Conceptualization and Operationalization of Context-Based Definition of Cultural Ecosystem Services in Assessment of Environmental Effect with Contribution of Mana Whenua Values

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Abstract

The significance of Cultural Ecosystem Services (CES) and their pivotal role for traditional and indigenous communities will provide useful outcomes to the design of more appropriate and sustainable urban and regional planning for water resources and the natural environment. The intangible characteristics of these services and lack of appropriate valuation indicators in current decision-making, apart from monetization of such values, are creating problems. This is one of the main reasons for the underestimation of these services in Environmental Impact Assessments (EIA) or Assessment of Environmental Effects (AEE), and therefore, unsustainable use of precious resources. In this study, we demonstrate a context-based definition of CES with contribution of *mātauranga Māori* [a] and *tikanga Māori* [b]. Oakley Creek in Auckland is selected for its high urbanization rate and unique characteristics to identify in-depth visions of *mana whenua* [c] values for nature and water resources. We aim at recognizing more CESs, more meaningful non-monetary valuation indicators, a more tangible identification understandable for local people, and ultimately the appropriate application to the AEE process.

Keywords: Cultural Ecosystem Services, Assessment of Environmental Effect, mātauranga Māori, tikanga Māori, mana whenua

a Indigenous knowledge
b Traditional indigenous practices
c Indigenous people (Māori)

Introduction

Ecosystem services(ES) have a contested definition, however, they are intended to capture the benefits of nature to society and human wellbeing through assessing monetary and non-monetary values of ecosystem function. Conceptualizing and operationalizing benefits of nature implies several choices making the procedure of ES basically sociocultural. The subcategory of cultural ecosystem services defined as the nonmaterial benefits people obtain from ecosystem services through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences is considered particularly difficult to operationalize because of intangibility. The launch of the new conceptual framework from the Intergovernmental Platform on Biodiversity and Ecosystem Services(IPBES) shifted their discussion from ES values to nature's gifts, and opened up multiple knowledge systems such as those of western science, indigenous and local communities, and practitioners.

Overview of the different subcategories of cultural ecosystem services used in the different ecosystem frameworks.(Haines-Young & Potschin, 2012; MEA, 2005; TEEB, 2010)

Millennium Ecosystem Assessment(MEA)	The Economics of Ecosystems and Biodiversity(TEEB)	The Common Classification of Ecosystem Services(CICES)
Cultural diversity	Aesthetic information	Physical experiential interaction
Spiritual and religious values	Opportunities for recreation & tourism	Intellectual and representative interactions
Knowledge systems	Inspiration for culture, art, and design	Spiritual and/or emblematic(interactions)
Educational values	Spiritual experience	Other cultural outputs
inspiration	Information for cognitive development	
Aesthetic values		
Social relations		
Sense of place		
Cultural heritage		
Recreation and ecotourism		

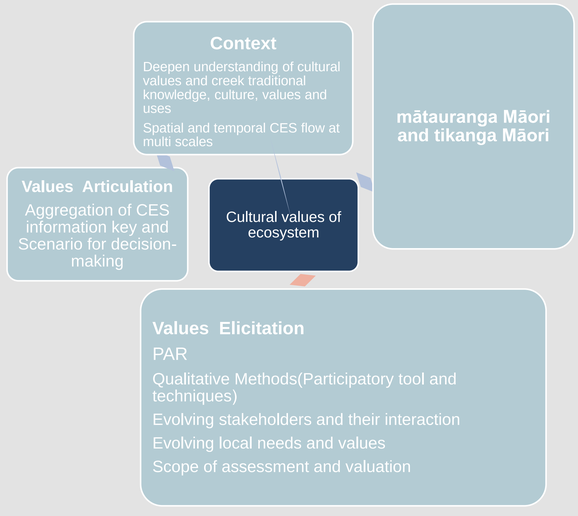
Materials

We selected the catchment of Te Auaunga-Oakley Creek in Auckland as the research area because it is the longest urban awa(stream)in the Auckland isthmus stretching some 15km as it flows from north-eastern slopes of the Hillsborough ridge through a near-continuous series of parks and reserves before entering the Waitematā. The lower catchment of Te Auaunga- Oakley Creek encompasses roughly half of the awa's length, running from the boundary between Mount Roskill and Owairaka suburbs at Richardson Road to where the stream flows in to the Waitematā Harbour at Waterview.

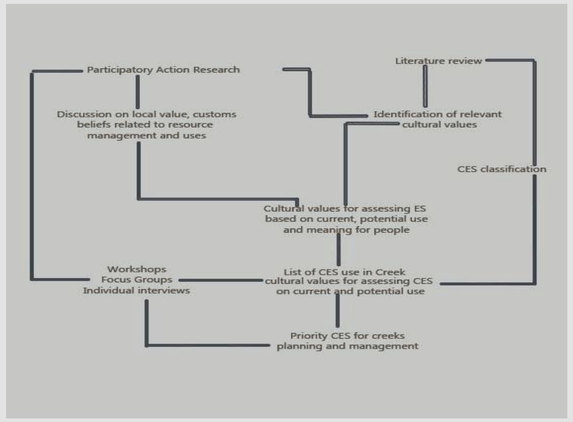
Methodology

There are still some pending questions: what indicators are used to assess cultural process and components of ecosystems to support cultural capital in policy making? What happens in Assessment of Environment Effects and the related policy documents?

The conceptual framework developed in this study is comprised of four components, context, mātauranga Māori and tikanga Māori, value elicitation, value articulation which provides a coherent foundation for integration in the assessment of the CES in the AEE.
Each component contributes to social valuation decisions and promotes social learning, starting with context and society and then focusing on evaluation methods that elicit cultural preferences and articulation of value for decision making.
The framework involves Participatory Action Research and a high level of stakeholder participation.



Cultural valuation of ecosystem services framework for assessing and valuing ecosystem services. All stages of the framework require an iterative process that ensures maximum stakeholder interaction for appropriate information to support decision making.



The methodological framework for the study

Results

Findings from the literature review are presented here as one initial process with underlying CES and mana whenua values . These indicators and questions can be seen as a basic image based on desk research that will contribute to participants in the future to better understanding of their experiences in nature, prioritization of cultural ecosystem services, interaction among priority cultural ecosystem services, and their assessment in the decision-making process.

The self-evident nature-axiomatic values, (whakapapa, ngā)
- How experiences in nature are valuable to people.
- How people's experiences contribute to their wellbeing

Indivisibility(Kaitiakitanga, whanaungatanga)
- Overlapping description of sensory experiences, descriptions of beauty, nostalgic experiences, and emotional experiences
- Sense of belonging, sense of family, sense of feeling alone
- Referring to whakatauki, tohu, tohunga in the descriptions of positive images of natural surroundings(romanticisation of ideas about nature, the idea of nature as a subject)

Incommensurability(taonga, tikanga, manaakitanga)
- How people's experiences of nature can be valued
- How they think that this should be measured(deliberation on the appropriateness of valuation)
- To what extent people see the values as replaceable by some other experience

Sense of naturalness (tauutuutu)
- A balance of cultural and natural preferences

Nature as authentic(pepeha)
- Feeling of authenticity and freedom
- Why people think that they can have such strong positive experiences from scenic views of nature
- Sense of belonging and dependency on nature
- Feeling of naturalness of authenticity

Nature as healing (taha hinengaro, taha wairua, taha tinana, taha Whanau)
- Interconnection with aesthetic description
- What people's motivation is to go to the nature
- Free therapy

Nature as beauty, magic and movement(karakia, wiata, pakiwaitara)
- Sense of feeling good and calm
- Sense of peace and wonder
- Magical attraction
- The sense of nature being is something bigger than humans and civilization
- The presence of animals
- Variation and diversity of life in nature
- Having the sense of something happening

Conclusion

There are elements of individuals' direct experiences, being and knowing human-environmental relations that remain uncaptured by ecosystem services valuation methods and Assessment of Environment Effects. Our interpretative approach allows us to find some aspects of expressed benefits that are currently not taken into account in the conceptualization and operationalization of values. These expressions are characterized as being axiomatic, indivisible, and incommensurable and include perceiving values through emotions, connectedness, authenticity and spirituality. These findings can be argued to provide leverage for one part of idea of value elicitation. The basic argument for valuation of ecosystem services in this study is simplification of the meaning of the values for people. The next stage is coming back to individuals and listening to their experiences with the collaboration of these simple indicators and questions.
Our findings bring us to suggest that the benefits that humans derive from nature should be conceptualized in away where meanings can be interpreted as value.
More studies are needed that investigate the possibility of defining meaning of experiences through conceptualization and valuation.

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