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Contents

Horizon scanning

Every decision that a Government takes today helps to bring about a particular future. So it's important that today's decisions don't just consider the present, but also think about the different futures they make possible and create.

In the short term, analysts offer projections and forecasts to help determine the best course to follow. Beyond a certain point the utility of 'numbers' (statistics, projections) is limited. If we want to think about the medium to long term we need to be able to identify and manage uncertainty. Horizon scanning helps us articulate the uncertainties we might face.

Horizon scanning detects early signs of change. It is underpinned by a few core principles nicely articulated by Richard Sanford in the UK *Civil Service Quarterly* in January 2016 as:

> 'The future is open, not closed
>
> That means that, from our position in the present, there are multiple future possibilities ahead of us, not one pre-determined fate. That's good news for policymakers - it means we can make choices that change the future. And it means that there is always more than one route ahead of us, so the obvious choice isn't the only choice.
>
> Perceptions and assumptions matter
>
> Received wisdom and common-sense ideas about what can or can't happen lead to 'business-as-usual' thinking - even when the wider world is far from 'usual'. So if we want to be able to respond to change and complexity, we need to question our assumptions and set narrow thinking of what's possible to one side.
>
> Speculation without action is a waste of time
>
> By knowing when opportunities to act are approaching and which conversations they need to be in to make change happen, horizon scanners can make sure the policy implications of their work are followed through.'

As a practice horizon scanning focuses on findings in the margins of current thinking that challenge past assumptions; this may result in the shaping and support of decision making. At its best horizon scanning wakes us up to what needs to be imagined, thought through and done. Horizon scanning reminds us it is important to step out of our comfort zones and beyond conventional wisdom, we don't want to be quietly nudged back to sleep with comforting thoughts.

Horizon scanning as a technique is mostly based on desk or secondary research. Scanners review previous research findings, perspectives, and knowledge obtained from a wide variety of sources on a given subject in order to understand *the big picture* on that topic. For example scanners might use scientific journals, news articles, webpages, press releases, reports, surveys, blogs, videos, and radio programs.

Summary

	Report Item Title	**Summary of the item**
N°. 1	**The post-animal economy**	This article explores 'cellular' agriculture and the challenges it presents to governments. Policy makers will likely need to balance environmental and animal welfare goals with food safety demands, as well as calls to protect traditional diets and farming and the economic interests of the livestock sector.
N°. 2	**Why don't policy makers listen to evidence?**	This article tackles the woolly concept of evidence based policy-making drawing attention to the distinction between the 'good' idea and how it is implemented. The challenge is where to go next.
N°. 3	**Consider the future of resilience – magic needed**	This article looks at the questions: Has resilience influenced policy? Has it contributed to better policy or futures? The answer is 'Not yet.'
N°. 4	**Recap of a Horizon Scan for Global Biological Diversity**	This article provide a quick recap of an annual horizon scan canvassing emerging issues that will likely affect global diversity, ecosystem services, and conservation efforts.

Report Item No· 1: The post-animal economy

What we know about the topic:

The topic of 'what a meatless future for agriculture means' was explored in AJASN's first quarter report for 2016. That article reviewed some of the evidence about the non-sustainable nature of, and growing welfare concerns about, traditional livestock farming. (Note, however, that only beef and sheep production are particularly non-sustainable, poultry production is comparatively efficient.) Hence the growing interest in insect-based feed and food (see the April 2017 AJASN report). Another proposed alternative is **cellular agriculture**, whereby fibre and food products traditionally produced by animals are grown from cell cultures. However, in contrast to the established business of producing plant-based protein alternatives, cellular agriculture is a relatively new enterprise. It also faces unique challenges because research and development for meat growth requires both food and medical science expertise, and it has proved difficult for some companies to raise funds to apply expertise from medical science (e.g. growing organs for organ transplant) to food development. Thus, it may be several years before cellular agricultural products gain significant market share. In addition, cultured food products may face the same consumer acceptance and regulatory issues that genetically modified foods did. However, the Chinese government has shown strong interest, this year signing a $300m deal to purchase meat grown in a laboratory in Israel. An accurate picture of the resources involved in large-scale cellular agriculture is conspicuously absent in most articles advocating cellular agriculture, but marketing already emphasises the ethics and sustainability of cultured meat.

The current government response:

Just as cellular agriculture's mixing of food and medical expertise has proved challenging for sourcing funding, it also presents regulatory challenges because of the traditional division in governance of agricultural production and food safety. Thus, in both the US and Australia, the regulatory oversight of safety and biosecurity of novel foods and feed is shared across more than one government organisation. Like the rapid growth of insect-based feed and food, which some governments are still scrambling to regulate, cellular agriculture is also likely to challenge traditional portfolio-based organisational structures. In response, the US has launched an initiative to review and overhaul how their agencies regulate agricultural biotechnology, and a broader study of future biotechnology developments and regulation was released in March 2017. Elsewhere, meat taxes have already been discussed in parliaments in Germany, Denmark and Sweden as governments consider whether a levy should be placed on meat (like tobacco and sugar) to cut consumption.

What it means for service delivery:

Given that Australian dairy farmers have already been lobbying to stop alternatives like almond and soy from using the word 'milk' on their products, it is likely that there will be pressure on government (possibly from both traditional and culture-based industries) to regulate the labelling and marketing of cultured products. As with insect-based feed and food policy, it is likely that cellular agriculture companies seeking markets will lobby for less regulatory burden while at the same time their food market competitors (and a portion of consumers) will demand greater food safety protection and compliance (i.e. regulation). Thus, government decision makers will face a trade-off between higher consumer protection and decreased regulatory burden. To reduce the regulatory burden (of food safety compliance) it may make sense to task a single agency with oversight of cellular agriculture products.

Assumption testing:

Arguments for the health, welfare and environmental benefits of cell-cultured products—and predictions about cellular agriculture leading to a post-animal economy—are based on several assumptions:

1) **That culture-grown products will be accessible (affordable and convenient to acquire and prepare) and acceptable to a reasonably large number of consumers**. Rennet, a key ingredient in the making of cheese, has been produced via acellular agriculture since 1990 and is perfectly acceptable to consumers. However, there may be quite different consumer attitudes to a single, non-visible ingredient (like rennet) versus a substitute to a whole chicken or egg. In addition, the likely price and store availability of culture-grown products remains unknown.

2) **That cellular agriculture is more sustainable than other production systems**. Contradicting this assumption, the farming of non-traditional species (such as insects) delivers the added sustainability benefit of reducing food waste while also producing protein food. However, many food production industries are likely to find cellular agriculture a [disruptive technology](#).

3) **That everyone will benefit (environmentally and health-wise) from cultured food and fibre alternatives**. It is difficult to predict what the impact would be on smallholder livestock farmers who rely on livestock for their livelihoods, and whose lifestyle and traditions are strongly tied to livestock. Grazing animals are also essential to the functioning of ecosystems, and are involved in carbon sequestration. It also seems likely that some countries will lack the resources to develop their own cellular agriculture systems, and consumption of cheaper culture-grown meat may replace higher-cost locally produced meat, increasing food insecurity (given the vulnerability of global supply chains). In addition, it is difficult to accept the claim (which does not seem to be based on evidence) that eating cultured meat will be better for human health than meat sourced from animals. That meat-heavy diets are even unhealthy is disputed within the field of nutritional science, a field which has, historically, proved full of contradictory research and [unreliable ethics](#). Also, if people are shamed into avoiding meat, will there be increased pressure to target the [cats and dogs responsible for 25 to 30 percent of the environmental impact of meat consumption](#) in the United States?

More importantly, the assumption that cultured products will become the norm because of their health, welfare and environmental benefits ignores the less rational (but possibly more powerful) objections consumers may display based on non-scientific beliefs (as seen with genetically modified foods). It's likely that many consumers will have strong attitudes (both for and against) about traditionally farmed versus cultured products, and beliefs about their health effects and safety.

So what?

Policy makers will likely need to balance environmental and animal welfare goals with food safety demands, as well as calls to protect traditional diets and farming and the economic interests of the livestock sector.

Report Item N°· 2: Why don't policy makers listen to evidence?

What we know about the topic:

Policy-makers and researchers have many different ideas about what counts as good evidence. For example, a researcher or policy analyst might follow a hierarchy of scientific evidence, while policy-makers are driven by multiple external factors and priorities.[1]

- Policy-makers seem to prefer a wider range of sources of information, combining their own experience with information ranging from peer reviewed scientific evidence and the 'grey' literature, to public opinion and feedback from consultation.

- Policy developers need to make political choices on the best forms of evidence and governance in a messy policy-making system.

The way in which evidence is used in policy making depends upon particular circumstances. The challenge for those wanting to influence policy is in knowing what type of evidence to apply, when (esp. in an areas where there is a history of inconsistent and contradictory approaches.)

The current situation:

There is a clear preference for a wider range of sources of information in policy design and delivery; but this might not add up to a desire for 'evidence based policy. 'Evidence-based policy' is a woolly but 'good' idea.

Calls for public policy based on evidence are common and not new (NZ example.) For instance, Kevin Rudd said early in his term as Prime Minister that "policy innovation and evidence-based policy-making is at the heart of being a reformist government." Karen Chester, Deputy Chair at the Productivity Commission, called it 'a critically endangered beast — seldom seen and rarely funded' in 2016.

The evidence based approach is not without important critics – as illustrated in this article and this quote from the article: "Policymakers' faith in evidence is ascending just as shortcomings are becoming apparent in the evidence-based model of medicine on which EBP is based, and as skepticism surges about the unreplicable findings of the social science that EBP most resembles."

What it means for service delivery:

Evidence alone is unlikely to be the major determinant of policy outcomes. The creation and successful implementation of policy also requires extensive engagement and evidence-based dialogue with interested and affected parties. But:

- One point that the literature makes very well is that you can't rely too much on any single study. Any single study is limited in scope, it occurs at a particular time and place and with a particular set of treatments, outcomes, and time horizon. *Nonetheless*, we should take studies more seriously when they are large and occur under realistic conditions.

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[1] At the top of this hierarchy is the randomised control trial (RCT) and the systematic review of RCTs, with expertise much further down the list, followed by practitioner experience and service user feedback near the bottom.

- Another point that is made is that it is quite dangerous to give equal weight to different evidence in an effort to create artificial balance between competing interest groups. (If we don't bring evidence to bear a key risk is that we do fall prey to our gut instincts, our best intuitions and 'the wisdom of the day' to create policies.)

- And, the same evidence may have more or less effect in different parts of government.

So what?

Even though idea of 'evidence-based' policy has generally permeated the public sector, this does not remove the need for political reasoning (as politics is introduced 'through the back door' through debates on what is valid evidence rather than on what values should prevail.)

- It does not make sense to simply call for 'evidence-based' policy and policy-making.

- The choice to prioritise forms of evidence is political (*i.e. political nous*).

- The policy process is quite messy and unpredictable and may not allow policy-makers to produce consistent choices (i.e. expect to find – and adapt to – what seem to be contradictory choices.)

The challenge is where to go next. Evidence is important. Looking forward, empirical studies of policies should be as realistic as possible, close to the ground, as it were.

Background:

Research (from Scotland and the UK here) looked at what counts as 'good evidence,' the research suggests decisions about policy vary, so the evidence that is used will vary too. The research has identified three approaches to policy-making and the use of evidence in the policy –making process. The three approaches are outlined in the following table (Table 1.)

At one extreme 'centralisation' makes the roll out of uniform policy interventions driven by evidence from (randomised controlled trials (RCTs) [e.g. BETA team at PM&C.] At the other, you have routine delegation of policy to local communities, service users, and practitioners that to sharing evidence via storytelling (i.e. prioritises experience and feedback: people learn from each other then decide if any elements of that learning are applicable to their own experience and aims.) Within these two extremes are many possibilities to combine evidence and policy, including compromise models that combine pragmatic delegation with training to encourage the systematic use of evidence.

Table 1:

	Approach 1: Implementation science	Approach 2: Storytelling	Approach 3: Improvement method
The big picture	Interventions are highly regarded when backed by empirical data from international RCTs. The approach has relatively high status in health departments, often while addressing issues of health, social	Practitioners tell stories of policy experiences, and invite other people to learn from them. Policy is driven by governance principles based on co-producing policy with	Central governments identify promising evidence, train practitioners to use the improvement, and experiment with local interventions. Discussion about how to 'scale up' policy combines

	Approach 1: Implementation science	Approach 2: Storytelling	Approach 3: Improvement method
	care, and social work.	users (e.g. residents of care homes).	personal reflection and gathering evidence of success.
How to gather evidence of effectiveness and best practice	With reference to a hierarchy of evidence and evidence gathering, generally with systematic reviews and RCTs at the top.	With reference to principles of good practice, and practitioner and service user testimony. No hierarchy of evidence.	Identify promising interventions, based on a mix of evidence. Encourage trained practitioners to adapt interventions to their area, and gather comparable data on their experience.
How to 'scale up' from evidence of best practice	Introduce the same specific model in each area. Require fidelity to the intervention to allow you to measure its effectiveness with RCTs.	Tell stories based on your experience, and invite other people to learn from them.	A simple message to practitioners: if your practice is working, keep doing it; if it is working better elsewhere, consider learning from their experience.
What aim should you prioritize?	The correct administration of the same intervention / active ingredient.	Key principles, such as localism and respect for service user experiences.	Allow local practitioners to experiment and decide how best to turn evidence into practice.

Report Item N⁰· 3: Consider the future of resilience – magic needed

Australia has engaged in future thinking using a resilience approach for a long time (Walker and Salt (2006).) Has resilience influenced policy? Has it contributed to better policy or futures? Not yet.

What we know about the topic:

Resilience has, in fact, been adopted by neoliberalism so that it 'allows' transference of risk from state to individuals; obliging individuals to fend for themselves; distrusting state planning; celebrating self-regulating markets and the nudges delivered by weak government.

The Rockefeller Foundation with the RAND Corporation developed a modelling framework to estimate the net benefits of a resilience project. The Resilience Dividend Valuation Model. The RDVM is designed to "provide a systematic, structural framework for assessing resilience interventions that ultimately create benefits and costs within a system, such as a community or city." It provides a useful update of the resilience literature, framework development and initial case studies.

What it means for service delivery:

Resilience principles and approaches have not contributed to transformational changes in the way we consider the future. The insights of resilience theory, the experience of deteriorating climate, transgression of earth system boundaries, economic woes, inequities

and insecurities of humans; energy or food shocks and techno-fear – have not pushed policy buttons.

The faith placed in evaluations (ex post, ex ante and relative to Business as Usual) are interesting (and frustrating). It seems we have not learnt that we cannot learn to change. Doing the same thing and expecting a different and much better result is magically stupid.

Humans don't learn. Shocks happen. Boundaries are crossed. Business as Usual prevails. Resilience approaches did not transform the system or the policy.

Valuing a Project with Co-Benefits and a Single Shock
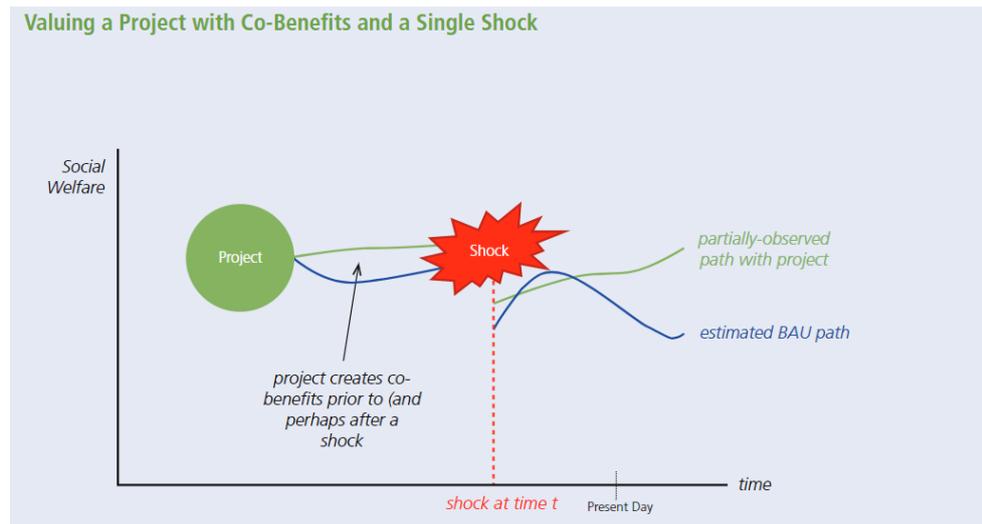
So what?

Resilience's influence on policy now - that needs some serious magic.

Humans don't learn. Shocks happen. Boundaries are crossed. Business as Usual prevails. Resilience approaches do not transform the system or the policy.

Drawing on:

- Chamorro-Premuzic, Tomas & Derek Lusk (2017). The Dark Side of Resilience. Harvard Business Review. 16/08/2017
- Thawley, Megan (2017). Boosting resilience to modern-day threats - What is it worth? Reuters 2/08/2017

Report Item N⁰· 4: _Recap_ of a Horizon Scan for Global Biological Diversity

An annual horizon scan canvassing emerging issues that will likely affect global diversity, ecosystem services, and conservation efforts conducted by 24 experts and described in a recently published study, identified early signs of change related to new mechanisms driving the emergence and geographic expansion of diseases, innovative biotechnologies,

reassessment of global change, and the development of strategic infrastructure to facilitate global economic priorities.

The scan is funded by the UK's Natural Environment Research Council (NERC) and carried out by an international team of 24 researches and experts in the areas of economics, policy, journalism, ecology, microbiology, conservation practice, and professional horizon scanning. It is commissioned to look for for novel findings at the horizon of current scientific thinking

The other identified challenges and trends are vitamin deficiency as a possible driver of declining wildlife populations, geographic expansion of chronic wasting disease, new RNA-based pesticides, genetic control of mammal populations, capturing water from the air, increasing the tolerance of plants to salt, changes in the global iron cycle, underestimation of soil carbon emissions, rapid climate changes on the Qinghai-Tibet plateau, international collaborations to encourage the expansion of marine protected areas in the high seas, and effects of culturomics — the application of high-throughput data collection and analysis of word frequencies to the study of human culture — on conservation science, policy, and action.