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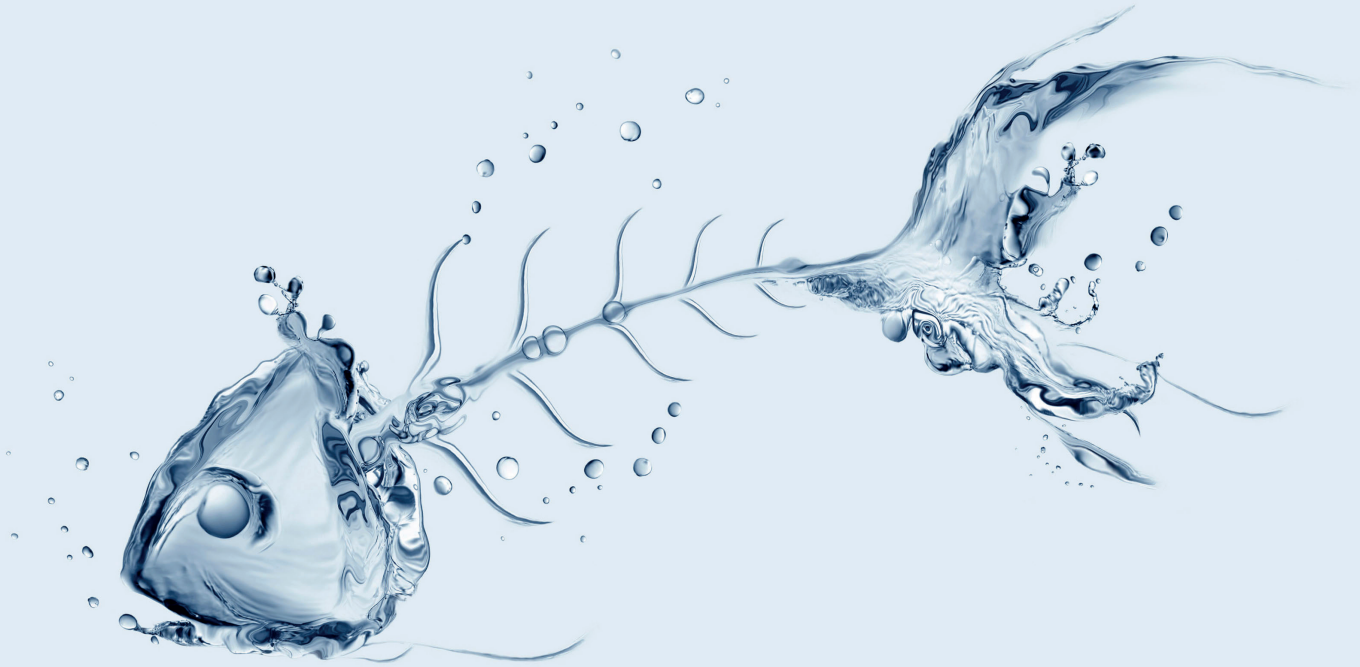

WATER & RESILIENCE

CAN TECHNOLOGY DELAY A GLOBAL WATER CRISIS?

NOVICHOK POISONING | CBRN & MEDICAL STOCKPILES | DIGITAL SECURITY | MANAGING SPORTING VENUE RISK MANAGEMENT | CAR CYBERSECURITY | DATA PROTECTION | PLANE CRASH IN AUSTRALIA | REPUTATION CRISIS MANAGEMENT | CHINA EARTHQUAKE PREPAREDNESS | HUMANITARIAN SEXUAL ABUSE | ROLLERCOASTER RESCUE IN UK

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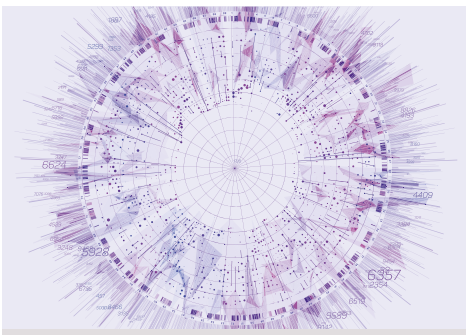

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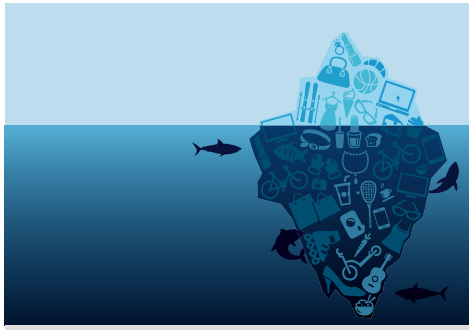

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comment

Our water feature this issue highlights how this most precious resource, which is the most vital element to any aspect of human survival, is treated casually by so many people around the world. Most people and businesses in developed countries take it for granted that if we need water, it will be there – clean, abundant and in the quantities we need. And let's not forget that almost one billion people have no access to clean water at all.

Water supplies are under threat – population growth, climate change, over-abstraction, agriculture and infrastructure all play their role. Even worse, plastic in oceans and its effects on marine life and the dangers of plastics entering human food chains, along with toxic elements and poisons being discovered in water, are all occurring today. Worse still, water can be used as a political or military tool by state and non state actors, as well presenting an attractive target to terrorists.

Given the above, it is clear to see why water is classified as such a vital element of critical national infrastructure – it is not only essential to our survival, but also to our security, wellbeing, health, businesses and livelihoods.

One only has to turn to recent events in Cape Town to gain an understanding of just how cataclysmic it would be if a city simply runs out of water. All aspects of life would be affected, raising the spectres of disease and threats to security.

Thankfully, Cape Town's Day Zero has been postponed to 2019, thanks to extreme water conservation and other measures, but other cities around the world face similar threats. See p34 for an article on how the Brazilian city of São Paulo coped with its own water crisis, and what measures need to be undertaken to conserve its future supplies and the viability of the city itself.

There are always solutions, but they can be extreme. Communities, businesses and individuals – including all those involved in emergency management, preparedness and response – must all recognise the contribution they can make towards ensuring water supplies are sustainable, and remain so.

Technology can also play its part. Both Laurie Reynolds (p38) and Matt Minshall (42) discuss how artificial intelligence, machine learning, sophisticated digital technology and geospatial information – among others – can help secure, protect, monitor and conserve supplies.

It is time to afford this vital resource the respect and attention it needs.

Increasing implementation effectiveness of NIMS

Nicholas B Hambridge, **Arnold M Howitt**, and **David W Giles** conclude this series examining the implementation of NIMS by looking at how far it has been adopted by transportation agencies in the United States

The National Incident Management System (NIMS), mandated by the *Homeland Security Act* of 2002, has been the United States' framework for managing incidents for nearly a decade and a half. Part 1 of this series explored the general factors that have shaped NIMS implementation. Then, utilising results from in-depth interviews with a sample of surface transportation agencies, we looked in Part 2 at how and why city and metro transit agencies and their state level counterparts have proceeded with NIMS.

The fact that all agencies interviewed have implemented NIMS to some degree indicates that it is becoming embedded in the transportation sector and will help it to contribute to the multidisciplinary incident management system needed to respond to large and complex disasters. At the same time, several issues within these agencies, as well as with NIMS itself, if not addressed, could slow or block its progress within the sector.

Lack of clarity in NIMS compliance standards for transportation agencies – and the consequent uncertainty for those agencies about which compliance-related areas to focus their time and resources – has led to inconsistent implementation efforts, most notably with respect to training. To mitigate this, the Federal Emergency Management Agency (FEMA) and the US Department of Transportation (USDOT) should work together to develop more specific NIMS standards adapted for the transportation sector, and integrate them into the state-wide NIMS implementation tracking process. Doing so would provide more authoritative support for the transportation-tailored training and guidance documents already in existence and would send clearer signals to transportation agencies about what they need to do to be in compliance.

Using a concentric circle graphic, we have distinguished between 'first circle' agencies (see image). These entities, often labelled as first responders, consider emergency response their primary mission. By contrast, 'second' and 'third circle' agencies potentially play major roles in large-scale disasters, but see other purposes as their principal missions; they therefore do not generally perceive themselves as emergency response organisations.

In designing NIMS implementation programmes, policymakers should take account of the differences between first, second, and third circle response agencies, particularly the non-emergency-focused missions of second and third circle groups as they affect the time and resources these organisations devote to NIMS implementation. FEMA has recognised the need to simplify the NIMS doctrine, not only due to second and third circle concerns, but also to a general perception of NIMS' over-complexity. It is also considering revisiting and simplifying the NIMS core curriculum so that trainees are not overwhelmed with content that goes beyond their expected level of involvement in emergency operations.

Simplifying NIMS may also have the added benefit of increasing the frequency with which it is utilised by transportation agencies. For such agencies to use NIMS as effectively as possible during incident responses, they must engage with it on a regular basis to develop and sustain proficiency. Many fire departments, for example, use the incident command system (ICS) on all responses, whether minor or major, in order to build proficiency and confidence in using the system. Using NIMS only during multi-agency incident responses, as some of the transportation groups interviewed reported, may be insufficient for second and third circle agencies to develop proficiency and be truly ready to mesh with other response organisations under the severe pressures of a major emergency.

Flexibility to customise NIMS – to adapt it to the operating circumstances of particular professions or services – is also important to second and third circle responders. But over-customisation of NIMS by agencies can lead to an inability to integrate with others during incidents. The issue of customisation thus creates a major tension.

At its root, NIMS makes sense in order to prepare responders in all of the circles for major emergencies that require them to operate effectively in concert. That level of collaboration requires common systems that allow personnel from different organisations and professional disciplines to interact under great pressure when the stakes are very high. But under ordinary circumstances, that level of collaboration is frequently unnecessary; response organisations often can operate independently or with relatively low need for integrated action. The greatest need for NIMS proficiency comes under truly extraordinary conditions.

Thoughtful customisation

Thus, on one hand, thoughtful customisation allows NIMS to adapt to the operating requirements of different agencies and professions and makes the system more acceptable, particularly to second and third circle organisations. On the other hand, sufficient standardisation across professions is required to ensure that the basic premise of NIMS – collaboration through a common

incident management framework – is achieved.

There is no simple resolution to this dilemma, but it should be explicitly confronted by local and state emergency management agencies and their collaborators, such as transportation agencies.

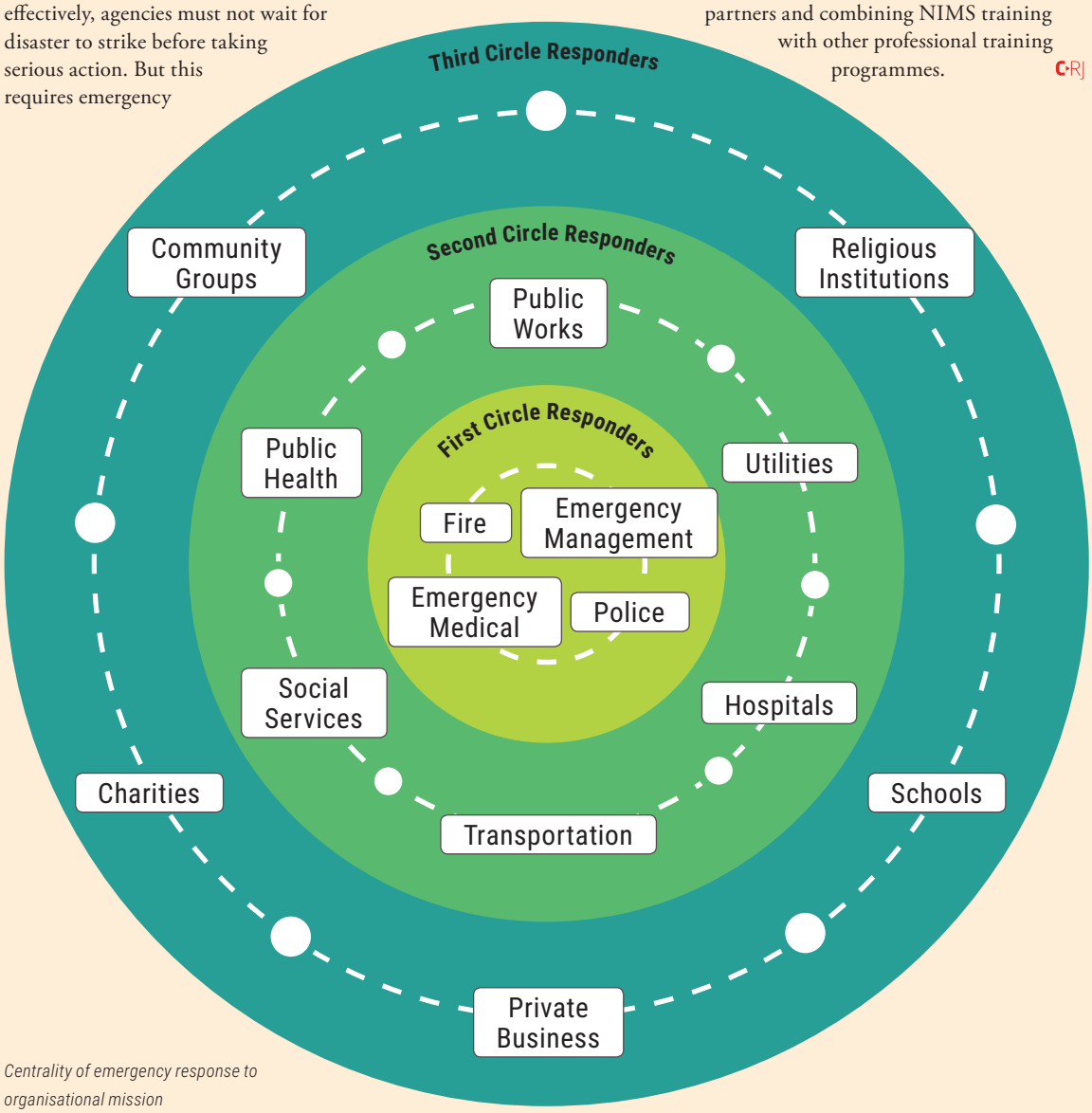
A key challenge for those responsible for NIMS implementation within second and third circle organisations is to find ways of showing the link between NIMS and their agencies' mission priorities. If that link is not apparent, agency leaders are not likely to commit time, energy, and internal political capital to building NIMS capacity, and agency staff are much less likely to treat NIMS proficiency as a significant personal or organisational goal. The likely result is incomplete penetration of NIMS within the agency, which was the case in some of the transportation agencies interviewed.

In a major emergency, would such agencies' personnel be genuinely prepared to collaborate with other responders more deeply experienced with NIMS? Minimal commitment is highly likely to result in reduced capability in times of stress.

While actual emergency incidents highlight the link between NIMS and an agency's mission priorities most effectively, agencies must not wait for disaster to strike before taking serious action. But this requires emergency managers within transportation agencies to manage up (by convincing senior leadership of the risks their agencies face) and to manage across (by finding ways to persuade managers in other divisions of the agency of the importance and priority of emergency preparedness).

Drills, exercises, after-action reviews, threat and hazard vulnerability assessments, and perhaps other initiatives, can clearly illustrate the costs of inaction and the benefits to mission continuity that come from investments in NIMS implementation. But these are not self-evident propositions in agencies whose major mission is not emergency preparedness and response.

Finally, transportation agencies must find alternative ways of funding their NIMS-related efforts. It is unlikely that homeland security grant funding will, in the near-term, return to the levels witnessed in the years directly following the 9/11 terrorist attacks. Nor is grant funding intended to be a permanent solution to the sustainability of NIMS within the transportation sector. Transportation agencies must dedicate internal funding; and, since such funding is likely to be limited, they must also find creative, low-cost ways to maintain NIMS proficiency through cost-sharing activities like conducting joint exercises with external partners and combining NIMS training with other professional training programmes. CRJ



Centrality of emergency response to organisational mission

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