
Editorial

Sally Woollett

What comes to mind when you think about climate change? Do you think past, present or future? Do you think about efforts to slow it or about dealing with its effects?

Natural disasters aside, the media's focus on climate change relates to mitigation: slowing greenhouse gas emissions. As freelance science writer Terry Clayton puts it (p.4): "Public awareness of adaptation, as opposed to mitigation, is only just beginning to dawn". We have plenty of evidence that climate change is here. Clayton says: "Even if we could put the brake on carbon emissions today, there is enough evidence to convince most thinking people that it would be prudent to expect some changes in climate." Even so, mitigation continues to be the main game in media circles and at international climate gatherings.

The struggle of our leaders to agree at such meetings is partly a problem of dealing with uncertainty, says Silvia Serrao-Neumann of the SEQ Climate Adaptation Research Initiative (p.8). She highlights the dichotomy of prosperity and environmental posterity raised by climate change: "We are reluctant to change our lifestyle and diminish our immediate prosperity, and to admit that how we live is unsustainable". Synergies between mitigation and adaptation strategies need to be explored, she suggests.

"Adaptation is first and foremost personal because it often depends on the will and understanding of the individual," says Johanna Mustelin of Griffith University (p.11). This causes problems for decision-makers dealing with varied and strong community opinion. Collaboration will be an important tool in a future where the timing, location and severity of climate change events cannot be predicted.

CSIRO's Climate Adaptation National Research Flagship is assisting Australia's adaptation efforts by conducting a benchmarking survey in the public and private sectors. "In particular," their working paper explains, "it appears that once organisations develop a sense of vulnerability to climate change (and overcome scepticism, lack of information and a lack of resources) they are likely to take action" (p.15). Lack of policy clarity and/or government support and a culture of conservatism within the organisation were identified as other barriers to adaptation.

The health impacts of climate change can be direct or indirect, according to Peter Thomas and Tony Capon at the National Climate Change Adaptation Research Network for Human Health, Australian National University (p.22). Physical injury and heatwave-induced mortality are among the direct impacts. Indirectly, infrastructure failure can cause water contamination, and varied climate can change the distribution of pathogens such as Ross River virus. They emphasise that the "role of health professionals in climate change-induced events is not limited to treatment. During heatwaves, for example, [health professionals] can identify vulnerable groups and give advice about how to avoid heat stress by changing behaviour and work practices."

"Agriculture faces a massive challenge," opens Bruce Campbell of the CGIAR Research Program on Climate Change, Agriculture and Food Security (p.26). In this sector, the focus has begun to shift from mitigation to adaptation. Uncertainty is again a factor, with global climate models largely agreeing on temperature change but not on rainfall patterns. Thankfully, there are some gains to be made in agricultural productivity and climate

risk management. Billions of people are depending on it.

“Joel was a man with a vision,” says Peter Casier, guest blogger for the CCAFS and AMKN projects, of a creative farmer in Ghana (p.32). Joel explains that “with the current climate change, we can’t farm anymore like [our fathers] did... Our fathers had fertile grounds. The rains were plentiful, and for generations they used the same tools, the same seeds and the same technologies. Our generation needs to change.” Joel is becoming increasingly self-sufficient, investigating different crop types and keeping careful records of costs and yields.

According to Nicholas Molyneux of Seeds of Life: “With a shifting trend away from rural areas and into the cities [of Timor Leste] as well as a rapidly increasing population... agricultural practices are becoming less and less appropriate and are no longer able to feed the population in an acceptable way in terms of food security and environmental sustainability” (p.34). Their climate mapping of the country has guided their aims in selecting more appropriate crop varieties and promoting better use of on-farm storage and cultivation of legumes. Improved inorganic fertiliser use is another strategy that will increase crop yields.

In Ethiopia and Papua New Guinea, a project by Bioversity International is working with the traditional “seed custodians” – women – to preselect seed varieties that have good potential in a climate-affected future (p.37). Gene banks are another important resource: “Some of the diversity that farmers need is probably held right now in gene banks around the world, collected from places that currently have the same climate that is predicted for other places in future,” says Jeremy Cherfas.

Back in Australia, the first shipment of seeds is on its way to the Arctic seed vault in Svalbard, Norway. Norway-bound Tony Gregson, a member of the Crawford Fund board, says: “Like me, many Australian farmers have been dealing with extremes in weather that are harsh reminders of the need to research and have access to crops that can adapt to changing conditions and new pests and diseases” (p.39). The vault was established, with Australia’s help, as a backup for existing seed collections worldwide.

Managed relocation is a “radical last resort” of species conservation, say Tara G. Martin and

Eve McDonald-Madden of the Climate Adaptation Flagship, CSIRO Ecosystem Sciences (p.41). It involves physically moving plants and animals from an area that has or will become unsuitable due to climate change. Risks of relocation include predation of species by feral animals in the new location, or a species settling in so well that it becomes a pest. “Decisions about implementing managed relocation will rely on good predictions about the impact of climatic shifts on a species or ecosystem as well as the suitability of new areas in which to move. There is always a risk we might move a species that, if left, may have adapted to climate change,” they write.

Paul Karaimu of the International Livestock Research Institute (p.44) says that “more nuanced approaches” to livestock development are needed in the face of climate change. He says that the authors of a recent research report propose a shift in focus from the negative impacts of livestock to a more “embracing” approach. They recommend “a ‘fundamental shift’ in how demand for livestock products is seen and in adapting production systems to meet this demand... for example... reducing demand for livestock products in (mostly industrialised) countries where (1) people are damaging their health by consuming too much meat, eggs and milk and (2) intensive ‘factory’ farming is damaging the environment”. They also addressed the key issue of water productivity.

According to Matthew McCartney of the International Water Management Institute (p.46), “smallholder farmers need a wide array of ‘water accounts’ to buffer against climate change impacts”. Even in areas that have increased rainfall in future, he says, water management and storage could still be problematic. “Well-planned water storage can help lift people out of poverty and provide them with an effective way to cope with climate change. In many places, water will be the principal medium by which the impacts of climate change will be manifested in agriculture.”

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