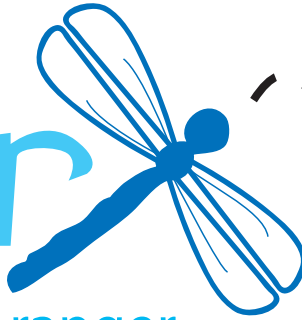


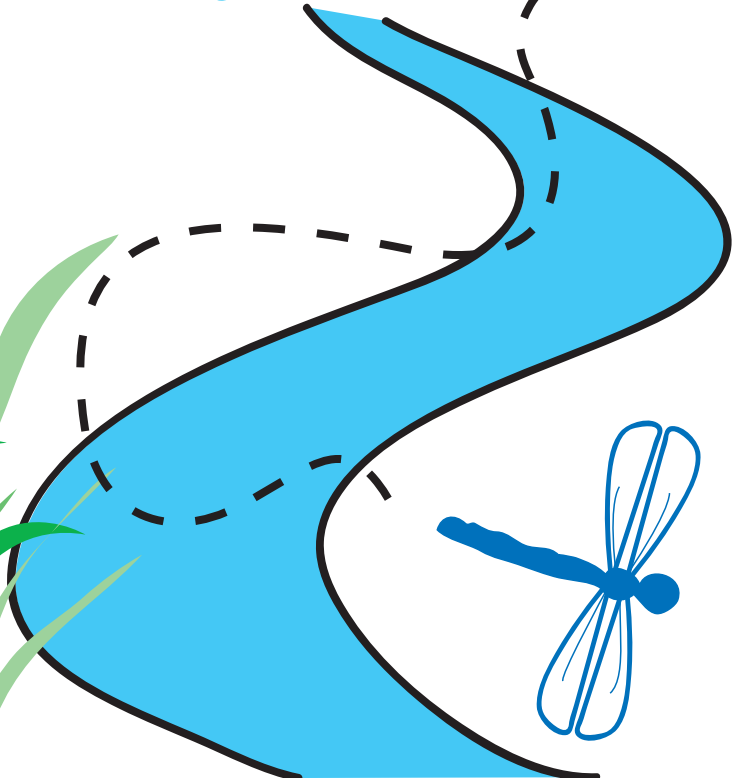
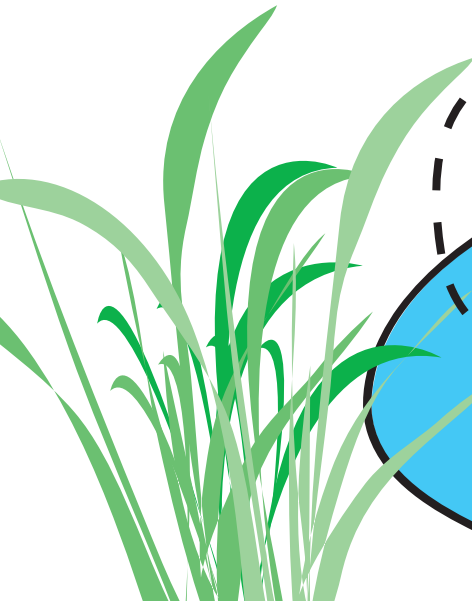


Global Environment
Centre

RIVER



ranger



What is the RIVER Ranger Programme?

RIVER Ranger is a comprehensive program for schools on the environment, water resources and rivers, which emphasizes not only about water pollution but every aspect of freshwater ecosystems including its biodiversity, functions, values, and benefits to mankind.

Where it all began

The RIVER Ranger Programme developed through the SMART (Start Managing All Resources Today) Ranger Programme, a sustainable resource management programme. The programme began with a focus on Solid Waste Management and teaching students the importance of resource management and recycling. As it progressed, the training modules began to develop another angle - one that linked improper solid waste management to the state of our rivers.

Soon it was clear to see that this could be developed into another education programme by itself as it involved many more issues, and needed a focus of its own. After the success of the SMART Ranger Programme, the RIVER Ranger programme was created within the "Community Participation in River Management" project funded by DANIDA in 2005, with an aim to teach students about our water resources, and rivers and their ecosystems.

Why?

Malaysia is located in the tropical region, where there is abundant rainfall - we receive about 2500 - 5000mm of rainfall annually. We have 189 river systems, consisting of 1800 rivers nationwide, which provide us 97% of our drinking water. Yet, we find ourselves facing water shortages, water supply disruptions and even water rationing during times of 'drought'. We actually receive more water in rainfall than is needed for our consumption purposes (as recommended by WHO), and the only reason why we face water shortages is the poor management of our precious water resources. Eleven percent of our river basins are severely polluted, and 39% are polluted, leaving only 50% of all rivers classified as 'clean'. The lack of education and awareness of the general public about our water resources, how they are being managed, and how they should be managed is a key factor that has led to the state of Malaysia's overall water quality. Another important factor is the lack of skill for genuinely interested people to take action in river management.

Therefore, it is hoped that the RIVER Ranger programme will give everyone a better understanding about the importance of our rivers and appreciate the value of them. Only then will our rivers be taken care of, and our source of water be safeguarded for the future generations to come.



Objectives

1. To increase students' awareness and knowledge in managing resources
2. To provide living skills to students for use in local environmental management
3. To coach students on ways to evaluate and audit river basins
4. To develop a data base on local rivers by the schools
5. To motivate students to initiate water/river conservation projects in their school and community

Approach

Global Environment Centre prides itself in being the first to introduce the concept of 'Civic Science' as a way to approach community participation in river management. It means giving the people the awareness, knowledge and, most importantly, skill to take action on environmental matters.



The RIVER Ranger Programme

Establishing a RIVER Ranger Programme involves a 4-step process:

Step 1: Selection Process

Each school will select 2-4 teachers and 20 students to participate in the programme. In a community or organisation this can involve parents/leaders and children.

Step 2: Support Group

Once the core members have been decided, they must set up the RIVER Ranger club under their school Nature or Science Club. This group will then have to set up a small working committee. Support from the school management and PIBG is important to ensure that the programme gets full cooperation from everyone.

Step 3: Training

The selected students and teachers will be trained by GEC or RIVER Ranger Teachers based on training modules prepared by GEC.

Upon completing the modules, they will be given a certificate of recognition and they will be fully certified RIVER Rangers. As RIVER Rangers, they are responsible for educating fellow students in their respective schools on water resource management, water conservation, sustainable water usage and wastewater management. At the same time, students will be able to monitor and help conserve their local rivers and its basin. They should also prepare a Local Action Plan for their next course of action.

Step 4: Action

Their duties are to carry out river monitoring in their area and to undertake the following activities:

- Conduct river mapping activities to identify issues and problems in the local river basin.
 - Develop a schedule for river observation and pollution and water quality monitoring.
 - *The compiled data will be exhibited on their individual blogs and will be shared by all parties involved in observation activities (i.e. local and school communities)*
 - *They have to produce a summary report based on their observations and submit regular reports to their local politicians or relevant government agencies to initiate action against polluters*
 - Start water management projects/initiatives in school
 - *Water conservation, rainwater harvesting, water recycling*
- GEC also encourages RIVER Rangers to be part of something BIG
- - *World Rivers Day and World Water Monitoring Day*

Brief outline of Module contents

The RIVER Ranger Programme covers 5 training modules, including a half-day hands-on practical field training at the nearest river.

Module 1: River & River Basin - Water, Man & River

This module gives an introduction to what is a river and a river basin, and to rekindle the relationship between humans and rivers, which is water.

Module 2: The Malaysian Scenario

This module gives an overview on the current status of rivers in Malaysia and Malaysia's water quality ranking at a global level. It also highlights the main sources of pollution here in Malaysia - industrial, agricultural and residential, and the effect and impact on humans especially on our drinking water and health. Finally, the pollution phenomenon: algae blooms and alien fish domination

Module 3: Integrated River Basin Management

Teaches students about the Integrated River Basin Management Concept, which is how to look after rivers by considering the whole river basin rather than just the river. What is the proper way and integrated approach to managing our rivers? It needs the involvement of all parties: the government, private sector and public. How we can make a difference? The way forward is civic science - awareness, knowledge and skill for the general public, which will lead to action.

Module 4: Field Training Information

This module gives important information on how to actually audit and monitor rivers in the field, and what equipment and safety procedures are needed. It also briefs students on the different parameters that need to be measured and what they represent in terms of water quality.

Module 5: On-site Practical Field Training

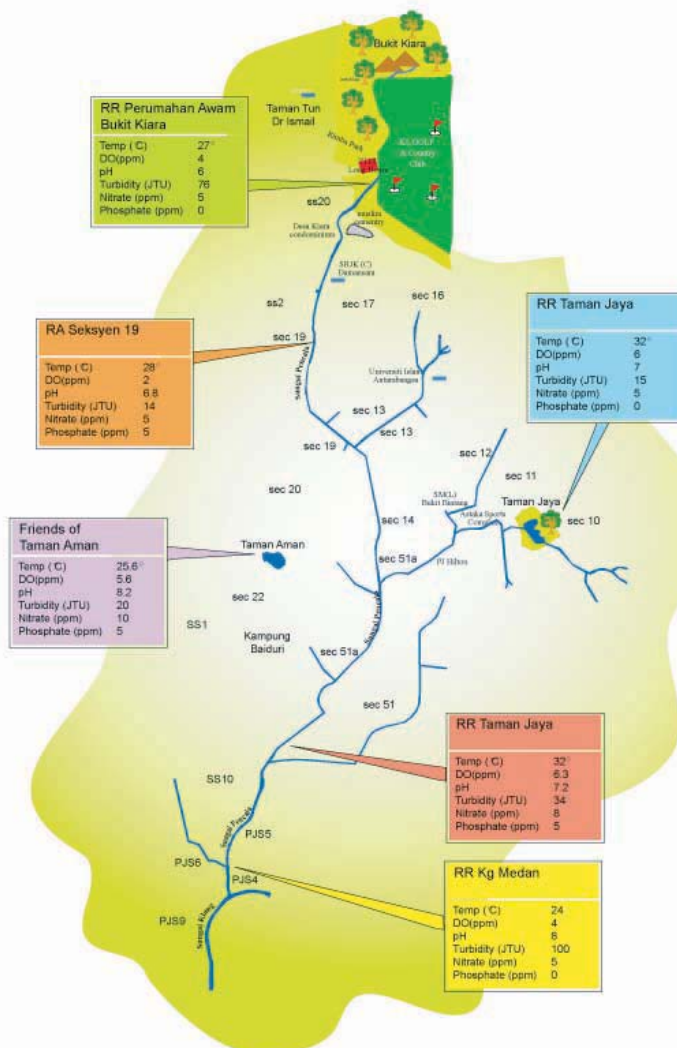
Students will be taken to the river and carry out river mapping and river health check activities to assess the health of the river. This involves mapping out the area of the river basin and noting down all the different land uses and activities going on in the river basin. This will help to identify any sources of pollution. They are also asked to do a physical observation assessment of the river's environment. Following this, they are taught how to do chemical and biological monitoring to assess the quality of the water in the river by using simple tools and the animals actually living in the river. Biological monitoring is an important part of the assessment, as it shows people that there are actually living organisms inside the river that depend on the river for its survival - that the river is a living entity, and not merely a path for water to flow.



The Sungai Pencala River Basin RIVER Rangers

Global Environment Centre managed to train various schools and communities in the Sungai Pencala River Basin area, and have created a network of RIVER Rangers in the basin. The outcome of this is a network of concerned people for the health of Sungai Pencala as well as a system for regular updates on its water quality. The river basin has 12 schools and communities along the 12km stretch of Sungai Pencala serving as RIVER Rangers, who are in charge of doing regular water quality checks of the river at different sites as well as reporting any illegal activities that they may see occurring. All RIVER Ranger groups send in water quality data to GEC regularly, which is updated by GEC for reference and used to monitor the state of Sungai Pencala.

Water Quality for Sungai Pencala by RIVER Ranger/Resident Association/Friends



A map of Sungai Pencala showing the water quality data collected by RIVER Ranger groups along different sections of the river.

Protectors of our rivers

Schools

Kedah: SMK Teloi Kanan, SMK Kuala Kertih, SMK Baling, SMK Parit Panjang, Smk Jerai, SMK Jeneri, SMK Agama Sik, SMK Chepir, SMK Khir Johari, SMK Merbok, Sekolah Model Khas Baling, SM Tanjung Puteri, SM Siong, SM Syed Abu Bakar, SM Sik, SM Gulau, SM Agama Baling, SM Kuala Ketil, SK Teloi Kanan, SK Teloi Timur, SK Tawar, SK Paya Besar, SK Teluk Teduri, SK Kuala Merah, SK Kuala Pegang, SK Baling, SK Khir Johari, SK Syed Jan Al Jefri, SK Paya Terendam, SK Kampong Dusun, SK Seri Ampang Muda, SJK (T) Ldg Sungai Puntar, SJK (T) Ldg Lubuk Segintah

Selangor: SMK (P) Sri Aman, SK Taman Sea, SK Sg. Way, SMK La Selle, SMK Sri Utama, SK Assunta, SMK Bukit Bintang, SMK Taman Medan, Alice Smith School, SJK (T) Vivakanandha

Cameron Highlands: SMK Sultan Ahmad Shah

Gua Musang: SMK Tengku IndraPutra 1 & 2, SMK Bandar Chiku, SMK Chiku 2, SMK Paloh, SMK Sg Asap, SMK Tengku Bendahara

Communities

RA Seksyen 19, RR Kampung Medan, RR Taman Jaya, RR Perumahan Awam Bukit Kiara, Friends of Kelana Jaya Park, Friends of Taman Aman

Eager groups

GEC is always more than happy to train anyone who would like to save our rivers! In 2005, some of our National Service Trainees got the chance to be trained as RIVER Rangers. We have also trained 2 batches of staff from Fuji Electric in Kulim, Kedah, where they are interested in monitoring the quality of the river behind their factory, which is receiving their waste water from their water treatment ponds.

We have also modified the curriculum to suit half-day river adventures where children can learn about the living things in our rivers and have a go at trying to catch some fishes and insects. This has been popular with some corporate companies and their CSR programmes, such as ExxonMobil and CIMB Group, where GEC has organized half-day events to entertain and educate their staff and children from orphanages about the environment and rivers.

Website

RIVER Rangers have the opportunity to post their water quality data and other information about their river and river basin online on their own individual blogs made by GEC. This is an important tool to get people involved and is a way of providing the general public access to information about their own river, which is not easily found otherwise.

Schools get their own RIVER Ranger page which is linked to Global Environment Centre's RIVER Ranger website.



Making headlines

In its short time, the RIVER Ranger Programme has managed to grab the media's attention where they have covered numerous practical training sessions that were carried out with schools and communities. It highlights the fact that the programme is seen as an important education tool for people to learn about river conservation.

River conservation is a collective responsibility - Dr K. Kalithasan

WEDNESDAY 10 August 2005

News 3

Metro



The students conducting a river hydrology study at the camp recently.

Teen Rangers get their feet wet

By K.W. MAK

TWENTY-eight students from SMK Telok Kanan took part in a River Ranger programme organised by Petaling Jaya-based NGO Global Environment Centre (GEC) in Kuala Ketil, Kedah, recently.

Throughout the three-day programme, implemented as an environmental education camp, the students gained knowledge and learnt skills that helped to preserve and rehabilitate rivers.

The River Ranger module covers basic understanding of rivers and its connection to our lives, problems and

issues in river basins, integrated river basin management as well as hands-on management.

The Rangers-in-training also got their feet wet during the river mapping, river health assessments, river hydrology and bio-monitoring sessions.

A variety of activities were included in the highly interactive camp to make the learning experience enjoyable.

Among them were a cultural show with a river theme, a video show on rivers in Malaysia courtesy of TRER (an NGO based in Selangor), video clips from the Environment

Department, group presentations, and a quiz.

At the end of the camp, which was jointly organised with the Kedah Education Department and the Scouts Association of Malaysia, participants were awarded River Ranger certificates.

In his speech at the end of the programme, SMK Telok Kanan principal Ramli Ahmad said: "I would like to extend an invitation to other schools to utilise the facilities at our school to run river-based activities."

GEC programme officer Dr K. Kalithasan hoped that the students



A Ranger going through a sampling process for bio-monitoring.

would impart the knowledge they had acquired, to family and friends as well.

"River conservation is a collective responsibility and that is why we strongly emphasise the need for the River Rangers to share what they have learned with their fellow

schoolmates."

Schools that would like to participate in the River Ranger Programme can write to GEC at Global Environment Centre, 2nd Floor, Wisma Hing, 78 Jalan SS2/72, 47300 Petaling Jaya, Selangor, or call 03-7957 2007.

Children feel 'pulse' of river

by Eugene Chan
newsdesk@thesundaily.com

CHILDREN around the Kampung Medan area were given an important lesson on how to monitor the level of pollution in the Sungai Pencala under a river preservation programme organised by the Global Environmental Centre (GEC) and the Action To Mobilise All Humanity (Atmah) recently.

About 40 children aged seven to 15 years from around the area were given test kits to examine the water quality of the river.

They began at Kampung Medan where the river is badly polluted and moved upstream towards Bukit Kiara where the river water was cleaner.

"The public should play an active role to help preserve the river around them."

"By training the children that live around here, we hope they will know how they can take care of their river," said Suzana Mohkeri, a GEC staff.

Of the 40 children, 20 of them will be selected for training by GEC and MPPJ to become River Rangers to carry out river monitoring in the area where they live.

The project known as "Community Participation in River Management" began in December 2002 in a collaboration between GEC and Atmah.

GEC which promotes environmental preservation has three main programmes - river conservation, forest conservation and education programmes.

The programme is funded by the Danish International Development Programme (Danida).

Atmah is an organisation that helps the urban poor. Among its programmes are free tuition classes, human values appreciation programmes and environmental education with focus on the squatter settlements and low-income areas.

"The public should play an active role to help preserve rivers by training children to be river rangers."

MOHAMMAD AZHAR ALFIRI/THESUNDAILY



Dr Kalithasan of GEC explains a point to the children during the special outing on how to test the level of pollution in a river.



Dr Kalithasan giving some pointers to two participants during the water monitoring programme in Lembah Kiara Recreational Park.



Participants taking samples from a stream in the Lembah Kiara Recreational Park.

Young water monitoring pioneers go into action



The schoolchildren examining samples of macroinvertebrate life under a magnifying glass.

By CHOW HOW BAN
Photos by SAM THAM

PUPILS of SK Seri Kefana, SK TTDI and SK TTDI 2 became the first local participants of the World Water Monitoring Day programme held at Lembah Kiara Recreational Park in Taman Tun Dr Ismail, Kuala Lumpur recently.

Every year since 2002, thousands of people from countries like Australia, Belgium, Brazil, Bulgaria, Cameroon, Canada, Czech Republic, France and Spain have participated in various programmes organised by the World Water Monitoring Day body.

The first programme in Malaysia was organised by the Malaysian Water Association and facilitated by the Global Environmental Centre (GEC).

The participants, mainly members of the GEC's Smart Ranger programme, from the three schools had the opportunity to check on the water quality of Sungai Pencala that flows through the park and identify macroinvertebrate life in the stream.

Divided into five groups, the 52 children were taken to the lake and streams near the car park and water inlet area where they collected samples to ascertain the water clarity and quality.

GEC senior programme officer Dr K. Kalithasan said the World Water Monitoring Day body had determined five parameters based on temperature, pH level, turbidity, dissolved oxygen and biological life to rate the water quality.

"After each group finished its job, all of them gathered and presented their findings. The secretariat from the Malaysian Water Association will upload the findings on www.worldwatermonitoringday.org."

"These schoolchildren will be the first Malaysian participants to have their water monitoring activities published online," he said.

Association council member Chan Chiang Heng said last year the participating countries carried out such water monitoring programmes at 6,267 sites.

"We just want to get young people to participate in this activity. This is a soft launch of our programme in Malaysia and we will hold another more sophisticated programme within the next two months," he said.

He said the most important message was to educate the public about the importance of water bodies and rivers.

"I hope that by introducing schoolchildren to such programmes, it will help prompt them to appreciate our water basin and rivers and protect them," he said.



Volunteers briefing the young participants on the process of checking water quality.



Environment

9 "Malaysia Plan

1 April 2006 Saturday

SP23

STAR SPECIAL



School children are taught to protect the environment and rivers through the 'Love Our River Campaign'.

Love our rivers

PUPILS of Sekolah Menengah Kebangsaan Telok Kanan in Kuala Ketil, Kedah, are taught to love their rivers as an awareness programme created by their school to teach them to preserve the environment.

The school hopes through the programmes, the children, when they grew up, will be more committed in protecting their surroundings.

Teacher S Kalaimani, the school's coordinator of River Care Education Centre and advisor of 'Love Our River Campaign', said the programme was introduced to the pupils by chance.

"It started as a simple geography, science and moral lesson but somehow the focus got shifted to rivers."

"We saw their interest in the environmental issue and decided to introduce the programme instead."

He said they are now proud to pioneer the programme.

"We made it compulsory for the pupils and

teachers to be involved in the programme. Among the activities held regularly at the river near their school were river monitoring and watch."

Kalaimani said they conduct water samplings and carried out checks on micro-organisms found in the river to understand its eco-system.

"As a result of this, the school had adopted Sungai Nyirne as their part of the project."

He said they received funding from Global Environment Centre (GEC) and Scout Association of Malaysia for their activities.

He said their activities at the river had also created awareness among the residents and factories located there.

"The river is less pollution now compared with a year ago."

He said the success of the programme has also created an interest among pupils and teachers from other schools in the district.

"We are willing to share our knowledge to preserve the environment. We are also willing to help others to set up their own centre to carry out the activities."

12 January 2006 Thursday

News M3

METRO

A little bird raises hopes for dirty river

STARBITES

Rare find at Sg Penchala

What? Little Egrets

Where? Seen at Sg Penchala stretch near Section 19, Petaling Jaya

Why? Raises hopes that the river's condition has improved

By JAYAGANDI JAYARAJ
jaya@thestar.com.my
Photo courtesy of GEC

AFEW weeks ago, a little bird was found feeding at the Sg Penchala stretch in Medan 19/22 at Section 19, Petaling Jaya. There is nothing unusual about this, except that it is a Little Egret, a type of migratory bird from China.

Their numbers increased to 24 on Monday, and yesterday, a total of 30 birds were found feeding at the quiet stretch of the river.

The rare sighting is a positive sign - Sg Penchala's water quality may have improved.

"This is the first time Little Egrets have been spotted at the stretch and it is rare for the birds to feed at an urban river," said Global Environment Centre (GEC) senior programme officer Dr K. Kalithasan.



Some of the Little Egrets flying above the trees by the river.

"It is a sign that life has been restored in the once polluted Sg Penchala."

He said Sg Penchala was a 12km river with the bulk of it at pollution class between 4 and 5. (Water quality level is categorised into five

classes. Class One water is safe to drink without treatment while Five means water that cannot be used at all).

Sales course

UNIVERSITI Tunku Abdul Rahman (Utara) is organising a course "The Yin-Yang's Art of Selling: How to harness Soft and Hard Skills in Professional Selling" on Wednesday, from 8.45am to 5.15pm at its campus in Petaling Jaya. The course provides participants with the sales technique process to develop relationship dialogue skills that successful professional salespersons use. For details, call 03-7957 2818 / 016-223 3563 (Steven / Joleena / Yen Yen) or visit <http://www.utar.edu.my/yingyang.htm>

Seminar for road users

UNIVERSITI Malaya Medical Centre will organise a one-day seminar on "Protecting Road Users Effectively" on Saturday at Dewan Sekapur Sireh, Trauma and Emergency Building, Lembah Pantai. Participation is limited to the first 100 only. There is no fee. For details, call 03-7950 2097 / 2348 (Siti Azwa Mohamad / Norafida Othman).

To achieve peace

KAILASH Meditation Centre will conduct a day's course, entitled "The Good Heart" on Sunday at 3-2 Jalan Ara 507/38, Bandar Sri Damansara. The course is based on Buddhist meditations to develop a good heart that contributes to inner and outer peace. For details, call 03-6272 1098 / 012-215 8438 (Betty).

TURN TO PAGE 4

Kits for residents to monitor lake pollution

By JAYAGANDI JAYARAJ

SEVERAL residents associations and Rukun Tetangga sectors in Petaling Jaya have been roped in to help in monitoring water quality at lakes in Taman Aman, Section 19 and Bukit Kiara.

Test kits for the purpose were presented to them on Saturday following a talk on river rehabilitation by Global Environment Centre (GEC) senior programme officer Dr K. Kalithasan.

"The community should be involved in caring for water as whatever is done around a catchment area affects water quality," said Kalithasan during the talk at the Puh Toh Association.

"Streams, rivers, wetlands and especially lakes are important for growth

and reproduction.

"Lakes help to protect water quality but if affected by irresponsible human action, it can damage the natural ageing process that is based on increased growth and productivity.

"So it is important to be able to tell if a lake is healthy or not. It is quite simple to estimate the overall condition of a lake," he added.

There are three ways to check lake condition - visual observation, chemical and biological monitoring.

Visual observations give clues on the health of a lake. Clear water, smell and odour and presence of certain wildlife also indicate a good health.

However, chemical monitoring provide the most accurate and reliable indications as it is used to analyse

drinking water and determine sources of pollution and specific pollutants.

Biological monitoring provides insights into the functional quality of the environment studied. It reveals important changes in the composition of biological communities caused by human activities.

"For instance, certain insects that live in a lake are indicators of water quality because all organisms require specific conditions to live," said Kalithasan.

Kalithasan said lake water quality monitoring could be used to determine the level by which it had been

affected by development.

He said parameters that were frequently tested in lake water were temperature, dissolved oxygen, nutrients, total suspended solids and fecal coliform bacteria among others.

The test kits were presented to the residents representatives by Kampung Tunku assemblyman Datuk Dr Wong Sai Hou.

In his speech, Dr Wong said: "The

environment is ours to protect. Use what we have learned today to protect our water sources and also bring your children and family for picnics at lake sides so they, too, will learn about nature and its importance."

The effort was part of 'One State One River' Sungai Pencala rehabilitation programme headed by GEC and Petaling Jaya Municipal Council (MPJ), funded by Danida.



Dr Wong (first row, third from left) and Kalithasan (second from left) demonstrating to the residents representatives how to use the pollution test kits at the Taman Aman lake.

Tuesday 21 March 2006

M4 News

METRO

Exposing young ones to health of rivers

STARBITES

River 'patrol'

Who? Children from the former squatter settlements of Kampung Lindungan and Kampung Medan.

What? Learn about river pollution.

How? GEC's River Rangers programme.

By CHOW HOW BAN

hchow@thestar.com.my

A GROUP of 40 children, aged between 10 and 15, took a field trip to Sungai Pencala in Kampung Medan and its upstream section in Bukit Kiara last Sunday, as part of their exposure to the problems in the river.

The children had on March 14 attended a seminar on river pollution and the river ranger programme initiated by Global Environment Centre (GEC) at Menara MPPJ.

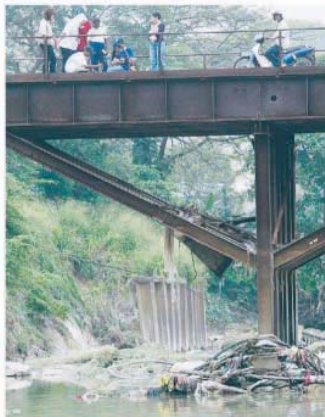
During the five-hour field trip, the participants, who were relocated to low-cost flats from the former squatter settlements in Kampung Lindungan and Kampung Medan, saw for themselves the pollution in the area and put what they learned about chemical and biological monitoring to use.

GEC senior programme officer Dr K. Kalithasan said the children got to see the difference in the conditions of Sungai Pencala in Kampung Medan and Bukit Kiara.

He said half of the group would be selected to form the River Rangers of Kampung Medan, tasked to monitor the downstream monthly and report back to GEC.

The river rangers group would be the first to be established in the downstream area while GEC had worked with and appointed other residents and parties living around Sungai Pencala as their river rangers upstream and in the river's middle stretch.

Dr Kalithasan said information on the river rangers' activities would



The children get to see Sungai Pencala's condition up close during the recent field trip.



Dr Kalithasan (in the middle) watches as participants check out the findings of the water sample during the field trip.

be posted on GEC's website so that river rangers would know more about what their other counterparts were doing.

The programme was organised by GEC in collaboration with Ammah (Action to Mobilise All Humanity) Project which brought together the participants who were mainly beneficiaries of its programmes.

Ammah focuses on education and human values awareness and enrichment by providing free tuition classes for schoolchildren. It also holds programmes to help teens build character and team spirit. It besides running programmes under its Kids' Club to help children learn about art, craft and social skills.

The Pilot Project

A group of 20 students from SMK Teloi Kanan in Kedah became the first to be trained as RIVER Rangers in 2005. They were also the first to set up a 'Guru RIVER Ranger' group, which consists of trained RIVER Ranger teachers who are able to train other school groups who are interested in starting their own RIVER Ranger group. To date, they have helped to train over 30 schools in Kedah. A River Care Education Centre was also constructed, which is being used as a resource centre for information materials related to rivers and water management.



river rangers in action!



Annex

Materials from the RIVER Ranger Programme



For more information please contact:

Global Environment Centre
2nd Floor, Wisma Hing
No. 78, Jln 552/72,
47300 Petaling Jaya
Phone no. : 03-7957 2007
Fax no. : 03-7957 7003
E-mail : gecnet@genet.po.my

visit us at
<http://www.gecnet.info>
<http://www.riverranger.net>

Every little bit counts ...

Why be a River Ranger?

a river management programme

Malaysia is a country rich with rivers. To date, there are 189 river systems with 1,800 rivers all over the country. And these rivers are the source of 97% of our drinking water. Unfortunately, we have not been taking care of our rivers and they have become polluted with solid waste and sewage being the main culprits. Without proper river management, sooner or later, our drinking source will become scarce and finally disappear.

Therefore, steps should be taken to prevent this from happening.

objectives



Global Environment Centre, a non-profit environmental NGO, has initiated a RIVER Ranger Programme under the SMART Ranger Programme which aims to create awareness and educate schools and students on river issues and the importance of managing our rivers. In return, it is hoped that students will get a better understanding of the river systems and care and appreciate the value of a river.

how the river ranger programme works

20 teachers and students will be selected and trained by the officers of Global Environment Centre according to the Programme's module on how to be a RIVER Ranger. Using a training module, they will cover topics on river and river issues, river basin problems, integrated river basin management and "hands-on" training. In hands-on training, the students will be taken to the river and carry out water quality testing using physical, chemical and biological monitoring using living animals in the river.

Upon completing the modules, they will be given a certificate of recognition and they will be a fully certified River Ranger to carry out river monitoring in their area.

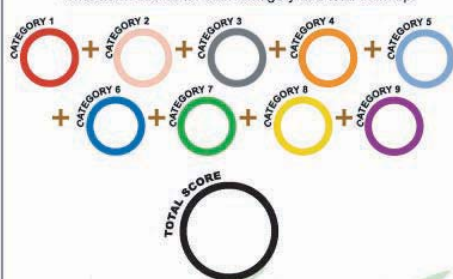
The RIVER Ranger Programme website has been created at www.riverranger.net which links to individual RIVER Ranger websites where these rangers can put up their findings on the web to be shared with other interested parties.



join us!

GEC welcomes any interested schools, organisations or individuals who would like to start their own River Ranger Programme. We also encourage the public to also take up other environmentally friendly activities such as recycling, composting and green consumerism.

Write down scores for each category and total them up.



OVERALL RATING

What do you think of this site?

(Draw a mouth for the face according to the total score)



Mouth guide
Scores



excellent
81-90



good
61-80



average
41-60



poor
21-40



very poor
0-20

river report card

Our streams, rivers, lakes and wetlands are far more than just a part of the scenery – they are the lifeblood of the environment. They provide homes for wildlife and plants, water supplies for homes and industries, and places of recreation and enjoyment for all of us. In addition, rivers reflect the health of the surrounding land because they are the collection point for water coming from all around.

But how can you tell if a river is healthy? It is actually quite simple to estimate the overall condition of the river. You do not need high-tech equipment or chemicals, but you will need your senses, your common sense and a genuine concern for the river.

In the next page, we have proposed categories in which you can make judgments on your local river. In each category, you can rate your river and then combine your scores to come up with an overall rating for the area. You can then compare different rivers or different sites along the same river. Keep good notes on each site, recording the location, date and details on anything special that might vary from visit to visit. This is important so you can compare your scores if you visit the site over time.

Site Description

Name of waterway / site :

Date :

Time :

Weather :

Has it rained in the past 24 hours?
(if yes, was it heavy?)



Global Environment
Centre

Name :
Contact details :
School / organisation :
Crew size :

category 1

land use

List down the different land uses in the area.

- rating** **characteristics**
- 0-1 Lots of industry nearby, most land are cleared, bare soil, disturbed environment
 - 2-4 Some industry, some land cleared
 - 5-9 Some commercial, recreational and residential use
 - 10 No human use at all, in its natural state.

Create a list of places where the water is coming from.



category 2

rubbish

Make note of the type of rubbish that can be found in the water or surrounding area (this includes human made waste and natural litter such as leaves and animal faeces) and how much is there.

- rating** **characteristics**
- 0-1 Lots of human made rubbish such as tyres, plastics and cans, oily films and excessive algae growth
 - 2-4 A lot of human made waste such as cans and plastic, or algae
 - 5-7 Some human made waste such as garden waste and plastics
 - 8-9 One or two pieces of human made waste and local vegetation such as leaves floating in the water
 - 10 No human use at all, preserved in its natural state

If rubbish seems to collect in one area, take photo of the area each time you monitor your site so you can compare rubbish build up.



category 3

pipes & drains

Look for pipes, drains or trenches leading into your waterway. Record what's coming out of the pipes, drains or trenches.

- rating** **characteristics**
- 0-1 A number of pipes from industry and/or sewage treatment and/or urban storm water
 - 2-4 Some pipes or trenches
 - 5-7 No pipes from industry, but some urban storm water drainage
 - 8-10 No pipes or drains



category 4

extra structures/modifications

Record any extra structure/modifications along the river at the site such as weirs, concrete banks, piers or any artificial modification of the water flow

- rating** **characteristics**
- 0-1 A number of artificial structures, large modifications of river's natural flow
 - 2-4 Some artificial structures or some flow modifications
 - 5-7 No concrete structures or minimal modifications of water flow
 - 8-10 No extra structures or artificial modifications



category 5

smell

Take a water sample and record the smell.

- rating** **characteristics**
- 0-1 Very strong, unnatural chemical smell
 - 2-4 Strong, unnatural smell
 - 5-7 Stronger decaying smell, or slight, unnatural smell
 - 8-9 Very slight smell, perhaps natural decay
 - 10 No smell / natural smell



category 6

water conditions

What colour is the river's water? Is the water clear or turbid?

- rating** **characteristics**
- 0-1 Milky brown or green colour with particles and scum. You can hardly see through it
 - 2-4 Cloudiness and/or greenish colour with particles or film
 - 5-7 Some colour and particle
 - 8-9 A little colour
 - 10 Colourless and as clear as tap water



category 7

vegetation

Look at the banks and the land extending from the river. Note if vegetation is natural or introduced and whether erosion occurs or not.

- rating** **characteristics**
- 0-1 Lots of introduced plants, much clearing, bare ground, pasture. Extensive erosion.
 - 2-4 Mixed plants, much clearing, large, eroded areas
 - 5-7 Mixed native and introduced plants. Some clearing. Small corridor of vegetation. Minor erosion.
 - 8-9 Mainly native plants, minor clearing. Natural vegetation extending up to 30m from water. No erosion.
 - 10 Mainly undisturbed native plants, extending up to 30m from water. No erosion.



category 8

vertebrate animal life

(birds, reptiles, fish, amphibians & mammals)

Sit by your river and look for vertebrate animal activity. Record both the variety and number of animals. Look for fish and listen for frogs.

- rating** **characteristics**
- 0 No animal life visible at all
 - 1-2 One type of animal life
 - 3-5 Two types of animals found
 - 6-8 Three types of animal life found
 - 9-10 More than three types of animal life found



category 9

water movement

(voice of the river)

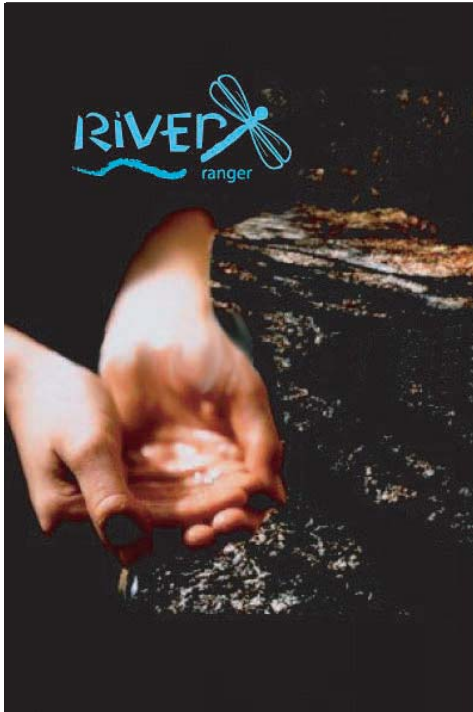
How fast does the water flow?

- rating** **characteristics**
- 0-1 Stagnant, still and shallow
 - 2-4 A little movement of mixing of water, shallow depth
 - 5-7 Movement at the speed of a slow walk, wind waves
 - 8-9 Good movement, the speed of a fast walk, wind waves
 - 10 The speed of running or faster, wind waves, bubbly sound



map your area

Draw your local area map here and use a key to identify and record the different types of land use/human activities or other points of interest.



Sijil Keahlian

Dengan ini disahkan bahawa

dari

SMK Taman Medan

adalah ahli

RIVER RANGER

di bawah Program Pendidikan Alam Sekitar
Global Environment Centre

June 2006



If you would like more information about the RIVER Ranger Programme, please contact us at:

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every river begins as a small trickle. . .



a clean, natural and living waterway. . .



. . .but in most urban areas they end up like this



. . .all thanks to human activities - US!

* all photos here represent different sections of one single river - sungai pencils

should we allow this to happen?

take part in our RIVER Ranger Programme today because WE CARE!

for more information

visit our river ranger website at

www.riverranger.net