from, among others, US Fish and Wildlife Service, MacArthur Foundation and Defra's Darwin Initiative, FFI's team in Cambodia is making measurable progress at every level. From illiterate villagers to the rising stars of the government agencies, more Cambodians are learning to make better-informed choices about how to manage their environment. What they do with the skills and knowledge is now in their hands. ■



J. Holderv/FFI



J. Holderv/FFI

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