research ministry that grants research permits, says that international researchers have been required to apply for permits and report findings to their Indonesian partners for a "long time". "It has been the normal procedure in Indonesia," he says.

Sadjuga says the government understands the importance of timely data collection at the site. "That is why we are currently speeding up the research permit process." He says that it normally takes researchers 14–28 days to gain a research permit, but for teams wanting to visit the city of Palu, where the tusnami hit, the ministry is trying to give them out within 7 days.

WORK IN PROGRESS

Two international teams, one from South Korea and another from the United States, have applied for permits, Sadjuga says. "We gave a research permit to a Korean team on October 10. The US proposal has not been granted a permit as the applicants have not completed all the requirements," he says.

Synolakis, who is behind the US proposal, says it will take at least another week to meet all the requirements.

A few Japanese researchers have collected data in the disaster area along with the local survey team. Taro Arikawa of Chuo University in Tokyo presented the preliminary results of their survey at a 10–11 October tsunami workshop in Singapore.

It is still unclear exactly what kind of underwater disturbance triggered the tsunami. Tide-gauge data, and reported tsunami height and arrival time suggest a source near the entrance to the Bay of Palu, says Liu, who convened the meeting. "It could be a submarine landslide triggered by the earthquake, or it could have been generated by sudden subsidence of the sea floor," he says. Arikawa plans to return to the disaster region this week to collect more data. He promised the meeting he would report back to colleagues who are unable to do field work in the area. "As long as the tsunami community exchanges ideas and information openly it does not matter so much whether I can get in," says Liu. "But there are so many different ideas and so much to do. Allowing only a few people to go in might mean that a lot of fresh evidence and information will be lost."

J. C. Gaillard, a geographer at the University of Auckland in New Zealand, says Indonesia is right to take control of post-disaster research. "No one knows and understands the context and local concerns, including research needed to enhance disaster risk-reduction policy and practice, better than the Indonesians," he says. "This does not mean that foreign researchers should be excluded."

The Indonesian government has submitted a draft law to parliament that proposes tougher penalties for foreign researchers who break existing regulations. ■

Plant biology is at the centre of a long-running saga over scientific misconduct.

MICHAEL GOTTSCHALK/PHOTOTHEK/GETTY

MISCONDUCT

Biologist cleared

French national research council absolves one lab leader of misconduct, and holds another researcher responsible.

BY DECLAN BUTLER

France's national research council has ruled that one of its plant biologists committed misconduct through manipulation of published figures, including data fabrication, but it cleared another researcher whom it had heavily sanctioned in 2015.

The ruling adds some clarity and closure to the long-running saga — although the cleared researcher, Olivier Voinnet, is now raising questions over how the French research agency, CNRS, handled its initial investigation.

The CNRS announced its conclusions on 3 October, following a fresh inquiry that it led — with the participation of the Swiss Federal Institute of Technology Zurich (ETH Zurich) — into five articles published by researchers at a now-defunct lab at the CNRS Institute of Plant Molecular Biology in Strasbourg, France. The lab was renowned for its work on a gene-silencing technique called RNA interference.

The CNRS and ETH Zurich each drew their own conclusions about their respective staff members, on the basis of the inquiry's report.

ETH Zurich said last month that the inquiry found "severe" and "intentional" manipulation of research figures. However, it said that Voinnet, a former leader of the Strasbourg lab and a prominent CNRS scientist who has been on secondment to ETH Zurich since 2010, "did not perform, order or scientifically endorse such manipulation". But ETH Zurich concluded that, as former group leader and a co-author of four of the papers, Voinnet bore overall management responsibility. The institution therefore extended until 2023 a probation it had implemented after its 2015 investigation, including monitoring his publication activity and assigning him a mentor.

The CNRS has now reached a similar conclusion with respect to Voinnet. *Nature* has obtained a copy of the conclusions of a 10 July meeting of the CNRS disciplinary committee, which advises CNRS management on appropriate sanctions. The document states that after studying the CNRS–ETH Zurich report, and after interviewing the inquiry committee's president and Voinnet, the committee found no evidence of serious wrongdoing by Voinnet — and voted 7 to 0 (with one abstention) in favour of no sanctions against him.

In a statement released on 3 October, the CNRS reiterated that its disciplinary committee had found no evidence that Voinnet was responsible for unethical manipulations of figures or data in the investigated papers. But, like ETH Zurich, it said that as a former head of the group, Voinnet bore some management responsibility, and so gave him a reprimand

that will stay on his record for three years, and which is 'category 1', the least serious sanction on the four-tier scale used in the civil service.

The finding contrasts with the 2015 CNRS investigation, which found Voinnet guilty of research misconduct and suspended him from the agency for 2 years — a category 3 sanction. At the time, the agency found no evidence of data fabrication, but said the intentional manipulation of figures breached ethical standards.

The CNRS has also now said that, in its joint report with ETH Zurich, the institutes concluded that another former researcher at the laboratory, Patrice Dunoyer, committed misconduct in the form of figure manipulations — and in corrections to the manipulated papers — including data fabrication. The CNRS said that Dunoyer would receive the category 2 sanction of a demotion, a more severe punishment than Voinnet's but still relatively low.

In 2015, Dunoyer had received a 12-month exclusion from the CNRS, without pay, for scientific misconduct, with 11 of those months served as a suspended sentence. Alain Schuhl, deputy director-general in charge of scientific affairs at the CNRS, told *Nature* that this suspended sentence will now kick into effect.

The latest version of the CNRS's official bulletin, published on 10 October, confirms the charges and sanctions against Dunoyer, and the reprimand on Voinnet. Yet the first version of the bulletin, published on 9 October, made no mention of the minor sanction the CNRS gave to Voinnet, which a CNRS spokesperson attributes to a "computing bug".

Dunoyer, who the CNRS statement says is on temporary assignment at the secretariat general of South Province of New Caledonia, his place of birth, has not replied to *Nature*'s requests for comment. Loic Dusseau, Dunoyer's lawyer, told *Nature* that Dunoyer asked him to consider whether to appeal the CNRS ruling, and says that Dunoyer feels the ruling is unfair and questionable.

"A reprimand is what I only should have got in 2015 — and not a two-year suspension."

DRIVING FORCE

The latest probe was instigated at the initiative of Voinnet, according to ETH Zurich, after he raised the possibility of more-serious misconduct than had been found in 2015.

Voinnet says that the "CNRS's reprimand is perfectly in line with the conclusions of ETH Zurich last month exonerating me". But he takes issue with the agency's 2015 ruling: "A reprimand is what I only should have got in 2015 — and not a two-year suspension."

Schuhl declined to comment on the seeming reversal of responsibilities in the CNRS's latest conclusions compared with 2015. He said that the matter of its 2015 investigation is closed.

Questions about papers co-authored by Voinnet were first raised in January 2015 on the PubPeer website, which allows anonymous commenting about research articles. The CNRS announced in April 2015 that it had set up a commission to investigate the affair — and in July that year, it announced the original sanctions against Voinnet. At the time, its official bulletin referred only to an inquiry commissioned in early 2015, and to an 8 June 2015 meeting of CNRS's disciplinary committee. *Nature* has obtained a copy of the confidential report of the inquiry, which comprised three CNRS scientists and two from other French research organizations who, between 29 January and 2 February 2015, inspected the relevant articles and interviewed several people, including Voinnet and Dunoyer. The report makes no mention of lab notebooks or raw data, unlike the latest investigation, and runs to four pages.

Voinnet hopes that the recent investigation will lift "the cloud of suspicion that has hung over many other members of the lab". But he told *Nature* that he now intends to take administrative legal action against the CNRS to challenge the grounds for his 2015 sanction. In response, the CNRS spokesperson said that the latest investigation has no bearing on the sanctions pronounced in 2015. ■

CLIMATE IMPACTS

Trouble brewing for beer prices

Extreme weather will cut barley yields and drive up drink costs, say researchers — but the increase could encourage more people to pay attention to climate change.

BY MATTHEW WARREN

Extreme weather caused by climate change can have devastating effects — and it turns out that not even beer is safe.

More-frequent droughts and heat waves in the twenty-first century will reduce global production of barley, finds a study published on 15 October (W. Xie *et al. Nature Plants* http://doi.org/cvtm; 2018). In turn, it shows, this will decrease the supply of beer, drive up prices and cut consumption, even under best-case climate-change scenarios.

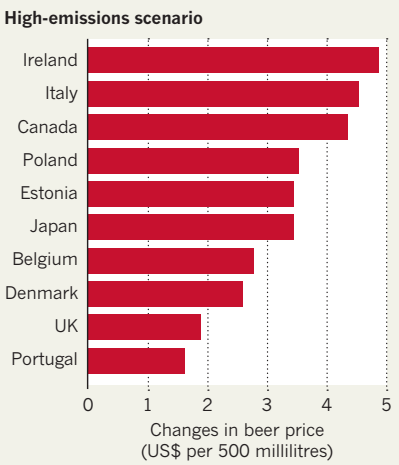
Studies have previously explored how climate change will affect staple foods and luxury goods. But nobody has considered how beer will fare, says Dabo Guan, a climate-change economist at the University of East Anglia in Norwich, UK. It might seem trivial to consider beer production, but Guan hopes that helping people to understand how climate change could affect their daily lives will motivate them to take action. "What I'm trying to emphasize here is that climate change will impact people's lifestyle," he says. If people "want to drink beer when we watch football, then we have to do something", he says.

The team began by examining the chances of major droughts and heat waves occurring in barley-growing regions on all six inhabited continents between 2010 and 2099. They considered four futures, based on different emissions scenarios, from low to high emissions throughout the century.

In each case, extreme weather was likely to become more frequent in barley-growing regions compared with the number of similar events recorded in the late twentieth and early twenty-first centuries. In the best-case scenario, the chance of extreme weather increased by a modest 4%, but the worst case saw a rise of 31%. The researchers then simulated the effect of these droughts and heat waves on barley production by using software to model crop growth and yield on the basis of weather and other variables. They found that, globally, ▶

CLIMATE'S TOLL ON BEER

Models show that during years of drought and heat waves driven by climate change, the global supply of barley — and therefore beer — will decrease and prices will rise.



SOURCE: W. XIE *ET AL. NATURE PLANTS* HTTP://DOI.ORG/CVTM (2018).