

AJASN AGRI – Newsletter

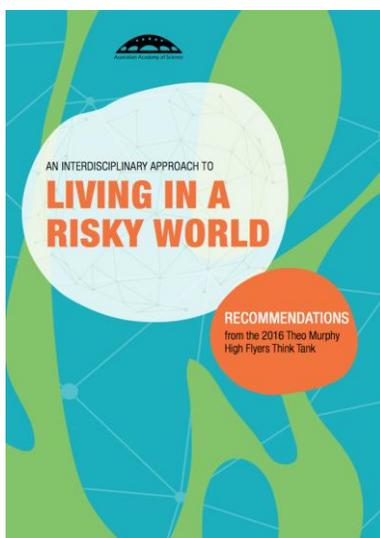
July 2017

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This Australian Academy of Science [report](#) became broadly available in April 2017. Chapter discusses a 'One Health' approach to antimicrobial resistance.

Public policy, public sector (& related)

The UN food agency said a [global crisis in food](#) supplies is causing even more migrants to cross borders – each one percentage increase in food insecurity in a population compels 1.9 percent more people to migrate. A mix of small changes in consumer [behaviour](#), such as replacing beef with chicken, reducing food waste and potentially introducing insects more commonly into diets, would help achieve land savings and a more sustainable food system.

Russia's ban on food imports (mainly from the EU) resulting from the sanctions imposed on Russia over the Ukraine crisis (in 2014) is resulting in increasing domestic production of food (on the imports ban list) and the growth of [larger agri-businesses](#) at the expense of smaller farms.

Chatham House issued a [report](#) 'Chokepoints and Vulnerabilities in Global Food Trade.' (See image p. 2 this newsletter.)

A [blog post](#) on 'How much revenue would a New Zealand sugary drink tax raise?' is interesting in light of UK plans to put in place a sugary drink tax from 1 January 2018 (with revenue going to schools' physical activities programs.)

On 21 March 2017 the Senate adopted the recommendations contained in the Senate Rural and Regional Affairs and Transport References report Import of seafood and seafood products and referred the following matter for inquiry and report by 22 June 2017 (no report yet.)

A number of recent and ongoing [consultations](#) related to food are taking place across the federal government in Canada – this will feed into a new food policy. The web based government campaign might be of interest.

President Trump announced his decision to withdraw from the Paris Accord on climate change, making the U.S. one of only three countries in the world that have exempted themselves. (The others are Syria and Nicaragua.)

Farming

A study finds [cassava](#) is genetically decaying, putting this staple crop (e.g. in Africa) at risk.

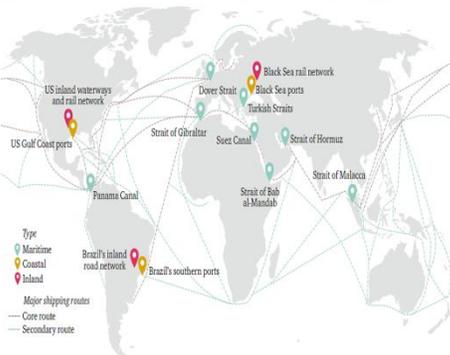
Chinese technology giants are investing in [pampered pigs](#) which sell for up to \$40,000 at auction. Total [meat consumption](#) per capita in Australia has been stable since the 1960s but the type of meat consumed has changed significantly. Chicken and pork both now far outstrip beef, mutton and lamb.

Three posts on aquaculture – one discusses [next-generation aquaculture solutions](#), the second focuses on [offshore](#) aquaculture and the [third](#) canvasses the same topics.

Here is an [article](#) on indoor farming start-ups exploring business models and technology.

Ecosystems

Figure 1: Maritime, coastal and inland chokepoints and major shipping routes



This image shows 14 critical chokepoints in global food security ([Source](#))

This [report](#) reviews the state of freshwater in New Zealand. This [article](#) discusses and cites research related to the ecological and human effects of warming lakes.

Nearly a third of fish caught in the world's oceans goes unreported, according to research from UBC's [The Sea Around Us](#) project. A paper in *Science* about the dangers of microplastics for fish [should be retracted](#) as the paper's authors committed scientific dishonesty (earlier [editorial](#) here.) The Arctic Ocean is expected to become ice-free in summer months by 2040, according to a [report](#) released by the Arctic Monitoring and Assessment Program. Research reports that [oxygen levels in the oceans](#) have been falling since the 1980's.

This [study](#) finds the ecological paw-print of domestic dogs is much greater than previously realised (and [here](#).) This [research](#) finds any substantial loss of tropical forests will result in numerous extinctions across many species groups (using local-scale ecological data to predict possible extinctions at a global scale.)

A Canadian report shows the rising annual costs of an increasing number and intensity of natural disasters (DFAA [program review](#).)

A report on [Invasion Science: A Horizon Scan of Emerging Challenges and Opportunities](#) was released in June. A [paper](#) What a Decade (2006–15) Of Journal Abstracts Can Tell Us about Trends in Ocean and Coastal Sustainability Challenges and Solutions shows a text mining and analytics approach to horizon scanning.

Climate

The Senate passed a motion for an [inquiry into the threats and long-term risks posed by climate change to national and international security](#). The Australian Climate Change Authority no longer has any climate scientists ([here](#).)

This [study](#) outlines a 4-step way to assess if climate change contributed to extreme weather events (an example of work in the growing field of climate science called 'extreme event attribution.')

This study investigates [the rate](#) of climate change – and it is not speeding up nor is it slowing down (statistically.)

Climate change, and its impacts on extreme weather and temperature swings, is [projected](#) to reduce global production of corn, wheat, rice and soybeans by by 9% in the 2030s and by 23% in the 2050s. Researchers have found that climate change may drastically increase the [variability](#) in Nile affecting flows, droughts and floods (Egypt, Sudan, and Ethiopia.) Ocean warming will be an ['overwhelming stressor'](#) – food webs will be less efficient, the fertilising effect of elevated carbon dioxide neutralised and predator – prey relationship affected in marine ecosystems. Climate change could cause [food riots](#) in some parts of the world. A [new study](#) says that the pace of sea level rise has increased significantly over the past quarter-century.

Climate change is causing [geographical redistribution](#) of plant and animal species globally. These shifts lead to new ecosystems and ecological communities that will affect human society. This [study](#) provides the first global estimate of the amount of CO2 that plants 'fix' into their tissues (e.g. in leaves) in response to increasing concentrations of the gas over the past century. This will improve climate models.

A [study](#) discusses new methods for fighting and preventing wildfires in a future defined by climate change. This website – the [Asset Owner Disclosure Project](#) (latest index) – shows there is still an enormous resistance to managing climate risk.

The Global Warming Policy Foundation has [published an analysis](#) explaining that carbon capture will always be too expensive to work.

West Failing on Climate Action

Latest developments on climate policy

■ Dire ■ Concerning ■ Positive



This map is from a [blog post](#) that highlights progress and backtracking on climate policy.

(Caution: it doesn't show where countries started from.)

Health

The importance of food naturalness for consumers: Results of a systematic [review](#). Consumers' acceptance and preferences for nutrition-modified and functional dairy products: A systematic [review](#).

A [UN report](#) said over the next six decades people being overweight and obesity would cost Mexico an estimated \$13 billion a year, Ecuador \$3 billion and Chile \$1 billion. This [study](#) found that sociodemographic factors had the strongest association with the types of food people consumed (not 'food deserts.'). A comprehensive [review](#) of the health effects of caffeine has just been published. This [article](#) cites a number of studies as well as discussing how chemistry can make food safer and more abundant.

This article discusses the rise of animal and plant [fungal diseases](#). Enhanced [wild bird surveillance](#) sampling can provide early warning of avian influenza outbreaks to poultry producers, and lead to improved biosecurity measures that can reduce economic losses in future outbreaks.

A team of researchers with the EcoHealth Alliance has narrowed down the list of [animal species that may harbor viruses](#) likely to jump to humans.

A [collaboration](#) between the Murdoch Children's Research Institute (Aus) and the Liggins Institute (NZ) will aim to find new treatments for diet-related health issues.

Science & technology

Doctors kept [foetal lambs](#) alive in plastic artificial wombs for weeks. Researchers have developed a way to [rapidly pasteurise eggs](#) with radio frequency waves (should lower the cost of pasteurisation & the price of eggs when commercialised.)

Scientists [studying](#) the relative importance of heat stress and drought on wheat yields between 1980 and 2010 developed a new Combined Stress Index in order to better understand the effects of concurrent heat and water stress events.

Ai Hisano, the Harvard-Newcomen Fellow in Business History at Harvard Business School authored a paper [Cellophane, the New Visuality, and the Creation of Self-Service Food Retailing](#).

Assumptions

This [study](#) says ancient groundwater aquifers are not protected from modern-day contaminants (challenging an assumption.) A [study](#) finds one of the biggest causes of disappearing groundwater is the international food trade.

A dingo fence [study](#) shows dingo extermination leads to poorer soil.



Sainsbury's (UK) have introduced a 'Smart Fresh' label, which changes colour (from yellow to purple) the longer a pack has been open. The label is also temperature sensitive, with the rate of colour change designed to slow down the cooler the fridge is.

Forward 'looks'

A horizon scan finds changing agricultural practices are among the 14 most significant issues potentially affecting how invasive species are studied and managed. Anthony Ricciardi et al, *Invasion Science: A Horizon Scan of Emerging Challenges and Opportunities*, *Trends in Ecology & Evolution* (2017). DOI: [10.1016/j.tree.2017.03.007](https://doi.org/10.1016/j.tree.2017.03.007)

Scenario planning as communicative action: Lessons from participatory exercises conducted for the Scottish livestock industry (paper [here.](#))

News

The [New Zealand dollar](#) tumbled against the US ... following President Trump's criticism of Canada's dairy industry.

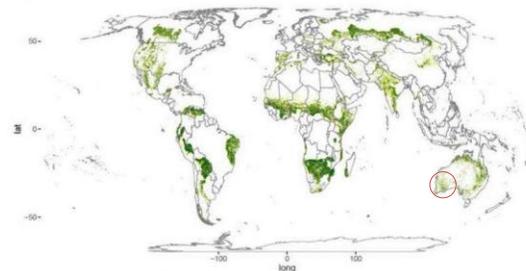
[Invisible Farmer](#) is the largest ever study (2017 – 2019) of Australian women on the land.

[.eco](#), a new web address ending (i.e. a top-level domain) is now available to any business, government body, nonprofit, or individual working toward a sustainable future.

The 2017 federal budget will identify 'good' and 'bad' debt – this *might* lead to more public spending on infrastructure and other physical (capital) assets over public spending on public goods (like health and education) and social welfare.

Charity OzHarvest opened Australia's first '[rescued food](#)' supermarket' in Sydney.

In March, a collection of rare flowering plants sent by the Museum of Natural History in Paris to Queensland's herbarium in Brisbane was incinerated by [biosecurity officers](#) at the border.



This [paper](#) reports WA has 'lost' dryland forests i.e. not reported in different scientific modelling. Now that they have been identified the potential of dryland forests needs to be assessed (i.e. to stave off desertification and to fight climate change by storing carbon.)

Upcoming meetings

Next meeting 9-10 August 2017