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Submission to

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THE ENVIRONMENT MATTERS – it is more than Gigs and Mils and Grams and Tonnes

We welcome the move by the Treasurer to assess the effects of the use of the "GDP" in management of Australia's economy. Things have changed in the years since the introduction of GDP as a management and evaluation tool. Not only has the context – the Australian economy of the day – changed; we now have the experience derived from almost daily widespread use of "GDP" [1].

In our search for an alternative to GDP we will early on be faced with the question of "growth", for that is one of the main ways in which GDP has been used. Activities are seen as good if the economy continues to increase, or increases even faster than predicted, and we measure that by changes in the size of the GDP. However, we are also faced with questions of equity, how to distribute the growth that we aim for. And that growth means more people and more housing and roads and hospitals and schools. And more jobs and that's all good. But what we have always had trouble dealing with in the GDP tool is that more people means more houses and more land clearing and pollution and more cars and

[1] Pilling, David (2018). The growth delusion. The wealth and well-being of nations. Bloomsbury Publishing.

more fossil fuel. And more carbon in the atmosphere. We weren't sure what to do with them in calculating GDP so we either ignored or included then anyway. The negatives were, by and large, treated as though they were really positives.

Today there is an emerging consensus that some of those things are not so good. That is, they matter, but in a negative, rather than a positive sense.

The task now may not be to grow as fast as we can in the short term, rather it may be to grow at a pace, seen over the longer term, that will enable conservation of resources (assets) in a manner that facilitates sustainability, to ensure that the natural resources (capital) that we hand on to the next generation are of at least the same quantity and quality as those we received from our parents.

Nevertheless, the use of a single number to summarize such a wide range of activities has often been misleading, resulting in a sense of unease. Since the last decade of the 20th century this unease has been growing. It became more focused with the release of the Stiglitz report almost two decades ago. This unease has now grown to the point where some countries have used the ideas in the Stiglitz report[2] to trial various modifications, the most notable of which is recognition that a single figure is not enough. Stiglitz and colleagues suggested the use of a dashboard and, for the moment, that seems the best way forward.

Among the individual dashboards suggested by Stiglitz et al is one for the environment. We are in strong agreement that the environment needs separate consideration. However, we are also of the view that the environment itself is too complex and various to be represented by a single number. That is, the environment itself needs a dashboard.

So what is it that matters about the environment? To date in Australia we have placed a heavy emphasis on climate change as the most important single environment-related issue. Lately, and slowly, we have started to recognize the role of our maltreatment of the environment after the arrival of white settlers.

That is, as we decide what matters we are also going to have to deal seriously with the question of how to preserve and improve our environment and water and soil resources. At the same time we need to deal with climate change and agriculture and to ensuring human rights, equity of access to, and sustainability of, our natural capital, including our major river system. And we need to do this in coordination, collaboration and cooperation between states and with the federal government.

There has been a general view that whatever we did on climate change would, almost by definition, also be good for the environment. All of these issues are critical in determining "what matters". Considering how they interact and influence one another is an important aspect of determining "what matters". For example, the move to decarbonize the economy has resulted in a significant increase in installation of solar panels to produce electricity. Some of those installations have been the cause of land clearing to make way for the solar

[2] Stiglitz, Joseph E. (2020). GDP is the wrong tool for measuring what matters. It's time to replace gross domestic product with real metrics of well-being and sustainability. Scientific American 323, 2, 27-31. https://www.scientificamerican.com/article/gdp-is-the-wrong-tool-for-measuring-what-matters/

panels. That is, there is some conflict between the two projects, both of which claim to be in service of the control of climate change.

Similarly, there is ongoing conflict between irrigators and environmentalists, between urban expansion and environmentalists, ….and yet, in each of these examples both sides of these conflicts are seen as contributing to GDP!

Recently, the Minister for Climate Change has been part of international meetings that seem to be moving the world to more ambitious targets on climate change. And at the same time, the Minister for the Environment and Water has been an important player in international and national meetings about the state of the environment and is in the process of mapping out a revised approach to management of the environment including the water resources of the Murray Darling Basin. The Minister for Agriculture, recognizing that agricultural land accounts for more than half of the Australian land mass, is a strong supporter of assisting adaptation to climate change, and of the importance of sustainability.

The challenge now is to deal with the contradictions inherent in squashing all out economic activities (good and bad) into a single number; to devise a system that deals with the contradictions in the current system and which, at the same time can be used as an important tool for engagement with the public. In doing so we will need to ensure collaboration between government departments at all levels so that government can take advantage of information already collected by the states and the private sector.

So, as we consider climate change and the environment and agriculture together we are faced with this question: Are we achieving the climate change mitigation goal to minimize the transfer of carbon from the biosphere (biomass and soil) to the atmosphere? As we do that are we ensuring the human rights of First Nations people and overall equity while acting as effective stewards of our environment?

Ultimately, we must determine ways in which ecosystems of the biosphere can be combined while keeping our eyes on the goals of climate change mitigation and sustainability. What are the relative roles of forests, woodlands, scrublands, grasslands, croplands, rivers, irrigation, wetlands, livestock, native animals, invertebrates, microbes, soil and cultivation in our eco system? Can we modify both natural ecosystems and commercial agriculture and forestry in ways that are consistent with climate change mitigation and sustainability? Can we do this in ways that are consistent with addressing the land rights and water rights of First Nations people, and overall equity? Can we implement any agreements reached? How will we know if we are moving in the right direction?

To address questions such as these we will have to agree on the goals, what matters, and what needs to be measured. That is, in pursuit of climate change mitigation we will have to agree on what it is that we need to measure so that we know whether we are moving in the agreed direction or not.

This is consistent with the admonition of the Treasurer to "measure what matters". In doing that we will need to agree on the overall framework and content of a carbon accounting system[3] and a framework for assessing nature[4].

To do this government will need to promote an approach that is interdisciplinary, inter-ministerial and inter-departmental, consultative and collaborative. Yes, it is difficult and unprecedented. But the government seems to have a will at the moment and that leads us to believe that there is a way.

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Soil and Water.

We turn now to brief discussions of two examples of why the environment matters which are, at the same time, areas that are not well assessed in the GDP, one-number-fits-all approach – soil and water.

Soil is a fundamental resource for most of the biodiversity in our natural and modified ecosystems. The formation of new soil is a slow process, mostly beyond human lifetime. Thus, soil is, in effect, a non-renewable resource; consequently it is vital that soils are managed in a manner which preserves their condition, their health. However, there has been a broad decline in the condition of most soils since the arrival of European settlers[5]. As a result of farming and grazing practices and climate change there has been a decrease in biodiversity and ground cover, a fall in soil carbon and an increase in soil erosion due to wind and water.

Despite these changes there are ongoing increases in the intensity of land use in many areas. Even in areas where soils had high carbon levels there is clear evidence of declines in soil carbon over the last decade as intensification involving cultivation and, to a lesser extent, grazing has taken place[6].

These cultivation activities and the resulting produce, mostly for export, would be seen as contributing to the growth of Australia's GDP. In these assessments, ironically, no account is taken of the decrease/deterioration/degradation in the long-term value of the soil which, along with water, constitutes the basic fundamental resource.

Further, we have set in motion a chain of events that moves the carbon from the soil to the atmosphere, the exact opposite of what we need to do to mitigate climate change[7].

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[3] Ajani, Judith et al (2013) Comprehensive carbon stock and flow accounting: A national framework to support climate change mitigation policy. Ecological Economics 89:61-72.
Keith, H. et al (2019). Accounting for carbon stocks and flows: storage and sequestration are both ecosystem services. Paper for the 23th meeting of the London Group on Environmental Accounting, Melbourne 7-10 October 2019.

[4] Accounting for Nature AfN. https://www.accountingfornature.org/

[5] Soil condition. NSW State of the Environment 2015. NSW EPA.

[6] Lawrence, David. (2022). How soil organic matter and carbon work! Data from 500 paired-sites comparisons across the northern regions. GRDC Update paper. GRDC. .

[7] Keith, H. et al (2019). Accounting for carbon stocks and flows: storage and sequestration are both ecosystem services. Paper for the 23th meeting of the London Group on Environmental Accounting, Melbourne 7-10 October 2019.

That is, we have counted the short term events but conveniently ignored the costs, many of which occur over the longer term. We ignored them, in part because that was convenient, in part because our understanding of the ecosystem was incomplete, we did not wish to face the consequences, and in part because it was all a bit too hard when more than one Ministry/Department/discipline is involved.

There are many other examples of the difficulties of working outside the current boundaries of disciplines, ministries, departments, jurisdictions. One of the most striking examples is water in the Murray Darling Basin (MDB).

The struggles over water in the MDB provide another example of the need to measure what matters and for us to think across disciplines. The MDB (Dis)Agreement, legislated in 2012, is still not being implemented. The MDB Agreement illustrates the difficulty of agreeing on changes in the rules for use of a fundamental resource for which use patterns by the European settlers were established with little, if any, consideration of rights to land and water for the First Nations communities. Further, increases in the intensity of land use and population, as well as pressure to recognize the water needs of the environment, have increased the demand for water with resulting increased disputes over allocation of the water taken from the rivers. Lack of transparency in measurement and enforcement provide further evidence of the need for monitoring, measurement over time, implementation of any agreements reached.

To date, multiple reviews of the MDB Plan and of the effectiveness of the MDB Agreement have revealed inadequacies of both the Plan and the Agreement and of their implementation, including measurement of the resource and the rate at which it is being consumed, but have failed to produce workable solutions. In the meantime, and as the stalemate continues, further deterioration of this major resource rolls on.

As the current controversy over carbon credits[8] and measurement of biodiversity[9] demonstrate, it is important to get the measurement right and to ensure integrity of the measurement system.

Having decided what matters we still have to measure the characteristics we have identified as being of importance – what is the metric to use? We need a system of environmental accounting, a system of agreed methods which have been certified by independent third parties to be robust, affordable, and accurate. One possible system developed in Australia is Accounting for Nature[10].

Whatever system of metrics is adopted it is important that it is feasible for use across large areas and for this it is vital that we eventually adopt metrics that can be used in conjunction with remote sensing such as those under development by Ozius [11]. What ever systems of measurement are adopted there is little doubt that it will need to be adaptable, capable of

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[8] Macintosh, A. et al (2022). Measurement error in the Emissions Reduction Fund's Human-induced Regeneration (HIR) Method. The Australian National University, Canberra.
[9]Audit Office of NSW (2022). Effectiveness of the Biodiversity Offsets Scheme;.
VAGO.(2022). Offsetting native vegetation loss on private land.
[10] Accounting for Nature AfN. https://www.accountingfornature.org/
[11]Ozius https://oziusbiome.earth/map

change as our understanding of biodiversity and climate change improves and our goals change.

We have to continue to improve our understanding of the systems of which we are a part, to identify goals, and then to measure using methods of known and high integrity with appropriate governance structures and timeframes. It is critical that we

MeasureWhatMatters.