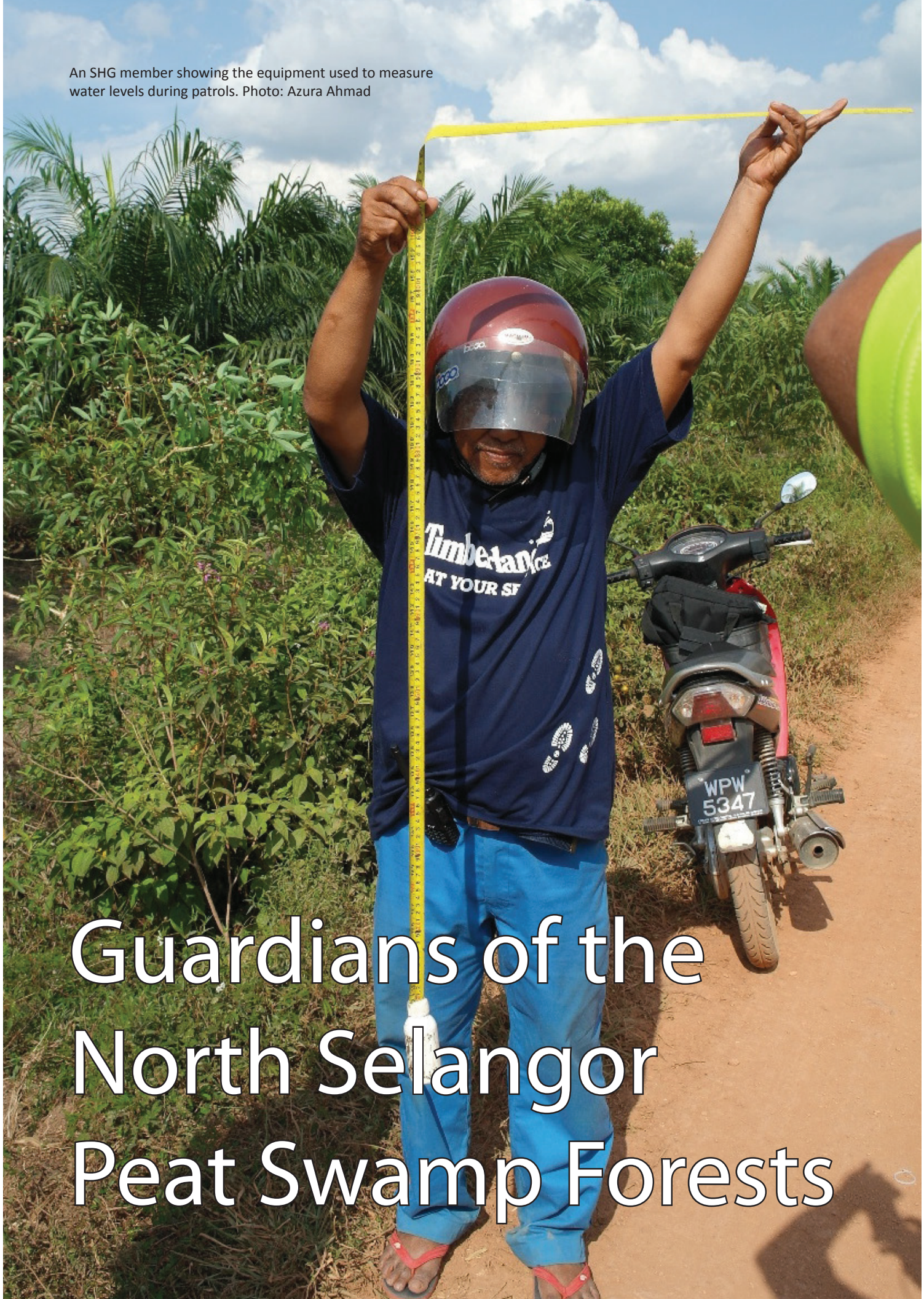


An SHG member showing the equipment used to measure water levels during patrols. Photo: Azura Ahmad

Guardians of the North Selangor Peat Swamp Forests



North Selangor Peat Swamp Forest

The North Selangor Peat Swamp Forest (NSPSF) encompasses 73,592 hectares on the northwest sector of the state of Selangor in Peninsular Malaysia, comprising Sungai Karang Forest Reserve (50,106 hectares) to the north and Raja Musa Forest Reserve (23,486 hectares) to the south.

This is the largest remaining peat swamp forest on the west coast of peninsular Malaysia and is critical for biodiversity conservation, water resource management and carbon storage. The forest is home to large mammals such as leopard, tapir, and Malayan sun bear as well as more than 100 species of fish including six recently described species unique to this site.

Both Raja Musa and Sungai Karang forest reserves are managed by the Selangor State Forestry Department. With a moratorium on logging in place, one of their tasks is to ensure there is no illegal logging or encroachment in the area that surpasses Singapore in size. Periodical aerial surveys are conducted to detect signs of illegal activities as well as to assess the health of the forest.

While the vegetation is classified as logged over forest, the area outside its boundaries is populated with villages and small towns, paddy fields, oil palm estates and smallholdings. Some of the larger agricultural players in the area are Sime Darby Plantations, Kumpulan Darul Ehsan Berhad and the Selangor Agriculture Development Corporation. Neatly separating the two forest reserves is Sungai Tinggi, with Sungai Karang to its north and Raja Musa to the south. Together with Sg Bernam, it feeds a canal that irrigates the paddy fields nearby.

The water is supplemented by peat water from surrounding peat swamp forests; illustrating the



Canal blocking by volunteers. Photo: Nurhayati Hassan

importance of the peat swamp forest to rice production. This area near the coast, from Sabak Bernam to Tanjung Karang is the rice bowl of Selangor and one of the most productive rice growing area in the country, producing up to 10 tonnes per hectare. Sungai Tinggi is also the main source for a water treatment plant which processes and supplies potable water to users in this area.

In the southeast corner of the Raja Musa Forest Reserve is an area which had been cleared for agriculture in the late 1990s by illegal settlers. While the encroachers have been evicted in 2008 and the crops destroyed, the forest has been slow to regenerate.

Conservation

Raja Musa Forest Reserve has been designated as a pilot site for the ASEAN Peatland Forests Project (APFP), funded through the Global Environment Facility (GEF) and the International Fund for Agricultural Development (IFAD), with the Forestry Department of Peninsula Malaysia as the country executing agency. Various activities have been planned to rehabilitate damaged areas, secure the forest boundaries and protect the area from further damage.

Aerial view. Photo: Nagarajan Rengasamy



Photographer: Nagarajan

A related conservation project for the forest reserve, SEApeat Project is funded by the European Union and implemented by the Global Environment Centre (GEC). The activities support the protection of the forest reserve through multi-stakeholder engagement especially through the establishment and development of a community group known as the Sahabat Hutan Gambut Selangor Utara (SHGSU).

GEC and the Selangor State Forestry Department are working on the rehabilitation of 1,000 hectares of degraded forest in Raja Musa. The key activity is monthly tree-planting and canal blocking activities by volunteer groups comprising of school children, college students, corporate staff and local community funded by several corporate donors. The key species planted during these sessions are two known pioneer species, *Macaranga* and *Euodia*. These pioneer species grow well in exposed areas and in two to three years, could provide shade for the growth of successive species. The team is now starting to experiment with small numbers of 'kelat paya' (*Syzygium myrtifolium*) trees under the pioneer species. Tree planting helps restore the natural vegetation while canal blocking helps to raise water levels in the rehabilitation area. Water management has proven to be an essential tool to re-wetting the peatlands and keeping fires at bay.

The project has promoted the use, for fire prevention, of a Fire Danger Rating System (FDRS) which is a system that assesses the likelihood of fire based on information such as rainfall, temperature and wind speed. The fire danger rating, marked with red, yellow, green and blue on a map, is updated online daily by the Malaysian Meteorological Department (MMD). In the field, the rating is indicated using large billboards with the colours in a semicircle and a needle indicating the current danger rating (pic).

Sahabat Hutan Gambut Selangor Utara

Sahabat Hutan Gambut Selangor Utara (SHGSU) or in English, North Selangor Friends of the Peatland Forests, is an organisation registered with the Malaysian registrar of Societies. It was an initiative by members of communities living around the peat swamp forest area with support from GEC. GEC provided guidance and assistance in developing the organisation, creating awareness for fire prevention and organising ground patrols.

Currently, members come from 4 villages – Kg. Ampangan, Kg. Seri Tiram Jaya, Kg Raja Musa and Kg Bestari Jaya. Although the Society has been in



Ecotourism - villager teaching visitors to weave palm leaves into rice containers. Photo: GEC



Rehab site in 2008. Photo: GEC

10/12/2008



One of the nurseries supplying saplings for rehabilitation. Photo: GEC



FDRS Board. Photo: Azura Ahmad



Angler cleaning a tapih fish caught in the canal. Photo: Azura Ahmad



Site that burned in 2012, a year later. Photo: Azura Ahmad



Canal blocking by volunteers. Photo: Hyrul Izwan



A canal block for hydrological restoration. Photo: Nagarajan Rengasamy

existence for less than 2 years, they play a large role in protecting the North Selangor Peat Swamp Forest.

Other than lending a hand in fire-fighting operations, the SHGSU helps to prevent fire by patrolling fire prone areas. During their rounds, which are almost daily in the dry season, they advise people who may be clearing land to make sure they don't use fire. At selected locations, they measure the water table and ground conditions. They adjust the FDRS board indicator to show the day's fire danger rating according to the MMD website. They also climb a water tower and use binoculars to scan the surrounding land for signs of fire.

As an economic incentive, some of the villagers have been assisted to establish nurseries and raise tree seedlings which are bought by GEC and the Forestry Department for the forest rehabilitation activities. For others, like the community in Kg Ampangan which is already running a homestay business, they see an opportunity to expand their services. Working with the Forestry Department, they hope to include ecotourism at a nearby portion of the peat swamp forest which has been identified near their village.

As the blackwater canals around the reserves are home to several game fish such as ikan tapah (*Wallago sp.*), they are popular destinations among anglers. There has been some discussion between the SFD, GEC and the community to monitor visitors in order to keep land encroachment and fires at bay. A partnership would assist the enforcers and allow the community to earn some income from protecting the peat swamp forests.

Overcoming Challenges

Prior to the start of the programme efforts to prevent fire and to rehabilitate the forest were not successful. In the early days, many of the native peatland species planted in the rehabilitation effort did not survive due to low water levels, rapid growth or weeds and frequent fires. Since the programme has started, community engagement and good water management has created better conditions for forest recovery and fires are less frequent. Fires are normally deliberately lit for land clearing on the borders of the forest reserve

and once they spread inside they are hard to control. In 2009/10 fires burnt 2,000 ha inside the forest reserve. After the project started fires have been reduced by enhanced monitoring and enforcement as well as collaborative fire fighting to 500ha in 2012 and 600 in 2013.

The Future

We are hopeful that rehabilitation work will continue in the Raja Musa Forest Reserve, and that the synergistic cooperation between communities, government departments, NGOs and the private sector can continue well into the future, for the sake of the peat swamps of North Selangor and the communities that depend on it.

About the Author

Global Environment Centre is a Malaysian non-profit organisation established in 1998 to work on environmental issues of global importance. GEC works regionally and internationally both directly and through many partners. It supports information exchange and capacity building as well as undertakes strategic projects, particularly in developing countries. It works in partnership with other like-minded agencies worldwide. GEC's mission is to support the protection of the environment and sustainable use of the natural resources to meet local, regional and global needs, through strategic partnerships with communities and like-minded organisations.

The ASEAN Peatland Forests Project (APFP), funded by GEF/IFAD, and led by the ASEAN Secretariat, aims to demonstrate, implement and scale up the sustainable management and rehabilitation of peatland forests while the SEApeat project, funded by the European Union, seeks to reduce deforestation and GHG emissions via degradation of peatland forests in Southeast Asia.

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