SUBMISSION TO THE SENATE INQUIRY INTO IDENTIFICATION OF LEADING PRACTICES IN ENSURING EVIDENCE-BASED REGULATION OF FARM PRACTICES THAT IMPACT WATER QUALITY OUTCOMES IN THE GREAT BARRIER REEF

November 2019

Universities Australia welcomes the opportunity to make a submission to the senate Rural and Regional Affairs and Transport References Committee inquiry into the identification of leading practices in ensuring evidence-based regulation of farm practices that affect water quality in the Great Barrier Reef.

Universities Australia is the peak body for Australia's 39 comprehensive universities. Our members are spread across Australia, in regional and metropolitan areas. They educate more than a million students each year and undertake research that adds to Australia's stock of knowledge, and to Australia's economic and social wellbeing.

KEY POINTS

Australian science is recognised for its excellence both internationally and domestically, whether measured by the number of Nobel prizes per capita or by the impact of our scientific publications.

The Australian Government also knows that Australian science is world class. It regularly undertakes a rigorous process through the Excellence in Research for Australia (ERA) process to measure and benchmark the level of excellence in Australian universities against global best practice.

The underpinning approach to this story of success is the scientific method. Why opt for this approach as opposed to other forms of decision making? There is verifiable proof, over hundreds of years, that a scientific basis for decision making has delivered remarkable and almost innumerable benefits to humankind, not least the agricultural sector.

This approach has successfully displaced its predecessors that were based on pure philosophy, dogma and ideology. The transition to the modern scientific method was a considerable part of the Enlightenment.

The scientific method is based on the formulation of an hypothesis, followed by rigorous experimental testing and verification. This is what we teach in our classrooms throughout our journey through the education system as we know that it will equip our children well for tackling the challenges both current and future.

At the UN General Assembly in September, Prime Minister Scott Morrison encouraged students to "…learn more about science, technology, engineering and maths – because it's through research, innovation and enterprise that the practical work of successfully managing our very real environmental challenges is achieved."[1]

UA submits that proper scientific method should be deployed when making decisions, including in development of regulation for the Great Barrier Reef.

THE PEER REVIEW PROCESS

How do we ensure that the scientific method itself is applied consistently and rigorously? The answer is the peer review process.

This process underpins not only the Australian but the global research system. It also ensures that taxpayers' money is invested in the highest quality research. The principles underlying the process are described by the Australian Research Council (ARC), which employs them as part of its policies and processes regarding peer review:[2]

1. **Expert assessment**:
    a. assessors should possess knowledge and expertise in the broad context of the research field; and
    b. be able to assess specific methodologies and objectives of an application.
2. **Transparency of the review process**:
    a. applications will be treated equally through a consistent process aligning with documented procedures and assessment criteria; and
    b. applicants will receive appropriate feedback from assessor reviews.
3. **Impartiality**:
    a. assessments must be free from bias achieved through strict conflict of interest policies, assessor training and rigorous processes; and
    b. applications will be assessed on their merit and in regards to national and international research.
4. **Appropriateness**:
    a. selection processes should be consistent with the complexity of the objectives of the funding scheme; and
    b. be appropriate for the size of the scheme.
5. **Confidentiality**: assessors must keep all material in applications confidential, including intellectual property (IP) and data.
6. **Integrity and ethical considerations**: responsible conduct of research to maintain society's trust in science.
7. **Gender, equality and diversity**: the quality of the review process will be enhanced by the inclusion of all the finest minds in our society incorporating the vast talents and resources offered from underrepresented groups.

These principles are consistent with the Global Research Council, of which the ARC is also a member. Additional criteria may include:

- Consideration of the broader impacts of the research;
- A balanced approach to risk, accounting for potentially transformative and high risk/high reward research; and
- Inclusion of international reviews especially where research is addressing global challenges.

[1] Speech by the Prime Minister, 25 September 2019, New York City , US. Link here.

[2] Taken from the Australian Research Council website at https://www.arc.gov.au/peer-review/context

As an example, the Federal Sports Minister does not choose Australia's Olympic team, similarly we rely on subject experts to judge the best research in their field, which in turn will give decision makers the best evidence base on which to make their decisions.

CONCLUSION

Universities Australia supports an evidence-based approach to regulation, including that of farm practices that affect water quality in the Great Barrier Reef. We urge the committee to be guided by the scientific method and weight of evidence, and in turn re-affirm the scientific method as the leading practice in decision making.