

# NEWS IN FOCUS

**PLANETARY SCIENCE** Curiosity's chief scientist plots Mars exploration **p.262**

**MISCONDUCT** Romanian academics launch effort to root out plagiarism **p.264**

**INFECTIOUS DISEASE** Uganda lab is a local hero in Ebola outbreak **p.265**



**GENOMICS** Silk Road expedition explores the genetics of taste **p.269**

P. PARKS/AFP/GETTY



Protesters in Qidong, Jiangsu province, persuaded officials to scrap plans for a waste pipeline.

## ENVIRONMENT

# Green protests on the rise in China

*Environmental groups use momentum to push for reforms.*

BY NATASHA GILBERT

For years, people in China have accepted murky air, tainted waters and scarred landscapes as the unavoidable price of the country's meteoric economic growth. But public dissent over environmental issues has been growing steadily in the communist nation, and now seems to be building the

foundations of a fledgling green movement.

In July alone, two separate demonstrations made international news when they turned violent. About 1,000 environmental protesters in the eastern city of Qidong, Jiangsu province, successfully persuaded officials to scrap plans for a pipeline that would have carried toxic waste from a paper-manufacturing plant. The event followed a demonstration earlier that

month by several thousand residents in the city of Shifang, Sichuan province, which halted the construction of a copper-molybdenum processing plant. Locals were concerned that the facility would release toxic fumes into the air and generate slag heaps that could leach arsenic into drinking water.

These recent successes come after a slew of ever-larger and more violent green protests over the past few years, as the environmental impact of China's growth becomes harder to ignore. The Chinese public has few legal or regulatory avenues to express concern about environmental damage, forcing people to demonstrate on the streets, says Li Bo, director of Friends of Nature, one of China's first green non-governmental organizations (NGOs), set up in 1993 in Beijing. "These demonstrations are evidence of the public anger and frustration at opaque environmental management and decision-making," says Bo.

Better access to mobile phones and the Internet has enabled protesters to share information and coordinate movements more effectively. The protests also seem to be shifting from rural areas — such as when 500 villagers in eastern Zhejiang province demonstrated in 2011 outside a solar-panel factory that they claimed had discharged waste into local rivers — to cities such as Qidong and Shifang, says Elizabeth Economy, director for Asia Studies at the Council on Foreign Relations, an independent think tank in New York. As the protests have become more visible, widespread news coverage has emboldened others to demonstrate despite police crackdowns, she adds.

Unlike environmental campaigns in the West, however, China's protests rarely have external coordination from green NGOs, says Economy. But some NGOs are now beginning to use the momentum created by the protests to push for regulatory and legal reforms that will improve environmental protections, says Tianjie Ma, who leads a programme on toxic pollution for the East Asia bureau of Greenpeace, the environmental campaigning organization headquartered in Amsterdam.

In what could spark a dramatic shift in green regulation in China, Friends of Nature is suing the Yunnan Liuliang Chemical Industry company for discharging 200,000 tonnes of waste into the Pearl River in the southern province of Yunnan — the first ▶

**NATURE.COM**  
Read more from  
*Nature China*:  
[nature.com/nchina](http://nature.com/nchina)

► time a grass-roots group has succeeded in bringing a case against a polluter in China. Friends of Nature and other green groups say that the pollution, which contains toxic chromium(VI), may have caused incidents of cancer in local villages. Bo says that the case “is a new initiative to allow pollution victims and entities like NGOs to bring cases to court against polluters”. The plaintiffs are demanding that the company pays 10 million renminbi (US\$1.6 million) to a compensation fund to clean up the damage.

“There are still lots of issues to be worked out,” Bo adds, “such as how to do environmental damage appraisals, and it is still not clear which parties are eligible to be plaintiffs.” The court has held two meetings in the past two months to discuss the case, and Bo expects a ruling by the end of the year. “We are hoping this will set a precedent” for other NGOs and members of the public to bring similar cases, he says.

Alex Wang, an environmental lawyer at the University of California, Berkeley, says that the lawsuit signals an opportunity for civil-society groups to play a part in environmental enforcement. But “only time will tell whether this turns into precedent or remains a one-time event. Too many promising initiatives like this one have languished once the initial publicity has died down,” he warns.

Green groups are also calling for improvements in the environmental impact assessments (EIAs) that companies must conduct before projects are given permission to go ahead. The public has 14 days to submit concerns and objections to proposed projects in China, but locals rarely have access to detailed plans and EIAs before it is too late, says Ailun Yang, who analyses emerging economies at the World Resources Institute, a think tank in Washington DC.

Yang says that companies should be required to disclose detailed information about the technologies to be used in projects, and to explain how they will dispose of waste. The government should also produce guidance for the public to make it easier for people to participate, she adds.

Keping Ma, a plant ecologist at the Institute of Botany, part of the Chinese Academy of Sciences in Beijing, says that China’s central government is developing a “more positive attitude” towards ecological and environmental issues. And local officials did act quickly to cancel the projects in Qidong and Shifang, he points out.

But the strongest pressure for reform comes directly from members of the public, who feel that their lives are threatened by pollution and environmental damage, says Bo. “Throughout several dynasties, China has a history of villages rising up and overthrowing regimes they could not tolerate,” he says. “I hope history does not repeat itself, because this has a high cost.” ■



## PLANETARY SCIENCE

# Mars scientists await feast of data

*As the Curiosity rover prepares to take its first trip across the surface, the lead scientist shares his hopes for the mission.*

BY ERIC HAND

John Grotzinger folds his rangy frame into a plastic leather booth at Conrad’s, an unassuming diner in Pasadena, California. It is nearly midnight, and a smattering of customers have drifted in for a late-night snack. In the booth on one side, members of a Neil Young tribute band relax after a gig; on the other, a personal-trainer-cum-actor is winding down from a script reading.

But Grotzinger, who is chief scientist for NASA’s Mars Science Laboratory mission, is trying to gear up for the start of his working day at the nearby Jet Propulsion Laboratory, as the rover Curiosity begins its fourth Martian day. Still riding the high of the rover’s triumphant landing on 6 August, Grotzinger says that he is “overjoyed” with the landing site, a level plain between the rim of Gale Crater and Aeolis Mons, the imposing mountain at the crater’s centre. But he is sobered by the demands of managing such a complicated machine and the 400-strong science team behind it. “I feel the burden of two-and-a-half billion dollars,” says Grotzinger, a geologist at the California Institute of Technology in Pasadena. “I feel the burden of the future of Mars exploration.”

Grotzinger’s job is to get the maximum scientific pay-off from that investment

during the two years or more that the rover is expected to remain active. His day will begin at 12:42 a.m. with a science discussion with the principal investigators for the rover’s ten instruments. But first Grotzinger needs breakfast and some coffee. One cup will do: the excitement of new data, which are expected in a downlink in two hours’ time, will be enough to keep him alert.

Grotzinger was a regular at Conrad’s in 2004, before and after his working days on the rover Opportunity, which landed that year along with Spirit, its twin, comprising the Mars Exploration Rover mission. Because the rovers were positioned on opposite sides of Mars, one team would be having breakfast while the other would be eating dinner. “The waitresses were always confused,” he recalls. This time there is only one rover, but still no standard working day. Adapting to ‘Mars time’ requires starting each Earth day 40 minutes later than the last to match Martian daylight, inducing a state of perpetual jet lag.

Grotzinger is already marshalling different opinions on where the rover should go for its inaugural drive, expected to take place in the next week. The first images from the rover’s navigation cameras suggested one possibility when they revealed

➔ **NATURE.COM**  
For more on  
Curiosity, see:  
[nature.com/curiosity](http://nature.com/curiosity)