

Indeed, international aid has always been self-serving. Look no further than arguments from high-ranking officials against Trump's proposed changes. Although the cuts to USAID and the state department are intended to offset a US\$54-billion increase in defence spending, 121 retired generals and admirals sent a letter to Congress on 27 February, warning that a reduction in foreign assistance endangers national security. They wrote: "Many of the crises our nation faces do not have military solutions alone."

Many crises are best countered by viable science, technology and implementation strategies. And some USAID funds go into research that evaluates whether these interventions could be conducted more efficiently or with fewer unintended consequences. Take, for instance, the agency's President's Malaria Initiative, started by George W. Bush in 2005. The initiative supports parasitology laboratories in Mali that monitor whether subsidized malaria drugs currently given to healthy children are on track to avert an estimated 80,000 deaths per year in West Africa, as projected by clinical trials — and how rapidly those treatments are leading malaria parasites to become resistant to the drugs.

One useful by-product is that, with funding, researchers and labs in poor countries become better equipped to monitor and manage diseases before they escalate to an unstoppable point, as the Ebola outbreak did in West Africa — costing US taxpayers \$2.6 billion.

As political positions harden, it's worth pointing out that science at USAID is the applied variety that conservatives tend to favour. And that transparent analysis of methods and results allows inefficient programmes to be killed or adapted over time. Budget cuts that threaten this key part of aid will guarantee that wasteful programmes continue for too long.

In this sphere, social and economic impacts are as important as technical and scientific success. This is demonstrated by projects funded by USAID's Feed the Future Innovation Labs, which sponsor partnerships between agricultural researchers at US universities and those in low- and middle-income countries. One team, led by plant

pathologist Jagger Harvey at Kansas State University in Manhattan, is developing portable grain dryers that preserve harvested crops and keep them free from mould. A sign of the group's success is that small-scale farmers in Bangladesh are buying the technology. That renders it less likely to go the way of so many aid projects — ditched by the side of the road because they are impractical or unwanted.

Sustainability is also a key value of the agency's Global Development Lab, which launched in 2014 as a hub for US scientists with ideas on how to confront specific pressing challenges, such as emerging pandemics and a growing need for fresh water. One of the lab's grant winners, mechanical engineer Amos Winter of the Massachusetts Institute of Technology in Cambridge, installed a solar-powered desalination unit in southern India

in January. From the perspective of both USAID and Tata Projects, an Indian infrastructure company that has invested in the technology, the system is attractive because it's engineered to hit a price point. Specifically, Indian communities of roughly 3,000 people will be able use around 10,000 litres of fresh water per day, but they will not pay more than \$11,000 for the system. Until now, most off-the-grid communities have found solar-powered desalination units too expensive. As a result, they drink brackish water and suffer the health consequences.

Technologies such as Winter's system — engineered to be inexpensive and off-grid as a matter of necessity — may one day end up in rich countries, as fresh water and other resources become increasingly scarce around the world. In other words, the United States also remains competitive by having a hand in the development of innovations abroad.

On 27 January, the US National Academies of Sciences, Engineering, and Medicine published a report recommending more science at USAID. As co-author Michael Clegg says: "We enhance people's welfare around the world and we gain." ■

Keeping ahead

Uploaded timings from wearable devices motivate runners to outrun their friends.

In his 1959 short story *The Loneliness of the Long Distance Runner*, the writer Alan Sillitoe used solitary exercise as both a metaphor for life's journey and a literary device to explore the thoughts and feelings of his young and troubled protagonist. "The long-distance run of an early morning makes me think that every run like this is a life — a little life, I know — but a life as full of misery and happiness and things happening as you can ever get really around yourself," he wrote. And the isolation was a necessary part of the experience. "You should think about nobody and go your own way."

Nearly 60 years later, loneliness is out of fashion. The social network of wearable technology and data sharing now includes millions of people who use digital apps to measure, record and compare how often they run, how far and how fast. Competitive fitness is no longer a phrase used and understood only by evolutionary biologists. And if going your own way has become more difficult in this new runners' world, to think about nobody else is a rare thing indeed.

Scientists this week show that such exchange of information between runners has a real and measurable impact. People run more when their friends do. And when they see their friends run faster and further, they push themselves to do so too.

In the study, published in *Nature Communications*, researchers from

the MIT Sloan School of Management in Cambridge, Massachusetts, describe how they recorded the daily exercise patterns, geographical locations, and social-network ties of more than 1 million people, who between them ran more than 350 million kilometres over 5 years (S. Aral and C. Nicolaides *Nature Commun.* **8**, 14753; 2017).

Exercise, the results showed, is socially contagious. And the contagion breaks down along distinct lines. Whereas men are affected by the running patterns of both their male and female friends, women are influenced only by their female friends. And despite the aspirational spirit of sports-company adverts and marketing, and of elite athletes and champions, most runners in this study were motivated by a less noble ambition: to keep ahead of those behind them. This is a live debate in exercise psychology: whether upward comparisons to better-performing rivals urge us to improve, or whether downward comparisons compel us to work to protect our superiority over those lagging behind.

The study offers some of the first hard evidence that health-related habits can spread — and so perhaps could be deliberately seeded and encouraged — by social influence and peer pressure. Previous research has sought such a contagious effect in factors such as obesity and smoking, but the results have been inconclusive.

The new study is a further example of the power of social data collected and made available routinely on a very large scale. Runners cannot lie about their times and distances as they might be tempted to do in self-reported surveys. (Although the competitive nature of running does drive some to cheat and ride a bike.)

Sillitoe's lonely narrator liked to claim that running offered freedom. "I've got thoughts and secrets and bloody life inside me that he doesn't know is there, and he'll never know what's there." Perhaps not yet — but science is getting there fast. ■