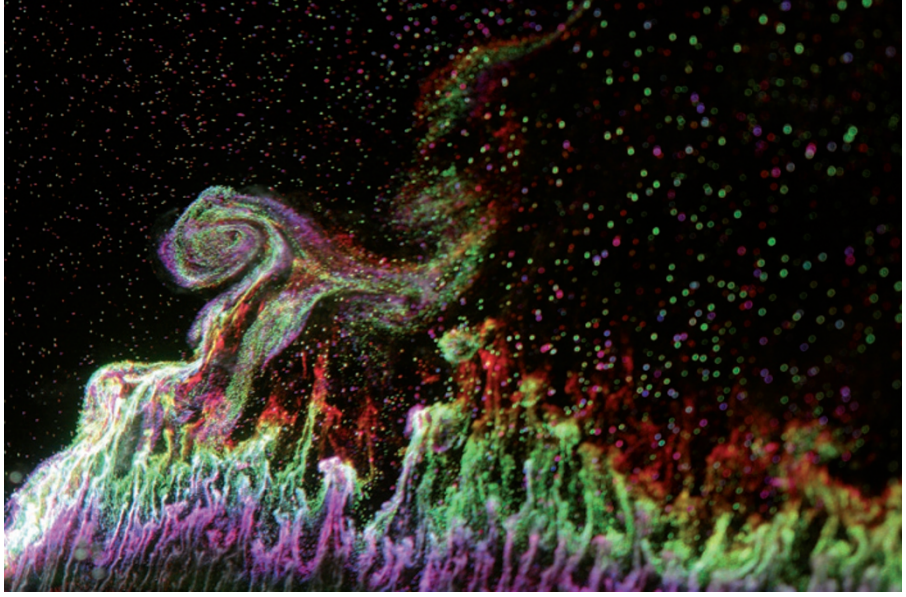

E. DOMNITCH, D. GELFAND

In *Hydrogeny* at the *Surface Tension* exhibition, an electrode in water yields hydrogen, revealed by a laser.

ENVIRONMENT

In at the deep end

A Dublin exhibition inspires a practical approach to water sustainability, finds **Anthony King**.

Seven billion of us rely on the 1% of fresh water that isn't locked away in, say, the ground or the atmosphere. And that 1% is distributed unevenly across the globe. An exhibition at Dublin's Science Gallery seeks to shake those of us in water-rich developed countries out of our complacency about this precious liquid.

Surface Tension brings together scientists, engineers, artists and designers to contemplate water in its forms from oceans to ice, asking two big questions. Can the planet's natural systems sustain our water use? And should water be managed as a commodity or a public good? Nearly 40 exhibits span themes including the scarcity of drinking water; pollution; the 'virtual' water hidden in production processes; the flow of water through cities and the wider water cycle; and future scenarios. The stories are told with urgency and humour, through sculpture and mechanical paraphernalia that tap, cleanse, chart or measure water.

Near the start of the exhibition is an 'intelligent' water meter from South Africa — an unprepossessing grey box about the size of a large cereal packet. Set to allocate each household 25 litres of free water per person a day, the meter makes a simultaneous statement about resource sustainability and social equity. Since the 1990s, municipal authorities have installed thousands of the meters in poor households, says curator Ralph Borland. But South African civil-society groups, such as the Anti-Privatisation Forum, have fought a long-running court case against the devices, which they see as preventing the common ownership of water.

Surface Tension: The Future of Water
Science Gallery, Trinity College Dublin. Until 20 January 2012.

Those 25 litres stand in stark contrast to the 575 litres used daily by the average US citizen. In Ireland and the United Kingdom, that figure is 150 litres — but increases to 3,400 litres when you account for that used in the production of energy, clothes, food and other objects. Food production uses some 70% of the world's fresh water; for example, through irrigation, industrial processing or watering animals. Fittingly, the gallery cafe offers a menu card totting up water footprints. From farm to plate, a steak swallows up 1,550 litres. And one Americano coffee? About 280 litres.

Artist Colin Hart suggests that the British and Irish may one day resort to less-palatable ways of getting a drink. Extrapolating from the use of 'reclaimed' water for drinking in Singapore, Hart presents a tank of canal water — complete with a running shoe and live minnows — which is filtered and offered to visitors to drink.

Avoid the bottled variety, suggests *Bottled Waste*, an exhibit by artist Hal Watts inviting you to turn a pump handle for three hours to fill a one-litre bottle. This effort represents the five megajoules of energy required to make the bottle, purify the water and ship it: more than 1,000 times the energy required to filter and pump a litre of tap water.

Regions with serious water issues are explored, too. Borland says that the state of play "is not so much to do with the physical availability of water, but arguably more to do with politics and power". *Transboundary Waters* is a map of the Middle East showing how the River Jordan, the waters of which are shared between several countries, has become a stage for both conflict and cooperation. For instance, Israelis use 7.5 times more water than Palestinians do, even though the Israeli population is less than twice the size of the Palestinian one. Some 40% of the world's population lives in lake and river basins that are shared by two or more countries (such as the Mekong and the Congo) according to the United Nations — and those regions could be flashpoints in the future.

Sustainability demands that we tease out new relationships with water. Because we use nearly 40% of our daily quota while bathing, showering or brushing our teeth, the exhibit *WaterWise* invites you to step into 2050 and imagine more-sustainable washing routines backed by technology and altered cultural norms. Two scenarios — derived from brainstorming sessions among researchers, product designers and other stakeholders in Ireland's water sector — show waterless washing solutions and dynamic washing, in which washing behaviour changes according to weather fluctuations. The scenarios are playfully depicted in a parody of the emergency instructions for airline passengers.

But what of the oceans, which hold nearly 98% of the planet's water yet host enormous localized soups of pollution? In *The Sea Chair Project*, a hand-powered water pump called a Nurdler sifts beach sand from the southwest of England to extricate nurdles — two-millimetre-diameter plastic pellets that are the raw material for injection moulding and a big problem in the oceans. The project envisages converting fishing vessels into factory ships to recycle this marine debris into chairs.

The varied and sometimes perplexing exhibits don't all paint bleak future waterscapes. One popular installation was a mechanical grid of tubes that gyrates and bobs while suspended on thin cables. Its movements track those of a data buoy lost and adrift somewhere in the Pacific Ocean. Once moored 380 kilometres southwest of Honolulu by the US National Oceanic and Atmospheric Administration, the missing buoy still collects data on wave intensity and frequency, which are scaled down and reproduced in the gallery.

Surface Tension drives home key messages on many aspects of our twenty-first-century relationship with water. In a world in which local depletion and degradation of supplies are acknowledged issues, awareness of local use is simple pragmatism. Equally important is the bigger picture — how research on water management and sustainability can be both liberated and hemmed in by social, political and economic factors. ■

Anthony King *is a writer based in Dublin.*
e-mail: anthonyjking@gmail.com