

**Hawke Research Institute
Working Paper Series**

No 27

**SOCIAL SUSTAINABILITY:
TOWARDS SOME DEFINITIONS**

Stephen McKenzie

Hawke Research Institute
University of South Australia
Magill, South Australia
2004

© Stephen McKenzie 2004

Hawke Research Institute
University of South Australia
St Bernards Road
Magill
South Australia 5072
Australia
<http://www.hawkecentre.unisa.edu.au/institute/>

SOCIAL SUSTAINABILITY: TOWARDS SOME DEFINITIONS

Stephen McKenzie*

Introduction

Since the emergence of widespread concerns over environmental degradation in the 1960s, a great deal of work has been put into the concept of environmental 'sustainability': how can it be defined and measured, and what policies and institutions can be implemented or promoted in order to achieve it? More recently, economic and social sustainability have been adopted as additional and interrelated concerns. Sustainability is now a broad multi-focal agenda, and terms such as 'triple bottom line' and 'sustainable development' are being used interchangeably. As a result, 'sustainability' is in danger of carrying so many implications and nuances that in order for it to be properly understood it must be defined whenever it is used.

The Hawke Research Institute at the University of South Australia is adopting 'sustainable societies' as a common research agenda. This has prompted considerable discussion, and further elaboration of the term is anticipated. This working paper explores some of the current thinking around social sustainability and attempts to provide a framework for future discussions of the social sustainability agenda within the institute. I will be attempting to discuss social sustainability as distinct from environmental or economic sustainability. Previous all-encompassing definitions of sustainability that include all three aspects have been too broad to be usefully applied in specific contexts.

Background 1: Environmental and economic sustainability

The concept of sustainability emerged in the 1960s in response to concern about environmental degradation resulting from poor resource management. As the environment became increasingly important as a world issue, sustainability was adopted as a common political goal. In 1960, the Organisation for Economic Cooperation and Development (OECD) was created to promote policies that would achieve 'the highest sustainable economic growth and employment in Member countries in order to stimulate employment and increase living standards'.¹

* Research Associate, Hawke Research Institute.

1 Global Sustainability, 'Global sustainability: the history/time line of an idea', RMIT, Melbourne, 2001, p 4, at RMIT's *Global Sustainability* website, http://www.global.rmit.edu.au/resources/historyofanidea_25.07.01.pdf

In 1980, the World Conservation Strategy was released by the International Union for the Conservation of Nature. The strategy defines the 'main agents of habitat destruction and environmental degradation as poverty, population pressure, social inequity and the terms of trade'. Sustainable development was defined as the maintenance of essential ecological processes and life support systems, including those of humans.²

The United Nations Commission on Environment and Development (UNCED) was founded in the late 1980s. UNCED's report *Our common future* (1987) contains a definition of sustainable development (known as the Brundtland definition) which has current widespread influence: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'³

This definition of sustainable development, now commonly cited as a definition of sustainability as a whole, presupposes the necessity of development rather than focusing on strategies for the maintenance of current conditions, and consequently concentrates on areas in which development is most important. Subsequent environmental summits (Rio 1992, Johannesburg 2002) have furthered this international agenda of environmental protection through sustainable resource management.

There has been much criticism of the Brundtland definition and the sustainable development agenda as a whole. The most extreme criticism is that sustainable development, when defined vaguely in order to meet the needs of all stakeholders, is a smokescreen behind which business can continue its operations essentially unhindered by environmental concerns, while paying lip service to the needs of future generations. As Michael Jacobs notes, 'the vagueness of the definition ... allows business and "development" interests (and their government supporters) to claim that they are in favour of sustainable development when actually they are the perpetrators of *unsustainability*'.⁴ Joshi makes a similar observation, arguing that the focus on development in areas of poverty 'tends to evade the uncomfortable issue of the need to restrain consumption on the part of the affluent'.⁵

2 IUCN/UNEP/WWF, *World conservation strategy: living resource conservation for sustainable development*, IUCN/UNEP/WWF, Gland, Switzerland, 1980. Cited in RMIT, *ibid*, p 8.

3 World Commission on Environment and Development, *Our common future*, Oxford University Press, Oxford, 1987, cited in RMIT, *ibid*, p 9.

4 Michael Jacobs, 'Sustainable development: a contested concept' in A Dobson, ed, *Fairness and futurity: essays on environmental sustainability and social justice*, Oxford University Press, Oxford, 1999, p 24.

5 M M Joshi, *Sustainable consumption: issues of a paradigm shift*, Indian Council of Social Science Research, Occasional Monograph Series, No 1, New Delhi, 2002, p 7.

A converse argument, the so-called 'brown agenda', promotes economic development and the fostering of 'social capital' as a key means to control environmental destruction. As many of the worst excesses of environmental degradation occur in areas of high poverty and low social cohesion, it is argued that an increase in social capital through development will lead to an improved environment.⁶ Such a prospect is attractive from an environmental perspective, but the notion that sustainable development always functions to the advantage of third or fourth world citizens has been critiqued by theorists such as Banerjee, who argues that

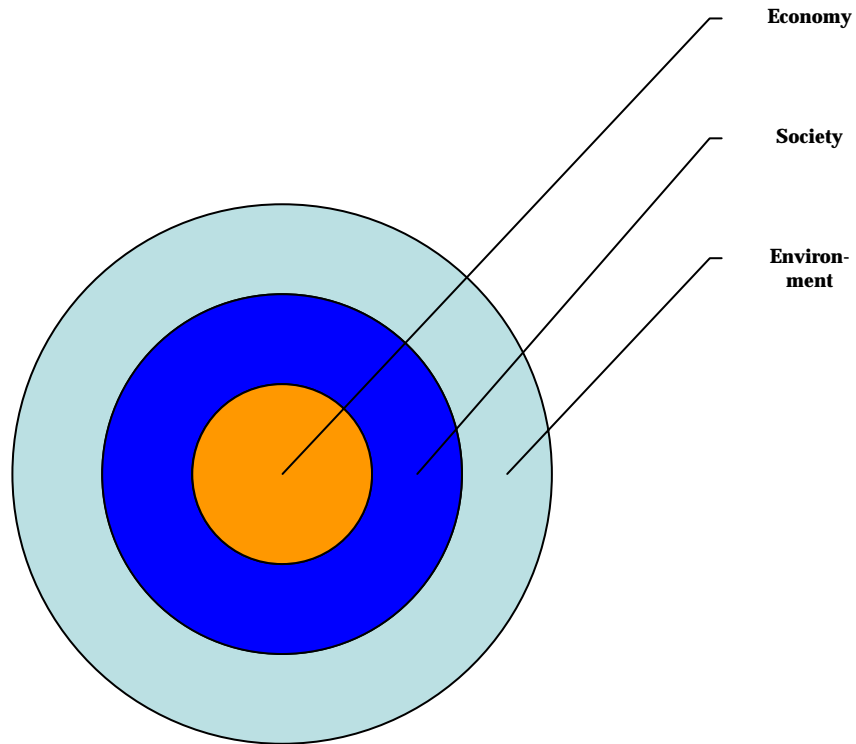
sustainable development, rather than representing a major theoretical breakthrough, is very much subsumed under the dominant economic paradigm. As with development, the meanings, practices and policies of sustainable development continue to be informed by colonial thought, resulting in the disempowerment of the majority of the world's populations, especially rural populations in the Third World. Discourses of sustainable development are also based on a unitary system of knowledge and, despite its claims of accepting plurality, there is a danger of marginalizing or co-opting traditional knowledges to the detriment of communities who depend on the land for their survival.⁷

The interrelationship between the environmental, social and economic aspects of sustainability is commonly represented by one of two models.⁸ The first model features three concentric spheres. The 'economic' and 'social' spheres are portrayed as dependent on the health of the environmental sphere.

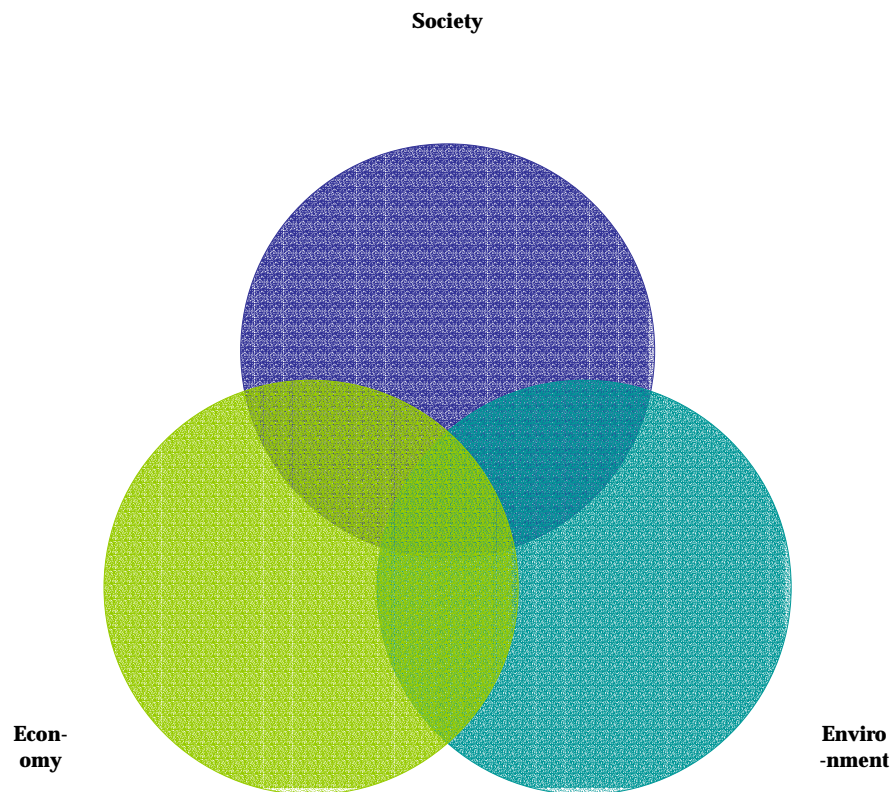
6 See for example A Agarawal and S Narain, *Towards green villages: a strategy for environmentally sound and participatory rural development*, Delhi, Centre for Science and Environment, 1990.

7 Bobby Banerjee, 'Who sustains whose development? Sustainable development and the reinvention of nature', *Organization Studies*, vol 24, no 2, 2003, pp 143–80.

8 These models are taken from Western Australian Council of Social Services (WACOSS), *Model of social sustainability*, <http://www.wacoss.org.au/downloads/socialsustainable.pdf>, pp ii–iii.



A more recent but still widespread mode of thinking is that the three spheres of influence are best represented equally. This is portrayed in the 'overlapping circles' model.



In principle, any community or organisation that adopts the ‘overlapping circles’ model should immediately include social sustainability as a concern equal to environmental or economic sustainability. In practice, this has not been the case. The great stumbling block when defining sustainability is that the context in which the definition is applied is more important than its wording. Inclusive definitions may call for interdisciplinary input and a cohesive view of the interrelation of nature, society and the economy, but the basic agenda of those who are performing the research, or profiting from its implementation, will quickly determine the real meaning of the work of any organisation in the field of sustainability.

In Phillip Sutton’s words, ‘[s]ustainability is not “about” the integration of ecological, social and economic issues, nor is it “about” widespread consultation

nor is it “about” improving quality of life. It’s about maintaining or sustaining something. To understand the concept ... you need to identify the focus of ... concern.’⁹ In literature originating from the environmental movement, the social and economic aspects will commonly be treated as tools to further that agenda. The same is true of the triple bottom line, a framework for sustainability originating within a business context.

The expression ‘triple bottom line’ was developed by environmentalist and economist John Elkington in 1997 and has fast become an international commonplace to describe a mode of corporate reporting that encompasses environmental and social as well as economic concerns. The term is now also used widely in discussions of sustainability. Elkington’s expression crystallised the increasingly widespread view that ‘we need to bear in mind that it is not possible to achieve a desired level of ecological or social or economic sustainability (separately), without achieving at least a basic level of all three forms of sustainability, simultaneously’.¹⁰ In Elkington’s own words, ‘the sustainability agenda, long understood as an attempt to harmonise the traditional financial bottom line with emerging thinking about the environmental bottom line, is turning out to be much more complicated than some early business enthusiasts imagined. Increasingly, we think in terms of a “triple bottom line”, focusing on economic prosperity, environmental quality, and—the element which business has tended to overlook—social justice.’¹¹

Despite its inclusion in the triple bottom line, the role played by the social is rarely equal to the economic and environmental concerns. The Global Reporting Initiative (GRI, established in 1997) has reported: ‘in contrast to GRI environmental indicators ... reporting on social performance occurs infrequently and inconsistently across organizations’.¹² The same tendency is also described in a recent major study by the Western Australian Council of Social Services (WACOSS), who note that, ‘while there has been considerable work done on the environmental and economic aspects, the social has tended to fall off the sustainability agenda’.¹³

9 Phillip Sutton, ‘Sustainability: what does it mean’, 2000, *Green Innovations* website, <http://www.green-innovations.asn.au/sustblty.htm>

10 Ibid.

11 J Elkington, ‘Triple bottom line revolution: reporting for the third millennium’, *Australian CPA*, vol 69, 1999, p 75.

12 Global Reporting Initiative, *Sustainability reporting guidelines*, Global Reporting Initiative, Amsterdam, June 2000, p 33.

13 Leanne Barron and Erin Gauntlett (WACOSS), ‘Housing and Sustainable Communities Indicators Project’, paper presented at ‘Sustaining our Communities’ International Local Agenda 21 Conference, Adelaide, 3–6 March 2002, p 4, http://www.adelaide.sa.gov.au/soc/pdf/barron_gauntlett.pdf.

Indicators of sustainability have largely been developed by consultancy firms (such as Elkington's own company SustainAbility), who serve large companies by helping them to arrive at indicator systems for their tripartite corporate reporting. Social sustainability is far more difficult to quantify than economic growth or environmental impact and consequently it is the most neglected element of triple bottom line reporting. Further, all-purpose indicators of social sustainability are too general to be useful, and specific indicators need to be developed for particular companies, meaning that their usefulness to academic discourse in particular contexts of social sustainability is questionable.

While it has been well-documented that companies with a sound environmental reputation have a market advantage (hence the initial appeal of SustainAbility to companies such as Shell), studies on the effect of the ethical and social reputation of a company on its performance are a comparatively recent development, and consequently there has been little opportunity for the success of social sustainability projects to be documented. A report by Environmental Resources Management (ERM) stated that whilst the FTSE 100 firms 'are making progress in reporting on the social impacts of their activities ... most have yet to demonstrate real performance improvements on key social issues'.¹⁴

Similarly, a research report conducted by the Hawke Research Institute into the effect of reputation on corporate value in an Australian context has noted that, in order 'to gain and maintain credibility in the area of corporate citizenship, corporations will increasingly need to engage in some form of social audit. In contrast to the financial audit, and even the environmental auditing process, there are currently few guidelines to assist corporations in constructing a meaningful social audit'.¹⁵

Thus, while it is tempting to think of the 'triple bottom line' as another expression of the 'overlapping circles model' described above, in which all aspects of the bottom line are of equal importance, in practice it is often simply a reorganisation of the concentric circles model with the economic concern of a company as the baseline. 'Because the 'social' element is seen as subordinate to the economic, the

14 Report by ERM cited at SustainAbility website:

<http://www.sustainability.com/services/tools-social-kpi.asp>.

15 Debra King and Alison Mackinnon, *Corporate citizenship and reputational value: the marketing of corporate citizenship*, Hawke Research Institute, Magill, SA, 2000, online at:

<http://www.hawkecentre.unisa.edu.au/institute/resources/Corporate%20Citizenship%20report.pdf>, p 43. See also Debra King, *Stakeholders and spindoctors: the politicisation of corporate reputations*, Hawke Research Institute Working Paper Series No. 5, Magill, SA, 2000, online at

<http://www.hawkecentre.unisa.edu.au/institute/working.htm>

social sciences are seen to play a supporting role in this agenda—just as they are in environmentally based definitions of sustainable development.

Background 2: Sustainability as a research agenda in Australia

Within Australia, the federal government's recognition of environmental sustainability as a priority resulted in the National Strategy on Ecologically Sustainable Development (NSED) in 1992. The national strategy includes five key principles of ecologically sustainable development:

- integrating economic and environmental goals in policies and activities
- ensuring that environmental assets are properly valued
- providing for equity within and between generations
- dealing cautiously with risk and irreversibility
- recognising the global dimension.

Clearly, a broad interpretation of these principles could include many concerns normally dealt with by social scientists. However the principles have been implemented by the federal Department of Environment and Heritage, determining a predominantly ecological focus.

More recently (in December 2002), the Australian federal government has adopted 'An Environmentally Sustainable Australia' as one of four national research priorities. These priorities were developed after a consultative process in which large public meetings were held, and over 180 groups or individuals made written submissions according to a set framework (which has also been subject to consultation and review). Not surprisingly, sustainability was widely suggested as a research priority in both the meetings and the written submissions. In many cases, this simply meant environmental sustainability without much reference to social factors (eg the submissions of the Australian Academy of Sciences and the Renewable and Sustainable Energy Roundtable).¹⁶

However, there was a variety of submissions that either called for an interdisciplinary approach to sustainability (such as that of the network of older, prestigious universities known as the Group of Eight) or discussed social factors in sustainability as desirable research agendas in their own right (University of Queensland Faculty of Social and Behavioural Sciences; Australian Academy of

16 References to these and the following footnotes (16–19) are all from submissions made to DEETYA during the consultative process on Australia's national research priorities. Australian Academy of Sciences: http://www.deetya.gov.au/priorities/priorities_sub/pdf66p.pdf; Renewable and Sustainable Energy Roundtable: http://www.deetya.gov.au/priorities/priorities_sub/pdf154p.pdf

the Humanities; Academy of the Social Sciences in Australia; University of New South Wales Social Policy Research Centre; University of New England Institute for Rural Futures).¹⁷

Calls for an interdisciplinary approach to sustainability (including a broad definition of this term) came from both social science and natural science organisations. The University of New England's Centre for Sustainable Farming Systems proposed 'Sustainable population hubs across Australia supported by sustainable mosaic ecosystems' as a priority, and noted that an interdisciplinary approach involving both physical and social sciences was required.¹⁸ Of particular interest is the submission of the University of Queensland Faculty of Social and Behavioural Science, which recommended 'Enabling a sustainable environment' as a national priority. It noted about the role of the social sciences in this agenda: 'Rather than "adding social science in" to science, engineering and technology research, what is suggested here is social science research that complements scientific research but stands out as a focus of inquiry in its own right'.¹⁹

Finally, the University of South Australia's submission recommended sustainability as a national research priority, working with a definition of the term as follows: 'Sustainability—including sustainable environments, sustainable societies and sustainable economies. This priority would mean attention *inter alia* to issues relating to water use, renewable energy, democratic citizenship, social justice, equity, impact of globalised economies on work and triple bottom line approaches.'²⁰ The University of South Australia has now adopted this definition as part of its own academic profile for the next twelve years. The development of the Hawke Research Institute into the Hawke Research Institute for Sustainable Societies is part of an overall move towards sustainability as a research focus in our university.

After the consultation phase, DETYA proceeded with a definition of the sustainability priority area that highlighted the importance of the physical and

17 Group of Eight: http://www.detya.gov.au/priorities/priorities_sub/pdf131p.pdf; UQ Faculty of Social and Behavioural Sciences: http://www.detya.gov.au/priorities/priorities_sub/pdf124p.pdf; Australian Academy of the Humanities: http://www.detya.gov.au/priorities/priorities_sub/pdf99p.pdf; Academy of the Social Sciences in Australia: http://www.detya.gov.au/priorities/priorities_sub/pdf46p.pdf; UNSW Social Policy Research Centre: http://www.detya.gov.au/priorities/priorities_sub/pdf36p.pdf; UNE Institute for Rural Futures: http://www.detya.gov.au/priorities/priorities_sub/pdf38p.pdf

18 http://www.detya.gov.au/priorities/priorities_sub/pdf87p.pdf, p 1.

19 http://www.detya.gov.au/priorities/priorities_sub/pdf124p.pdf, p 1.

20 http://www.detya.gov.au/priorities/priorities_sub/pdf113p.pdf, p 1.

technological aspects: 'Transforming the way we use our land, water, mineral and energy resources through a better understanding of environmental systems and using new technologies'. The subheadings are all based on the environment and sustainable resource use.²¹

Aware that this definition and its subheadings (and those of the other priorities) gave 'greater prominence ... to science and technology than the social sciences and humanities', the government consulted with social science and humanities leaders, including holding a conference in March 2003, to assess how the priorities might be re-evaluated to include more scope for those disciplines.²²

Many Australian social science and humanities scholars have viewed the sustainability priority as the one that could be most applicable to their own work, if it could be re-evaluated in order to include social and cultural as well as environmental elements. For example, the National Academy of the Humanities, in their response to the priorities, noted:

What constitutes environmental sustainability is ultimately a social and political question as much as a scientific one. In fact, moving towards an environmentally sustainable Australia will depend not only on our knowledge of ecosystems and resources but even more on our ability to initiate, advocate and absorb radical shifts in desired lifestyles, values and technology ... We believe that the existing priority goals need to be re-drafted to acknowledge the fundamental human origins of environmental problems.²³

The main result of this consultative process has been a series of 'editorial enhancements' to the priorities, including the introduction of four new goals as subsets of the original priorities in order to make the role of the social sciences more obvious within each. These were released in a public statement in November 2003. The main change to the 'sustainability' priority has been the inclusion of 'Responding to Climate Change and Variability' as a subheading, promoting the role of the social sciences in studying the effects of climate change in the past and the future and proposing beneficial adaptation strategies. In addition, a new priority goal, 'Strengthening Australia's Social and Economic Fabric', has been added into the 'Maintaining Good Health' priority.²⁴

21 See <http://www.dest.gov.au/priorities/>

22 See http://www.dest.gov.au/priorities/s_s_humanities.htm

23 National Academy of the Humanities, *The humanities and Australia's National Research Priorities*, at <http://www.humanities.org.au/policy/Priorities/HumanitiesRPreportfinal.pdf>, p.13.

24 See the media release at <http://www.dest.gov.au/priorities/plans/n539281103.rtf>

While the inclusion of extra scope for the humanities and social sciences within the National Research Priorities is welcome, the goals within the sustainability priority still emphasise the physical sciences far more than the social sciences. This is a disappointing result given the number of calls for the inclusion of the social sciences within the sustainability priority. While the inclusion of research that aims to strengthen the social fabric is also welcome, it would have been appropriate to place it under the sustainability priority considering the number of statements during the consultation phases in favor of an interdisciplinary approach to this area.

Achieving ‘An Environmentally Sustainable Australia’ will require socially sustainable cities and rural areas. The Hawke Research Institute seeks to develop models for best practice in social sustainability, and also to study the correspondence between increased social stability and equity and increased environmental awareness. We should welcome the increased relevance of the social sciences to this national priority, in particular the addition of the particular focus on climate change, but continue to call for recognition of the social causes of degradation, in addition to the need for socially appropriate responses to it.

Summary of background

In much literature regarding sustainability, the role of the ‘social’ element is governed by two main assumptions:

1. The success of sustainable development programs is determined by their ability to achieve the highest attainable increase in living standards measured against the least possible environmental degradation. Thus, social development and environmental protection are seen as at odds with one another and needing to be carefully balanced.
2. Many definitions of sustainability that arise in environmental and economic contexts view the social sciences primarily as useful disciplinary tools with which to promote the message of environmental or economic stability.

Only recently has there been any attempt to define ‘society’ as the focus of concern in sustainability research and development. As interdisciplinary and integrated models have become more commonplace, the social element has been positioned within other models of sustainability that have either the environment or the economy as their main concern. This has resulted in a paucity of genuine research within the framework of ‘sustainability’ into what sustains and promotes an equitable and just society.

As has been noted, attempts to ‘add in’ social sciences to a model ultimately predicated by the physical sciences will not lead to the true interdisciplinary solutions that sustainability clearly requires. In order to pursue social sustainability,

it must first be defined as distinct from environmental or economic sustainability, in order for it to develop its own models of best practice. Once this process of definition has been completed, parameters can be established to measure the effect of equitable social policies and institutions on environmental outcomes. This will result in a truly interdisciplinary model of sustainability. I turn to this subject in the next section.

Defining social sustainability

This section is an examination of the issues involved in defining social sustainability for the purposes of creating a common research agenda for use within a large organisation. It is intended to stimulate discussion within the Hawke Research Institute, but may also be of value to other organisations that are also seeking to pursue social sustainability as a collective agenda.

A working definition of social sustainability is provided below. However, much of this section problematises the task of arriving at a single useful definition and instead suggests that a range of approaches should be adopted. Generally, there has been a strong focus on defining sustainability as a condition, and measuring it with a series of indicators. My intention here is not to criticise such frameworks, but rather to investigate their potential while also suggesting other possibilities.

Social sustainability is: a life-enhancing condition within communities, and a process within communities that can achieve that condition.

The following features are indicators of the condition, and steps towards their establishment and implementation are aspects of the process:

- equity of access to key services (including health, education, transport, housing and recreation)
- equity between generations, meaning that future generations will not be disadvantaged by the activities of the current generation
- a system of cultural relations in which the positive aspects of disparate cultures are valued and protected, and in which cultural integration is supported and promoted when it is desired by individuals and groups.
- the widespread political participation of citizens not only in electoral procedures but also in other areas of political activity, particularly at a local level
- a system for transmitting awareness of social sustainability from one generation to the next
- a sense of community responsibility for maintaining that system of transmission
- mechanisms for a community to collectively identify its strengths and needs

- mechanisms for a community to fulfil its own needs where possible through community action
- mechanisms for political advocacy to meet needs that cannot be met by community action.

The list is for discussion purposes and is not intended to be complete. As noted earlier, my main aim here is to discuss the issues involved in defining social sustainability as an independent field of study, without reference to environmental or economic concerns. Once this process has occurred, a genuinely equal and interdisciplinary partnership can be forged. However for the purposes of this paper we are only examining the social element. The term ‘interdisciplinary’ is used here to describe partnerships between different social science disciplines.

Many current discussions of social sustainability are structured around a *definition of the condition*, a *measurement framework* and/or a *series of case studies*. In some cases, different projects or situations are compared to examine the potential to transfer successful approaches from one situation to another. I will be referring to the work of Cocklin and Alston in the Academy of the Social Sciences in Australia’s Community Sustainability Project, Polése and Stren in the MOST project, and the work of the Western Australian Council of Social Services’ Social Sustainability Project as three key examples of recent work in this field.²⁵ I also refer to other literature on social sustainability throughout.

Definitions of social sustainability usually describe it as either a currently existing positive condition, or as a goal that remains to be achieved. Where it is deemed not to exist, the community may be deemed ‘at risk’ and in need of support. Sustainability is also sometimes seen as an asset, occurring naturally and to varying degrees within societies, which allows them to maintain coherence and overcome change and hardship. This is often called ‘social capital’.

A major recent study by the Academy of Social Sciences in Australia, headed by Chris Cocklin and Margaret Alston measured social capital and sustainability in six rural centres. The framework breaks down ‘capital’ into five subsets. These ‘capitals’ were intended to ‘provide a framework within which to categorise, measure and assess community and social change. The suggestion was that sustainability could be judged in terms of whether various stocks of capital are declining or growing.’²⁶

25 Chris Cocklin and Margaret Alston, eds., *Community sustainability in rural Australia: a question of capital*, Centre for Rural Social Research, Wagga Wagga, NSW, 2003; M Polése and R Stren, *The social sustainability of cities: diversity and the management of change*, University of Toronto Press, Toronto, 1999; Western Australian Council of Social Services, *Model of social sustainability*, <http://www.wacoss.org.au/downloads/socialsustainable.pdf>

26 Cocklin and Alston, *ibid*, pp 3–6.

The capitals used in the project are:

- natural (natural resources, ecosystem services and aesthetic value)
- human (knowledge and skills of individuals)
- social (productive networks and shared values)
- institutional (institutional structures in the private, public and third sectors)
- produced (the built environment, harvested or manufactured goods and monetary resources).²⁷

The measurement framework for the defined condition is often a series of indicators by which the strength of the stated condition can be measured. Such indicators can be positive (rate of literacy) or negative (rate of homicide). In qualitative work they are normally positive (eg sense of community ownership—a common indicator in studies of social sustainability/social capital). In the case of Cocklin and Alston’s study, a range of indicator sets were used in the various case studies (however it is noted that the five ‘capitals’ are themselves a type of indicator).

The majority of the work thus far on social sustainability has focused on generating such indicator sets. A notable Australian example is the Australian Bureau of Statistics’ recent Measuring Australia’s Progress system.²⁸ Much of this work has been done in order to facilitate corporate or government reporting, but ‘unconstrained’ research has also been done in this area. A glance at the huge range of indicators available on the ‘Dashboard of Sustainability’ will reveal the level of statistical detail available in social sustainability indicator sets.²⁹ Such statistics are useful in comparing the performance of countries, or in analysing which areas of a given country/company/community are in an ‘unsustainable’ condition and therefore in need of increased resources.

In contrast, there is a dearth of available literature on ways in which social sustainability may be implemented, and *the precise causal relationships between its various aspects*. The focus is on defining and measuring social sustainability in part because it is a relatively new field, and researchers are naturally keen to know precisely what it is that they are discussing. When discussing social sustainability, ‘What is...’ or ‘What do we mean by...’ are immediate and automatic responses.

27 Ibid, pp 3–6.

28 See the discussion at the ABS website:
<http://www.abs.gov.au/websitedbs/D3110129.NSF/f128006d2d1e7c10ca2566fd0081ba4b/04fa6342a7770193ca256c92007f05b5>

29 Available at <http://esl.jrc.it/envind/dashbrds.htm>

While it is certainly useful to have both definitions of social sustainability as a condition, and indicators to measure it, there are problems inherent in this approach. First, it is impossible to define a condition without reference to some of its features, and as soon as this is done the distinction between the condition and the framework to measure it becomes blurred. Take for example the following (invented) definition:

Social sustainability is a positive condition marked by a strong sense of social cohesion, and equity of access to key services (including health, education, transport, housing and recreation).

The definition already contains within itself some of the indicators by which it could be measured. This can create a sense of indeterminacy in precisely what is being measured. Because the definition itself contains indicators, then logically the role of the measurement framework is to break these down into subsets. When it comes to collecting data within case studies, the ‘strong sense of social cohesion’ in the definition might be given a series of qualitative or quantitative indicator sets (for example, sense of community ownership of local action group, number of businesses joining local action group) and data collected for these. Equity of access to services may be further subdivided into ‘youth access to recreation’, and so on, and data collected to measure these as well.

The end result of such a study is a data set measuring the extent to which the community in question matches a pre-established series of indicators. Some important questions will remain unanswered because the definition/measurement framework allowed no scope for them to be asked. For example, has the sense of social cohesion been created by the equal access to services? Or is the ‘equality’ a result of the pre-existing social cohesion? What other policies and institutions might be responsible for conditions in the community? And, most importantly, how might conditions be maintained and improved? The accumulated data can be used to answer these questions interpretatively rather than directly. Moreover, the study has not led to the development of questions that could not have been asked before it took place, as all the basic elements for all the questions posed above were present in the initial definition.

Certainly, there have been individual case studies (such as those conducted within the ASSA Community Sustainability Project) in which a more detailed analysis is provided. For example, the study of South Australia’s Gilbert Valley (by Peter Smailes and Graeme Hugo) cross-references the five capitals with another set of indicators of social sustainability developed by Pepperdine³⁰:

30 This is a condensed version of the table in Peter Smailes and Graeme Hugo, ‘The Gilbert Valley, South Australia’ in Cocklin and Alston, above n 25, p 104, originally from S Pepperdine, *Social indicators of rural community sustainability*:

Examples of indicators	Social	Human	Institutional	Produced	Natural	Gilbert Valley Rating
Sense of future	*					Strong
Sense of community or belonging	*					Strong
Community activities	*					Strong
Even age structure	*	*				Weak
Political representation			*			Weak
Economic viability		*	*	*	*	Medium
Employment opportunities			*	*	*	Medium
Meeting places			*	*		Strong

The framework used here is clearly very efficient in measuring the strengths and weaknesses of an individual community according to a detailed set of indicators. Such data would be useful in determining the most appropriate planning measures to increase social sustainability within the community. As Pepperdine notes, her indicator system will also allow change over time to be measured through comparative longitudinal study.³¹ However the authors of the Gilbert Valley study also note that ‘the scheme is not ideal and illustrates the difficulty of distinguishing clearly between the various types of capital and of *separating cause from effect*’.³² It must be also stressed that the framework used was adopted for the specific purposes of the research project and that ‘the concept of capitals is no more than a set of intellectual categories used for convenience ... Other writers examining the sustainability concept have with equal justification used other sets of categories.’³³

Another important issue is that definitions of sustainability and related indicator sets are most useful when they are developed at a local level. Definitions broad enough to encompass all factors in all situations tend to be too broad for use in

an example from the Woody Yaloak Catchment, online at <http://www.regional.org.au/au/countrytowns/strategies/pepperdine.htm>

31 Pepperdine, *ibid.*

32 Smailles and Hugo, above n 30, p 104, emphasis original.

33 *Ibid.*, p 65.

specific situations. Moreover, as definitions and indicator sets are often developed through consultation with community members as a first phase in research programs, they vary according to the needs and interests of the community in which they are developed. To approach a community with a pre-existing definition and indicator set may disrupt the community's sense of ownership of the research being undertaken.

UNESCO's MOST (Management of Social Transformations) project has conducted a series of case studies on cities, and the social policies that determine their social sustainability. Polése and Stren define the social sustainability of a city as: 'Development and/or growth that is compatible with the harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population.'

In their case studies of ten large cities, Polése and Stren analyse the success of social policies in six key areas: governance, cultural policy, infrastructure (services), housing, transport and employment. (Governance may generally be defined as the systems by which the other policy areas are implemented.) Their focus on the local in all these matters is due to recognition that 'the social sustainability of cities is affected not only by nationwide aspatial policies ... but also, if not chiefly, by policy decisions and implementation at the local level'. They note that much macro-level social theory and policy has thus far failed to develop sufficient frameworks for social sustainability. What is instead required is a focus on local policies and institutions, to build up 'comparative knowledge about the key factors that make urban policies successful or unsuccessful'.³⁴ Societies cannot be studied, sustained or altered through policy or institutional change without reference to the space (local region) they occupy, an observation that brings into play such things as the allocation of recreational and civic space, street design, the location of services in relation to population, and so on.

The 'best practice database' is an appealing model for social sustainability research in that it takes the focus away from measurement of a condition and emphasises comparative knowledge. By doing this it allows for a wide range of research projects to be considered under the heading of social sustainability. The MOST 'Best Practice in Social Sustainability' website includes links to projects ranging from community supermarkets in the USA to low-cost housing projects in Africa.³⁵ The criteria for inclusion as a 'social sustainability project' are that the project must be innovative, effective, sustainable (in the sense that the resources it requires

34 Polése and Stren, above n 25, p 14.

35 Ibid, pp 15–16.

are renewable), and have potential for replication (in the sense that it can serve as a model for generating projects elsewhere).

In adopting such a model within the context of the Hawke Research Institute, the principal questions are:

- What are the key issues to consider when transferring a functioning sustainability project from one locality/situation to another?
- How will the comparative knowledge be created and managed, and by whom?
- How does pure research that aims to measure a condition, or research that aims to affect policy, fit in to such a system?

In looking at the final major sustainability project under study (that of the Western Australian Council of Social Services) I will be demonstrating the depth and specificity of thought needed to arrive at a model of social sustainability that attempts to cover all potential factors as well as the interrelationships between them. The Model of Social Sustainability was developed by WACOSS in 2000 primarily out of concern over a range of housing issues affecting low-income households and to develop a set of criteria for identifying a socially sustainable community. The model was developed through extensive consultation with community members in low-income areas of WA and statewide web-based consultation.

The model has four parts: 1) definition of social sustainability; 2) principles of social sustainability; 3) characteristics of socially sustainable communities; and 4) statements addressing the characteristics of socially sustainable communities.

The **definition** is:

Social sustainability occurs when the formal and informal processes, systems, structures and relationships actively support the capacity of current and future generations to create healthy and liveable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life.

The **principles** are ‘aspirational and visionary statements’ by which this condition may be achieved:

1. **Equity**: the community provides equitable opportunities and outcomes for all its members, particularly the poorest and most vulnerable. While equity is listed as a separate principle, it is such a fundamental component that it cannot really be

separated from the other principles. Equity is a filter through which all other principles are viewed.

2. **Diversity:** the community promotes and encourages diversity.
3. **Interconnectedness:** the community provides processes, systems and structures that promote connectedness within and outside the community at the formal, informal and institutional level.
4. **Quality of life:** the community ensures that basic needs are met and fosters a good quality of life for all members at the individual, group and community level.
5. **Democracy and governance:** the community provides democratic processes and open and accountable governance structures.

Each principal is followed by a series of **characteristics**. Those for the first principle, equity, are:

- There is equal opportunity for all members.
- There is equity for Indigenous people.
- There is equity in relation to human rights.
- There is equity in relation to disadvantaged members.

The lengthy appendices contain a series of **statements** addressing each characteristic, made by the community (and condensed from the consultative process). For example, the community statements for the characteristic ‘There is equity in relation to disadvantaged members’ are:

The community

- recognises the forces that create disadvantage and actively works to reduce or abolish these pressures
- ensures that those experiencing disadvantage are integral to the community’s decision making process to respond to and overcome these pressures
- provides access to basic services
- provides resources and support to enable disadvantaged people to participate.

The full definition (which is around fifty pages long) itself forms part of a larger framework for sustainability (including environmental and economic elements) which has been developed by the Western Australian government’s Sustainability Policy Unit.³⁶ The WA government is adopting a sustainability code of practice and developing a *Sustainability Act*, into which many of the findings of the WACOSS study are to be incorporated.

36 See <http://www.sustainability.dpc.wa.gov.au/index.htm>

I question whether such a complex and multi-faceted definition process is valid for the purposes of the Hawke Research Institute. However, if we envisage working towards a whole-of-government approach in which all or a majority of our research contributes to shaping state or federal policy according to a particular framework, then we may consider the Western Australian example as a useful model.

Interdisciplinarity and social sustainability

Another issue in creating a definition of social sustainability is to ensure that it is useful in an interdisciplinary context (such as within the new Hawke Research Institute for Sustainable Societies). As noted by Egon Becker, there is a distinct tendency for some discourses to become marginalised when attempting to create interdisciplinary models, in order to achieve a consistency of results.³⁷ Klein also notes that, in attempting to construct a unifying perspective, such projects ‘encounter the problem of holism’ and in reducing ‘all phenomena to one metaphor, theory, or ideology ... risk becoming monolithic projects or closed systems’.³⁸ Clearly it is important to ensure that this does not occur within the institute.

If we imagine creating a definition and measurement system for social sustainability that does not marginalise any discourses within the institute, we might produce a basic list of the ‘features of a sustainability society’, containing scope for the research agendas of our members to be included within a broad definition of the term. Similarly, the measurement framework is likely to include pre-existing elements of data collection and analysis of particular features. In short, our definition of social sustainability would become a statement of our current research interests and capabilities.

It may be helpful here to look at the possible reasons *why* a definition might be developed:

- in order to explain precisely what is being discussed in the introduction to a book or article
- in order to provide a framework for measuring the results within a particular collaborative research project
- in order to describe a current series of interests and capabilities in such a way as to note the potential connections between them

37 Egon Becker, *Transformations of social and ecological issues into transdisciplinary research*, 2003, p 2, http://www.nachhaltiges-wirtschaften.net/ftp/EB_EOLSS.pdf

38 Julie Thompson Klein, ‘Notes toward a social epistemology of transdisciplinarity’, paper presented at the First World Congress on Transdisciplinarity, Convento da Arrábida, Portugal, 2–6 November 1994, <http://perso.club-internet.fr/nicol/ciret/bulletin/b12/b12c2.htm>

- in order to establish a new interdisciplinary area of study, to assess which current research interests might fit within it, and which new capabilities need to be developed in order to pursue it.

It is noteworthy that all of the definitions discussed in this section have been developed according to the needs of a particular research project, conducted in a particular region. A key question to consider when thinking about definitions is:

- Do we consider the sum of research within the institute to constitute a project, in which results can be measured according to a set definition and set of indicators?

Moreover, a further question to consider is:

- Do we consider that social sustainability represents the entirety of the research interests in the institute, or does it refer to one area in which we have a particularly strong focus?

New directions in defining social sustainability

Various writers have suggested that sustainability is inherently a contested concept, and that the way in which arguments over definition and the relative importance of various elements of sustainability are played out in academic discourse is a reflection of the overall contestation of these issues within society. The lack of a coherent definition of social sustainability is not, therefore, something that should be derided or bemoaned, but rather accepted as a natural part of the sustainability agenda.³⁹

I argue that, while discussion over definition is certainly fruitful, pragmatic concerns about the need for collective understanding and cohesive research results also need to be considered in a large and multidisciplinary organisation. I am not arguing here that a single definition should be adopted. I am noting that there remain a series of possibilities that it may be fruitful for us to explore and that are not currently being developed in the literature of social sustainability. All of these rely to an extent on having established a basic definition of sustainability and an indicator system, but they may allow the institute to move beyond contestations of definition and towards potential new models for understanding and collaboration.

First, it may be instructive to develop a series of *research questions* around which discussions of social sustainability can be conducted. The development of the questions would be best undertaken collaboratively. I offer suggestions here on ways in which the task of arriving at questions could be approached. The following

39 See for example Jacobs, above n 4.

were derived by seeking patterns of cause and effect between a selection of Pepperdine's measures of community sustainability.⁴⁰ Other indicator sets or frameworks could also be interrogated in order to arrive at a similar range of questions, with an emphasis on the causal links between indicators of the defined condition.

- What are the key causes of a public sense of community ownership and belonging? ('Belonging' here may relate to a whole community or to an individual organization.)
- What effect does an even gender structure have on a public sense of community ownership and belonging?
- How does positive political representation affect the sense of future in the community?

A further possibility is that social sustainability may be viewed as a *process*, as well as a condition. Here, indicators become actions, which can be implemented by the community as a whole in order to increase or preserve its current level of sustainability over time. On one level this is simply a matter of rephrasing the indicator, that is, *developing a series of mechanisms for a community to collectively identify its strengths and needs*.

On another level, the emphasis is shifted onto the process by which such a state may be obtained, rather than the measurement of sustainability either as a current condition, or as a statement of an ideal. In performing research around the given example, the following questions may arise:

- What are the main mechanisms by which the community collectively identifies its own needs?
- How have these mechanisms developed?
- Is the community satisfied with these mechanisms, and what are some ways in which they think these might be improved?
- Does this community's means to identify its needs provide a suitable model for consideration by other communities?

These are questions that may be considered before any data is collected, rather than during the analysis of the data. Community self-evaluation of community processes may yield different results to self-evaluation of current conditions and aspirations for the future.

40 <http://www.regional.org.au/au/countrytowns/strategies/pepperdine.htm>

Conclusion: reviewing the definition

Social Sustainability is: a positive condition within communities, and a process within communities that can achieve that condition.

The following features are indicators of the condition, and steps towards their establishment and implementation are aspects of the process:

- equity of access to key services (including health, education, transport, housing and recreation)
- equity between generations, meaning that future generations will not be disadvantaged by the activities of the current generation
- a system of cultural relations in which the positive aspects of disparate cultures are valued and protected, and in which cultural integration is supported and promoted when it is desired by individuals and groups.
- the widespread political participation of citizens not only in electoral procedures but also in other areas of political activity, particularly at a local level
- a sense of community ownership
- a system for transmitting awareness of social sustainability from one generation to the next
- a sense of community responsibility for maintaining that system of transmission
- mechanisms for a community to collectively identify its strengths and needs
- mechanisms for a community to fulfil its own needs where possible through community action
- Mechanisms for political advocacy to meet needs that cannot be met by community action.

Notes:

- The basic description of the condition/process simply denotes its positive nature.
- All the indicators are expressed as aspects of the condition but can also readily be seen as parts of the process a community could undergo in order to move towards the ideal.
- All the indicators/processes are interrelated and may be measured, or cross-referenced with one another to look for patterns of cause and effect.

I have argued throughout for a deliberate short-term focus on the social aspect of sustainability as independent from economic and environmental concerns.

I have also argued for a careful evaluation of the process of defining social sustainability. In order for such a process to be fruitful we should consider why we need a definition (or definitions), and what sort of definitions will be most useful for the purposes of research collaboration. The key questions I have identified in making these decisions are listed here.

Questions and issues in defining social sustainability

Reasons to define social sustainability

- In order to explain precisely what is being discussed in the introduction to a book or article
- in order to provide a framework for measuring the results within a particular collaborative research project
- in order to describe a current series of interests and capabilities in such a way as to note the potential connections between them
- in order to establish a new interdisciplinary area of study, in order to assess which current research interests might fit within it, and what new capabilities need to be developed in order to pursue it.

Questions raised

- Do we consider the sum of research within the institute to constitute a project, in which results can be measured according to a set definition and set of indicators?
- Do we consider that social sustainability represents the entirety of the research interests in the institute, or does it refer to one area in which we have a particularly strong focus?

Types of definition/framework

- Social sustainability as a condition (eg Pepperdine)
 - Is it appropriate to have a definition of sustainability as a condition and an accompanying indicator set, when most such frameworks are only valid within the context of the community in which they were developed?
 - Do we consider the sum of research within the institute to constitute a project, in which results can be measured according to a set definition and set of indicators? (The question may be asked again here.)
- Database of Best Practice (eg MOST)
 - What are the key issues to consider when transferring a functioning sustainability project from one locality/situation to another?

- How will the comparative knowledge be created and managed, and by whom?
- How does pure research that aims to measure a condition, or research that aims to affect policy, fit into such a system?
- Complex whole-of-system approach (eg Western Australian government)
 - Do we envisage working towards a whole-of-government/whole-of-system approach in which all or a majority of our research contributes to shaping state or federal policy according to a particular framework?
- Social sustainability as a process *and* social sustainability as a series of shared research questions
 - Are these valid ways to approach the issue of sustainability?
 - Is it appropriate to have a variety of different definitions for different contexts/kinds of research?

HAWKE RESEARCH INSTITUTE WORKING PAPER SERIES

- No 1 Marjorie Griffin Cohen, *The World Trade Organisation and post-secondary education: implications for the public system in Australia*, 2000.
ISBN 0 86803 800 8
- No 2 Claire Woods, *Communication and writing: footprints on a territory*, 2000.
ISBN 0 86803 801 6
- No 3 Rhonda Sharp, *The economics and politics of auditing government budgets for their gender impacts*, 2000.
ISBN 0 86803 802 4
- No 4 Anne Hawke, *Measuring the impact of gambling: an economist's view*, 2000.
ISBN 0 86803 803 2
- No 5 Debra King, *Stakeholders and spin doctors: the politicisation of corporate reputations*, 2000.
ISBN 0 86803 804 0
- No 6 Lois Bryson and Alison Mackinnon, *Population, gender and reproductive choice: the motherhood questions: directions for policy*, 2000.
ISBN 0 86803 805 9
- No 7 Margaret Brown, Justin Beilby and Eric Gargett, *Participating in end-of-life decisions: the role of general practitioners*, 2000.
ISBN 0 86803 806 7
- No 8 Nicholas Procter, *The local-global nexus and mental health of transnational communities*, 2000.
ISBN 0 86803 807 5
- No 9 Rick Sarre, Meredith Doig and Brenton Fiedler, *Using the principles of corporate social responsibility in the process of risk management and accountability*, 2000.
ISBN 0 86803 808 3

- No 10 Wendy Seymour, *The technological promise: enhancing social participation and citizenship for people with disabilities*, 2000.
ISBN 0 86803 809 1
- No 11 Gerald McBride, *Adelaide's recipe for life: wisdom of the Kaurna*, 2000.
ISBN 0 86803 810 5
- No 12 Ed Carson and Ben Wadham, *Regional devolution, contractualism and the corporate citizen*, 2001.
ISBN 0 86803 811 3
- No 13 Howard Harris, *Making business ethics a competitive advantage*, 2001.
ISBN 0 86803 812 1
- No 14 Rohana Ariffin, *Domestic work and servitude in Malaysia*, 2001.
ISBN 0 86803 813 X
- No 15 Glen Lehman, *Interpreting globalisation using Taylor's communitarian-republican model*, 2001.
ISBN 0 86803 814 8
- No 16 Mbulelo Vizikhungo Mzamane, *Where there is no vision the people perish: reflections on the African renaissance*, 2001.
ISBN 0 86803 815 6
- No 17 David Wilkinson, *Unhealthy encounters: legacies and challenges for the health status of settler and Aboriginal communities*, 2002.
ISBN 0 86803 816 4
- No 18 Susan Feiner, *The political economy of the divine*, 2002.
ISBN 0 86803 817 2
- No 19 Deborah Bird Rose, *Love and reconciliation in the forest: a study in decolonisation*, 2002.
ISBN 0 86803 818 0
- No 20 Ian North, *StarAboriginality*, 2002.
ISBN 0 86803 819 9
- No 21 Jennifer McKay, *Encountering the South Australian landscape: early European misconceptions and our present water problems*, 2002.
ISBN 0 86803 820 2

- No 22 Jane Kenway, Elizabeth Bullen and Simon Robb, *Reshaping education in globalising, tribalising, hybridising times*, 2003.
- No 23 Susan Himmelweit and Maria Sigala, *Choice and the relationship between attitudes and behaviour for mothers with preschool children: some implications for policy*, 2003.
- No 24 Margi Prideaux, *Beyond the state: building regimes for species protection in all oceans*, 2003.
- No 25 Rhonda Sharp and Sanjugta Vas Dev, *Bridging the gap between gender analysis and gender-responsive budgets: key lessons from a pilot project in the Republic of the Marshall Islands*, 2004.
- No 26 Bruce Johnson, *Local school micropolitical agency: an antidote to new managerialism*, 2004.
- No 27 Stephen McKenzie, *Social sustainability: towards some definitions*, 2004.

Available online at www.hawkecentre.unisa.edu.au/institute/working.htm

or from: Kate Leeson, Editor,
Hawke Research Institute
University of South Australia
St Bernards Road
Magill
South Australia 5072
Australia

Telephone +61 8 8302 4371
Facsimile +61 8 8302 4776
Email: katherine.leeson@unisa.edu.au

Numbers 22 to 27 are only available online.

THE HAWKE RESEARCH INSTITUTE

The Hawke Research Institute undertakes research and fosters debate on democratic participation in political, economic and social life.

The central themes of the Hawke Research Institute's work are

- the social, cultural and economic aspects of globalisation and its sustainability;
- issues of participation, equity and citizenship in working life, in education and in society; and
- questions of identity, of cultural production and representation, and of our place in the international community and specifically in Asia.

The Hawke Research Institute hosts seminar series, conferences and public lectures. It offers Hawke Research Fellowships, visiting fellowships and scholarships, and supports the work of fourteen affiliated research centres and groups. For details of the affiliated research centres and groups see the Hawke Research Institute website: www.hawkecentre.unisa.edu.au/institute/. As well as promoting research on a local and national level, the institute has strong international links. It is the research arm of the Bob Hawke Prime Ministerial Centre.

Hawke Research Institute Director: Professor Alison Mackinnon

Telephone +61 8 8302 4370

Facsimile +61 8 8302 4776

Email alison.mackinnon@unisa.edu.au

Hawke Centre Director: Ms Elizabeth Ho

Telephone +61 8 8302 0371

Facsimile +61 8 8302 0420

Email hawke.centre@unisa.edu.au

Social sustainability is an often overlooked aspect of sustainability, as sustainable development discussions often focus on the environmental or economic aspects of sustainability. All three dimensions of sustainability must be addressed to attain the most sustainable outcome possible. WACOSS, Western Australia Council of Social Services. Social sustainability is "a process for creating sustainable successful places that promote wellbeing, by understanding what people need from the places they live and work. Social sustainability combines design of the physical realm with design of the social world " infrastructure to support social and cultural life, social amenities, systems for citizen engagement, and space for people and places to evolve." Definition of social sustainability in the Definitions.net dictionary. Meaning of social sustainability. What does social sustainability mean? Information and translations of social sustainability in the most comprehensive dictionary definitions resource on the web. Social sustainability? is the least defined and least understood of the different ways of approaching sustainability and sustainable development. Social sustainability has had considerably less attention in public dialogue than economic and environmental sustainability. There are several approaches to sustainability. The first, which posits a triad of environmental sustainability, economic sustainability, and social sustainability, is the most widely accepted as a model for addressing sustainability. Hawke Research Institute Working Paper Series No 27 SOCIAL SUSTAINABILITY: TOWARDS SOME DEFINITIONS Stephen McKenzie Hawke Research Institute University of South Australia

More recently, economic and social sustainability have been adopted as additional and interrelated concerns. Sustainability is now a broad multi-focal agenda, and terms such as triple bottom line and sustainable development are being used interchangeably. As a result, sustainability is in danger of carrying so many implications and nuances that in order for it to be properly understood it must be defined whenever it is used. The Hawke Research Institute at the University of South Australia is adopting sustainable societies as a common research agenda. Social sustainability: Towards some definitions. Hawke Research Institute Working Paper Series No. 27. Adelaide: University of South Australia. Social sustainability: An exploratory analysis of its definition, assessment methods metrics and tools. EIBURS Working Paper Series, No. 2007/01. Collins, P. Y., et al.