

Linking ecosystem services to well-being: A case study of Aboriginal communities in northern Australia

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This study investigated the role of ecosystem services in the well-being of Aboriginal Australians, in the tropical savanna region of northern Australia. There is significant literature available to suggest that Aboriginal communities depend upon the natural system (Williams 1986 and 1998; Altman 1987 and 2004; Edwards 1988; Gray 2005). However, there are few reports that link the goods and services available from various ecosystems to the well-being of Aboriginal communities. Moreover, worldwide, the linkages between natural systems and well-being of indigenous peoples generally are poorly understood (MEA 2003). It is important to note that such linkages are complex, diverse, and may vary according to spatial and temporal scales. However, research for understanding these connections can help to develop land-use policies that aim to achieve the sustainable use of resources while assessing the non-monetary values of natural landscapes.

The general approaches to measuring well-being applied by socioeconomic institutions, such as by the Australian Bureau of Statistics (ABS), consider only the socioeconomic indicators (such as income and housing), and ignore the role of ecosystem services. These socioeconomic approaches lead to under-estimates of the value of ecosystem services because additional and important elements of well-being are not considered. My research lists these additional elements related to ecosystem services, and adopts the MEA (Millennium Ecosystem Assessment) framework

(with some modifications) at a local scale, for the following main objectives:

- To explore the linkages between ecosystem services and well-being of Aboriginal peoples.
- To suggest the importance of ecological measures in well-being of Aboriginal peoples, that could help to expand the ABS list of well-being measures.

What well-being attributes are being ignored?

ABS (2001:6) defines well-being as ‘a state of health or sufficiency in all aspects of life’, and adopts a pragmatic view that reflects well-being from socioeconomic characteristics. It uses various social and economic indicators: economic resources, work, education and training, health (including life expectancy, infant mortality etc.), housing, family and community, crime and justice, and culture and leisure (including types of businesses/industries providing goods and services for cultural and leisure activities etc.). These mostly relate to either utilities or capabilities of communities, and ignore the role of natural environment in providing human services.

The well-being of an individual or a society depends upon many factors including culture, geography and ecological conditions (MEA 2003; Dasgupta 2004); the ABS measures fail to account for diversity in each of these three categories. Majority non-Aboriginal (mainly European) and minority Aboriginal peoples have very different cultural, identity and spiritual values (Edwards

1988) and also experience different ecological landscapes.

If the non-Aboriginal category places a greater value on materialistic goods and services (e.g. good house, car and income), then the current ABS approach could well reflect these values. Aboriginal societies may have materialistic values too, but they exist in addition to their strong cultural, identity and spiritual values (Edwards 1988; Hill 1995). Their living style also suggests the importance of culture and attachment to Country (ABS 2002, 2003). Daily living of those in remote areas is substantially dependent upon natural resources for a range of benefits derived from land and water resources, for example bush food and medicine, paint, art and craft, cultural, spiritual and identity benefits (Altman 1987; Keen 2004; Gray et al. 2005). Thus, there is a need to incorporate these ecological attributes in well-being measures.

Links between well-being and ecosystem services

The following main ecological attributes play a direct role in well-being of Aboriginal communities:

1. bush food, medicine, and traditional knowledge
2. water
3. wood for shelter, fuel-wood and bark
4. other regulating and supporting services.

All these ecological services are linked to well-being for provision of:

1. basic material for living: food, medicine and shelter
2. good health: provision of clean air, water and land resources
3. security in having a healthy environment for the present and future generations
4. social relations
5. cultural values
6. freedom to access land and water resources.

For each of these linkages between well-being and ecosystem services a model is proposed to suggest how various ecosystem services from tropical savannah landscape contribute towards Aboriginal well-being. There are multiple relationships, as each of the ecosystem service contributes

to more than one component of well-being. For example, bush foods and medicines contribute to provision of basic materials for life, good health, and in social relations. While many standard socioeconomic measures also relate to ecosystems services in one way or another, most such links are indirect. However, these connections are forgotten when the commodity outputs are obtained from industry since the sources of raw materials or the factors contributing to a commodity output remain largely unseen (Dasgupta 2004).

The present study combines the ecological attributes with the standard socioeconomic attributes of well-being that can assist socioeconomic institutions develop a socioeconomic-ecological perspective of well-being. The relative importance of various attributes of well-being can vary according to the community, even within the same ecosystem. Such a list of ecological indicators of savannas that are valued could be useful for the ABS to improve the current list of well-being measures and the methods to incorporate these attributes into the current socioeconomic measures. In 2005, ABS (2005) used 'Measures of Australia's Progress' to measure the quality of life. While these included some environmental attributes such as number of threatened species, areas of land cleared, salinity area and so on, in addition to socioeconomic attributes, these measures did not include the value of a landscape from a people's perspectives and consequently missed cultural, identity and spiritual values of the natural environment which are directly connected to a people's lives. Rapport and Singh (2006) have suggested use of eco-health-based indicators to highlight the interdependencies of human and environment. Similarly, the present study could help to identify some attributes of ecosystem services. By understanding the importance of ecosystem services in the well-being of communities, as demonstrated in the proposed model, this study will help develop policies on land use and management to ensure the availability of ecosystem services. A similar framework could be applicable to other regions where ecosystem services and goods are valued.

Integrating well-being and ecosystem services helps appreciation of the value of natural systems and the consequences of adverse actions.

Ecosystems have been changed significantly over the past fifty years (MEA 2005a, b and c), and these changes can adversely affect human well-being. The results are alarming and suggest the need to conserve natural ecosystems. The proposed modelling is important, not only for Aboriginal communities but also for non-Aboriginal communities to interpret many indirect ecosystem values. Clarkson and others (1992:52) pointed out that:

...we must conceptualize our ideas on the quality of life that incorporate the health of the planet as the primary goal rather than the satisfaction of the material wants that go hand in hand with accumulation of wealth and uninterrupted expansion and exploitation of the gifts of the earth.

Learning from Aboriginal perspectives will not only help to enhance well-being of Aboriginal communities but will also help the mainstream community to realize its dependence upon the natural environment.

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