

**AUTHORS:**Shaun Mowat¹
Bruce Rhodes¹ **AFFILIATION:**¹Department of Economics, School of Accounting, Finance and Economics, University of KwaZulu-Natal, Durban, South Africa**CORRESPONDENCE TO:**

Shaun Mowat

EMAIL:

mowats@ukzn.ac.za

DATES:**Received:** 02 Sep. 2019**Revised:** 24 Apr. 2020**Accepted:** 09 May 2020**Published:** 27 July 2020**HOW TO CITE:**Mowat S, Rhodes B. Identifying and assigning values to the intangible cultural benefits of ecosystem services to traditional communities in South Africa. *S Afr J Sci.* 2020;116(7/8), Art. #6970, 6 pages. <https://doi.org/10.17159/sajs.2020/6970>**ARTICLE INCLUDES:**

- Peer review
- Supplementary material

DATA AVAILABILITY:

- Open data set
- All data included
- On request from author(s)
- Not available
- Not applicable

EDITOR:

Bettine van Vuuren

KEYWORDS:

cultural ecosystem services, traditional communities, neoclassical economic valuation, deliberative approaches, types of value

FUNDING:

National Research Foundation (South Africa; grant no. 105679)

Identifying and assigning values to the intangible cultural benefits of ecosystem services to traditional communities in South Africa

Cultural ecosystem services make an important and valuable contribution to human well-being. However, research efforts in relation to ecosystems do not reflect this value, with the majority focusing on provisioning service contributions in developed countries, with cultural services largely neglected. Consideration of the contribution and importance of these services in South Africa focuses on the more tangible cultural ecosystem services such as recreational and educational benefits, with a paucity of research on the more intangible aspects such as sense of identity, belonging and worship of the ancestors. This lack of research is out of keeping with evidence of an intimate and profound relationship between the land and traditional communities in South Africa. Here we reflect on the available evidence of the nature of cultural ecosystem services to traditional communities in South Africa, and consider one aspect of the global debate on cultural ecosystem services by analysing the suitability of two predominant methods of ascertaining their value – neoclassic economic valuation and deliberative approaches – in a South African context. The types and nature of the values associated with cultural ecosystems, and the way of life of traditional communities, suggest the use of deliberative approaches is better suited to this task. It is hoped that these discussions will encourage researchers from a range of disciplines to engage in furthering research efforts in this area, and improve the evidence base on identifying, assessing and valuing these services, which are of significant importance and value to many of the most marginalised and vulnerable members of South African society.

Significance:

- Evidence from the literature suggests that cultural ecosystem services demonstrate a range of value types and ranges. The presence of a range of values puts cultural ecosystem services beyond the reach of neoclassical economic valuation methods.
- Deliberative approaches are the most suitable method for eliciting the range and dimensions of value associated with cultural ecosystem services. There is a need for research in a South African context to develop frameworks and methods to identify, assess and measure the range of values associated with cultural ecosystem services.

Introduction

Cultural ecosystem services (CES) make an important and valuable contribution to human well-being, yet extant research efforts are lacking.^{1,2} In addition, there is under-representation of studies within an African context.³ This research gap needs to be filled because traditional communities have a more intimate and profound relationship with the land and poor policy decisions raises the level of risk to these already vulnerable groups.⁴⁻⁷ Through this paper, we aim to encourage a greater level of engagement and research of CES in South Africa and provide an overview of valuing cultural services and their importance to local traditional communities.

Extensive research shows that the history of a people or community is closely interwoven with the land they inhabit.⁸⁻¹⁰ The CES benefits enjoyed by a given community depend on their history, culture and relationship with the land. Therefore, similarities and differences will exist both within and between different countries. The CES benefits will be location dependent and non-transferable. This suggests that research on CES needs to be tailored to the specific location and community in question.

This paper is concerned with issues surrounding CES and traditional communities in South Africa. Whilst all may enjoy the benefits of CES, there is evidence to suggest that, globally, they are of more significance and importance to traditional communities – a situation recognised in the literature, and by the World Bank, the Convention on Biodiversity, and many national governments, amongst others.^{4-7,11,12} This is especially true where CES relate to important intangible aspects of people's lives, such as a sense of community, place and identity, which has been constructed by a community through living and interacting with the same environment over many generations.^{4-7,11} Moreover, they may be relatively more important to the poorest and most marginalised communities within a country.⁵ In a South African context, these two groups are often the same.

There may be similarities with the CES benefits enjoyed by traditional communities in other countries, although the way in which CES are experienced will be unique to a particular community. Amongst traditional communities in South Africa, much of this culture relates to the land,^{13,14} which is more than just a productive economic asset. Land is important in many cultural practices and rituals, and the often-intangible cultural aspects of individual and community life. The significance and the cultural nature of the relationship between traditional communities and the land in South Africa is recognised in the literature.^{9,10,13,14} Moreover, it is recognised and accepted as significant by the courts, including the Constitutional Court.¹⁵ This relationship with the land helps explain why the land issue in South Africa is such an emotive one¹⁶, and why there is often such robust opposition from affected communities whose land is threatened by development, such as the on-going case of the proposed mining operation at Xolobeni in the Eastern Cape^{16,17}.

Categorisation and definition

There have been numerous attempts to categorise the benefits arising from the interaction of people and ecosystems into CES.¹⁸⁻²⁰ Despite some differences, it is agreed that CES relate to the contributions ecosystems make to the material and non-material benefits to humans.²¹ Tangible benefits include those relating to: physical and experiential interactions, such as educational, recreation and eco-tourism, and more intangible benefits relate to aesthetic, artistic, spiritual, sense of place, identity and social cohesion. This distinction is important as research efforts tend to concentrate on the former at the expense of the latter.¹⁻³ Moreover, the degree of substitutability between CES is likely to decrease to zero as they move towards the more intangible aspects related to benefits, such as identity, sense of place, and the worshipping of the ancestors. These are important considerations as the more intangible CES are the most important to traditional communities in South Africa.

A necessary step in accounting for CES values in decision-making is the identification and assessment of the relevant services, including the range and types of benefits and values they provide. This is a significant, and often difficult, undertaking due to the intangible element of CES.^{5,7,21,22} A related issue is the manner in which CES have hitherto been conceptualised, with a tendency to conflate values, services and benefits.^{5,22,23} In response, Fish et al.²² call for a more explicit connection between benefits and ecosystems, to locate specific CES and their benefits within specific ecosystems. Taken collectively, these issues often leave CES as something somewhere out there, everywhere and therefore nowhere.

Current research into cultural ecosystem services

Available evidence suggests that traditional communities enjoy a more significant, experiential and tacit relationship with the land.^{4,5,7} Yet research efforts on CES tend to focus on the more tangible aspects such as recreation and tourism in developed countries.^{1,2} South Africa is no exception, and whilst there is some engagement with CES in South Africa,^{24,25} the majority of the research reflects the global picture in being more concerned with the tangible aspects of CES. For example, there is consideration of tourism and protected areas²⁶⁻²⁸, recreation²⁹ and education CES³⁰, but little evidence on the intangible aspects of CES in a South African context, and none that attempts to systematically identify specific CES, their associated benefits, and relate these to a specific landscape or community. This is both understandable and regrettable. Evidence on the nature of the relationship and hence the value that traditional communities ascribe to the land is therefore, at best, fragmented in a South African context. What can be pieced together suggests a significant relational value associated with the intangible aspects of CES, relating to community, sense of place and identity, and the worship of the ancestors.^{9,10,13,14,31}

Identifying and accounting for CES value in decision-making is essential, especially if they relate to values that are important to marginalised and vulnerable communities.^{5,32,33} The controversy over the granting of the mining licence at Xolobeni in the Eastern Cape serves as an illustration of the consequences of excluding values that are of importance to a local community. The socio-economic impact assessment³⁴ undertaken as part of the environmental impact assessment that accompanied the mining application, suggested that the value of the land to the local community was entirely instrumental. There was no attempt to consider other values, including CES values. If the land held only instrumental values, it could be assumed that the community would be able to substitute these for compensation, either by moving to similar land elsewhere or through financial payment. However, the robust and sustained community opposition to the proposed mining operation suggests that the land holds values other than instrumental – values that cannot be substituted. The fragmented evidence that does exist suggests that these values relate to CES.^{13,15,31,35} For example, a member of the Xolobeni community explained the importance of their land thus:

My family are buried on this land. My father, brother and grandchild are all here, as well as many

others. In Pondo culture we cannot move them. If the mine comes we will have to leave and they will stay behind. This land is sacred to us. Maybe others don't understand but it is very important.³¹

These cultural benefits have value. For instance, a belief in the ancestors amongst many traditional communities in South Africa imbues the land with significant cultural importance, suggesting a strong sense of belonging and attachment to the land.^{9,13,14,36} The sense of place attachment so engendered may have a number of benefits for individuals, improving their well-being and welfare.^{37,38} Ecosystem services, which have a positive effect on the utility and well-being of at least one person in a relevant population, have an economic value, even when this value occurs outside of a market.³⁹

Types of values

Identifying the type and nature of CES related to the land in a South African context is a necessary and important step for informed policy yet it may be insufficient if there is no indication of their relative importance and/or value. Moreover, how to ascertain such values depends on their type and dimensions. The literature identifies a number of different types of values. Although different terminology is often used, the literature makes a distinction between what could be termed 'held', and assigned or instrumental values.^{21,40} Pascual et al.^{41,42} suggest a third category of value, namely relational values, which refer to how individuals relate to each other and the natural world, and will depend in part on their held values. The more tangible aspects of CES are likely to demonstrate instrumental values whilst the more intangible aspects are likely to be more relational in value.⁴¹⁻⁴³ The available evidence suggests that it is the more intangible, relational values that are of importance to traditional communities in South Africa.^{9,10,13,14,31}

Values people assign to ecosystem services are affected by the social context. Value orientation could be for oneself (self-oriented value) or for others (other-oriented value). The values are place specific and based on people's life experiences, the use and non-use of an ecosystem and its services, cultural characteristics and the economic and political setting. Moreover, values, rules and perceptions are often a social construct. Group values are thus unlikely to be the aggregate of the values of the individuals making up the group. Individuals may have a different response to questions, including questions of value depending on whether they are questioned in a group or individual setting.^{2,41} Farber et al.⁴⁰ consider the ultimate origins of values lie within shared goals, the shared value system of a community or society, and hence values may be individually or group held. It may be sufficient to elicit individual values if enjoyment of the object in question is on an individual basis. However, such values are not appropriate if the object in question has a shared dimension, such as land or forest that is important to the culture of a group or community, as is often the case amongst traditional communities in South Africa.^{9,10,13,14,31} The formation of such values and preferences is through social interactions, involve shared knowledge and are communal, especially in South Africa where traditional communities share the land, giving rise to shared or group values, in addition to more individually held values.^{2,21,41,44}

Criticisms of Neoclassical valuation methods

Rooted in individual consumer sovereignty, the conventional neoclassical approach to capturing such values and thereby guiding policy is to estimate all costs and benefits, including non-market values, in monetary terms and compare them in a cost–benefit analysis. If the social benefits (as an increase in social welfare) of a project or policy are greater than its social costs (decrease in social welfare), the cost–benefit test is passed. Social value is the sum of the values expressed by the individuals making up the society under consideration.⁴⁵

The simplification of reducing everything to a money metric comes at a cost, often through the neglect of values difficult to estimate in monetary terms. Attempts to overcome this difficulty and thereby add to the values measurable in a cost–benefit analysis process (including ecosystem services) is achieved through the use of various demand-based techniques. Notable examples include contingent valuation and the

travel cost method.⁴⁶ Importantly, these techniques only elicit individual values. Although the academic and policymaking communities^{19,47} have now generally accepted environmental valuation studies, valuation is not without its critics^{48,49}. Significantly, the nature of these criticisms is especially pertinent to employing such methods to value CES.⁴⁶

Neoclassical economics ascertains values for non-market goods through individualistic utilitarian values, with the assumption that these are pre-formed and stable, and reflect all possible values, which a utility-maximising individual will consider. The value of any good or service to society is then an aggregation of these individual values, suggesting that in maximising their own utility, individuals will ensure that society's utility is maximised.

There is little evidence to support the assumption that preferences are pre-formed and stable, especially in terms of often complex, unfamiliar non-market goods like CES.⁵⁰⁻⁵² Having to spontaneously attribute monetary values to these poorly formed preferences in a stated preference exercise is problematic and the process is unlikely to elicit meaningful and robust values.⁵¹⁻⁵⁴

By definition, CES have a shared dimension. However, most stated preference studies present them in social isolation and seek individual values thereof.^{52,53} This ignores important values an individual may hold as a citizen, including shared societal or community values, held both for themselves and for other members of the community.⁵⁵ This is relevant because CES are likely to have a plurality of values, including shared values – especially amongst traditional communities in South Africa^{9,10,13,14,31} sharing communal land – characterised by incommensurability and missed by a process only focused on individual values.^{44,49,51,52}

If values are plural, it may not be possible to represent this as a continuous utility function, implying that improvements in one dimension may not compensate for decreases in another. It is contested here that the implicit assumption of perfect substitutability of these dimensions is not a reasonable one. This has implications for the assumptions underlying cost–benefit analysis that various dimensions of value are comparable and, where necessary, can be traded off and compensated.⁴⁵ Cost–benefit analysis has no established way of trading off more than one dimension of value, making it impossible to establish which outcome would in fact deliver the highest net value to society. Such an outcome would only be possible if all stakeholders could agree on how the different dimensions and types of value could be traded off against each other. Arrow's impossibility theorem showed that there is no single way that an aggregation of individual preferences can lead to the derivation of a sensible social ranking of choice.⁵⁴

The elicitation of such values is further complicated in situations in which respondents are involved in subsistence farming and so generally are unfamiliar with money, making it difficult to express values for complex non-market goods and services in such a metric.⁵⁶ Such situations characterise the lives of many rural communities in South Africa.^{57,58} Moreover, a reliance on monetary metrics may dilute the voice of the poor and the vulnerable by virtue of their limited ability to pay because of budget constraints – an important component in stated preference approaches.^{5,56} Monetary aggregation can be used as what Anji^{5,59} calls an aggregation weapon, often to the benefit of the rich and the detriment of the poor. This discounting of traditional communities' values through monetary metrics may under-estimate their cultural values.

Despite concerns, stated preference methods still have a role in estimating values of (some) CES. Where the values are likely to be individually held, self-regarding and relate to the more tangible aspects of CES, they may well be a useful tool in the decision- and policy-making tool bag. There are several ways in which the method can be used creatively or in conjunction with more participatory approaches, to ascertain the importance and value of CES.^{23,43} However, for traditional communities in South Africa, the complex interactions between ecosystems, the services they provide and the contribution these services make to human welfare suggest that a pluralistic approach that utilises deliberative approaches be taken to ascertain their importance and value.^{2,41}

Deliberative approaches

Deliberative processes, based in political, psychological and social theory, call for increased participation by citizens in the decision-making process, as public and social deliberation is fundamental to the political legitimacy of decision-making.⁵⁰ They are intended to overcome many of the shortcomings of stated preference methods in estimating values for cultural ecosystem values, allowing for a more logical, meaningful and comprehensive capturing of such values. In particular, they may address the lack of pre-formed values, the plurality of values, and issues of legitimacy and equity in decision-making.^{33,50,52,53,55}

Advocates of the method suggest it is capable of improving preference and value elicitation, especially where these are not pre-formed, such as those provided by CES. A well-designed deliberative approach, in which preference formation emerges from the deliberations, should be integral to the process of valuation.^{51,55} This technique explicitly recognises that certain, often deeply held values, are difficult to trade off with other values without recourse to discussion and negotiation, and that it is difficult to isolate valuation from the process of decision-making, especially where people believe there to be important moral or ethical issues at stake that warrant debate.⁶⁰

All stakeholders, through increased participation, are more likely to view the deliberative process as fair and democratic. This legitimacy is enhanced if some affected groups consider issues other than simply economic efficiency.^{51,53,55} The legitimacy and transparency of the process is important to ensure widespread acceptance of the final decision, especially from groups that may have suffered loss and/or considerable trade-offs.²³

South African context

Whilst there is an increasing call for the use of more deliberative approaches in valuing CES, the evidence in the literature suggests that the call either is in general terms, or is implicitly considered within a developed world context.^{33,43,54,61} However, there are a number of reasons why the general approach may be particularly well suited to the South African context, where there is a tradition of such processes. Discussion, negotiation, the participation of the community, and the seeking of consensus in resolving problems with a mix of different values and issues has a long history amongst many of the indigenous people of Africa, including South Africa.^{13,14,59,62,63} The basis and process of the traditional resolution of conflict is one that bears many similarities with deliberative approaches. Consideration of the workings of the traditional court system provides important evidence of this.⁶²

In contrast, approaches transposed from more developed countries are generally technical and scientific top-down methods, that rely on expert input and bear little resemblance to either the reality or experiences of most traditional communities in South Africa. Moreover, in a South African context, there is often a lack of capacity among relevant actors – including the state – to use such approaches, rendering these approaches ill-suited to the task for which they were designed.^{7,64} South African society is multicultural and multi-ethnic; its citizens hold a myriad of different beliefs, opinions and values. Deliberative approaches have the ability to address many of the complex issues of such a society, including in ascertaining and including the value and importance of CES in decision-making.⁶⁴

Additionally, the use of more deliberative approaches to CES has the potential to allow local and/or traditional knowledge to have a voice, and may allow for the greater inclusion of local knowledge and experience, and be more likely to capture these values, which are important to local communities.⁶⁴ As suggested above in relation to the granting of a mining licence at Xolobeni, the disregarding of values from decision-making, such as those related to CES that are important to people or communities, may result in such decisions being considered illegitimate. Deliberative processes, if utilised correctly, confer legitimacy on any decision arrived at.^{21,33,64-66} This is an important consideration in general but perhaps especially so in a South African context, where the majority of the population have long been denied a voice, and where the poor and marginalised continue to struggle to be heard.^{65,66}

It is beyond the scope of this review to give a detailed criticism of deliberative approaches, yet it is acknowledged that they are not a panacea. A small group vulnerable to dysfunctional power dynamics and peer pressure is unlikely to be representative. People may be excluded from the group, or not participate fully due to poor education or lack of confidence. Class, age, race, culture and gender may all affect participation.⁶⁷ Outcomes may be complex or nuanced and far less clear than a single number generated under cost–benefit analysis.⁵¹ Inequalities in power, knowledge and communication abilities may be mirrored in inequalities in the deliberative process.^{51,66} These issues need to be managed, particularly in a South African context with its great historical disparities in wealth, power, knowledge and education.^{64,65} While legislation in South Africa actively encourages the use of participatory approaches to decision-making, the process is often a ‘box-ticking’ exercise with little real engagement or consideration of the needs or the concerns of the most marginalised members of society,⁶⁴ thus undermining any legitimacy underlying the approach.

Traditional deliberative process in South Africa are often patriarchal and autocratic.^{63,67} Traditional leaders are unelected, sometimes unpopular and can have a vested interest in the status quo. They may wish to preserve the benefits that come with their position, preventing them from being an honest broker in community affairs, including the outcomes of deliberation.⁶⁷ Relying on the state for their source of power, they may have an incentive to support policies favoured by the government, rather than seeking what is in the best interests of their communities.⁶⁸

Conclusions

Identifying, assessing and ascertaining CES values is important and necessary as these services and their associated benefits make important and valuable contributions to the well-being and welfare of individuals and natural resource dependent communities. Ignorance of the nature and magnitude of these benefits in South Africa suggests that current decisions on projects or policies that may significantly impact negatively on CES are at best sub-optimal.

Research on developing and applying frameworks to identify and assess the nature of any benefits associated with ecosystems is required. Such research should seek to ensure that there are clear links identified between the source of the CES, the types and nature of the benefits enjoyed, and the recipient of the CES. While some work has been done in developed countries to explicitly link CES benefits and landscapes,^{11,22,69} such evidence is lacking in any South African context, including for traditional communities. A systematic understanding of these values and associated benefits is required. This understanding would be a precursor to any attempts to ascertain the value of such benefits, either in monetary terms or in some other form of value indicator. Continued ignorance of these issues will result in the continued loss of ecosystems and their accompanying cultural services, which is potentially harmful to those most vulnerable traditional communities. In South Africa, most CES are likely to be relational and intangible in nature, and to display shared plural and incommensurable values. Taken collectively, the nature and range of likely values put them beyond the reach of neoclassical valuation methods.

Although there is increasing interest in the use of deliberative approaches in ascertaining the importance of CES, an increase in examples of their application, and an increase in guidance of best practice in their use, the vast majority of this is considered and undertaken in a developed world context.^{33,43,54,61} Indeed the importance of CES to traditional communities in South Africa is likely to differ fundamentally from the same or similar processes in a more developed world context. Such a research gap needs to be filled, to help build on and adapt a relatively rich history of the use of deliberation amongst traditional communities in South Africa. There is a need to ‘Africanise’ the approach to ensure its suitability for local conditions. To exclude these values is to continue to marginalise the poor and make decisions that are to their significant detriment.

Acknowledgements

We thank the anonymous reviewers for their thoughtful comments, which served to strengthen the article. This work is based on the

research supported in part by the National Research Foundation of South Africa (grant no. 105679). The opinions, findings, conclusions, and recommendations expressed in this article are those of the authors alone.

Authors’ contributions

This paper stems from PhD work by Shaun Mowat. Dr Bruce Rhodes was the supervisor. As such the intellectual input and conceptualisations were, overall, jointly constructed but principally driven by Shaun Mowat who as such is first author. The drafts were worked on jointly until a final version was agreed upon.

References

1. Milcu AI, Hanspach J, Abson D, Fischer J. Cultural ecosystem services: A literature review and prospects for future research. *Ecol Soc.* 2013;18(3), Art. #44. <https://doi.org/10.5751/es-05790-180344>
2. Scholte SSK, Van Teeffelen AJA, Verburg PH. Integrating socio-cultural perspectives into ecosystem service valuation: A review of concepts and methods. *Ecol Econ.* 2015;114:67–78. <https://doi.org/10.1016/j.ecolecon.2015.03.007>
3. Van der Ploeg S, De Groot R, Wang Y. The TEEB Valuation Database: Overview of structure, data and results. Wageningen: Foundation for Sustainable Development; 2010.
4. Fazey I, Proust K, Newell B, Johnson B, Fazey JA. Eliciting the implicit knowledge and perceptions of on-ground conservation managers of the Macquarie Marshes. *Ecol Soc.* 2006;11(1), Art. #25. <https://doi.org/10.5751/es-01665-110125>
5. Satz D, Gould RK, Chan KMA, Guerry A, Norton B, Satterfield T, et al. The challenges of incorporating cultural ecosystem services into environmental assessment. *Ambio.* 2013;42(6):675–684. <https://doi.org/10.1007/s13280-013-0386-6>
6. Mauro F, Hardison PD. Traditional knowledge of indigenous and local communities: International debate and policy initiatives. *Ecol Appl.* 2000;10(5):1263–1269. [https://doi.org/10.1890/1051-0761\(2000\)010-1263:tkoialj2.0.co;2](https://doi.org/10.1890/1051-0761(2000)010-1263:tkoialj2.0.co;2)
7. Kenter JO, Hyde T, Christie M, Fazey I. The importance of deliberation in valuing ecosystem services in developing countries – Evidence from the Solomon Islands. *Glob Environ Chang.* 2011;21:505–521. <https://doi.org/10.1016/j.gloenvcha.2011.01.001>
8. Fish R, Church A, Willis C, Winter M, Tratalos JA, Haines-Young R, et al. Making space for cultural ecosystem services: Insights from a study of the UK nature improvement initiative. *Ecosyst Serv.* 2016; 21(August):329–343. <https://doi.org/10.1016/j.ecoser.2016.09.017>
9. Cocks ML, Dold T, Vetter S. ‘God is my forest’ – Xhosa cultural values provide untapped opportunities for conservation. *S Afr J Sci.* 2012;108(5–6), Art. #880, 8 pages. <https://doi.org/10.4102/sajs.v108i5/6.880>
10. Cundill G, Bezerra JC, De Vos A, Ntingana N. Beyond benefit sharing: Place attachment and the importance of access to protected areas for surrounding communities. *Ecosyst Serv.* 2017;28:140–148. <https://doi.org/10.1016/j.ecoser.2017.03.011>
11. Klain SC, Chan KMA. Navigating coastal values: Participatory mapping of ecosystem services for spatial planning. *Ecol Econ.* 2012;82:104–113. <https://doi.org/10.1016/j.ecolecon.2012.07.008>
12. Sobrevila C. The role of indigenous peoples in biodiversity conservation: The natural but often forgotten partners. Washington DC: World Bank Group; 2008.
13. Hunter M. Reaction to conquest. Lansdowne: Citadel Press; 1979.
14. Hammond-Tooke WD. The Bantu-speaking peoples of southern Africa. 2nd ed. London: Routledge and Kegan Paul Ltd; 1974.
15. SAFLII. Baleni and Others v Minister of Mineral Resources and Others (73768/2016) [2018] ZAGPPHC 829; [2019] 1 All SA 358 (GP) (22 November 2018). Cape Town: Southern African Legal Information Institute; 2018. p. 40. Available from: <http://www.saflii.org/za/cases/ZAGPPHC/2018/829.html>
16. Kepe T Ntsebeza L, editors. Rural resistance in South Africa: The Mpondo revolts after 50 years. Leiden: Brill; 2011.



17. De Wet J. Collective agency and resistance to imposed development in rural South Africa. Working Papers in Development Sociology and Social Anthropology no. 373. Bielefeld: Bielefeld University; 2013. Available from: https://www.uni-bielefeld.de/soz/ab6/ag_sozialanthropologie/working_paper/WP373.pdf
18. Costanza R, Arge R, De Groot R, Farber S, Grasso M, Hannon B, et al. The value of the world's ecosystem services and natural capital. *Nature*. 1997;387:253–260. <https://doi.org/10.1038/387253a0>
19. Millennium Ecosystem Assessment: Ecosystems and human well-being: Synthesis report. Washington DC: Island Press; 2005.
20. Haines-young R, Potschin MB. Common International Classification of Ecosystem Services (CICES) V5.1: Guidance on the application of the revised structure. Nottingham: Fabis Consulting; 2018. Available from: <https://cices.eu/content/uploads/sites/8/2018/01/Guidance-V51-01012018.pdf>
21. Chan KMA, Satterfield T, Goldstein J, Annex A: Rethinking ecosystem services to better address and navigate cultural values. *Ecol Econ*. 2012;74:1–4. <https://doi.org/10.1016/j.ecolecon.2011.11.011>
22. Fish R, Church A, Winter M. Conceptualising cultural ecosystem services: A novel framework for research and critical engagement. *Ecosyst Serv*. 2016;21:208–217. <https://doi.org/10.1016/j.ecoser.2016.09.002>
23. Chan KMA, Guerry AD, Balvanera P, Klain S, Satterfield T, Basurto X, et al. Where are cultural and social in ecosystem services? A framework for constructive engagement. *Bioscience*. 2012;62(8):744–756. <https://doi.org/10.1525/bio.2012.62.8.7>
24. De Vos A, Cumming GS, Roux DJ. The relevance of cross-scale connections and spatial interactions for ecosystem service delivery by protected areas: Insights from southern Africa. *Ecosyst Serv*. 2017;28:133–139. <https://doi.org/10.1016/j.ecoser.2017.11.014>
25. Wisely SM, Alexander K, Mahlaba T, Cassidy L. Linking ecosystem services to livelihoods in southern Africa. *Ecosyst Serv*. 2018;30(Part C):339–341. <https://doi.org/10.1016/j.ecoser.2018.03.008>
26. Roques KG, Jacobson SK, McCleery RA. Assessing contributions of volunteer tourism to ecosystem research and conservation in southern Africa. *Ecosyst Serv*. 2018;30:382–390. <https://doi.org/10.1016/j.ecoser.2017.12.014>
27. Swemmer L, Mmethi H, Twine W. Tracing the cost/benefit pathway of protected areas: A case study of the Kruger National Park, South Africa. *Ecosyst Serv*. 2017;28:162–172. <https://doi.org/10.1016/j.ecoser.2017.09.002>
28. Clements HS, Cumming GS. Manager strategies and user demands: Determinants of cultural ecosystem service bundles on private protected areas. *Ecosyst Serv*. 2017;28:228–237. <https://doi.org/10.1016/j.ecoser.2017.02.026>
29. Smith MKS, Roux DJ, Hayes J. Adventure racing enables access to cultural ecosystem services at multiple scales. *Ecosyst Serv*. 2017;28:149–161. <https://doi.org/10.1016/j.ecoser.2017.05.017>
30. Smit IPJ, Roux DJ, Swemmer LK, Boshoff N, Novellie P. Protected areas as outdoor classrooms and global laboratories: Intellectual ecosystem services flowing to-and-from a National Park. *Ecosyst Serv*. 2017;28:238–250. <https://doi.org/10.1016/j.ecoser.2017.05.003>
31. Pierce T. Postcards from Xolobeni [webpage on the Internet]. c2018 [cited 2018 Dec 28]. Available from: <https://thompierce.com/xolobeni>
32. Klain SC, Satterfield TA, Chan KMA. What matters and why? Ecosystem services and their bundled qualities. *Ecol Econ*. 2014;107:310–320. <https://doi.org/10.1016/j.ecolecon.2014.09.003>
33. Orchard-Webb J, Kenter JO, Bryce R, Church A. Deliberative democratic monetary valuation to implement the ecosystem approach. *Ecosyst Serv*. 2016;21:308–318. <https://doi.org/10.1016/j.ecoser.2016.09.005>
34. Barbour T. Social impact assessment for Xolobeni Heavy Mineral Sands Project. Vol. 1. Sun Valley: Groundwater Consulting Services (GCS) (Pty) Ltd.; 2007.
35. Baleni D. Baleni and Others Vs Minister of Mineral Resources. Heads of Argument. 2018.
36. Costanza R, De Groot R, Sutton P, Van der Ploeg S, Anderson SJ, Kubiszewski I, et al. Changes in the global value of ecosystem services. *Glob Environ Chang*. 2014;26(1):152–158. <https://doi.org/10.1016/j.gloenvcha.2014.04.002>
37. Casakin HP, Kreitler S. Place attachment as a function of meaning assignment. *Open Environ Sci*. 2008;2:80–87. <https://doi.org/10.2174/1876325100802010080>
38. Collins D, Kearns R. Place attachment and community activism at the coast: The case of Ngunguru, Northland. *N Z Geog*. 2013;69(1):39–51. <https://doi.org/10.1111/nzg.12005>
39. Hanley N, Hynes S, Jobstvogt N, Paterson D. Economic valuation of marine and coastal ecosystems: Is it currently fit for purpose? *J Ocean Coast Econ*. 2015;2(1):1–38. <https://doi.org/10.15351/2373-8456.1014>
40. Farber SC, Costanza R, Wilson MA. Economic and ecological concepts for valuing ecosystem services. *Ecol Econ*. 2002;41:375–392. [https://doi.org/10.1016/s0921-8009\(02\)00088-5](https://doi.org/10.1016/s0921-8009(02)00088-5)
41. Pascual U, Balvanera P, Di S, Roth E, Stenseke M, Watson RT, et al. Valuing nature's contributions to people : The IPBES approach. *Curr Opin Environ Sustain*. 2017;26:7–16.
42. Chan KM, Gould RK, Pascual U, Hirons M, Combetti C, Dunford R, et al. Editorial overview: Relational values: What are they, and what's the fuss about? *Ecol Soc*. 2018;35(1):A1–7. <https://doi.org/10.1016/j.cosust.2018.11.003>
43. Hirons M, Combetti C, Dunford R. Valuing cultural ecosystem services. *Annu Rev Environ Resour*. 2016;41(1):545–574. <https://doi.org/10.1146/annurev-environ-110615-085831>
44. Chee YE. An ecological perspective on the valuation of ecosystem services. *Biol Conserv*. 2004;120(4):549–565.
45. Pearce D, Atkinson G, Mourato S. Cost-benefit analysis and the environment: Recent developments. Paris: OECD Publications; 2006.
46. Bateman I, Carson R, Day B, Hanemann M, Hanley N, Hett T, et al. Economic valuation with stated preference techniques. Cheltenham, England: Edward Elgar; 2002.
47. South African National Treasury. A framework for considering market-based instruments to support environmental fiscal reform in South Africa – Draft policy paper. Pretoria: National Treasury; 2006.
48. Arrow K, Solow R, Portney PR, Learner EE, Radner R, Schuman H. Report of the NOAA Panel on contingent valuation. Washington DC: NOAA; 1993.
49. Norton BG, Noonan D. Ecology and valuation: Big changes needed. *Ecol Econ*. 2007;63(4):664–675.
50. Bunse L, Rendon O, Luque S. What can deliberative approaches bring to the monetary valuation of ecosystem services? A literature review. *Ecosyst Serv*. 2015;14:88–97. <https://doi.org/10.1016/j.ecoser.2015.05.004>
51. Spash CL. Deliberative monetary valuation (DMV): Issues in combining economic and political processes to value environmental change. *Ecol Econ*. 2007;63:690–699. <https://doi.org/10.1016/j.ecolecon.2007.02.014>
52. Lo AY, Spash CL. Deliberative monetary valuation: In search of a democratic and value plural approach to environmental policy. *J Econ Surv*. 2013;27(4):768–789. <https://doi.org/10.1111/j.1467-6419.2011.00718.x>
53. Lienhoop N, Bartkowski B, Hansju B. Informing biodiversity policy: The role of economic valuation, deliberative institutions and deliberative monetary valuation. *Environ Sci Policy*. 2015;54:522–532. <https://doi.org/10.1016/j.envsci.2015.01.007>
54. Kenter JO, Reed MS, Irvine K, O'Brien L, Brady E, Bryce R, et al. UK National Ecosystem Assessment Follow-on. Work Package Report 6: Shared, plural and cultural values of ecosystems – Summary. Cambridge, UK: UNEP-WCMC LWEC, UK; 2014. p. 48.
55. Sagoff M. Aggregation and deliberation in valuing environmental public goods: A look beyond contingent pricing. *Ecol Econ*. 1998;24:213–230. [https://doi.org/10.1016/s0921-8009\(97\)00144-4](https://doi.org/10.1016/s0921-8009(97)00144-4)
56. Christie M, Fazey I, Cooper R, Hyde T, Kenter JO. An evaluation of monetary and non-monetary techniques for assessing the importance of biodiversity and ecosystem services to people in countries with developing economies. *Ecol Econ*. 2012;83(2012):67–78. <https://doi.org/10.1016/j.ecolecon.2012.08.012>
57. Baiphethi MN, Jacobs PT. The contribution of subsistence farming to food security in South Africa. *Agrekon*. 2009;48(4):459–482. <https://doi.org/10.1080/03031853.2009.9523836>



58. Aliber M, Hart TGB. Should subsistence agriculture be supported as a strategy to address rural food insecurity? *Agrekon*. 2009;48(4):434–458. <https://doi.org/10.1080/03031853.2009.9523835>
 59. Ani EI. Africa and the prospects of deliberative democracy. *South African J Philos*. 2013;32(3):207–219.
 60. Kenter JO. Editorial: Shared, plural and cultural values. *Ecosyst Serv*. 2016;21:175–183. <https://doi.org/10.1016/j.ecoser.2016.10.010>
 61. Bryce R, Irvine KN, Church A, Fish R, Ranger S, Kenter JO. Subjective well-being indicators for large-scale assessment of cultural ecosystem services. *Ecosyst Serv*. 2016;21:258–269. <https://doi.org/10.1016/j.ecoser.2016.07.015>
 62. Skelton A. Tapping indigenous knowledge: Traditional conflict resolution, restorative justice. *Acta Juridica*. 2007;1:228–246.
 63. LiPuma E, Koelble T. Deliberative democracy and the politics of traditional leadership in South Africa: A case of despotic domination or democratic deliberation? *J Contemp Afr Stud*. 2009;27(2):201–223. <https://doi.org/10.1080/02589000902867287>
 64. Oelofse C, Scott D, Oelofse G, Houghton J. Shifts within ecological modernization in South Africa: Deliberation, innovation and institutional opportunities. *Local Environ*. 2006;11(1):61–78. <https://doi.org/10.1080/13549830500396214>
 65. Williams JJ. Community participation: Lessons from post-apartheid South Africa. *Policy Stud*. 2006;27(3):197–217. <https://doi.org/10.1080/01442870600885982>
 66. Hamilton C. Uncertain citizenship and public deliberation in post-apartheid South Africa. *Soc Dyn*. 2009;35(2):355–374. <https://doi.org/10.1080/02533950903116091>
 67. Bentley KA. Are the powers of traditional leaders in South Africa compatible with women's equal rights? Three conceptual arguments. *Hum Rights Rev*. 2005;6(4):48–68. <https://doi.org/10.1007/s12142-005-1010-3>
 68. De Kadt D, Larreguy HA. Agents of the regime? Traditional leaders and electoral politics in South Africa. *J Polit*. 2018;80(2):382–399. <https://doi.org/10.1086/694540>
 69. Brown G, Raymond CM, Corcoran J. Mapping and measuring place attachment. *Appl Geogr*. 2015;57:42–53.
-