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The Sustainability Debate: Has it Affected Our Way of Thinking and Our Policy Advice?: Convenor's Introduction

Geoff Edwards
Workshop Convenor

The word "sustainability" and the expressions "sustainable development" and "ecologically sustainable development" have had much exposure in recent years. Indeed, if there were a "word of the decade" competition, "sustainability" would be a strong contender for the prize! This does not mean that all users of the word agree on its meaning — or even, perhaps, that most users know what they themselves mean!

Sustainability has attracted attention from many groups, including environmentalists, politicians and economists. The focus on sustainability has been international. The United Nations initiated the establishment of the independent World Commission on Environment and Development, which in 1987 produced the influential report *Our Common Future* (the Brundtland Report). The World Bank has given increasing attention to the sustainability of the development activities which it funds. Within Australia, the then Prime Minister, Mr. Hawke, set up Ecologically Sustainable Development Working Groups in 1990 to report on ways of achieving sustainable development.

At a workshop held at University House, Canberra, on Thursday 13 February 1992, consideration was given to the topic "The Sustainability Debate: Has it Affected Our Way of Thinking and Our Policy Advice?" The workshop was held under the auspices of the Australian Agricultural Economics Society, and followed the Annual Conference of that Society. Approximately eighty people attended the workshop.

The objective of the workshop was to bring together economists with experience in conceptual and applied economics and in policy-advising to explore the issue of sustainability, including the question posed in the workshop title, from a variety of perspectives. The focus on economics did not reflect a view that other disciplines have little to offer to the discussion of sustainability. Rather, it was felt that it was better not to try to do too much in a single day.

The workshop program is shown below.

Convenor's Introduction:
Geoff Edwards, La Trobe University

SESSION 1:
Chairperson Anthony Chisholm, La Trobe University

Economists on Sustainability:
Sisira Jayasuriya, La Trobe University

Sustainability, Discounting and Future Generations:
John Quiggin, Australian National University

Discussion Opener:
David Godden, University of Sydney

SESSION 2:
Chairperson Tor Hundloe, Industry Commission

Sustainability for a "Small Country":
Geoff Edwards, La Trobe University

Sustainability and Taxation:
Michael Common, Australian National University

SESSION 3:
Chairperson Els Wynen, Eco Landuse Systems, Canberra

Linking Science and Economics for Policy Advice: Trees for Salinity Control:
Bill Loane, Victorian Department of Agriculture and Rural Affairs

Lessons from Past and Present Attempts to Develop Sustainable Land Use Systems:
John Cary, University of Melbourne

Discussion Opener:
John Brennan, NSW Agriculture

SESSION 4:
Chairperson Roger Mauldon, Industry Commission

Sustainability, Semantics and Systems: Issues Involved in Attempting to Implement Sustainable Development:
Ian Wills, Monash University

The ESD Workshop Experience:
Peter Biggs, The Treasury

Discussion Opener:
Roger Rose, ABARE

The Papers

The papers in this volume are revised versions of the papers presented at the workshop. They have not been formally refereed.

Sisira Jayasuriya's main contribution is to set the recent debate on sustainability in the context of related work by economists. He sees writing on the economics of sustainability as a small subset of the literature on sustainable development.

The earliest work noted by Jayasuriya is Malthus' writing in the late eighteenth century on the limits to growth caused by population increase. The relevance of Hicks' distinction between income and capital in defining sustainability is noted. The contributions of Hayek, Solow, Hartwick and Maler to thinking on achieving sustainable incomes as exhaustible resources are run down, are outlined. Some approaches suggested by economists for dealing with risk, uncertainty and irreversibilities are mentioned.

Jayasuriya also considers the recent work of Pearce and his colleagues on sustainable development. The key necessary condition posited by Pearce *et al* for sustainable development — not allowing the stock of natural capital to diminish — is rejected by most economists. Jayasuriya suggests that empirical research into substitution possibilities between natural and man-made capital is desirable — and *essential* if there is to be a chance of winning economists over to the "no trade off" view.

Jayasuriya concludes his paper by addressing briefly the question "Do we need a new paradigm?"

John Quiggin considers the relationship between the idea of sustainability and the older literature on optimal growth, and explores implications for discounting, income distribution and the treatment of uncertainty. He looks especially at the approaches of Ramsey, Solow, Hartwick and Pearce *et al.* Quiggin's printed paper is a summary of a longer piece presented at the workshop.

Quiggin argues that in situations where the approach to discounting gives too little consideration to the welfare of future generations, the use of a sustainability constraint may result in an improved outcome. The "avoiding a reduction in natural capital" rule supported by Pearce *et al* is an example of such a constraint.

Geoff Edwards considers sustainability in the specific context of a small country. He notes that a "small country" is a "taker" not only of world prices, but also of technology, climate and the international economic order. Economic, technological and environmental conditions in a small country are therefore all influenced strongly by developments in the outside world. By contrast, a small country can expect to exert little if any influence on economies and the environment outside its borders, and hence on sustainability at a global level.

Edwards considers the scope for a small country to influence sustainability *within* its own borders. This is done under headings corresponding to several classes of resources: nontradeable land and water; tradeable exhaustible resources (for example, oil and iron ore); tradeable renewable re-

sources (fisheries and forests, for example); unique flora and fauna; and people.

Michael Common points out that sustainability criteria have not been taken into account in the literature on optimal taxation. He outlines some desirable characteristics of a tax base system consistent with sustainability. These include: protecting environmental processes; encouraging saving and investment; encouraging investments which substitute for environmental processes; discouraging population growth; and promoting intragenerational equity. Common discusses, in terms of these desirable characteristics, the case for some movement from taxing income to taxing carbon emissions.

Common also examines some empirical studies of carbon taxes. These include taxes imposed multilaterally and taxes applied unilaterally. One study mentioned by Common finds that a globally uniform carbon tax, with allocation of tax revenue to countries on the basis of their populations, would increase the GDP of the developing and centrally planned countries while reducing GDP of the OECD countries. Common notes that this efficient approach to reducing CO_2 emissions from fossil fuels "also has what many would regard as desirable distributional implications".

Common addresses the question in the workshop title more directly than most of the speakers. Some of his answers are:

- academics have considered carbon as a tax base, but have not yet taken account of all the taxation issues raised by the sustainability debate;
- policy commentators in Australia, anyway, have not changed the way they think about taxation in response to the sustainability debate; and
- policy process participants in the Ecologically Sustainable Development Working Groups have paid some attention to the relationship between taxation and sustainability. However, "the sustainability debate does not appear to have [had] any impact on the proposals contained in the 'Fightback' package."

Bill Loane is in no doubt that the sustainability debate has affected community demands and government policy. He cites spending of $68 million on Victorian programs for sustainable land use in 1990-91 as an example. Loane considers that scientific advice and community demands have played a bigger part than economic analysis in the programs implemented, but suggests that the reason "why government action has been quite small relative to the perceived scale of national land degradation problems" may be related to the lack of general support for such programs from economic analysis.

Loane outlines a tree-salinity model which is being used as an input to policy decisions on salinity problems in Victoria. The model simulates tree growth, water use, groundwater and salinity levels over time. This scientific information feeds into a cost-benefit analysis which includes the economic effects of tree planting (or other management approaches such as perennial pastures) on agricultural productivity via salinity, stream salinity and water yield.

Applications of the model show that the net economic benefits from tree planting are highly site-specific, but tree planting is found likely to be economic on only a small percentage of present farmland. Loane notes that the net economic benefits from tree planting to reduce salinity are influenced strongly by the values assumed for the discount rate and future prices for agricultural commodities. He suggests that concerns in the scientific and wider communities about resource scarcity for future generations have been little reflected in applied economic studies, and he sees a need for better use of the detailed scientific information available on environmental problems in economic analyses.

John Cary looks at some examples of efforts to achieve sustainable land use in Australia. His examples include fallowing, irrigation farming and tree planting. The discussions of fallowing and irrigation show clearly that ideas about the role and sustainability of particular farming systems in Australia have undergone large changes as understanding of the systems has increased. Cary emphasises the need to think of sustainability in a dynamic

sense, involving "a continuous learning experiment" which will never be finished. A consequence of this approach is that it is much easier to identify after the event land uses that have *not* been sustainable than it is to say in advance which uses *are* sustainable.

Ian Wills thinks about sustainability from a systems perspective. He suggests that implementing a sustainable economic-environmental system requires four steps. The first is the specification of system boundaries. The relevant boundaries will depend on one's purpose. Drawing on a discussion by Lynam and Herdt which recognises that systems can be defined at different levels of aggregation, Wills suggests that perhaps sustainability of economic-environmental systems makes sense only at the global level. The second step is determining what parts of the system are to be held constant. A society which values cohesiveness will not be prepared to see all its institutions change. The third step is the choice of a criterion that can be used to measure sustainability. Wills has something very important to say on this: sustainability may be better measured by the type of choice mechanism that is used than by measures of what is happening to resources or production. The fourth step is to determine and implement policies for sustainability. The success with which this can be done depends on knowledge of how the chosen system works. But even when the working of a system is poorly understood, global sustainability may be enhanced by "improving worldwide information signalling and incentives."

Wills examines the recent ESD Working Group process against the four steps noted above, and finds it seriously lacking.

Peter Biggs, an economist in the Treasury, was actively involved in the ESD Working Group process, and offers some personal views on it. Biggs notes that the ESD process facilitated dialogue between people who think differently, though he considers that more was achieved in this respect in the non-agricultural Working Groups – where there was a greater need for such communication – than in the agricultural Group. This dialogue has given those involved in the ESD process a better comprehension of how to pursue their interests says Biggs, but the wider impact of the ESD experience – on those outside the process – is harder to judge.

Biggs contrasts two perspectives on sustainability which were evident in the ESD process: sustainability as an *end state* and as *development action*. The former view can lead to "visionary approaches" and "didactic policies". Biggs, like Cary, notes that Australia's experience with irrigation schemes indicates that the visionary approach can be very costly.

Biggs observes that while members of the ESD Working Groups other than scientists and environmentalists took for granted the physical and biological systems beyond the farm, the "scientists and environmentalists tended to pay little heed to the fragility of economic systems and their capacity to deliver ever increasing and equitably distributed incomes."