

How two green schools in Hong Kong are teaching sustainability to children and leading the way in local education community

Two Hong Kong institutions have been singled out as exceptional ‘green schools’ in the city, teaching ecological literacy that will stand their pupils in good stead as the job market increasingly values green credentials

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It's midday on a hot spring day and the “traffic lights” in a Year 3 classroom at The Independent Schools Foundation (ISF) Academy have just turned from green to orange. Students at the Pok Fu Lam campus start scurrying around to see which air conditioners are on and if any doors have been left open in what is possibly one of most intensely energy-monitored schools in the world.

“If the lights turn orange the students are prompted to think about how they are using energy in the classroom and how to save it,” says Anthony Dixon, managing director of Helios Renewable Energy. He helped set up the school's Centre for Renewable Energy Education (CREE) in October last year, as well as the solar rooftop microgrid featuring wall-mounted panels and battery storage.

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The school's Energybox traffic lights are part of 6,000 sensors that students and staff use to monitor energy usage. For Year 3 children they signal when the classrooms go from being powered by renewable energy to being powered by Hong Kong's fossil-fuelled grid. They are part of a group of sustainability education projects set up by former Silicon Valley engineer Diana Ibarra that make it a stand-out school in the region.

Twenty-two kilometres east in Siu Sai Wan is the Chinese Foundation Secondary School (CFSS). Unesco China singled out CFSS as an exemplary school for sustainable development. In every nook and cranny of the school there are homages to the environment.

At street level the school hosts a 600-metre "Environmental Trail". The trail includes Wi-fi-connected chilli plants grown from seeds that were sent to space and back, rows of fruit trees and scented gardens, and a birdwatching station that overlooks it all.



Upstairs at the school is a rooftop garden and coral corner, and hundreds of Chinese medicine herbs, each with their own QR codes.

“With species disappearing we were keen to promote biodiversity, and let students realise why biodiversity is so important,” says Au Kwong-wing, principal of CFSS. Since 2008, the school of 940 students has won 720 awards in sustainable development and “Stream” topics.



These two schools were unearthed after a crowdsourcing request was posted on Hong Kong Facebook groups earlier in the year looking for the greenest schools in the city. Over 150 comments later it was obvious that many schools in Hong Kong have embarked on sustainable journeys, doing things like celebrating green weeks, cleaning up beaches and recycling glass.

But it was The ISF Academy and CFSS that were most commonly cited as pioneers in a city that has vast biodiversity but relies on coal for energy and is a ground zero for waste. The prevailing consumer culture leads to more waste per capita every year, with falling recycling rates. Landfills in the city of 7.3 million people are close to bursting.



The three key pillars of a leading green, sustainable or eco-school are “campus, curriculum and community”, says Jenny Quinton, who has worked in Hong Kong for 29 years. She helped develop the English Schools Foundation (ESF) sustainability group, chairing it for 11 years, but left to start Ark Eden, an eco-education community in Lantau that runs workshops and summer camps to take children into nature.

Green schools aim for zero harmful impact, cutting down on as much energy, water and waste as possible on their campuses. Their curriculum teaches what has become known as “ecological literacy” and they do outreach in the community, Quinton says. The best schools become leaders and form cluster hubs. For all of this to happen, sustainability needs to be supported by all stakeholders, from the principal and the board right through to the janitors.

The projects can’t be stand-alone show projects. They must be integrated into the daily life and teaching of students

DIANA IBARRA

At The ISF Academy, the campus is set up not only to improve the ecological footprint of the school, but also to give unique learning opportunities to its 1,800 students.

The school has a “rocket” composter that turns food waste into soil within two weeks for the school’s organic and biodiversity gardens. In the first year the rocket churned through 27,000

kilograms of food waste, working out at about 90 grams per school member per day. Meanwhile an air pollution monitor lets students compare what they are breathing in at school to the nearest station in Central.

“The projects can’t be stand-alone show projects,” says Ibarra, who runs the Shuyuan science and sustainability programme at the academy. “They must be integrated into the daily life and teaching of students.”

Year 12 student Sunny Chen used the CREE to work out how the size of the nozzle on the school’s hydroelectric turbine affected its power output. After her research, the school changed the nozzle for one that produced maximum energy. Meanwhile 16-year-old Vanessa Liew was part of a team that won seed funding to kick-start a Donut Waste project. Now they sell gardening kits around Hong Kong using compost from the rocket composter to grow discarded roots and seeds.

“We are promoting the regrowth of plants and it’s a great opportunity for younger kids to engage,” Liew says.



Ibarra is working with Stanford University to introduce models of best practice in STEM education to Hong Kong. “We believe that if you can change the behaviour of school students, there’s a multiplier effect.”

In the Science and Sustainable Development Resource Centre at CFSS, students work with more than 200 types of traditional Chinese medicine and 250 specimens in the seed bank. One student looked at “The magic of mints” and showed how, when it is combined with lime or lemon, it had more antioxidising power. Meanwhile, the Geology and Climate Change Resource Centre houses a mineral, rock and fossil collection, an exhibit of all the mass extinctions, and a flip-through display where younger students can check out “One minute of global warming”.



The focus on sustainability comes as the OECD said in a 2014 report that the workforce will change and start demanding people with “green skills”. With the signing of the Paris climate accord and the UN’s focus on its “17 sustainable development goals”, students need to be able to do carbon and waste audits, impact assessments, and other such things.

“Sustainability needs to be both conceptual and experiential if we are to effect global change in habits and lifestyles,” says Dr Malcolm Pritchard, head of school at the ISF Academy. “This next generation must be creative stewards, changing behaviour now to protect their future.”

But the creative sustainable thinking seen in these schools is not replicated across Hong Kong. Most schools still have an industrial mindset, and focus on content and exams, Quinton says. On top of this, many schools are vast generators of waste and consumption, according to Paul Clarke, author of *Education for Sustainability: Becoming Naturally Smart* and professor of education at St. Mary’s University in London.

There must be immediate actions, and mid-term strategies and long-term policies, to deal with mounting environmental challenges

GEORGE JOR, GRATEFUL GREEN GROUP

The Hong Kong government gives out green school awards annually to promote sustainable practices, with 840 schools out of a potential pool of around 2,100 entering the scheme since it started in 2000. But while there is a rise in activity across schools in Hong Kong, Clarke says there is generally “a serious lack of effort by senior leadership of the schools and leaders of the education system as a whole to embed and enhance and network the learning”.

Sustainable development is not part of the core curriculum in Hong Kong, according to Tim Au, who teaches general education at the Caritas Fanling Chan Chun Ha Secondary School. “It very much depends on an individual teacher’s choice whether to teach it, and to what extent,” he says.

Teachers are unlikely to embark on this course unless the school supports them and helps them find charity partners. That’s according to George Jor, director of Grateful Green Group – a charity for biodiversity and environmental education – and also an adviser to the Hong Kong government.

“The Hong Kong government has the resources, the power, the knowledge and skills to partner with schools, green NGOs and parents to lead our younger generation and educate them on sustainable development,” Jor says. “But there must be immediate actions, and mid-term strategies and long-term policies, to deal with mounting environmental challenges such as climate change and disposable plastic pollution.”

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Clarke is working with schools around the world on how to educate for an “ecological age” which he says involves a move from “ego” to “eco”.

“We already know how to restore damaged ecosystems, we know how to design without waste by-products, we know how to grow food in resilient and regenerative ways, we know how to restore water and make it clean and available for all. But these are the first baby steps,” he says. “Schools can play a part in setting these steps in place.”

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