

News story: Drone rises to the challenge

The lightweight RISER drone uses lasers to self-navigate deep inside hazardous facilities where GPS signals cannot reach, and has already been used successfully at Sellafield.

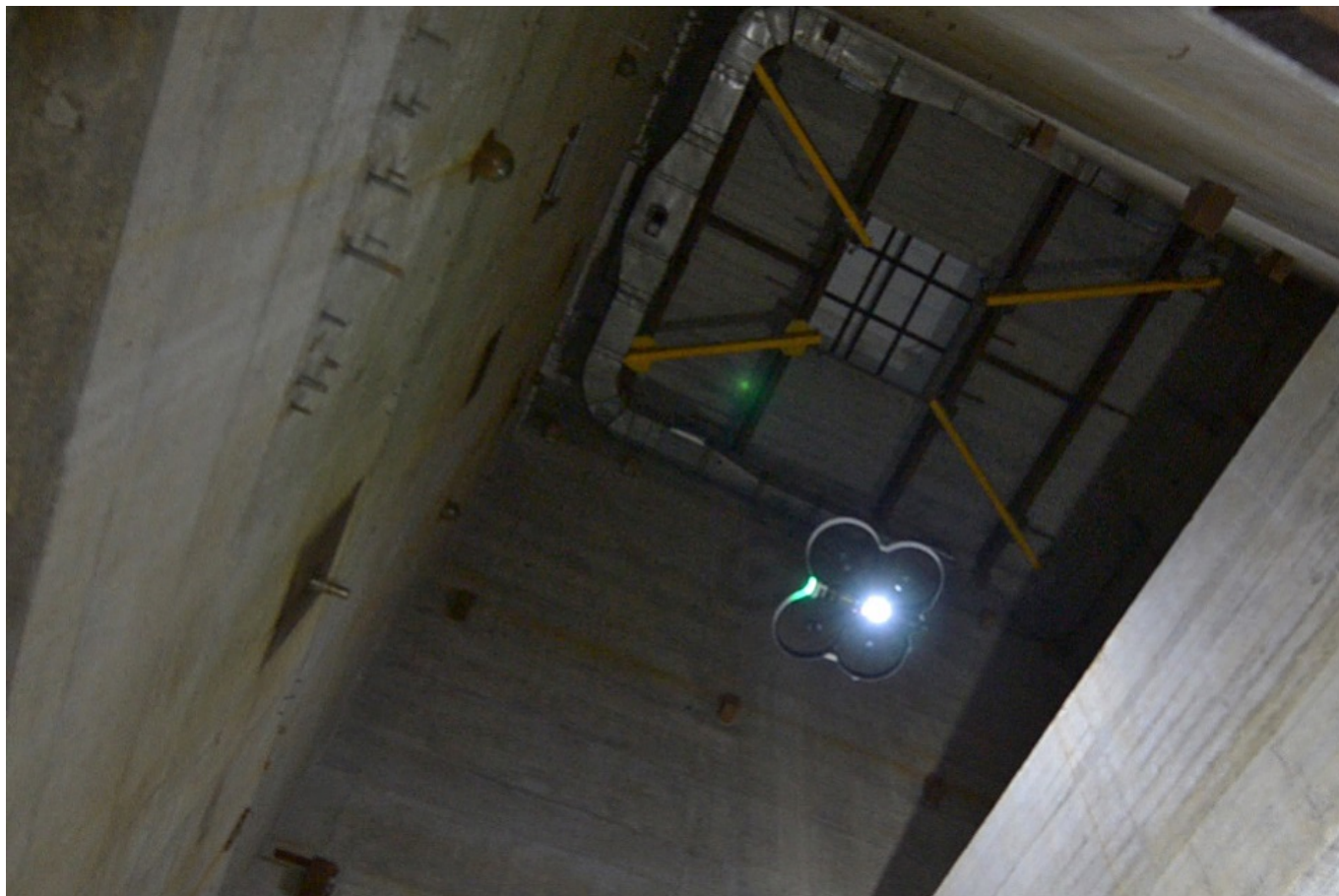
RISER carries a sophisticated radiation detection and mapping system which has been collecting vital information about conditions in the remaining Windscale Pile chimney. More than 60 years after the 1957 fire, the chimney remains highly contaminated.

Using remotely operated equipment is the only way to establish how the chimney can be cleaned out and finally dismantled.

RISER – Remote Intelligence Survey Equipment for Radiation – combines two separate pieces of cutting-edge technology: drones and radiation-mapping software. Each received Research and Development funding through the NDA and fellow government agency, Innovate UK.

In 2009, Createc's N-Visage™ radiation mapping software project was boosted during its critical early stages by a £50,000 investment from the NDA's R&D portfolio.

Three years later, the NDA joined other government organisations to invest further funds in a wide range of innovative nuclear projects. This led to the collaboration between Cockermouth-based Createc and aerial systems specialist Blue Bear, from Bedford. After a series of on-site trials at Sellafield, RISER was put into decommissioning action.



In action at Sellafield

The NDA's Head of Technology, Prof Melanie Brownridge, said:

We are thrilled to see RISER put to work in Japan, and delighted that our early-stage support for the N-Visage system enabled Createc to develop its potential further.

The subsequent collaboration with Blue Bear, again funded by the NDA through an initiative with Innovate UK, led to RISER. This shows the importance of funding innovative ideas through their journey from the drawing board to the market – not just for the NDA's decommissioning mission but for the wider UK and overseas economy.

The N-Visage™ tailor-made technology maps radiation with pinpoint accuracy, producing a high-definition 3D picture of contamination, quickly and safely. Developed and exhaustively tested over a number of years, it was first used inside one of the reactor buildings at Japan's Fukushima-Daiichi plant several years ago, and is now set to return, mounted on the drone. The system can be deployed through small openings, in tight spaces and high-dose environments. Dose to operators is reduced as the technology is remotely deployed.

The drone, or unmanned aerial vehicle (UAV), is less than one metre in diameter and navigates using its own internal 'collision avoidance' capability. Able to manoeuvre accurately inside complex industrial spaces,

data is transmitted to the mapping system and clearly displayed, highlighting areas of contamination.

[Press release: Planting the seeds for a flood resilient future](#)

A Sunderland school is more prepared for flooding after a rain garden planter was installed and the school's pupils created a flood plan as part of the Environment Agency's 'Flood Weeks'.

Community Engagement Officer Taryn Al-Mashgari helped the youngsters at Springwell Village Primary School develop a flood plan and 'grab bag' so they are prepared in the event of a flood.

And partners at Northumbrian Water installed a rain planter – which captures and stores rainfall from the school's roof – as part of its Rainwise initiative.

Youngsters at the school helped put flowers into the planter in an event on Friday 23 February and then 'tagged' the school with a flood warden logo designed by a pupil from Hetton Lyons Primary School.

This was done using Rainworks – an invisible spray which will only show the logo when it rains. It will remind pupils during key times to be aware of their flood resilience learning.

Initiative helps schools be prepared for flooding

A workshop held by the Environment Agency, Northumbrian Water and Northern Powergrid then also took place for parents and local councillors to see what the children have been learning and to see them demonstrate their newly-created flood plan.

It's part of an Environment Agency initiative to help schools across the North East be better prepared for flooding. Taryn works with children in all year groups to help them understand different types of flooding and how it happens.

They learn what to do before and during a flood, and what the flood warning symbols used by the Environment Agency mean. Taryn said:

It's important that younger people understand what flooding is, how it happens and what the different organisations that deal with flooding do.

We also teach them how to prepare for and what to do during a flood

in a series of interactive sessions where they design their own flood protection and describe how they would keep their favourite possessions safe.

It's absolutely devastating to be flooded and that's why we are working with schools and our partners to educate our future generations about what they can do to keep themselves and their valuables safe.

Spreading the word about managing rainfall

Northumbrian Water's Rainwise initiative aims to spread the word about how managing rainfall better can help increase capacity in the sewer network and encourages residents to make small changes around their homes and gardens.

Rain garden planters help reduce the risk of flooding by reducing the amount of water directly entering the sewer network, as well as slowing the amount of water that does.

Northumbrian Water's Project Manager, Chris Bond, said:

The Environment Agency's flood week gave us a real opportunity to work with the school to raise awareness of our Rainwise initiative and how it's important for families to manage rainfall better around their home to help reduce flood risk.

The planter captures rainwater from the roof of the school, which is then absorbed by the soil and plants and helps to take some of the pressure off our sewer network. It's been great working with the children to put in these plants, which builds their knowledge of flooding and creating new natural habitats.

For more information on Rainwise, visit [Northumbrian Water's website](#)

The Environment Agency is urging people to 'Prepare, Act, Survive' by visiting the [Floods Destroy website](#) and do three things to prepare for flooding.

- check your postcode and find out if you are at risk of flooding
 - sign-up for free flood warnings if you are at risk
 - view and save the 3-point flood plan so you know how to 'Prepare, Act, Survive' in a flood
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Press release: Planting the seeds for a flood resilient future

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Press release: Once-in-a-generation opportunity to shape future farming policy

Farmers, landowners and food producers have a once-in-a-generation opportunity to shape the future of English farming and the environment, with a consultation launched today (27 February) by Environment Secretary Michael Gove.

The government's proposals will see money redirected from direct payments under the Common Agriculture Policy (CAP), which are based on the amount of land farmed, to a new system of paying farmers "public money for public goods" – principally their work to enhance the environment and invest in sustainable food production.

Other public goods which could be supported include investment in technology and skills to improve productivity, providing public access to farmland and the countryside, enhanced welfare standards for livestock and measures to support the resilience of rural and upland communities.

In line with its manifesto commitment, the government will continue to commit the same cash total in funds for farm support until the end of this Parliament in 2022.

It has today set out proposals for an 'agricultural transition' lasting a number of years beyond the implementation period during which direct payments would continue, providing stability and certainty for farmers as they prepare for the new system.

At the same time, however, reductions to direct payments to the largest landowners first could free up around £150 million in the first year of the agricultural transition period, which could be used to boost farmers delivering environmental enhancement and other public goods.

The Environment Secretary Michael Gove said:

As we leave the EU, we have a historic opportunity to deliver a farming policy which works for the whole industry. Today we are asking for the views of those who will be affected to make sure we get this right so any future schemes reflect the reality of life for farmers and food producers.

The proposals in this paper set out a range of possible paths to a brighter future for farming. They are the beginning of a conversation, not a conclusion and we want everyone who cares about the food we eat and the environment around us to contribute.

As set out by the Secretary of State at the [NFU Conference](#) last week, the consultation is an opportunity for farmers to be more central to government thinking than any time for fifty years as the UK leaves the EU.

Among the range of proposals put forward by the government in today's consultation, 'Health and Harmony: The Future for Food, Farming and the Environment in a Green Brexit', the Government is seeking views on:

- Options for how to gradually phase out direct payments, starting with the largest landowners, whilst developing a new environmental land management scheme.
- The range of public goods that could qualify for government funding under the new schemes, such as high animal welfare standards, wildlife protection, public access, and new technologies.
- Measures to move away from heavy handed enforcement which penalises farmers for minor errors, including a more efficient inspection regime to uphold important environmental and animal welfare standards.
- New business models and incentives for industry to invest in innovation and new technologies to increase their profitability.

The current system of support for farmers and landowners shaped by the CAP is inefficient and inequitable. It does not secure the public goods needed to enhance our environment such as resilient habitats, richer wildlife, healthier rivers and cleaner water.

Farm payments in 2019 will follow the existing model, and in the meantime, the government has pledged to simplify applications for farmers wishing to enter into existing schemes to provide environmental benefits such as Countryside Stewardship.

The consultation will run for ten weeks, closing on 8 May 2018.

Speech: The World Order Today: Is it fit for purpose?

When I first met my husband, in 2002, I was doing my Masters in international relations at the London School of Economics. He came to my housewarming party, and his chat up line, his opening gambit, was about Francis Fukuyama and the end of history: had liberal democracy really won the battle of ideology? To be honest I didn't know, I thought it quite odd as a chat up line – but I liked him anyway.

And when I think back to that time, there was a real sense of optimism about the world order. It was after the UK's successful intervention in Sierra Leone, after NATO's intervention in Kosovo – and before the misadventure in Iraq. Humanitarian interventionism was riding high; the Responsibility to Protect principle was gaining traction.

Yes – 9/11 had been a shock, a reminder of the threat posed by non-state actors – but there seemed to be a broad consensus amongst state actors on the direction of travel. And that was:

- greater democratisation,
- increasing globalisation, and
- a sense of universal values and rights that would and could be protected – even across borders.

Today that optimism has gone. The world feels more insecure and less stable and we are all – rightly – concerned: about resurgent nationalism, about whether “America First” signals a US retreat from the liberal world order; China's ambitions in the South China Sea, Russia's invasion of Crimea, hostile states using cyber to interfere in other countries' democracies. Terrorism, nuclear war, water security. Our collective failure to stop the devastating conflict in Syria. The worst migration crisis since the second world war; five famine alerts.

All suggest that the world order is not equipped to deal with the problems of the modern age.

But to assess whether that is really the case, we need to know what we mean by the world order.

I take it to comprise of three things. First, the architecture of the international system. That is, international organisations with truly global representation: the UN, the WTO, the IMF, the World Bank; and also quasi-international organisations with sub-global representation: NATO, the EU, the Commonwealth, APEC; and so on.

Second, the laws, and rules that govern international affairs, sometimes, but not always, enforced by international courts like the ICJ, the ICC, the Permanent Court of Arbitration.

And third, but less easily defined, the shared values that underpin that international architecture and international law. They are, I suggest: – A shared commitment to reward cooperation and negotiation and to punish aggression and hostility; – A shared belief that human life should be protected and human dignity respected; – a recognition that our mutual prosperity depends on our mutual engagement and mutual trade; – AND a recognition that we live on a shared planet with finite, common resources that must be managed for the benefit of all.

So: architecture, law, values. It is a system which emerged from the aftermath of the Second World War and the horror of genocide. It is designed to prevent a third global war, and to reduce bloodshed from international conflicts. But it is also directed at raising living standards and enhancing life chances globally.

On those most basic indicators, it has been a resounding success.

There are proportionately fewer violent deaths today than there have ever been in history.

Levels of education are steadily increasing.

More and more countries are becoming democratic, and global extreme poverty tumbled from 44% in 1981, to less than 10% in 2015. Every day, 137,000 people come out of extreme poverty. No one tweets that, but it's an amazing statistic.

And that is the success of the world order: international architecture; international law; and shared values all contrive to prevent a Hobbesian state of nature, and instead encourage dialogue and co-operation for the better.

But that is – in large part – the success of the 20th century. What about the 21st?

In some respects, the challenges for the World Order in 2018 are the same as those in the 20th century:

- Hostile and belligerent states such as DPRK remain a threat to peace and stability.
- And the Rohingya crisis shows us how hard it is to respond, internationally, to sudden and systematic ethnic cleansing.

But there are also very real differences between the post-war world, and the world today.

First, there are new and emerging threats to the world order: from non-state actors like ISIS; from climate change; water scarcity; mass migration; cyber.

Secondly, the global balance of power is shifting. We are moving from a unipolar to a multipolar world: the singular dominance of the United States is diminishing; Russia is back as an assertive presence in what it considers its neighbourhood, including the Middle East; and China is gaining global

reach in terms of economic and political influence, and is aiming at vastly increased military capability.

And thirdly, ideas that we thought were shared and settled are once again up for grabs. For instance, resurgent nationalism and populism challenge the assumption that globalisation and free trade, and the multilateral institutions that support them are necessarily good: the Brexit vote and the vote for President Trump had multiple roots. But they were as much votes for the nation state as they were against anything else.

And there are certainly signs to suggest that the World Order is no longer functioning as it should. – In the UN, Russia's cynical use of the veto on Syria has undermined the most basic task of the UN system: the provision of humanitarian aid, and the investigation of the use of chemical weapons. – And on global trade, the Doha round beyond stalled; and the US has withdrawn from TPP and wants to renegotiate NAFTA.

So is the world order broken?

We need to be careful not to add 2 and 2 to get 5. Just as Fukuyama was wrong to believe in a global narrative which irresistibly led to liberal democracy, it is also wrong to tell a story of decline or collapse of the world order today.

In addition to the peace and prosperity gains of the 20th century, there have been real, tangible successes of international co-operation of late.

In the security field, the Joint Comprehensive Plan of Action on Iran has made the world a safer place; and co-operation on aviation security since 9/11 has denied terrorists the grand spectacle they crave.

On climate change, the Paris Agreement has shown that the world's nations can come together to tackle its most pressing challenge. Importantly, the US withdrawal did not spell the collapse of the agreement; if anything it emboldened others to meet their commitments and show leadership.

So the world order is clearly not broken. But if it is to survive in an era of resurgent nationalism, and a shift in global power, it needs three things: reform of its architecture; an update to its law and rules; and a reinvigoration of the values that underpin it.

First, reform the architecture. The international architecture is anachronistic – it reflects mid 20th century power structures, rather than the reality of the world today. So:

(1) the UN needs reform. The Security Council should be expanded – the UK supports permanent seats for Germany, Brazil, India and Japan, as well as permanent representation for Africa. And the existing P5 must agree to exercise veto restraint if the integrity of the UN system is to survive..

(2) NATO needs to reform. NATO members need to respond to President Trump's challenge by meeting the 2% spending target of the Defence Investment Pledge. Decades of unprecedented peace in Europe is testament to NATO's success; but

it has also given rise to a complacency that the current security situation does not warrant.

(3) The international system of globalised free trade must also reform, from the WTO down. Trade is a global good – and not just in economic terms; it also enhances bilateral relations and ensures a level of cooperation and interdependence that reduces the risk of conflict. But we must not ignore the rise in populist parties across the Western world, and elections which have broken the traditional centrist consensus. Many feel uncomfortable with the pace of change, they feel left behind. There is a perception that free trade, open borders, and multilateralism work for the elite but no-one else. So: free trade agreements of the future must champion progressive principles; ensure adequate worker and environmental protections; and reflect the continuing relevance and needs of the nation state.

Other organisations also need to adapt and evolve. We need to reinvigorate the Commonwealth. And although the UK is leaving, I would argue that the EU, too, needs to reform. It needs to think carefully, reflecting on the Brexit vote, about how much more pooling of sovereignty its members and citizens will accept.

Moving now to international law, we must ensure that it keeps pace with change in international affairs. Two areas in particular are in need of clearer international law: a. Cyber. The UK wants to see the full application of existing international law – including the UN Charter – to cyberspace; b. The environment. The impacts of climate change, marine pollution and other environmental hazards all require urgent and collective action: and international law has a key role to play.

And, finally, our shared values.

The principles of that we hold dear -democratisation, multilateralism, and human rights – are under threat in the global system: in the west and elsewhere.

So we need to increase our efforts to make the case for the norms and values which underpin the international order. We should never assume consent.

First, in the face of growing protectionism, we need to make the case for International Trade, emphasising that our mutual prosperity depends on it – while taking seriously the needs and concerns of those who feel left behind.

Secondly, we need to reemphasize our belief in human dignity and the importance of protecting our shared resources. The global goods as we see them – human rights, tackling climate change, protecting the taonga of our wildlife and natural resources, gender rights, tackling poverty, tackling modern slavery – are not just good things to do in an altruistic, fluffy kind of way: they make sense in terms of the economics, and national self-interest of a country. If you don't educate and empower women then – as Obama once said- you are leaving half your team on the bench. If we don't tackle climate change now, it will cost us far more in life and treasure to respond to it later down the track.

And finally, we need to reinvigorate a belief in multilateralism. International terrorism, climate change, nuclear proliferation, cyber attacks all require global multilateral solutions. But those solutions will only be achieved if we can base them on shared values: and if we can demonstrate the benefits of such co-operation to our citizens.

To conclude: the international order has delivered peace and prosperity beyond the imaginings of my grandparents. But if it is to endure, it must adapt and evolve. And it is for countries like the UK and New Zealand – close friends with shared values, and a shared stake in the international system – to work together to make the case: for reform of the architecture, an updating of the law, and a reinvigoration of the values underpinning the world order.

Thank you.