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SATURDAY, JUNE 20, 2015

More than 80 exposed to Mers virus in Thailand

Not clear if all who came into contact with first patient have been traced

By TAN HUI YEE
THAILAND CORRESPONDENT
IN BANGKOK

MORE than 80 people in Thailand have been exposed to the Middle East respiratory syndrome (Mers) virus, the health authorities revealed, as the kingdom rushed to stem any panic from its first such case.

The deadly disease, which was first identified in Saudi Arabia three years ago, has killed 24 and infected 166 people in South Korea since it was detected there last

month, although the authorities there said the outbreak appeared to be levelling off.

Singapore's Health Minister Gan Kim Yong said yesterday that travellers from Thailand were not being screened at Changi Airport for Mers symptoms as the country had only one such case and the situation was contained. He added, however, that developments were being monitored closely.

Thailand's Ministry of Public Health revealed that the Mers virus was detected in a 75-year-old man from Oman on Thursday.

Yesterday evening, it said in a press statement that 85 people had come into contact with him.

It was not clear though whether all 85, including a taxi driver, airline passengers and medical staff, have been traced and quarantined.

The man landed in Bangkok on Monday and sought treatment that night at Bangkok's Bumrungrad International Hospital for a cough, later running a fever. The private hospital kept him and his relatives in isolation quarters before they were moved to the state-run Bamrasnaradura Infectious Diseases Institute just outside Bangkok on Thursday.

The hospital called a press conference yesterday, saying it had

quarantined 58 staff members.

Meanwhile, the Mers patient is "a little bit better", Dr Sopon Mekthong, director of the Health Ministry's disease control department, told The Straits Times. "He is out of the respirator."

Tests on the patient's two sons turned out negative yesterday.

Passengers at Bangkok's Suvarnabhumi Airport had to go through thermoscan machines yesterday and health warning cards were issued on flights connected to high-risk areas for Mers.

The airport is a major aviation hub for the region, while the city is one of the world's top tourism destinations.

Singaporeans, meanwhile, are not rushing to call off trips to Bangkok. Instead, they are monitoring the situation and are hopeful that it will not be a repeat of the South Korean case, travellers, travel agencies and airlines told The Straits Times. Hundreds of Singaporeans have cancelled their trips to South Korea.

Dynasty Travel has a number of clients going to the popular shopping destination over the National Day weekend. "We're keeping our fingers crossed," said its director of marketing communications Alicia Seah.

CTC Travel yesterday received some calls from concerned customers travelling to Chiang Mai in northern Thailand. "They are still monitoring the situation as the departures are mainly in August and September," said a spokesman.

Graphic designer Jason Fu, 26, does not plan to cancel his two upcoming holidays to Bangkok next month and in September for now. "I'll wait and see. The public should not be paranoid," he said.

tanhy@sph.com.sg

Additional reporting by Melissa Lin

SEE WORLD A10&12, MONEY C5



The wrecked car (left) and two of the victims, Mr Amron Ayoub and his girlfriend Song Ji Soo (above). Her parents were also killed in the crash.

PHOTOS: SHIN MIN FILE, FACEBOOK

CTE crash that killed 4: Driver gets maximum 5 years' jail

By ELENA CHONG
COURT CORRESPONDENT

A FORMER logistics operations director who caused the deaths of four people in a horrific accident was given the maximum five years in jail yesterday, with the judge calling it the "ultimate traffic offence".

Not only did Toh Cheng Yang ram his car into the victims at high speed, but he also did so under the heavy influence of a drug which causes drowsiness and impairs motor skills.

The 36-year-old, who was also banned from driving for 20 years, is however appealing against the sentence.

He had admitted that his dangerous driving caused the deaths of a Singaporean trainee pilot, his Korean girlfriend and her parents on the Central Expressway (CTE) on Aug 9, 2013.

Toh also pleaded guilty to driving under the influence of nitrazepam – a prescription drug used to treat insomnia and convulsions – to such an extent that

he was incapable of having proper control of his Honda Stream multi-purpose vehicle.

The victims had been standing at the back of their car, which had stopped at the chevrons before the exit to Yio Chu Kang Road, to retrieve a breakdown sign and tools for changing a punctured tyre when Toh ploughed into them just before 4am.

Singaporean Amron Ayoub, 23, had been driving his accountant girlfriend, Ms Song Ji Soo, 24, her golfer brother Song Seoung Hwan, 32, and parents Song Jung Woo, 55, and Kim Mee Kyung, 53, to Changi Airport.

Ms Song and her parents died on the spot, while Mr Amron died later in hospital. Ms Song's brother, who had remained at the right rear passenger door of the vehicle, survived the accident unhurt.

District Judge Low Wee Ping said Toh had "practically almost wiped out an entire family".

"You have also committed one of the most reprehensible traffic offences. You drove under the influence of drugs. You had between



The judge said Toh Cheng Yang (left) had committed "one of the most reprehensible traffic offences". Not only did he plough his car into the victims at high speed, but he also did so under the heavy influence of a drug which causes drowsiness and impairs motor skills.

ST PHOTO: WONG KWAI CHOW

five and 15 times above the therapeutic level of nitrazepam. It was more than twice the amount which would produce toxicity."

The judge explained that the case thus fell within the band of cases for which the maximum sen-

tence should be imposed.

Toh was observed swaying between lanes along the CTE after drinking at a pub, and also seen speeding at between 90kmh and 110kmh. Just before the collision, he did not apply his brakes and

was apparently trying to take the exit when he headed directly for the chevrons.

Deputy Public Prosecutor Winston Man said Toh had previous convictions for drug-related offences and compounded his "utterly irresponsible behaviour" by driving at high speeds.

He called for a signal to be sent that hazardous driving, especially that which needlessly causes death or injury to other road users, will be punished harshly.

Online, many questioned if a five-year jail sentence was enough. But Mr Ayoub Ahmat, 53, the father of the killed Singaporean, believes the law has dealt fairly with the accused.

"At the end of the day it's an accident; there's no intention," he told The Straits Times yesterday. "What happened will continue to haunt him. He also has his own family. I think the (court) has made the right decision."

elena@sph.com.sg
ADDITIONAL REPORTING BY
HOE PEI SHAN
SEE HOME B2

Mahathir accused of undermining country

MALAYSIAN Foreign Minister Anifah Aman has slammed former premier Mahathir Mohamad for undermining his own country. He said Dr Mahathir's interview with The New York Times was part of a political vendetta against Prime Minister Najib Razak.

TOP OF THE NEWS A8

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Members of the Orquesta de Instrumentos Reciclados de Cateura – or the Recycled Instruments Orchestra of Cateura – in front of their music school in Cateura, Paraguay. Thanks to donations, they now have conventional instruments they use in rehearsals. But they continue to play on the homemade instruments for performances. They have performed in many countries, including Japan. PHOTO: LANDFILL HARMONIC

Making music out of trash

Orchestra selects slum kids in Paraguay to play instruments made out of materials from landfill

WHILE many of the children in Paraguay's Cateura slum dream of becoming football players or pop stars, Mr Brandon Cobone's ticket out of the shanty town is something more unusual.

It is a Frankenstein of a double bass, cobbled together from garbage plucked from the nearby landfill. The 18-year-old is a member of the Orquesta de Instrumentos Reciclados de Cateura – the Recycled Instruments Orchestra of Cateura – which uses music to give children from the slum the skills to build a better future.

The orchestra was created almost by accident by environmental engineer Favio Chavez, a mu-

sic lover who was working with the gancheros, or garbage pickers, who comb the vast landfill for recyclables. "It started with a simple comment," he said, referring to the gancheros' request, after learning of his musical skills, that he give them children lessons.

Mr Chavez soon ran into a problem. He did not own enough instruments to go around. So he took advantage of one resource he had in abundance – trash.

He made a violin out of a strainer, a metal dish and metal tubing. "It didn't sound like much," he acknowledged, saying the next few instruments, including a "guitar" cut out of a piece of wood

with a couple of strings attached, were not much better.

Mr Chavez teamed up with one of the gancheros, a skilled carpenter named Mr Nicolas Gomez, to make a variety of instruments that looked more or less like the real thing and sounded like it too.

Now the orchestra has most of the instruments used in a conventional orchestra, but made out of cooking pots, bottle tops, melted keys and the like.

It became an international phenomenon after some filmmakers posted a trailer for a documentary, Landfill Harmonic, on the Web in 2012. Since then, it has been flooded with invitations to

perform, from Germany to Japan. It even toured South America as an opening act for Metallica.

Mr Chavez said the orchestra's key aim is not about forging world-class musicians. "What we want is to teach a different way of being, to instil in them different values than those that hold sway in their community. There, the role models are the gang leaders.

"In the Orquesta, the role models are the hardest workers, those with the most dedication, the most commitment."

The 40-plus orchestra members are selected not for their innate musicality, but for the keenness with which they attend Satur-

day morning lessons. They must attend weekly rehearsals, where they prepare a repertory that includes classics like Beethoven's 5th Symphony, as well as traditional Paraguayan tunes.

Thanks to donations, they now have conventional instruments, which they use in rehearsals. But they continue to play on the homemade instruments for their performances.

Mr Cobone, who has visited 15 countries with the orchestra, said: "I've always wanted to travel, but I never imagined it would happen... and especially not because of this."

INES RAMDANE/SPARKNEWS

Harlem school really makes its students work

ONE Friday in March, Tyre Richards arrived at her desk at an investment bank in Manhattan.

Although she has worked at Sandler O'Neill for four years, she is not a typical bank employee.

Only 17 years old, she has homework weighing on her mind.

She is a student at Cristo Rey New York, a prep school in East Harlem that offers an ingenious model for private education – it puts students to work.

Once a week, like all of Cristo Rey's 398 students, she leaves the school, gets on the subway and heads to a job at one of 100 white-collar firms in New York City.

Cristo Rey was founded by Father John Foley nearly two decades ago, as a way to provide underprivileged students with an elite education.

The problem was how to pay for it.

The solution was to send the students into the workforce, which would help them learn what it takes to succeed while bankrolling their education.

The businesses got inexpen-

sive labour, the students got real-world experience and a top-flight education, their families got a path out of poverty, and Cristo Rey got the funds to pay for it all.

For applicants to qualify for Cristo Rey, their household income must be below a specific threshold.

Tyre, who has never been to Midtown Manhattan before starting work at Sandler O'Neill, said: "I applied to a few different private schools, but they were just too expensive.

"My mum found that, at Cristo Rey, it would be US\$200 (S\$270) a month at most."

Today, the network helps educate more than 9,000 students in 28 schools throughout the United States. Almost all of its graduates go to college, compared with 40 per cent of their socioeconomic peers.

Tyre, who is waiting for college acceptance letters, said she would miss her school and her job when she leaves.

"I'm not just graduating from school," she said. "I'm graduating from my job."

DAVID SWANSON/SPARKNEWS



The Zip Zap Circus School in Cape Town takes in children from all walks of life, including the homeless. The school was set up in 1992 by South African Brent van Rensburg and his French partner Laurence Esteve. PHOTO: CITY PRESS

Circus school takes in street kids

EVER wanted to run away and join the circus?

In Cape Town, you can.

The Zip Zap Circus School, which has been based in the South African city for the past 20 years, takes in children from all walks of life, including the homeless and those who are HIV-positive.

In 1992, South African Brent van Rensburg and his French partner Laurence Esteve left Paris for sunny Cape Town.

They borrowed a trapeze rig which they set up over the holiday season.

Soon, children from all walks of life, including the homeless, clamoured to have a go. And the couple's dream was born.

Keeping the circus school afloat, however, is a constant battle.

The couple have raised funds over the years performing circus stunts as well as working in films – Mr van Rensburg was the body double for Patrick Swayze in Steel Dawn and Ms Esteve for Jennifer Lopez in The Cell.

They have touched the lives of thousands of youngsters, mostly

from disadvantaged backgrounds.

Remember Nkakro, 19, is one of them. He was born under a tree and grew up sleeping in the streets with his mother, brother and sister.

He moved into the Zip Zap house in 2010 and has since toured France and Wales with his fellow performers.

His mother still lives on the street. His siblings are in prison.

He said: "The circus has been my biggest gift and opportunity."

BIENNE HUISMAN/
CITY PRESS (SOUTH AFRICA)

SNIPPETS

Cattle-raising toughest subject

FORGET chemistry or physics. Many students at the Escuela Agrícola de San Francisco, or the San Francisco Agricultural School, would say cattle-raising is their toughest subject.

The boarding school, which is about 45km outside the Paraguayan capital of Asuncion, was founded some 12 years ago by a local non-profit.

The school has an innovative business model which centres on self-sufficiency. The school's three billion guarani (S\$778,500) annual operating budget is covered by the sale of meat, eggs, yoghurt, cheese and produce raised by its students.

It has about 150 students aged between 15 and 18, who spend one week on the farm and the next in the classroom.

Classes start at 7.30am and end only some 12 hours later.

The teenagers learn entrepreneurial skills that allow them to turn subsistence farms into thriving businesses.

INES RAMDANE/SPARKNEWS

Tuning in for lessons

WITH a Spanish textbook next to her, Ms Kathia Varela adjusts the dial of her old radio to tune in to the Catholic radio station La Voz de Suyapa or "The Voice of Suyapa".

At 5pm, the "show" she is waiting for comes on air: El Maestro en Casa, which means "Teacher at Home", by the Honduran Institute of Education by Radio. Ms Varela, 18, is among 50,000 Hondurans enrolled in elementary and high school through an innovative programme that combines the use of textbooks with classes delivered via radio.

Students also attend face-to-face tutorials as part of the programme which the institute has been running since 1989.

The institute provides elementary, middle and high school education for a small monthly payment of 100 lempiras (S\$6).

Most of its students are working adults aged from 14 to 60. About 70 per cent of them are women, many of whom are single mothers. To date, over 500,000 have graduated from its programme.

EDUARDO DOMINGUEZ/EL HERALDO (HONDURAS)

Meals for kids, jobs for mums

WHILE their children attend classes at the Mano Amiga Academy, the mothers work at a cafeteria run by the school.

The cafeteria, Bistro 3846, supplies healthy meals to different private schools in Manila.

It also provides jobs for mothers without a steady income, and helps fund scholarships for needy children in the school.

Over the past seven years, Filipino educator Eleanor "Lynn" Pinugu has transformed the non-profit school into a self-sustaining institution.

"We realised that donation was not a sustainable way to fund the operations of the school, especially if we'd like to achieve scale," said the 30-year-old.

Inspired by Mano Amiga Academy, Mexico's international school for poor children, Ms Pinugu helped set up the Mano Amiga Academy in Taguig City in 2008.

HELEN M. FLORES/PHILIPPINE STAR (PHILIPPINES)

Growing public food movement bears fruit

Urban gardening revolution spreads quietly in city, then around the world

IF YOU take the local train north of Manchester, you'll see a Hollywood-style sign on a hill that reads "KINDNESS" in large, white letters.

It overlooks Todmorden, an old cotton mill town that is unlike any other in West Yorkshire.

It is the birthplace of an urban gardening revolution that is quietly growing worldwide, much like the herbs and vegetables planted everywhere in the town.

"I still get a thrill when I pick an artichoke here," said Ms Estelle Brown in front of the local police station.

Ms Brown is one of the 30 or so core volunteers who make up Incredible Edible Todmorden, the gardening group that has made their small town famous around the world by claiming public land

and growing food for everyone.

It started with part of a kerb here, a corner there. Seven years on and 400 volunteers later, it adds up to about 1,000 fruit trees and two dozen raised beds around town: cherries and pears by the health centre, rhubarb and broccoli in front of the community college, potatoes and kale in the train station carpark.

Anyone can pick what they want: Herbs year-round, and for the rest, volunteers stick a "pick me" sign into the ground when it's ready.

"We don't like to call it guerilla gardening, because that reminds us of macho warfare. We'd rather call it naughty but nice," said chairman Mary Clear, whose kitchen doubles as the group's main headquarters. Her motto: "Some-

times it's better to ask for forgiveness later than to ask for permission."

This applies to much of the movement, which appropriated public land, root by root, until the local council finally created an "incredible" licence, allowing residents to grow food on patches of unused public property for up to three years.

Over the past decade, interest in urban gardening has grown. While consumers wish to reduce the distance their food travels, city officials worry about food sourcing.

"The volcano eruption in Iceland in 2010 was a wake-up call for many. Transport was disrupted and the grocery shops were empty within a matter of hours," said Ms Catherine Simon, who advises foreign groups on how to start their own initiative.

If cut off from the rest of the world, most major European cities would be able to feed their in-



Chives outside Todmorden's community college, one of the city's public growing spots that began with a kerb here and a corner there. PHOTO: ANNA POLONYI

habitants for no more than four days, she said.

Incredible Edible Todmorden never set out to make the town self-sustainable; the produce, all organic, meets less than 5 per cent of the population's food needs.

Incredible Edible takes the idea of traditional community gardens a step further by being open-source: growing public food on public property. And supporting local food and businesses is at

the heart of its mission.

What began as an idea has now grown into a global movement. Similar initiatives in more than 20 countries from Australia to Senegal, Cuba and Japan are using the Incredible Edible name.

Todmorden Mayor Michael Gill said: "It took off more than anyone could have expected, and people now come from all around the world to see for themselves." ANNA POLONYI/SPARKNEWS

Beating poverty by saving fistfuls of rice

MS ARJINA Khatun was married off when she was only 13 years old.

After just 13 months of marriage, her husband divorced her because her family was unable to pay the dowry.

She did not let that wreck her life. Not only did she turn it around, she also transformed the lives of many women in Taraganj, a sub-district of Rangpur in Bangladesh.

Ms Khatun, now 47, said she became a household helper after her divorce. She saved until she could buy two goats and nine chickens.

A dream grew in her heart.

In 2002, she formed an association of 40 women, called the Panchayetpara Working Women's Group.

Every day, they saved 40 fistfuls of rice. At the end of each week, they held a lottery and handed over the rice to one of the members, who would buy ducks and chickens with the money earned.

After 40 weeks, their village and their households were bustling with ducks and chickens.

The initiative brought in cash for the women and their families.

Next, Ms Khatun began saving two Bangladeshi taka (\$0.03) a day.

Every week, the women would save 560 taka. They would hold a lottery, and a goat would be purchased for the winner of the week. Gradually, their herd grew.

After reading about Ms Khatun's efforts, two non-governmental organisations came forward to help.

She also expanded her women's group to 170 members. They would deposit 20 taka a week and divide up the money every three years.

They now have 500,000 taka in their savings fund.

Ms Khatun is continuing her fight against child marriages, dowries, unjust divorces and the oppression of women. So far, she has prevented 21 child marriages.

She said: "It is women who first have to come forward to help women in distress."

RAHIDUL MIAH/
PROTHOM ALO (BANGLADESH)

Eating ecologically with Eaternity

THE sauteed chicken breast on silky brown sauce is surrounded by mixed vegetables and french fries. It's a lunch dish that could be on the menu of any staff restaurant or university canteen. But there's a difference – this one has a rather encouraging carbon footprint.

The dish is served at Technopark Zurich's self-service restaurant Villaggio, which is run by Compass Group.

Head chef Daniel Mietusch recently started to plan his menu with a carbon emission calculator designed by start-up Eaternity. The calculator allows him to prepare a daily dish from the most climate-friendly ingredients.

Compass specialises in group catering and operates some 230 venues across Switzerland. It has recently committed itself to reducing its carbon footprint by 20 per cent by 2020 – no mean feat considering that the food humans consume produces roughly a third of all carbon dioxide emissions.

To live up to its commitment, Compass is working closely with Eaternity and has designated 44 of its restaurants to be part of a pilot programme to cut the carbon footprint of food they serve.

Eaternity CEO Manuel Klar-

mann said he started the firm because the link between "science and practice" is missing. "What's the point of all the studies and insights on the carbon footprint of our food choices if the chefs and their guests don't have a clue about it?"

How different is Eaternity's calculator from the traditional methods of computing emissions? Some of the parameters for calculating the carbon footprint of a plate of spaghetti bolognese, for instance, would be the same, said Mr Klarmann. These include the use of water and fertilisers or the harvest period.

What sets Eaternity apart is that it also takes into account various dynamic factors: Was the vegetable produced in a greenhouse? What distance did it travel? How long was it stored? What kind of packaging was used?

All in all, Eaternity factors in about 50 such parameters. For the sake of simplicity, these are converted into kilograms of carbon dioxide, to allow direct comparison of the ingredients of a dish. Mr Klarmann is convinced sustainable food can make a huge contribution to climate protection.

DANIEL BONIGER/TAGES-ANZEIGER
(SWITZERLAND)



Eaternity CEO Manuel Klarmann and head chef Daniel Mietusch at Villaggio, a self-service restaurant at Technopark Zurich. Mr Mietusch plans his menu with a carbon emission calculator designed by Eaternity. PHOTO: DORIS FANCONI/TAGES-ANZEIGER

SNIPPETS



Ms Harriet Nakabaale's "sack farm" in her small compound provides both food for her family and income from seedling sales. PHOTO: THE MONITOR

Farm made of just four sacks

MS HARRIET Nakabaale lives in a small one-bedroom house in Kawaala, a suburb in Uganda's capital, Kampala.

Her house sits on a piece of land 9m wide and 15m long.

The 45-year-old, an expert in "sack farming", has turned her small compound into a neat green garden that has become the envy of many.

Four large containers, or sacks, sit in her garden. In one of them, for example, she grows spinach, dodo and carrots.

In another, a young guava tree is surrounded by green vegetables.

In yet another, there are spring onions, celery, tomatoes and spinach.

Ms Nakabaale, who has been practising sack farming for 21 years, trains others for a fee of 20,000 shillings (\$8.30).

Each month, she earns about 1 million shillings, most of which comes from her services as a sack farming teacher, and also from the sale of seedlings for various crops she grows in her garden.

The sale of her crops also supplements her income.

She said: "With sack farming, I have kept my three children in school."

"We don't buy food from the market because, much as I sell most of the food crops I produce, there is always enough left for home consumption."

MATHIAS WANDERA/
THE MONITOR (UGANDA)



Mr Liao Rong-ji owns a hawkker stall that sells traditional Taiwanese steamed buns. PHOTO: KATHERINE WEI/CHINA PRESS

Hawker hosts feasts for the hungry

MR LIAO Rong-ji is something of a legend in one of Taipei's oldest districts, Wanhua.

He is the man behind the annual feasts that have fed many homeless people in the district.

Mr Liao, who lost his father when he was two years old, knows how it feels to be hungry, having lived in poverty in his younger days. And he is determined to help others in the same plight.

The 75-year-old has been holding Chinese New Year banquets for 30 years for the homeless, the unemployed and the elderly who live alone.

The annual eight-course feast has grown to be one of the largest Chinese New Year celebrations in Taiwan. As many

as 1,000 tables have been planned for the next feast, which will be hosted at Gueilin Riverside Park.

"It started with only five tables the first year, lasting eight days. Now we have 250 tables for two sittings in four days, starting the day before Chinese New Year's Eve," said Mr Liao, who spends at least NT\$1 million (\$43,600) each year on his banquets.

But Mr Liao, who now runs a hawkker stall after his printing business folded, is unsure how much longer he can keep up the annual event, with his savings depleted. "I think I can do it only another two or three times," he said. "The homeless often tell me that I can't die; if I do, they will go hungry for sure."

KATHERINE WEI/
THE CHINA POST (TAIWAN)



Mr Alexandros Theodoridis, a founder of Boroume, which helps distribute surplus food to Greek charities. PHOTO: GIORGOS OIKONOMOPOULOS/TA NEA

Leftovers become meals for the needy

IT STARTED with a group of friends saving 12 cheese pies left over at a bakery in a poor neighbourhood in Athens and giving them to the local soup kitchen run by the church.

That was in 2011.

Three and a half years later, the same group is coordinating the daily distribution of some 4,000 portions of surplus food to charities all over Greece.

This group is known as Boroume – "We Can!" in Greek – a non-profit organisation that organises the distribution of surplus food for charity.

Founders Alexia Moatsou, Xenia Papastavrou and Alexandros Theodoridis, along

with dozens of committed volunteers, run the group.

Last year, Boroume "rescued" more than 1.3 million meals from ending up in the garbage can – a 400 per cent jump compared to 2013.

By placing just one phone call to Boroume, the leftover food from a family dinner, a corporate event, a wedding or a supermarket can be donated to a soup kitchen or an institution in need. The group's database has more than 660 potential recipient organisations.

Last year, Boroume launched four new programmes, including a project to save fresh fruit and vegetables that cannot be sold and that would otherwise be left in the fields to rot.

EVI SALTU/TA NEA (GREECE)

The man who planted 20,000 trees

75-year-old began at age 10, turns bare land in Bangladesh village green

WHEN he was a young boy, Mr Kartik Paramanik's father would tell him stories.

"What's the use of going on a pilgrimage? Just going to a sacred place won't make you clean and pure. If you just plant a tree, that will bring you far more blessings than any pilgrimage," his father would say.

His father's words left a deep impression on him.

When he was just 10 years old, he planted his first tree at the intersection of three roads. Mr Kartik, who is now 75 years old, is still tirelessly planting trees.

He lives in the village of Tara-

pur Thutapara, right on the border with India, about 40km from the district town of Chapainawabganj.

There was a time when blisters would break out on people's feet as they walked in the burning heat of this treeless area. They would unwrap the *gamchas* from their heads and use the cloth to protect their feet from the scorching earth. That was where Mr Kartik started his tree-planting mission. The bare, arid stretch of land gradually began to fill with trees.

As he grew up, his enthusiasm for planting trees grew.

Mr Kartik, who used to work as

a barber, would set aside a small amount from whatever little he earned. With the savings, he would buy seedlings and plant them in different places.

Some thought he was a mad-cap, but he turned a deaf ear to the snide remarks and gradually filled the surrounding villages with trees.

The bare land turned green – with some 20,000 trees he has since planted in the area.

The trees he planted – banyan, shimul, neem and a variety of fruit trees – can be found by the roads, in marketplaces, on school grounds, and along the border camps.

These trees have been a blessing to his village. Needy parents could sell the trees in front of their homes to pay for their daughters' weddings. The weekly



Mr Kartik Paramanik all set to plant more saplings. The trees he planted include banyan, shimul, neem and a variety of fruit trees. PHOTO: MONIRUL ALAM

market spreads out under the shade of the leafy trees.

But Mr Kartik, who became famous after the media reported on his efforts, has not taken a single cent for himself.

In 2013, the story of his endeavours, A Man Who Loves Trees, was included in the eighth-grade English textbook.

Shopkeeper Serajul Islam is among those who have benefited from the tree-planting efforts. His shop sits under the expansive shade of a banyan tree Mr Kartik planted 40 years ago by the roadside in Sahapara. He said: "We are deeply indebted to Kartik."

ANWAR HOSSAIN/
PROTHOM ALO (BANGLADESH)

SNIPPETS

Packaging sent packing

YOU won't find fancy boxes for cakes, or pretty jars for coffee beans, at this unique supermarket in Berlin.

Welcome to Original Unverpackt – which means "unpacked" – a packaging-free shop which opened in September last year.

Customers come with their own bags, containers and jars and fill them up with what they need – coffee, olive oil, rice, pasta, wine and even beer.

Two young Berlin residents decided to set up such a store after they realised that some of the packaging weighed more than the products they contained.

They also have a second mission – to fight against food waste.

Ms Milena Glimbovski, the 24-year-old co-founder of the shop, said: "Nature has already wrapped fruit and vegetables in their skin to protect them, so what good is it to wrap them in additional plastic covering?"

S. HERVY/L'ACTU - MON QUOTIDIEN (FRANCE)

Going bananas for paper bags

THEY clog water channels, pollute the soil and are strewn everywhere. Polythene bags, or kaveera as they are commonly known in Uganda, have been a top enemy of the environment.

Mr Godfrey Atuheire, 33, has found an alternative: using fibre from the banana plant, found in abundance in the country, to make eco-friendly paper bags.

It started off as a school project in 2006 when he was studying at the Uganda Industrial Research Institute.

Fibre from banana stems makes strong, yet foldable, paper bags, compared to alternatives like sisal and papyrus.

Fibre is extracted from banana stems, washed, cut and cooked. It is then mixed with water and put into a pulping machine.

The paper bags have seen a surge in demand after the authorities in Uganda banned the use of polythene bags of 30 microns and below in April.

MATHIAS WANDERA/
THE MONITOR (UGANDA)

Save the earth, help the disabled

FATHER Jean-Marie Chami is a Lebanese priest unlike any other – he integrates the protection of the environment with social work.

The 53-year-old studied architecture before becoming the priest of Notre Dame Church of the Annunciation in Beirut. In 1999, he set up non-profit organisation L'Ecooute, which recycles old goods. The proceeds from the business – US\$9,000 (S\$12,120) to US\$11,000 a month – help people with disabilities.

Volunteers sort discarded goods collected at 200 collection points across Lebanon. "We sell sorted materials usually to factories that recycle paper, plastic and metal," said Father Chami.

The volunteers also find purpose by helping out at the organisation.

"I used to stay at home," said Anthony, 19, who has cerebral palsy. "Today, I am very happy to be working in a team."

MATTHIEU KARAM/
L'ORIENT LE JOUR (LEBANON)

Plastic made from seaweed

IS THERE such a thing as environmentally friendly plastic?

Frenchman Remy Lucas may have found the answer: by using seaweed, instead of oil, to make plastic.

This special plastic, made using extracts from seaweed grown in Brittany, France, has many different applications, from caps and lids, to mobile phone cases and supermarket trolley tokens.

The process used by Algapack, a company Mr Lucas founded five years ago, seems simple enough: Extract a powder from brown seaweed and add plant additives to produce granules that can then be used by plastics manufacturers to make end-products.

Seaweed is a natural resource that exists in unlimited quantities and can be farmed in an environmentally friendly way.

It stores carbon dioxide and gives out oxygen, encouraging marine biodiversity.

The end-products take 12 weeks to biodegrade in soil – compared with four to 10 centuries for normal plastics – and just five hours in the sea.

By substituting oil with seaweed, Algapack also helps to clear up the unprecedented volumes of gulfweed swamping the coastal areas of the West Indies and Guyana.

Seaweed is also cheap. Hence, Algapack can sell its products at €1,500 (S\$2,300) per tonne, cheaper than the €2,000 for most bioplastics made from cereals or sugar cane, though slightly more expensive than normal plastic, which costs about €1,200.

Production of the "seaweed plastic" started in 2013, and industrial production is expected to start next year.

The company is currently running a fundraising campaign for its expansion which will require more than €5 million.

CAROLINE DE MALET/
LE FIGARO (FRANCE)



A firefighter from Balikpapan, Indonesia, spraying a foam extinguishing agent at a test site in Japan. Using foam on peatland fires blocks the supply of oxygen to the peat and extinguishes flames within. PHOTO: KITAKYUSHU FOUNDATION FOR THE ADVANCEMENT OF INDUSTRY, SCIENCE AND TECHNOLOGY

Fighting forest fires with foam

A JAPANESE invention may go some way towards helping Indonesia contain forest fires that break out in peatlands.

A foam extinguishing agent has been jointly developed by the city government, a private company and a university in Kita-Kyushu.

They hope to contain forest fires with the foam, which permeates the soil more easily than water and puts out fires more effectively.

A test has been scheduled in Indonesia this month to test the effectiveness of fighting fire with foam.

Peat is created when remnants of vegetation, such as trees and mosses, are carbonated without decaying, and accumulated over thousands of years. If the peat catches fire, it spreads deeply into the soil, emitting a large amount of carbon dioxide.

Balikpapan is a city on the eastern coast of Indonesia's Kalimantan region where one of the largest peatlands in the world is located. Oil palm plantation developers often burn off forests to secure land because it is easier and less costly than using chemicals to kill insects on the sites.

In 2007, the University of Kitakyushu, Shabondama Soap – based in Kita-Kyushu – and the city government's Fire and Disaster Management Bureau jointly developed the foam extinguishing agent.

The dried surface of peatlands contains a high level of oxygen. Because of that, they repel water and, as a result, make it difficult for water to reach the peat.

By covering the surface with foam, it blocks the supply of oxygen to the peat, and extinguishes flames within the layers.

The move to test out the meth-

od in Indonesia is part of the Japan International Cooperation Agency's grassroots technological efforts.

The three-year project was launched in 2013 with a budget of 60 million yen (S\$652,000).

Its main aim is to prevent fires in peatlands on the upper streams of a lake that is serving as a main source of drinking water for residents in Balikpapan.

When fires occur in peatlands, the top layer of the soil flows into the lake, polluting the water.

RYUNOSUKE KANAYAMA/
ASAHI SHIMBUN (JAPAN)

A cooler roof tile from trash

IN THE Sahel zone of Africa, blistering temperatures and sheet metal roofs can make homes feel like furnaces.

Mr Calvin Tiam, an engineer in Burkina Faso, has found a potential solution: using plastic waste to create a new type of roof tile.

Mr Tiam, who moved to Burkina Faso from Cameroon in 2009, recalled: "I wondered why all of my neighbours would sleep out-

side during the night. One of my neighbours told me to visit him in his house early in the afternoon. When I arrived at 1pm, the air inside the house was oppressively hot."

Sheet metal is cheap, durable and easy to build with. It has spread across Africa at tremendous speed, replacing the traditional thatched huts and adobe roof constructions.

But it also traps heat.

During an internship with Ouagadougou's waste management authorities, Mr Tiam wondered if plastic waste could be recycled to make a better roofing material. He went on to set up the company TECO¹ to develop it.

He was able to create a prototype after winning a prize sponsored by the ESSEC Business School and the University of Cali-

fornia at Berkeley.

Currently, the innovative roofing material is just a slab of brownish plastic, raw to the touch and heavy for its size.

But by 2018, Mr Tiam hopes to recycle 500 tonnes of waste per year to create materials that look like real roof shingles.

He said: "It will be 400 times more insulating than sheet metal."

PETER DORRIE/ SPARKNEWS

Saving water with 'solid rain'

FARMERS often look to the sky for rain when the drought season sets in.

But they now have another alternative – "solid rain" invented by Mexican scientist Sergio Jesus Rico Velasco.

The magic of "solid rain", a compound based on potassium acrylate, is that it can store 300 times, even 500 times, its own weight in water because of its molecular structure.

The product, which looks like white powder sugar, is made of ultra-absorbent potassium polyacrylate which Mr Rico Velasco and other scientists call "water silos".

This is how it works: Mix 20g of "solid rain" with one litre of water, and add it to the soil before planting the seeds.

Mr Velasco, who was nominated for the World Water Prize in 2012, said it can be used in all soil

conditions and with all kinds of plants.

It produces no chemical reactions with pesticides or fertilisers because "it's just water".

According to Solid Rain Corporation from San Diego, California, the product is capable of saving between 50 per cent and 80 per cent of water, depending on the climate and soil conditions.

CLAUDIA VILLANUEVA/
EXCELSIOR (MEXICO)



Solid rain being mixed with water. The compound can store 300 times its weight in water and allows farmers in Mexico to continue farming during dry seasons. PHOTO: EXCELSIOR (MEXICO)

IMPACT Journalism Day



AXA

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Journalism that aims to make an impact on the world

By WARREN FERNANDEZ
EDITOR, THE STRAITS TIMES, SINGAPORE

I HAVE visited many newsrooms around the world to meet fellow editors in recent years.

We all face the same challenges – serving readers, keeping eyeballs, meeting deadlines across multimedia platforms through the day.

Every day – sometimes several times within a day – there is a new, dramatic story to be told. Earthquakes, epidemics, terrorist attacks, shocks in the market.

Or planes going missing mysteriously, without a trace. Each of these stories makes the headlines and dominates the news.

As newsmen, we naturally feel the adrenaline rush when these stories break, and work to give them the play they deserve on our pages and platforms.

We do so because we know readers respond to these. Often, you are shocked, saddened, silenced or surprised by these developments.

You want answers. And we in the media try to give you what answers we are able to gather, to the best of our abilities, as fast as we can.

But as the world gets more complex, and the pace of change seems ever quicker by the day, many readers tell us they want more.

You want answers to deeper questions. Like, why is this happening? How can we address the issue, solve the problem, offer some hope, and even inspiration? Change the world, or at least make it just

that little bit better, if only for a while?

Good newspapers try to meet this need in their features and analysis pages on a regular basis.

Still, a growing number of newspapers are now trying to go even further, by adopting a slightly different approach to the news, which focuses not just on the problem, but also seeks to tease out solutions and answers to the challenges they pose.

Enter Impact Journalism. A group of 20 newspapers started featuring such stories three years ago, collaborating by sharing ideas and resources to put together the first Impact Journalism Day supplements in 2013.

Happily, the number has expanded this year to 45, including some of the world's leading news organisations, brought together by our friends at Sparknews, a French-based group of journalists with a mission to make an impact and improve the world through the reports they put out.

These supplements have thrown up stories like the one we featured last year on The Mothers of Light, an initiative by Singapore-based social enterprise Nusantara Development Initiatives.

The group supplies affordably priced solar lamps to village women in Riau, Indonesia.

After it was featured, many Straits Times readers wrote to the group offering to sponsor lamps, said Ms Gloria Arlini, 31, co-founder of the initiative. One couple wanted to donate a dozen lamps to a Nepalese

monastery, while another group recently bought about 30 lamps to help flood victims in Kelantan.

Ms Arlini told The Straits Times: "The Impact coverage has helped increase the visibility of the issues of energy, poverty and women's empowerment."

That was gratifying, which is why we are back again with this supplement.

This year, our ST reporters have identified several equally interesting and worthy efforts by others in Singapore, such as a team of National University of Singapore (NUS) students who put their minds together to design a 300g water filtration system that fits easily into a backpack and provides an easy-to-use, low-cost way of providing clean, drinking water, which has helped save lives.

Another idea: A jacket that Dr James Teh, an NUS researcher, designed to enable him to give long-distance "hugs" to his flight stewardess girlfriend while she was away on her travels, and which has been transformed into a way of giving succour to troubled people to help calm their nerves.

Our media partners abroad have thrown up equally innovative solutions to problems as diverse as deforestation, landmines, power as well as food shortages.

After it was featured, many Straits Times readers wrote to the group offering to sponsor lamps, said Ms Gloria Arlini, 31, co-founder of the initiative. One couple wanted to donate a dozen lamps to a Nepalese

in Switzerland that are trained to sense when their owners are in need of a shot to ward off hypoglycaemia to prevent them from passing out, and playgrounds in Ghana where merry-go-rounds for the children to have some fun also produce much-needed electricity for the community.

From floating schools to provide education to rural children in Nigeria to rice banking projects to provide food and work for villagers in Bangladesh, reporters from Impact Journalism partner publications across the globe will take you to the scene to meet people who are making a difference through their efforts, in the way they know best.

I hope you will find these reports inspiring and a joy to read.

We hope they might also prompt you to think about how you, too, can pitch in to make an impact in your own way.

warren@sph.com.sg



45 papers bring readers uplifting, solutions-based news

By CHRISTIAN DE BOISREDON

READING the news on a daily basis can be a depressing affair.

Worldwide, readers and audiences repeatedly report that they are put off by how negative the news seems to be.

Yet the media's role is to bring major issues and problems to the foreground and to keep us alert. Must the headlines conform to the age-old adage that "when it bleeds, it leads"?

The idea behind Impact Journalism Day is to show that the media also fulfil their role by reporting on inspiring solutions to the world's problems.

The alliance of 45 newspapers, united by Sparknews, presents a different vision of journalism: Problems and solutions can make the news together. This view, along with the conviction that quality, solutions-based news is something readers aspire to have more of, is part of a growing movement in the press

to feature stories of hope and change.

Impact Journalism Day is just the beginning.

Each edition has seen a steady increase in the number of newspapers and newsrooms onboard, excited to show their commitment to solutions-based reporting.

Some journalists were initially concerned this content might be naive or simplistic, but are now eager to participate and uphold this philosophy in their day-to-day activities.

They are fuelled by conviction and also by seeing first-hand that this type of reporting has a measurable impact on the ground.

When the public learns of real solutions, the results can be tremendous. Readers gain greater understanding of the problems and are given the means to engage and the hope to believe that they can become change-makers.

Every reader can, and does, make a difference.

Last year's articles helped

contribute to the growth of the projects featured, via an increase in awareness, volunteering, orders, investments, donations or even via replication in new countries.

Now it's your turn to be part of the movement.

Show the media that this kind of news matters. Tell your friends and family about Impact Journalism Day, buy an extra copy for your children or your colleagues, share the articles you like on the Web and be part of the conversation on Twitter and Facebook.

You can take part in our selfie contest by posting a photo of yourself and this newspaper via Twitter – #ImpactJournalism and add the # of your newspaper – or the Facebook page of our founding partner, AXA, at facebook.com/AXAPeopleProtectors.

Help the innovators and entrepreneurs featured in these stories to overcome the challenges they face

by joining a brainstorming session at beta.makesense.org/ijd

And suggest projects we might consider for next year's Impact Journalism Day at www.sparknews.com/ijd

Enjoy your read!

Christian de Boisredon is the founder of Sparknews/Impact Journalism Day.



At Barefoot College in Tilonia, India, rural women learn to make solar panels to provide their villages with power. PHOTO: LARS BOLAND/VARIAL



Reabetswe Ngwane and Thato Kgathanye with their invention that helps children and creates jobs for adults, too. PHOTO: CITY PRESS



Mentors out to debunk stereotypes

THE Girls2Pioneers campaign has mustered a roster of 23 prominent women working in science, technology, engineering and mathematics (Stem) to act as programme ambassadors and mentors to the girls.

A*Star researcher Yeo Sze Ling became an ambassador last January. Dr Yeo, 37, who is also an adjunct assistant professor at Nanyang Technological University, said: "To me, it's not so much about the Stem field specifically, but to learn not to be constrained by general stereotypes to pursue our aspirations."

She lost her sight at the age of four after being diagnosed with glaucoma, but went on to get her PhD in Mathematics.

For Dr Melissa Fullwood, 31, volunteering as an ambassador is a way to become the role

model she wishes she had.

The junior principal investigator at the Cancer Science Institute said: "There are very few senior female scientists, role models whom you can look up to and say, 'I could be like her!'"

Google sales strategy and operations associate Cassie Chan has volunteered at four day camps so far, including a recent one at Tanjong Katong Girls' School last month.

Said the 30-year-old: "I do strongly believe that as women in technology or in Stem, we have a strong role to play to show people we're not your stereotypical scientist. We don't just talk code, we are fun, normal and just like them. Stem is not narrow. There's a role in Stem for everyone."

OLIVIA HO

Turning 'barefoot' grannies into solar engineers

AN UNPAVED, dusty road lined with bushes and shrubs leads to a sprawling campus and a large classroom filled with solar panels and equipment.

Here, Ms Geeta Devi, a 45-year-old woman in a red sequined sari and with a silver nose ring, was explaining a complicated-looking circuit to a group of awestruck women standing around a worktable piled high with circuits and lanterns.

Ms Devi is a solar engineer. Or, to be precise, a "barefoot" solar engineer.

She is one of hundreds of women in their late 30s and 40s – most of them grandmothers – from some of the most remote corners of India, trained by the Barefoot College to build solar panels and provide their off-grid villages with power.

Apart from lighting up villages, the programme has also become an important tool for empowering rural women, many of whom are illiterate.

Barefoot College was founded in the early 1970s by social activist Sanjit "Bunker" Roy, and it has

been teaching solar electrification since 1989.

It works out of Tilonia, a small village in the desert state of Rajasthan, about 100km from the state capital of Jaipur.

Starting with local women and panning out to the rest of India, today, the Barefoot imprint reaches 64 other countries.

It has an off-site campus in Sierra Leone, a brand-new one in Zanzibar, and more planned in South Sudan, Tanzania, Burkina Faso, Senegal, Liberia and Guatemala.

Most of the teaching still takes place in Tilonia.

Every year, the college trains 100 women from India and 80 from Asia, Africa and Latin America in two batches for six months each.

The Indian government recognised the course in 2008 and covers the students' training and travel costs. The Ministry of External Affairs pays around 150,000 rupees (\$53,100) as well as travel costs for each international grandmother. The Ministry of New and Renewable Energy pays about

70,000 rupees for each local trainee.

Funding from private individuals and foundations helps to pay for solar equipment and other costs.

Each grandmother learns how to make, assemble, maintain and repair solar panels. When time allows, they also learn to make sanitary napkins, mosquito nets and candles.

Ms Joselyn Mateo Diaz, a 41-year-old grandmother from the Dominican Republic, travelled all the way to India this spring to

learn how to solar power her village. "My only wish is to study with my grandchild at night."

To date, there are close to 750 Barefoot solar grandmothers around the world, and they have powered some 1,160 villages.

At the campus, Ms Devi gestured at the women around the table, some of whom were still looking dubiously at the various panels.

"They always ask me, will I be able to do this?" she said. "I tell them, I did it, you can too."

NILANJANA BHOWMICK/SPARKNEWS

Bags for books... and bagging the sun's energy

BUSINESS partners Reabetswe Ngwane and Thato Kgathanye personify the buzzphrase social entrepreneurship.

The pair have found an innovative solution to one of society's most pressing problems – affordable energy in economically depressed communities without reliable access to electricity.

They have designed "Repurpose Schoolbags" that do more than hold books – they help children read them too.

Their company Rethaka recycles plastic bags – easy to come by across the South African landscape – turning them into school bags which incorporate built-in solar power packs.

These packs are charged all day in the sunlight while the children are at school, and are fully charged when the sun goes down, providing much-needed light for doing homework – or even just walking home safely.

This clever and simple solution

to a persistent problem was borne out of a school assignment.

Ms Kgathanye, who came up with the idea, was named first runner-up at last year's Anzisha Prize for young entrepreneurs from Africa.

As a runner-up, she bagged US\$15,000 (\$20,000), which became the seed capital to take her solution and convert it into what it has become – a successful business.

The business employs eight

These packs are charged all day in the sunlight while the children are at school, and are fully charged when the sun goes down, providing much-needed light for doing homework – or just walking home safely.

staff members who are responsible for the entire process, from the collection, washing and sort-

ing of the plastic bags, to the final stitching and delivery of the Repurpose Schoolbags.

Rethaka employee Maphefo Maithufi is also a consumer of the product she helps to manufacture.

She said: "The bags we make have also made a difference in my daughter's education as she now has a bag, and is able to use the solar light at night to study and finish her homework, which also helps us to save money on buying more candles."

REABETSWI MASHIGO/CITY PRESS (SOUTH AFRICA)

Wanted: Female Stem professionals

Girls2Pioneers draws girls to science, technology, engineering and maths

By OLIVIA HO

TODAY, they are young girls taking apart printers and doodling designs for drones.

Tomorrow, they could be making the next great scientific breakthrough.

Such is the vision of Girls2Pioneers, a campaign to get more young girls in Singapore interested in the traditionally male-dominated fields of science, technology, engineering and mathematics (Stem).

Founded last year by the Singapore Committee for UN Women, the programme holds day camps and field trips for girls aged 10 to 15, exposing them to fields that range from engineering and cyber security to astrobology.

Girls2Pioneers organiser Mirinalini Venkatachalam said that gender stereotypes and a lack of female role models can discourage girls from taking the courses necessary to enter these fields.

According to a 2010 survey by the Agency for Science, Technology and Research (A*Star), the proportion of men outweighed women by 30 per cent in Singapore's engineering and technology sectors.

There were about 19,000 male Stem researchers and scientists to about 6,700 female ones, and only 27 per cent of IT professionals were women.

Ms Venkatachalam, 30, said: "We're keen to empower the next-generation workforce in Stem."

"So much innovation and change is coming out of these four areas and it's appalling that half the population might not have the access to becoming a key part of those solutions."

The programme organised about 30 day camps for 3,000 girls last year.

Sponsored this year by MasterCard, it aims to reach out to another 3,000.

During the camps, the girls try their hand at activities such as building aqueducts from recycled materials, learning to write computer code, and even designing alien life forms.

They also get to go on field trips to Stem facilities.

On a visit to a cancer research lab, they experimented with cell

samples. On another to the Hewlett-Packard factory, they discovered how printer parts are manufactured.

Although the programme involves girls from all walks of life, Ms Venkatachalam said it is especially crucial for them to reach out to girls from low-income or at-risk backgrounds.

The group contacts them through family service centres and shelters.

She said: "These girls are doubly disadvantaged because their parents can't afford to send them for programmes or give them the same level of privilege as other students."

Girls2Pioneers also works with parents, teachers and employers to challenge existing stereotypes about women's roles in Stem.

Ms Venkatachalam said many parents she met worry that their daughters may not have a full family life if they enter demanding fields like Stem.

"But what if by doing this, you're restricting the next Marie Curie?"

Tanjong Katong Girls' School student Sneha Babu, who attended a recent programme, has decided she wants to be a stem cell expert.

"Science is really an interesting topic, as you can ask a lot of questions about it and you can theorise answers, discover and explore," said the 14-year-old.

"I would be the first girl in my family to go to college and study. I want to help the community and pursue my dreams."

Added Da Qiao Primary pupil Rachel Foo, 11, who attended a Girls2Pioneers day camp: "I like technology because with technology, you can make things, that you could only imagine, real."

oliviaho@sph.com.sg

WATCH IT

www.straitstimes.com

See what the girls get up to at a Stem camp

Download a QR code reader app on your smartphone and scan this code for more information.

Top: Students from Tanjong Katong Girls School trying out a prototype of an aqueduct at a day camp organised by Girls2Pioneers. Above: Google sales strategy and operations associate Cassie Chan, a volunteer with Girls2Pioneers, guiding a group of Secondary 2 students at the camp. ST PHOTOS: TIFFANY GOH

Special jacket delivers ‘virtual’ hugs

Pressure vest is world’s first with smartphone app activation

By OLIVIA HO

WISH you could hug a loved one who is not by your side?

That thought first crossed Dr James Teh’s mind when he was dating a Singapore Airlines stewardess, who is now his wife, six years ago.

“I missed her when she was flying around the world. And I’m a scientist. When faced with problems, we try to creatively solve them,” said the computer and electrical engineering researcher at the National University of Singapore (NUS).

And that idea grew into something bigger – a jacket that can remotely “hug” people with special needs to calm and console them.

The T-Jacket, as it is called, is a deep-touch pressure vest that uses air bags inside it to simulate a hug for its wearers.

While there are similar inventions on the market, it is the first in the world that can be controlled via a smartphone app using bluetooth. It has a range of 10m.

It helps those with conditions such as anxiety, autism spectrum disorder, attention deficit hyperactivity disorder and dementia cope

with their anxieties and improve their attention span.

Said Dr Teh, 34: “The jacket can be used in a very discreet way that is convenient, and can apply different levels of pressure, helping wearers to be more functional in their daily lives.”

The vest is the star product of Singapore start-up T.Ware, which Dr Teh co-founded with two fellow NUS graduates in 2011. So far, about 500 have been sold.

Today, T.Jacket, which is manufactured in China, is used in over eight countries and territories, including Australia, Indonesia and Taiwan.

Its Singapore clientele includes more than 20 special-needs schools, homes and therapy centres. Dr Teh estimates the invention has helped about 600 beneficiaries and caregivers around the world.

Mr Alex Liau, 32, clinical director of special-needs therapy centre Nurture Pods, said T.Jacket has been effective for some of the children he works with. He said: “The jacket puts pressure on major muscles to calm them down.”

T.Jacket is also lighter than other therapeutic garments weighted with lead.

Said Mr Liau: “The aim is not to wear the vests forever. Once the child shows better behaviour, we can reduce the pressure.”

The hugs from T.Jacket have a calming effect on Chow Jing Kai, eight, who was diagnosed with mild autism when he was two.



Dr James Teh, 34, demonstrating the T.Jacket – a pressure vest that can remotely “hug” people with special needs when they are feeling distressed to calm and console them. The jacket can also be activated by the wearer. PHOTO: AZIZ HUSSIN

When he got nervous in the past, he would roll around on the floor, hurl objects or start shouting.

His mother Annie Tan, 45, would hug him tightly, the pressure from her touch calming him down. But the customer service

provider could not always be around to do this for her son.

Over a year ago, her son started using T.Jacket. His therapist or



teacher in school helps to activate the vest. Jing Kai can also do it himself.

Ms Tan said: “The jacket is like a person holding him. He feels secure and it calms him down very fast. As parents, it is also less stressful for us.”

There are two versions of the vest: The basic one costs \$549, while the premium version, which offers more customised pressure control, retails for \$799. Sponsorship from DBS Bank allows T.Ware to sell it at subsidised prices of \$250 or less for local partners.

The vest is now sold in Singapore, Japan, Germany and Belgium. It is also undergoing trials by US government agencies to see if it can help ex-soldiers with post-traumatic stress disorder.

Said Dr Teh: “We are proud that as Singaporeans we have been able to do something useful like this. We definitely feel that we came up with something truly revolutionary.”

oliviahho@sph.com.sg

BE MY EYES



The iPhone app Be My Eyes connects users who are blind with an army of sighted volunteers. PHOTO: EMIL JUPIN & THELLE KRISTENSEN

Phone app ‘lends’ eyes to those who are blind

MS KAMILLA Ryding has had severe visual impairment since birth but that has hardly slowed her down.

The 29-year-old, who is building a research career in her native Copenhagen, has lived in the United States and Australia. She is also a competitive distance runner.

But still, there are times when she wishes she could see, if only for a few seconds.

Thanks to fellow Dane Hans Jorgen Wiberg, she now can. Mr Wiberg is co-founder of the iPhone app Be My Eyes, which connects users who are blind with sighted volunteers.

Users access the app using the iPhone’s VoiceOver controls (an Android version is under development) and Be My Eyes rings the first available volunteer.

The two are connected over the user’s video camera and the sighted user lends his eyes for a fairly mundane task, such as checking the expiry date on food.

It is a process Mr Wiberg refers to as micro-volunteering. “A lot of people want to do something good, but they are busy,” he said. “With this app, they

have an opportunity to help out if they have time.”

Ms Ryding, who has only 1 per cent of her vision left, said she typically uses Be My Eyes once a week, primarily for help in identifying household goods.

Mr Wiberg himself is visually impaired, and many of his friends who are blind were already using their iPhones to get help from family and friends for small tasks. A craftsman by trade, he had no real tech experience, but knew there must be a way to connect blind and sighted users on a larger scale.

In 2012, he presented his idea at a Danish start-up conference and Be My Eyes was born.

Less than three years later, the app was officially launched. The next thing he knew, he was at the helm of one of the year’s fastest growing apps, with about 200,000 sighted volunteers, 18,000 users who are blind and connections in 80 languages.

With the app, users who are blind no longer have to rely solely on family and friends, which keeps them from feeling like a burden.

JUSTIN CREMER/SPARKNEWS

BE MY EARS



Professor Yeny Carías is part of a team behind software that translates voice messages to Honduran sign language. PHOTO: MARVIN SALGADO

Software translates words into sign language

A 3D humanoid avatar, designed to capture the voice of the teacher and translate it into sign language, is set to become the new classmate for students with hearing problems.

Professor Yeny Carías, 32, and a team of professionals, are behind the project.

Prof Carías, who teaches at the faculty of engineering at the National Autonomous University of Honduras, said the software serves as a bridge between those with hearing problems and the outside world.

To use it, the student would need a computer, a microphone and Internet access.

The teacher would simply

need to focus on the correct pronunciation of words, so that the avatar can pick up the message correctly and translate it into sign language.

The team works closely with those who are deaf to record short videos with words in sign language for the software.

The project is designed for higher education, in areas such as mathematics, computer science and engineering. But it could potentially be put into use in schools and colleges, benefiting a large segment of the 70,000 people with hearing problems in Honduras.

YANIVIS IZAGUIRRE/EL HERALDO (HONDURAS)

To use the software, the student would need a computer, a microphone and Internet access. The teacher would simply need to focus on the correct pronunciation of words, so that the avatar can pick up the message correctly and translate it into sign language.

BE MY HAND



Mr Nicolas Huchet with his BionicoHand, a robotic prosthetic hand that can be made cheaply using tools like 3D printers. PHOTO: FRANÇOIS TANCRE

3D printed prosthetic hands point way to future

At 31, Mr Nicolas Huchet may still have the laid-back look of a teenager but that is not to say he should not be taken seriously.

The young sound engineer is among 10 “innovators under 35” recently honoured by the prestigious US research centre MIT, which named him French “social innovator” for 2015.

He is the man behind the BionicoHand, a robotic prosthetic hand that can be made cheaply using widely available tools – like 3D printers – and is based on designs that will be made freely available online.

Mr Huchet lost his right hand in a work accident when he was 18. “As soon as I saw the prostheses offered by the French national health service, I knew I would never like it, even though it did allow me to do quite a few things,” he said.

It was 10 more years before he started the project that has completely changed his life. It was a visit to the Rennes “fab lab” – a production workshop that is open to the public – that kick-started the project.

“I was walking past a 3D printer and it got me wondering whe-

ther it would be possible to make a robotic hand that I had already found open source designs for.”

With the help of some 20 fab lab volunteers who offered their expertise in fields such as electronics, coding and prosthetics, an initial prototype was put together in five months at a cost of €300 (\$454).

Sensors placed in the forearm convert the energy created by tensing muscles into electric signals that tell the fingers to move.

The BionicoHand was born.

Said Mr Huchet: “The prototype isn’t quite developed enough for (daily) use – there’s still some work to be done.”

The “My Human Kit” foundation was set up to support the project which is estimated to require annual funding of between €160,000 and €200,000.

The final version of the BionicoHand will cost between €1,000 and €1,500, compared to €11,000 on average for entry-level models on the market.

Said Mr Huchet: “Normally, making robotic prostheses is a high-tech process, but with us it’s all about ‘low tech’.”

PAULINE FRÉOUR/LE FIGARO (FRANCE)

‘Hearing’ the textbook

DR RAGIB Hasan was moved by a news story in mid-2013 about the lack of education materials for visually impaired students in his home country, Bangladesh.

But instead of just signing, Dr Hasan, an assistant professor in

computer and information sciences at the University of Alabama, thought of what he could do as a scientist.

He set up a Facebook group – <http://www.facebook.com/groups/banglabraille>

– and requested volunteers to join and help type the school textbooks in Unicode.

The objective was to turn those Unicode versions easily into Braille and to create audio versions.

Within a few days, he had received tremendous response. To date, 3,069 volunteers have helped type the books – part by part – after downloading them from the website of Bangladesh’s textbook board.

Volunteers also helped create the audio versions.

So far, 24 audio and 24 digitised books have been released free on the website – www.banglabraille.org. Dr Hasan said: “We are also

planning to upload audiobooks on inexpensive MP3 players and then distribute them among visually impaired children for free.”

PORIMOL PALMA/ DAILY STAR (BANGLADESH)

Potable water filter system that's light and portable

It turns dirty water into drinkable water in the same time it would take to run it from the tap

By OLIVIA HO

IT weighs no more than 300g, fits easily into a backpack and looks like any other plastic bag.

But the simple device is a life-saver for people who have no access to clean, drinking water.

The bag, called Fieldtrate Lite, filters dirty water, such as river water, through a membrane and turns it into potable water in the same time it would take to run it from the tap.

It is the brainchild of Singapore start-up WaterROAM, which designs portable water filtration systems for use in disaster relief operations or rural communities without access to clean water.

The social enterprise, set up last August, is run by Mr David Pong, 26; Mr Lim Chong Tee, 24; Mr Vincent Loka, 22; and Mr Pooi Ching Kwek, 27. They were schoolmates at the National University of Singapore (NUS).

Mr Pong, WaterROAM's chief executive, said: "It's our vision to build a world where no man shall face prolonged thirst."

The Singaporean, who has a degree in business administration, said: "In the areas we went to, such as Phnom Penh and Bintan, we saw kids stunted in growth from having no proper nutrients and clean drinking water."

The team hopes Fieldtrate Lite can be the answer to the prob-

lem. WaterROAM also has a more elaborate filtration system, called Fieldtrate Plus, which is the size and weight of a large suitcase.

To date, the company's filtration systems have provided drinkable water for nearly 1,000 people in three countries, including an orphanage in Bintan; a village in Phnom Penh; and victims of last December's floods in Kelantan.

Mr Lim, chief marketing officer of the start-up, said he got interested in water sanitation after a trip to Phnom Penh during his junior college days.

There, he saw a boy drinking dirty water from a flooded well. "The water was very brown, even greenish, but he drank it anyway. It really affected me."

He decided then to study environmental engineering in university, so that he could help tackle water problems. He is now three years into his degree course.

Mr Loka, who is WaterROAM's

financial controller, said clean water can be scarce in his hometown of Medan in Indonesia because of frequent flooding.

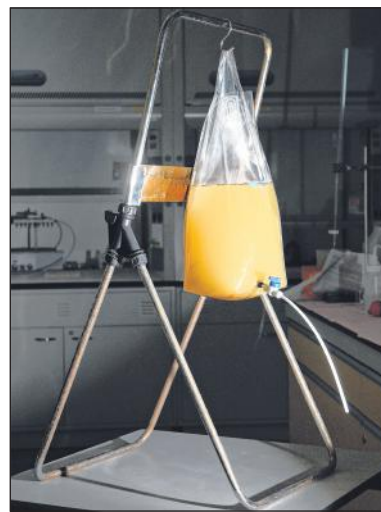
"I took this path because I hope to contribute to my country some day," said the final-year environmental engineering student.

WaterROAM now sells the filters to non-governmental organisations such as World Vision, Cactact and Relief.sg, which take them to overseas communities.

The team members also fly in – sometimes paying for flights out of their own pockets – to help install the systems and educate users on water hygiene.

Mr Pong, who went to Kelantan in March, said: "Three months after the flooding, many people were still relying on relief aid for bottled water. We want to help deploy systems which are more sustainable."

Mr Pong graduated from NUS last year; the rest are juggling their WaterROAM responsibilities



The device is the brainchild of Singapore start-up WaterROAM.

WATCH IT

www.straitstimes.com

The inventors explain how the filtration system works



Download a QR code reader app on your smartphone and scan this code for more information.

with their studies.

But Mr Lim said the pressure was "not daunting". "This is my dream job," he said.

✉ oliviaho@sph.com.sg

How the 'plastic bag' produces clean water

FIELDTRATE Lite, designed by WaterROAM, is easy to operate and does not require electricity. Each bag, which costs \$35, is made of medical-grade plastic

and fitted with a tube that dispenses filtered water.

It takes just an hour to filter a full bag of six to 10 litres of water, which can serve a household of five to seven people.

It can last three to five years because it uses ceramic

membranes, which are more durable than the widely-used polymeric membranes which tear more easily.

The WaterROAM team says it is the first to use ceramic membrane technology, which is more commonly used for industrial waste management.

WaterROAM also has a more elaborate filtration system, called Fieldtrate Plus – at 30kg and sold for \$1,500. It can produce up to 500 litres of clean water per hour.

WaterROAM's next step is developing Fieldtrate X, a filter which can handle water

containing arsenic, which is a major issue for ground water in areas such as Bangladesh.

A prototype is being tested by the Bangladeshi government, and the team expects it to be ready for use in the field in six months' time.

OLIVIA HO

Making, moving biogas easily

MS BELETE Tura straps a large, lightweight pack to her back before starting her short walk to a nearby biogas facility in Arsi Negele, in the Central Rift Valley of Ethiopia.

She is participating in a pioneering scheme that gives her clean and affordable energy.

The inflatable pillow, or B(pack), is a biogas backpack created by B(energy), a social enterprise in Germany. The project helps poor rural communities turn their organic waste – such as manure or kitchen waste – into energy.

The founder of B(energy), Ms Katrin Puetz, is an agricultural engineer who learnt about the potential of biogas while studying for her degree.

It's a cheap and renewable source of energy: The dung of one goat mixed with kitchen waste and waste water produces enough biogas to supply the daily energy needs of three people.

While working on her master's



B(pack) is a biogas-filled backpack, seen here being used in Ethiopia, that weighs less than 5kg when fully inflated. It is created by B(energy), a German social enterprise, that helps poor rural communities turn their organic waste – such as manure or kitchen waste – into energy. PHOTO: JAMES JEFFREY

thesis in Germany, Ms Puetz came up with a range of biogas products. She established B(energy) with her own savings.

The B(pack) has to be used with B(plant), a digester in which organic waste (manure, kitchen waste and agricultural residues)

and liquid (waste water and urine) are mixed together and decomposed anaerobically to produce biogas, which is mostly methane and carbon dioxide.

The digester is available in several sizes. The smallest, which costs around €200 (\$302), can

produce a daily biogas output of 2.5 cubic metres, or eight hours of cooking time.

Each B(pack) costs around €45 and weighs less than 5kg when fully inflated.

Ms Tura, who used to collect wood to burn for fuel, now

spends an hour each day cooking, instead of three.

She has been saving the equivalent of €10 a month in energy bills – a big sum as the average monthly salary in Ethiopia is just four times that.

MATTHEW NEWSOME/SPARKNEWS

The bus that runs on poo

WHO would have thought that poo could be a source of clean energy?

In Britain, there is a bus running between the city of Bath and Bristol Airport that operates on a very special type of biogas. Fuel is made from the excrement of the local population, which is collected after it has been treated at a water purification plant, along with food waste.

How can it be turned into energy? As the poo decomposes, it produces methane gas. This is then mixed with another gas called propane. Together, they create a fuel on which you can run an engine. The waste produced by a family of five over one year can run a bus carrying 40 people for 300km.

This new source of energy is far less polluting than petrol be-



The Bio Bus, or "Poo Bus" as it has been nicknamed, is powered by human waste and operates between the city of Bath and Bristol Airport. It is less polluting than petrol, and no, it does not emit any nasty smells. PHOTO: WESSEX WATER/REX

cause it releases very few greenhouse gases, which are a cause of global warming.

For comparison, the fuel releases 80 per cent less nitrous oxide and 25 per cent less carbon dioxide than a diesel motor.

Passengers need not worry: the Bio Bus, or "Poo Bus" as it has been nicknamed, doesn't give off any nasty odours.

The vehicle underwent trials in November last year. Since the start of this year, it has been oper-

ating a regular service.

Elsewhere in Europe, the Norwegian capital Oslo has started running around 100 buses operating on human waste.

A. TARIEL/ L'ACTU – MON QUOTIDIEN (FRANCE)

Table that stores, serves solar power

THE table in the garden of a family home in Niederlglatt, not far from Zurich, looks like many a garden table – simple design, chromium steel, matt finish.

But there's a difference: One leg reveals a cable that runs along the ground and ends up in a power point. The table top is black and turns out to be made of glass, covering a set of solar panels.

"My solar table is an energy-producing piece of furniture," said Mr Markus Weingartner, an electrical engineer, father of two, hobby innovator and furniture creator.

The "solar table" generates 280 kilowatt-hours of electricity a year, enough to cover 30 per cent of a person's energy consumption or to power an e-bike for 70km every day.

Mr Weingartner, 49, has his own business for solar installations. He designed the solar table in 2013 because he anticipated a change: "Ten years from now, we

won't be seeing a lot of solar panels on small roofs anymore."

Although solar technology becomes ever cheaper, he says, installation costs will remain high.

Mr Weingartner, who also builds solar panels for flower pots and coffee tables, said: "Ecology-minded people can do something for the environment without needing to obtain a building permit and having to spend 30,000 francs (\$43,437) on a solar installation."

His solar table costs 3,400 Swiss francs.

He has sold about 30 pieces so far, but he needs to sell at least 300 to cover his expenses – high in the hundred thousands.

But, he said, the solar table is the first step on his family's path to energy self-sufficiency. "The sun is a democratic source of energy."

CHRISTIAN ZURCHER, TAGES-ANZEIGER/NIEDERGLATT (SWITZERLAND)

SNIPPETS

Turning fog into drinking water

FOR the first time in North Africa, a new flagship project is turning fog into safe drinking water.

The "fog sensing" principle is a technique that uses a special net stretched between two poles to trap water droplets in the fog.

When the wind pushes the fog across the net, it condenses and falls into a container placed below the net.

The site where the nets are built for the "Reaping the fog" project is located in the mountains of Ait Boutmezguida, Morocco, at an altitude of 1,225m.

This unique project was initiated by the Association Dar If Hmad which promotes development, education and culture. It benefits about 400 people living in the village.

Women in the village were trained to use mobile phones to report on the progress of the project via SMS and phone calls.

FATIMA NAKHILI/ L'ECONOMISTE-MAROC (MOROCCO)

Storing solar, wind energy

HOW do you store energy from renewable sources?

A team from the Swiss Federal Institute of Technology in Lausanne (EPFL) has been working for four years on building a storage system that can store the energy and release it at times of peak consumption.

One project looks at producing a battery capable of storing solar and wind energy.

"The starting point was to use a redox battery," said doctoral student Veronique Amstutz, 29. These batteries, which were developed by Nasa in the 1970s, store energy in liquid form.

The battery is made up of a solution, a mixture of salt of vanadium (a metal) and water, which enables energy to be stored.

This is what makes the project unique: By passing the vanadium solution through a powder, a chemical reaction produces hydrogen. This production of hydrogen takes its energy from the liquid, which returns to the battery discharged.

"This process has many other advantages: It's cheaper, lasts longer than a lithium battery and is safer," said Ms Amstutz.

SOPHIE DAVARIS/24 HEURES

AND LA TRIBUNE DE GENEVE

(SWITZERLAND)

This rat can sniff out TB, landmines

NGO says its rats have helped clear 18 million sq m of explosive devices

AT A laboratory in Morogoro, Tanzania, an African giant pouched rat named Vidic is navigating a row of 10 holes in the base of a glass cage, under which lie trays of human sputum samples.

Stopping at one hole, he repeatedly scratches it, sending a signal to his human observers. He has detected the scent of the bacterium that causes tuberculosis (TB).

Rats are widely seen as pests in Africa, hated for the damage they do to crops and food stocks.

But Apopo, a Belgian non-governmental organisation, is changing perceptions of these rodents by training them to sniff out two lethal dangers: Landmines and TB.

Product designer Bart Weetjens was researching the issue of landmines in Africa in 1995 when he saw a publication about using gerbils to detect explosives.

Having kept rodents as a child, he knew about their acute sense of smell, intelligence and ability to learn. So that gave him the idea of using rats in de-mining operations.

He went on to develop Apopo through a partnership with the Sokoine University of Agriculture in Morogoro.

Apopo's landmine detection rats receive their daily training on an expansive tract of land on the university campus, kitted out in mini-harnesses attached to ropes. Training starts at 7am to protect them from the hot sun.

As their handlers guide them between markers, the rats stop



Weighing just over 1kg on average, Apopo's giant rats are too light to set off mines, unlike dogs. They also tend to be very focused. "One rat can clear 200 sq m in just 20 minutes," says a training supervisor. "It's a task that will take a human using a metal detector some 25 hours to complete." PHOTO: APOPO

and scratch at the ground when they pick up the scent of TNT. They are rewarded with snacks for identifying their targets.

Weighing just over 1kg on average, the giant rats are too light to set off mines, unlike dogs. They also tend to be very focused.

"One rat can clear 200 sq m in just 20 minutes," said training supervisor Lawrence Kombani. "It's a task that will take a human us-

ing a metal detector some 25 hours to complete."

Over nine months of training, the rats pass various trials before

progressing to live minefields.

The method has been highly effective.

Since 2006, Apopo says that its rats have helped to clear nearly 18 million sq m of explosive devices in Mozambique, Angola, Thailand, Cambodia and Laos.

Since 2007, Apopo's rats have also been tackling tuberculosis.

Mr Weetjens found inspiration for this initiative while reflecting on the Dutch word for tuberculosis - "tering", which refers to the smell of tar.

Trials began in 2002, and after a successful pilot, Apopo got seed funding from the World Bank.

Apopo now collects samples from 24 clinics in Morogoro and Dar es Salaam. Two years ago, the programme was replicated in Mozambique.

At just five weeks old, Vidic and his 30 fellow TB-detection rats work with TB samples which are sterilised to inactivate the harmful pathogens, but not their odour. Samples which Vidic suggests are positive are then re-tested via microscopy.

A rat can clear 70 samples within 10 minutes, or faster than a lab technician using standard microscopy.


The rats can work effectively for around seven years.

Apopo is undergoing accuracy tests in a bid to convince the World Health Organisation to accredit the technique.




The NGO said the rats detected an additional 39 per cent of cases that were initially found negative by screening at health clinics, or 1,412 cases last year alone.


Quality control supervisor Haruni Ramadhani said: "Mycobacterium tuberculosis can hide from the microscope lens but cannot disguise the odour it produces from our rats."

TESS ABBOTT AND SONGA
WA SONGA/SPARKNEWS




Our App cannot tell you how fast you ran, but we certainly can bring you up to speed in no time.





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This dog can sniff out a diabetic attack

IZZY is a five-year-old german shepherd, and a very special one: he has been trained to detect when his master is about to have a hypoglycaemic crisis, lose consciousness and slip into a coma.

A guardian angel for people who have diabetes, he can sense the crisis 20 minutes before it sets in.

His support has changed the life of Mr Angel Fraguada from Geneva, who has suffered from Type 1 diabetes for the last 14 years.

Mr Fraguada, who has worked as an acrobat in shows such as Cirque du Soleil, used to struggle with managing his diabetes and hypoglycaemia. "Many factors influence sugar levels in the blood; from stress to physical activity," he said.

Seven years ago, a first aider told him about dogs for diabetic people. He was in the United States at the time, where training pro-

grammes for such dogs have been in existence for many years.

That was how he started searching for a service dog. He attended courses in the US and he is now a trainer of lifesaving dogs.

He trained his german shepherd who has warned him of changes in his sugar levels, night and day, for the last four years.

"I trained Izzy to alert me when sugar leaves a determined safety range," he said.

Izzy often senses the change before it is detected by the glycaemia measuring machine. "Sometimes he starts barking 20 minutes before the sugar begins to drop or rise alarmingly."

This gives him the time to rebalance his blood sugar levels, either by having something sweet or injecting insulin.

Such dogs are trained to recog-



Izzy, a five-year-old german shepherd, has been trained to sense the crisis 20 minutes before it sets in.
PHOTO: LA REGIONE TICINO

nise a specific smell, undetectable by humans, which signals a change in blood sugar levels.

In Switzerland, Mr Fraguada is helping several families with diabetic children and adults find and train service dogs.

But not all dogs can do that. "The dogs must have a very sensitive nose, and it takes between six and 18 months to train them," said Mr Fraguada.

"But the master must be trained as well. The bond between the two is very important. My dog, for example, follows me everywhere, even in the plane."

SIMONETTA CARATTI/
LA REGIONE TICINO
(SWITZERLAND)

CLEANER AND GREENER

In many locations, infrastructures such as sewers and water treatment plants simply don't exist, and there is often not enough water available for flushing. We wanted to design a radically different type of toilet, without the need for hefty infrastructure, at the same time as offering spotless hygiene.

– Mr Christoph Luthi, project manager at Eawag

‘Blue diversion’ loo flushes away toilet blues

SIX billion people worldwide own a mobile phone, but only 4.5 billion have decent toilets.

To address this problem, Swiss researchers from aquatic research institute Eawag and the Vienna-based design firm EOOS have designed a new kind of toilet, called Blue Diversion.

It was designed as part of the "Reinvent The Toilet Challenge" set by the Bill & Melinda Gates Foundation.

Mr Christoph Luthi, project manager at Eawag, said: "In many locations, infrastructures such as sewers and water treatment plants simply don't exist, and there is often not enough water available for flushing.

"We wanted to design a radically different type of toilet, without the need for hefty infrastructure, at the same time as offering spotless hygiene."

Blue Diversion resembles a squat toilet made out of blue plastic, with two holes: one for urine and the other for faeces.

"The purpose of separating these is to facilitate the elimination of pathogens and save water," Mr Luthi explained.

Through a nitrification process, the urine is converted into fertiliser on site.

However, what makes it radically different is the integrated independent water circuit.

Mr Luthi said: "We have fitted our toilets with a shower head to clean the pan and also ensure anal hygiene, as practised in a great number of countries, as well as a sink to wash the hands.

"Whenever the water flows, a valve automatically shuts off the urine and faeces tanks. This enables almost all of the liquid to be recuperated."

The dirty water is disinfected by a built-in gravity-driven membrane filter. A solar-powered electrolysis system then produces chlorine, preventing undesirable bacteria from forming.

In 2013, the first prototype of Blue Diversion was successfully tested in Uganda. A new prototype is now being tested in Kenya.

Blue Diversion was awarded the 2014 Prize for Innovation by the International Water Association.

Said Mr Luthi: "Mass production will reduce the cost. The objective is to achieve a selling price of US\$500 (S\$667) per appliance, for a projected lifetime of 10 years."

BERTRAND BEAUTE/
24 HEURES (SWITZERLAND)



Blue Diversion resembles a squat toilet made out of blue plastic, with two holes – for urine and faeces. Through a nitrification process, the urine is converted into fertiliser on site. PHOTO: EAWAG/EOOS

SNIPPETS

Check out your risk of getting Alzheimer's with supermarket videogame

A NEW specialised videogame, developed by Greek scientists, promises to diagnose whether the user will face memory problems or develop Alzheimer-like forms of dementia.

Called "Virtual Supermarket", the user has to navigate the virtual supermarket and buy items displayed on a shopping list.

He or she can move to various locations in the supermarket by touching the green footprints displayed on the screen and can look around the virtual environment by scrolling left and right on the touch screen.

After purchasing all items on the list, the user must proceed to the cashier and pay using the correct amount.

Fifty-five people aged between 57 and 84 – 21 healthy and 34 with mild cognitive impairment – took part in the research programme.

It took people who had mild cognitive impairment about 18 minutes to complete the game the first time, while healthy participants completed it in 10 minutes.

According to the findings published in The Journal of Alzheimer's Disease, the game achieved correct classification rate of 87.3 per cent in diagnostic accuracy.

YIANNIS DEVETZOGLOU/TA NEA (GREECE)



Professor Robin Offord thought up a new way to treat post-partum bleeding. PHOTO: GENEVA TRIBUNE

Simple way to treat post-partum bleeding

SOME 140,000 women die every year due to uncontrolled bleeding after giving birth, and the vast majority of these deaths happen in developing countries.

There is a simple and effective drug to treat post-partum bleeding: Oxytocin.

But there is a problem.

"This compound does not tolerate heat or humidity. It deteriorates very quickly in these conditions," said Professor Robin Offord of the University of Geneva's medicine faculty.

To overcome the problem, he came up with the idea of changing the form of this drug.

"Oxytocin is available only in liquid form, but it would be more stable as a powder," he added. It took the scientists three years to develop it.

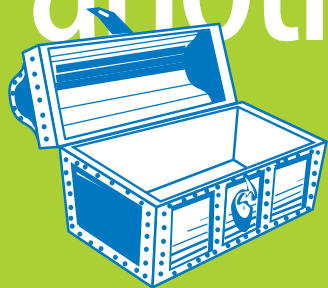
The researchers also came up with the idea of administering the drug using a plastic inhaler.

His team will be conducting phase I clinical trials.

The research requires US\$200,000-US\$400,000 (S\$267,000-S\$534,000), not including the cost of the drug.

BERTRAND BEAUTE / GENEVA TRIBUNE (SWITZERLAND)

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Floating solutions

Project to share low-tech solutions

Team plans round-the-world voyage to promote ideas

FRENCH engineer Corentin de Chatelperron spent six months out at sea alone in 2013, sailing around the Bay of Bengal on a boat he built out of jute.

His plan was to survive with only what he had on board.

But his potato and lemon plants died. His bamboo mast broke after termites ate into it. And his chickens ran away the first chance they got.

The self-described handyman said he learnt an important lesson: "When I'm alone, isolated and without the Internet, I am pretty useless. I can't be self-sufficient by myself."

Lesson learnt, the 30-year-old returned to his native France to start a new, more ambitious project called Nomade des Mers, or "Sea Nomad".

It aims to promote low-tech solutions – those that are simple, inexpensive, environmentally re-

sponsible, and respond to basic needs – across the world.

With European economies battered and environmental awareness rising, interest in low-tech solutions is growing, said Mr Kris de Decker, founder of online publication Low-tech Magazine.

Mr de Chatelperron and two full-time colleagues have created a website for sharing existing low-tech solutions and inventing new ones.

This spring they will build an 18m catamaran out of jute and flax grown in France. The plan is to launch it early next year and sail around the world, from France around the tip of Africa, across Asia, and then to the Americas.

They estimate they will reach 50 destinations in three years, promoting low-tech ideas at every port they dock at.

With close to 800 members

and growing, the Nomade des Mers website has already spawned the type of innovation and idea-sharing that the team is hoping for.

One member recently posted a video on how to make an energy-efficient stove with a few metal tools and some stainless steel tubes. Another showed how to make rope out of old plastic bags.

Explaining his vision for the project, Mr de Chatelperron said: "There are lots of low-tech innovators out there – engineers, NGOs, handymen and women, and people in poor countries, for example. But they're all in their own corners. The idea is to bring them together."

At each stop, the crew hopes to pick up new low-tech ideas.

But his dream is not without challenges. Attracting people outside of Europe will not be easy,



The Sea Nomad team of Corentin de Chatelperron (left), Ary Pauget, Louis-Marie de Certaines, Roland Moreau, Emmanuel Poisson, Elaine Le Floch, Pierre-Alain Leveque and Arthur Penet, and sponsor Roland Jourdain. PHOTO: ZEPPELIN

said Ms Mathilde Richelet, who works for Roots Up, an NGO in Ethiopia hoping to collaborate with Nomade des Mers. "Most low-tech innovation is happening

in poor countries," she said. "It will be difficult to find the people behind these innovations because they're often in remote places."

But Mr de Chatelperron is not

deterred. "It won't work right at first," he admitted. "But by the end of the journey, I believe we'll have it figured out."

ROSALIE HUGHES/ SPARKNEWS

Solar balloon brings electricity to disaster sites

HALFWAY between a balloon and a kite, a flying device called Zephyr is assisting those deprived of electricity in disaster areas.

Designed by students from the Ecole Nationale Supérieure des Arts Decoratifs in Paris, the device can generate energy anywhere.

It is made up of a box with an electrical transformer and a lightweight sail. Measuring 3.8m in diameter, the sail is covered with 15 sq m of lightweight solar panels.

Mr Cedric Tomissi, one of the two designers behind the project, said: "All you need to do is unfurl the sail and allow it to inflate."

"The balloon collects solar energy and transports it to the ground via a cable, while the batteries store surplus energy and take over the power supply at night."

The device can yield up to 3kwh of power, putting it on a par with a traditional generator.

It can supply lighting and heat-

ing to 50 people in, say, a refugee camp or an emergency hospital.

The designers have won several awards, including the 2014 James Dyson Award.

A technical feasibility study was carried out on the photovoltaic balloon in November last year.

The next stage is to build an initial prototype.

The team will need about €25,000 (\$38,000) to do that. It has received around €10,000 from

various prizes. A fund-raising campaign is set to run from September to January.

The team hopes to move the project into an industrial phase and start selling the device in 2018. About €1 million will be needed at this stage.

In the long term, the aim is to sell an entire range of balloons for various uses, including non-humanitarian applications.

Said Ms Julie Dautel, the other designer: "The balloon can be used for homes in remote areas where the roof cannot take the weight of traditional solar panels, at campsites and in nomadic encampments like those found in Africa and Asia. It can even be used to support communications technology."

CAROLINE DE MALET/ LE FIGARO (FRANCE)



The photovoltaic balloon is capable of generating energy in disaster areas where it is not possible to install land-based infrastructure. PHOTO: ZEPHYR

100 researchers help tackle the effects of climate change, thanks to the support of the AXA Research Fund



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Architect floats new way to educate slum kids

THOUSANDS of people in Nigeria migrate from their homes in the countryside to the city in search of greener pastures, but most of them settle in slums.

More than 200,000 people have settled in Makoko, a slum located in the Makoko-Iwaya community of Lagos, Nigeria's largest city.

To address the growing need for formal education in the area, Nigerian architect Kunle Adeyemi built a modern and eco-friendly structure named "Floating School" in 2012, with support from the Heinrich Boll Foundation and the United Nations.

Measuring about 100 sq m, the structure stands on a platform supported by 256 recycled blue



Nigerian architect Kunle Adeyemi built this eco-friendly "Floating School" for Makoko slum children to get an education. PHOTO: MAKOKO FLOATING SCHOOL

plastic barrels. At any one time, the three-storey floating wooden structure can accommodate 100 elementary school children, who get to school by boat. Each floor has a modern toilet and solar-powered electricity. The ground floor has an open space which serves as a playground.

But the beautiful structure, which was shortlisted for the London Design Museum's 2014 De-

sign of the Year Award, is in trouble.

The Lagos state government is unwilling to approve it as a school because the slum is considered an illegal settlement. Plus, the community has yet to assume full custody of the structure.

But a source said the community is ready to restart the project. BLESSING OLISA AND ADEOLA OGUNLADE /THE NATION (NIGERIA)

Floating hospital brings care to the poorest in Bangladesh

THE way basic healthcare is provided to some of the most impoverished people in Bangladesh underwent a sea change in 2002.

That was when Ms Runa Khan converted a river barge into the country's first floating hospital.

Today, her organisation, Friendship, works in the most remote and inaccessible islands and riverbanks of northern Bangladesh and the remote coastal belt

in the south.

It runs three fully operational hospital-ships which perform orthopaedic and reconstructive operations on board.

The non-governmental organisation also has more than 25 boats and river ambulances.

Some of the challenges she faced in the beginning still remain.

Said Ms Runa, 57: "Funding

was always a challenge. Yet the most painful challenge I face daily is when I have to make a decision on who to help and who to leave behind.

"Do I help a young boy in need of expensive heart surgery or do I give hundreds of people their vision back or cure women of cervical cancer?"

AMITAVA KAR/ THE DAILY STAR (BANGLADESH)

The lifeguard is a drone

Iranian engineer sees life-saving function for his robots

MOVE over Baywatch. An Iranian robotics engineer has come up with a life-saving drone that is three times faster than a human lifeguard.

Mr Amin Rigi, 28, hopes his invention can change the public's perception of drones which are still regarded with suspicion.

Mr Rigi's drone was initially designed to fly above the sea and drop up to three lifebuoys to drowning victims.

The latest iteration of his robot-

ic lifeguard, however, can convert itself into a hovercraft and bring a potential victim back to the shore.

"We think we can reduce the number of drownings and we can save lives," said Mr Rigi, who operates from a 250-sq m London co-working space for start-ups.

He hopes his devices can later be used to aid people who fall overboard from ships as well as those involved in car accidents, floods and fires, or people injured on hikes or stranded on oil rigs.

"We are thinking of drones that can actually be part of rescue missions," he said.

Roboguard, his most recent model, is waterproof and can land on and take off from the water surface. It can carry up to 15kg of equipment and move at speeds of up to 50kmh.

It can be outfitted with thermal cameras to aid in night-time rescues. It also comes with detachable arms and functions with more autonomy, relying more on GPS



During its trial in the Caspian Sea in 2013, the Pars rescue robot reached a potential victim three times faster than its human counterpart, in 22 seconds instead of 90 seconds. PHOTO: SAEID TALEBI

than on manual control.

Mr Rigi hopes he can come up with a solar-powered landing platform where the drone can recharge its batteries.

Two summers ago, successful

trials of his rescue drone were carried out in the Caspian Sea, where hundreds drown each year.

The trials included a race between the drone and a human lifeguard. His first prototype named

Pars, after the ancient kingdom of Persia, reached a potential victim three times faster than its human counterpart, in 22 seconds instead of 90 seconds.

Today, the rescue drone is on the verge of test production, with a first limited run of about 200.

Distributors from Brazil, Italy and Mexico have already bought the drone, priced at about €8,000 (\$\$12,000). Customers from eight other countries, including Australia, Latvia and the United States, are in negotiations to buy it.

Mr Rigi started RTS Ideas in Iran, but relocated his company to London last year, after he was accepted to Sirius, an accelerator programme that brings young entrepreneurs to Britain to help them launch their businesses. Now he receives help with living expenses, office space, mentoring and access to investors.

Said Mr Rigi: "It's not a matter of drones being good or bad. It's a matter of why we are misusing these technologies."

MILGRADE CHERFILS/
RTS IDEAS /SPARKNEWS

SNIPPETS

Play puts fresh spin on producing power

A US group has given the term "kid's play" a new spin.

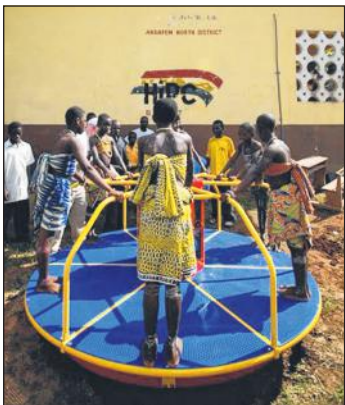
Empower Playgrounds, a humanitarian group that specialises in electricity-generating playground equipment, is helping to generate electricity in Ghana in a novel - and fun - way.

In Pediatorkope, a tiny impoverished island in south-east Ghana, the residents do not have electricity because the island is not linked to the national energy grid.

Empower Playgrounds came up with the idea of installing a special merry-go-round in the playground of a local primary school. When the children push and spin it around, it powers a turbine which creates energy.

The merry-go-round also recharges batteries which can power energy-saving LED lamps for more than 40 hours.

The children are



The merry-go-round produces energy when spun around and powers electric lamps which the children take home so they can do their homework at night.

PHOTO: L'ACTU-MON QUOTIDIEN

responsible for recharging the batteries during their playtime. In the evening they take these lamps home.

Thanks to these lamps - which are less dangerous than the oil lamps which many villagers use - the children are able to continue studying at home.

L'ACTU - MON QUOTIDIEN (FRANCE)

Sharing luggage space

THE name Jib.li, which literally means "bring it to me" in Arabic, is apt for an online platform that offers fast and cheap package delivery services.

The site was founded in 2011 by two Algerian computer scientists based in Paris. "There's always someone in our neighbourhood who needs to send medicine from here (France) or bring back a document from there (Algeria)," said co-founder

Riyadh Dahimene, 27.

It works this way: A user who wants something delivered or to offer a delivery logs on to Jib.li via his Facebook account.

Both parties negotiate a price. The fee, which can be paid by credit card, is deducted only after the item is delivered. The site charges a fee equivalent to 4.99 per cent of each transaction. Jib.li has nearly 4,000 users.

SAMIR GHEZLAOU/
EL WATAN (ALGERIA)

Mapping out sexual harassment cases

THE HarassMap is an initiative launched by four women confronting sexual harassment in Egypt.

The initiative came as a result of the rising rates of sexual harassment amid growing tolerance towards the phenomenon on Egyptian streets.

The organisation operates using open-source software FrontlineSMS and Ushahidi to create a system that receives anonymous reports.

The data is then used to create maps for areas where

sexual harassment occurs.

The HarassMap also organises events such as workshops and "open mics", where victims recount their experiences. It recently launched a video teaching women how to respond to harassers, focusing on harassment in universities.

Since the launch, activists from 25 countries have contacted the group for help to establish similar initiatives in their countries.

OMAR ABDELAZIZ/
AL MASRY AL YOM (EGYPT)

Helping seniors with health, interaction

THINK of it as Facebook for grandmas and grandpas.

Cubigo is an interactive platform bringing together healthcare-related applications for senior citizens. The digital platform has a simple interface made up of large "cubes" so that they are visible even for users with poor eyesight.

The "cubes" represent applications grouped under two main themes: Social interaction (such as a "chat" app with large characters) and healthcare needs (such

as an app to set up medical appointments and access to a 24-hour call centre).

The project - brainchild of Mr Geert Houben, 33 - was launched this year. It has been named by Google as one of the most promising digital projects worldwide.

Registration on the platform with some start-up cubes is free. The full subscription costs up to €30 (\$\$46) a month. Cubigo has close to 14,000 clients.

AMANDINE CLOOT/LE SOIR
(BELGIUM)

UNUSUAL PHONES

Just replace the part, not the phone

WHEN his digital camera broke during a vacation in Greece in 2012, Mr Dave Hakkens decided to take it apart and see what had gone wrong.

He found the source of the trouble: The lens motor had died - and could not be replaced. He would have to buy a whole new camera.

Mr Hakkens, 26, wanted to find something to change that. So, for his graduation project at the Eindhoven Design Academy, he decided to try and upgrade another piece of electronics almost everyone uses - the smartphone.

His concept was to design a modular telephone built of moveable blocks that would allow people to replace individual components of their phones separately.

He called it "Phonebloks" and posted a short video explaining the idea on YouTube in September 2013. Within 24 hours, the video had more than a million views.

In less than two months, he had engaged 800,000 people in a Thunderclap campaign to promote the idea via social media. Offers from potential business partners came in. Then Google called.

It turned out that its developers had been secretly working on a modular smartphone quite similar to Mr Hakkens' concept, under the name Project Ara. He was invited to the US to see the project, and Google offered him a job, he said.

He turned it down, and instead made a deal with Google that it

would open up its product development to the public and allow him, and his new community of modular phone backers, to become part of the development process.

"I wasn't interested in working for a phone company, and I didn't really want to dedicate myself to one company either," he said.

He regularly visits Project Ara headquarters and reports back to his followers on social media. Project

Ara is planning to launch a limited market pilot of its modular phone this year.

Mr Hakkens' Phonebloks site has become a campaign HQ of sorts for promoting electronics that produce less waste. While there were suggestions on how to leverage support for his project to raise capital and set up a company, he is not lured by the idea of getting rich, saying: "The idea is to keep things open and free, because that way everybody gets smarter and everybody wins."

NINA SIEGAL/SPARKNEWS



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