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## Using of Photovoice to elicit socio-cultural elements and socio-cultural values that rural communities attached to nature in North-eastern Namibia

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### Abstract

Economic valuation of ecosystem services has been criticised as inadequate to advise decision-making for management of nature, as it fails to reflect the plural socio-cultural values that people attribute to nature. Efforts are ongoing to better capture the socio-cultural values (SCV) of ecosystem services (hereafter nature).

The Kavango West region in North-eastern Namibia, until recently a subsistence economy, is undergoing changes including the intensified use of the natural resource to generate cash. In rural societies, the use of natural resources is influenced by SCVs and rooted in cultural elements. We are interested in understanding how SCVs influence the human-nature relationship in the Kavango West, especially in the context of the increased commodification of natural resources. A methodological gap exists in the elicitation of SCVs. This study contributes to the improvement of the socio-cultural assessment and valuation of ecosystem services, using the photovoice approach. Photovoice is a participatory approach whereby members of local communities personally take photos and use them to generate narratives. In this study, photovoice is used to communicate the social and cultural reality which characterises people's relationship with nature. We choose to start from the identification of socio-cultural elements (SCE) to, in a later stage, identify SCVs that people attached to nature.

A key contribution of this article is in understanding and explaining the use of photovoice to assess SCEs that are carriers of SCVs. Generating data that enable eliciting SCVs (often-multiple) is often challenging. Our assumption is that photovoice deliver comprehensive data about SCE which reveal the SCVs beyond what is usually assessed in the socio-cultural valuation of ecosystem services. We applied photovoice in Nambi and Marema villages with twenty (20) village members who produced 165 photos and 170 narratives. Using MAXQDA we categorize SCEs, while the traditional ecological knowledge framework provided the ground in describing and interpretation of the meaning of the identified SCEs. Findings revealed multiple SCEs including myths, rituals, taboos, and practices related to the forest, the river and the floodplains ecosystems. A dominant SCE in the area is the myth of the Ekongoro, a supernatural snake ruling water and water resources. *Ekongoro* is valued and feared for its role in governing and managing water resources. The aspect of management shows that *Ekongoro* is a belief system that influences how people use the river ecosystem services. Photovoice proved excellent to use with rural communities in eliciting SCEs and highlighting the necessity to understand the human-nature relationship in the valuation of nature exercise. This is essential in rural subsistence societies where SCEs still have an influence on people's action and decisions.

**Keywords:** Photovoice, Socio-cultural values, Socio-cultural elements, Ecosystem services, subsistence communities, Okavango.

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## **1. Introduction: the need to assess the underlying socio-cultural elements prior assessing socio-cultural values**

People relate to and value nature in diverse ways. These values remain unknown and not fully considered in natural resource management plans and policies development. The challenge is that valuation of nature (or of ecosystem services) is often done in monetary terms and omits to measure socio-cultural values (Daniel, 2016; Martin-Lopez et al., 2012). Socio-cultural values refer to values shared by cultural groups within a society, which are meaningful for cultural identity, heritage, and social cohesion and interaction. Socio-cultural values (SCV) determine a group value rather than individual (self-interest) values, obtained through economic valuation (Scholte *et al.*, 2015). More, SCVs primarily characterize people-nature interactions at the local level where the interaction and relationship with nature are direct (Thondhlana and Shackleton, 2015). The importance of SCVs in the valuation of nature is grounded on the point that values are culturally and socially constructed (Tengberg et al., 2012) and shaped by long cultural traditions (Denkelmann, 2002). How people perceive and value nature as well as their decisions to interact, modify and manage natural resources is influenced by their cultural context (Scholte et al., 2015; Chan et al., 2012). Socio-cultural elements consist of rituals, myths, taboos and other elements of society's cosmovision and ontology, which explains people's co-existence and relationship to nature (Maass, 2008). In rural societies, SCEs are crucial for conservation and are thus important to consider and understand in policy making (Parrotta et al., 2016). Consequently, failing to measure and take SCEs and SCV into account in policy making would jeopardize attempts of sustainable natural resources management (Thondhlana and Shackleton, 2015), particularly in rural communities. At present SCEs are omitted in SCV assessments and valuation of nature (IPBES, 2017). A major limitation has been the lack of an appropriate method to capture and interlink SCE to values and people's connection to nature (Scholte et al 2015; IPBES, 2017).

To address the valuation gap, the scientific and policy agendas (e.g. Intergovernmental Platform on Biodiversity and Ecosystem Services) calls on scholars to assess SCV and understand the relationship and connectedness between people and their environments, to better advice policy-making and to benefit people and nature (IPBES, 2017). At present, socio-cultural valuations studies are increasing in number (Pascual et al., 2017), but are still dominated by quantitative approaches (Scholte et al 2015) such as discrete choice analysis (Oleson et al. (2015). Quantitative approaches capture values expressed individually (Scholte et al., 2015), thus this method hampers the disclosure of complex social and cultural inconsumable values essential in connecting people to nature (Descola and Pálsson, 1996).

The aim of the paper is to show the application of an innovative participatory method, called photovoice (Wang and Burris, 1996) to collect socio-cultural elements characterising how villagers relate to nature. More specifically, we explore whether photovoice, as a data elicitation method, enables (1) identification of SCE, (3) identification of values attached to the identified SCEs. Photovoice generates photos and narratives about SCE which are analysed to revealing how smallholder in Nambi and Marema value and relate to nature. Photovoice has proven excellent to discover people's attachment to environmental places in Australia (Baldwin et al., 2016), understanding communities' perspective toward ecosystem services in Costa Rica (Berbes-Blazquez, 2012) and children representation and perception of natural space in South Africa (Adams et al., 2017). Yet, the use of photovoice in the valuation of nature is limited in

science, especially in southern Africa. To our knowledge, this study is the first applications in the valuation of nature in Namibia.

## **2. Study Site**

The study was conducted in Nambi and Marema villages in the Kavango West region in Northerneastern Namibia. The villages are situated on former floodplains with fertile soils where most agricultural fields are located, adjacent to the current floodplains on the southern shore of the Okavango River. To the south, a large primary open-woodland forest area belongs to the villages as well and is managed by them under a community forest programme. The livelihood of the people directly depends on the use and transformation of the natural resources in these different ecosystems for agriculture (large subsistence), shelter, energy, food and health, but also for the maintenance of the cultural identity. However, the villages are influenced by a trend of increasing commercialisation of natural resources, following the recent development of new markets (for instance, reeds, fish and timber and non-timber products) and the growth of Nkurenkuru town, located 15km from the study site. This trend puts at risk the health (e.g. to be degraded) of the local natural systems (Pröpper et al., 2015). We hypothesize that the commercialization potentials may be influencing the relationship people have with nature by weakening their connection with their cultural beliefs, a process which makes cultural beliefs part of folklore more than a cosmovision of the river people of the village case study.

## **3. Methodology: the Photovoice method**

Photovoice was developed by Wang and Burris (1997) to effectively enable communities to identify, reflect, and discuss health issues. This participatory technique originally consists of six key steps (Wang and Burris, 1997), ranging from the selection of participants to the interpretation of the pictures. We adapted the method to our purpose and included only the five steps described below.

**Step one: recruiting and training of participants.** We selected 20 participants consisting of 8 male, and 12 female of different age groups ranging between 20 to 79 years, and conducting different socio-economic activities such as fishing, traditional healing, horticulture, trade in firewood and timber. Participants had different education levels and cultural knowledge. The selection of participants was purposely done to reflect how intergenerational, socio-economic factors and cultural knowledge may determine the values people attach to their environment. In a group meeting participants were introduced to the study objectives and photovoice exercise, thereafter assigned with cameras and asked to personally to photographed features, landscapes, objects and other things that reveal how they as a society value and relate to nature.

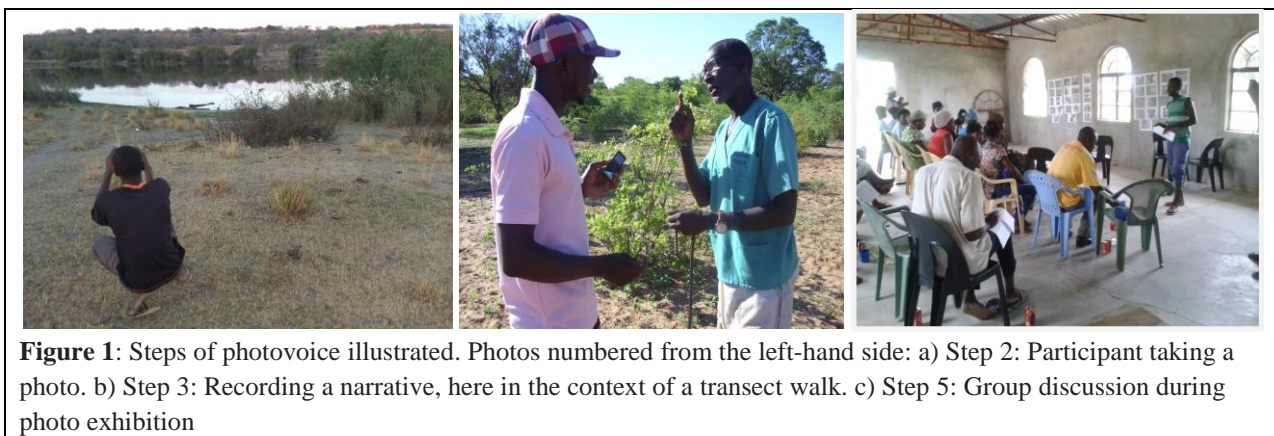
**Step two: photo taking.** Sixteen (16) participants got five days each to photograph a maximum of ten photos within their village and surrounding areas, whereas four (4) elderly participants took the photos during a transect walk on a route of their choice (Berbes-Blazquez, 2012). Elderly photovoice participants opted to take a transect walk in order to share the narratives immediately and also because they were not comfortable to use the cameras by themselves.

**Step three: recording narrative.** Through open-ended interview questions, each participant explained the content of her/his photos and the importance to the villagers' society. Interviews were held in the houses of participants or during the transect walk. The specific questions asked

were: what does the photo show, and why did you chose to photograph this feature, how significant is this feature to your culture or your village and how does it reflect the value and relationship that you as a cultural group or society have with nature? Asking respondents to mention the aspect of importance to society reflect socio-cultural values and not just individual ones. Interviews were done in Rukwangali (the local language), except the three participants who spoke English.

**Step four: prioritizing and selection of best photos.** To obtain concise data and avoid repetition, participants were asked to prioritize and select photos that best reflect how they value and relate to nature. Prioritization was done in a group discussion with all photovoice participants. A total of 187 photos (some participants took less than 10 photos) were obtained from all participants but only 165 used for interpretation as they were related to different narratives and aspects of the human-nature relationship.

**Step five: photo exhibition and interpretation.** Photos were exhibited and discussed during a workshop in the village, to allow a dialogue between the researcher and the whole village members, including seven photovoice participants. The aim was to discuss significant points which arise from the captured photographs (Wang and Burris, 1997), but also to identify the socio-cultural values and their importance in connecting people to nature. For an effective and timely discussion, only 100 photos that reflected the most crucial, different SCEs were exhibited.



**Figure 1:** Steps of photovoice illustrated. Photos numbered from the left-hand side: a) Step 2: Participant taking a photo. b) Step 3: Recording a narrative, here in the context of a transect walk. c) Step 5: Group discussion during photo exhibition

## Data analysis

The photos and narratives were analysed using a qualitative approach, guided by the principles of content analysis. Categorization of photos and narratives was done with the MAXQDA software. Detail categorization of photos and narratives into SCEs themes such as myth, taboo, rituals, medicinal plants, and cultural practices was done following the traditional ecological knowledge contents and theories. Some SCE had different versions. To avoid distortion of significant data we recorded all versions but only elaborated on the most told version, chiefly those told by oldest photovoice respondents.

## 4. Results

### 4.1 Socio-cultural elements identified

Data consisted of 165 pictures of landscapes, natural features, medicinal plants and household, agricultural and artist's objects which generated 170 narratives. From that, we identified 44 different SCEs valuable to the Nambi and Marema communities for social cohesion and for

connecting people to nature. The SCEs were related to specific ecosystems in the village such as the river, the forest, and the floodplains hereafter the agricultural lands. The SCE mentioned belonged most often to the category of taboos (76%), rituals (67%) medicinal plants (66%) and myths (65%). The frequency in which an element is mentioned provides an indication of the level of awareness about that element in the village.

About nine (9) taboos mentioned prohibiting people to cut and to overharvest fruit trees, fish, reeds, and plants used for healing and in cultural rituals. For instance, no cutting a fruiting Manketti tree (*Ugongo*), no beating fishermen with reeds and no children should play with reeds at the river were the taboos mentioned several times. The mentioned rituals were related to the agricultural activities, cultivation, harvesting or with health and identity. Others rituals relate to regulation of social interaction and reproduction, for example, cleansing (e.g. cleansing widows, women who had miscarriage and mothers of twins), girls initiation, child naming and healing rituals. Agricultural rituals were mentioned by respondents across different age groups, whereas rituals regulating social interaction and reproduction were mentioned by mainly middle and elderly age groups. Medicinal plants and link to people and nature was mentioned by young, old respondents and not just traditional healers. Finally, six cultural practices, five rules and regulations playing a role in shaping people’s daily lives, resource management and perception of nature were revealed. A full list of the SCEs mentioned, their description, and the number of times they were cited is available upon request.

Interestingly, a single picture or narrative often expressed the existence of more than one SCE. For instance, the picture of canoes in the river (**Fig 2: picture B**) reveal three SCE, namely *Ekongoro* myth, the ritual of chewing *Kakukuru* herb chewed before fishing for successful fishing and various medicinal plants obtained from the river. The ability of one picture to reveal diverse SCEs and reflect the different way people relate and value nature is the sensational outcome for using photovoice in this research.

#### 4.2 Knowledge of SCE among people of different characteristics

The knowledge of SCEs was not uniform; myth and ritual were mainly known by elderly photovoice participants, whereas taboos and practices were equally known by both young and elderly respondents. While the elderly participants (>56) took fewer photos, they mentioned and explained a larger diversity of beliefs (**Table 1**).

**Table 1:** Knowledge of socio-cultural elements across age groups

Socio-cultural elements	Total and percentage (shown in brackets) of respondents per category					
	18-35 years old (n=7)		36-55 years old (n=5)		56 years and older, (n=8)	
Myth	3	(43%)	4	(80%)	6	(75%)
Rituals	1	(14%)	2	(40%)	6	(75%)
Taboos	5	(71%)	4	(80%)	6	(75%)
Cultural practices	3	(43%)	3	(60%)	3	(37%)
Medicinal plants	4	(51%)	3	(60%)	6	(75%)

### 4.3 Most important SCE in the characterisation of man-human interactions

In this sub-section, we present some of the most mentioned SCE and elaborate the meanings and values attached partly using quotes from respondents. Photos and narratives disclose that people have a strong relationship with the riparian area, the river and the forests as illustrated by their photos (**Fig.2**). Particularly, there is a strong connection to the Okavango River. All participants mentioned that their culture originates from the river, meaning their traditional practices and elements are embedded in the river system.

*“Who we are and how we behave is influenced by the river (and the forest too). We belong to the river, and the river belongs to us” (Photovoice participant, MM16).*



**Figure 2:** Photovoice participants photos explaining the connection between people and nature. Photos numbered from the left-hand side: **A)** Canoes and fishing baskets in the wetlands, near the river. The narrator told about *Ekongoro* myth, practices and rituals observed before fishing. **B)** Termite mound valued for reproduction. If a woman loses an unborn baby; the foetus has to be buried at the base of the termite mound (*Singuru*) to prevent the loss of another child in future. **C)** Roots from various trees used for healing diarrhoea, gonorrhoea, tuberculosis, skin rashes

An important SCE in Nambi and Marema is the myth of the *Ekongoro*. *Ekongoro* myth is known and respected by all the five tribes of the former Kavango Region in northern Namibia (Hinz, 2013). People interviewed believe that water and fishes in the river are provided by the *Ekongoro*, a supernatural snake which resides in the river and swamps (*Makongoro*-Plural). Most narrators said that *Makongoro* are ancestors who have turned into snakes. One narrator indicated that:

*“If we do not manage water, Ekongoro (our ancestors) can get angry and sometimes even cause death” (FM16).*

To some, *Ekongoro* does not exist (Hinz, 2013) but to five elderly and two middle-age participants *Ekongoro* exists and lives in deep sections of the river where the vegetation is thick. These seven respondents stress that *Ekongoro* is only to be seen by lucky, chosen people regarded to be future leaders or royal family members. This finding highlights that SCEs are known and exist, but the degree as to what people consider true or practice differ. Relevant to our study is that this *Ekongoro* myth reflects an important relationship the villagers have with this non-being and the value toward river ecosystems.

Nambi and Marema have a belief that if a woman loses an unborn baby the foetus has to be buried at the base of the termite mound (*Singuru*) to prevent the loss of another child in future.

*“Termite mound are associated with reproduction and fertility, that is why pregnant people are also encouraged to eat clay soil from termite mound to prevent losing the babies (E-16)”.*

Respondents shared rainmaking ritual (locally known as *Kuzamba mhura*), to which they attach importance to cultural heritage and identity. *Kuzamba mhura* is performed at *Makuzu ga*

*Mutenda*, a graveyard of the great Chief of vaKwangali people, named Matenda, regarded by Gibson (1981) as the first great Chief.

*” Kuzamba mhura is performed at Chief Mutenda graveyard because we pray to both our ancestors and God for the blessing of rain”. (MN16). “Kuzamba mhura reflects how dependent we are on nature and the importance of our ancestors in helping us to obtain the natural resources. That is why we mention our ancestor's names most of the rituals and cultural performances.” (MR16).*

Respondents further mention seasonal myths related to the raining season. For instance, the presence of an eagle (*Kayimbi*) in the sky means it will rain that day or week whereas the crow birds in an area is a sign of no or poor rain year.

The narratives reveal that landscapes and other natural features which are associated with cultural importance are cared for. Asked if the people in the villages manage the areas, features and objects which have cultural and social importance a 55 years old female responded that:

*“What I have told you is not just stories, but that is who we are. So, yes we take care of our environment and the area where we perform our rituals, healings, and areas of heritage to us. If we do not manage them, we will erase a big part of who we are. We will not only lose nature but also our culture and ourselves.” (MD16).*

## **5. Discussion**

The Kavango region is known for its strong cultural beliefs especially practices of rituals, myths and traditional healing rituals (McKittrick, 2008; Gibson and McGurk, 1981). The Nambi and Marema communities have also been exposed to western society since the early 1900s, by colonial and missionaries (Diaz, 1992). The imposition of western rules and Christianity has been blamed for the lost cultural knowledge in the area (McKittrick, 2008). The findings show that SCEs are still known despite the western influences and modernity factors, however, the knowledge is eroding as most SCE are known by old people than the young ones. The river and the forest are integrated into the people's culture to the extent that people cannot separate themselves from these natural features (McKittrick, 2008). Most of the shared SCE relate to the river, which is not surprising because the written and spoken history of the *vaKwangali* people<sup>1</sup> stresses that '*vaKavango*' directly translates "the people of the Okavango River" (Gibson and McGurk, 1981). This relates to the fact that the riverside bares the only fertile land and permanent water source in the area for 100 km of distance, as the Okavango flows through Kalahari sands and dry acacia savanna. The shared SCE depict the way people interact with nature and highlight the appreciation for nature as provisioning of goods, uses of nature to maintain cultural identity and heritage, use of nature for social cohesion, interactions and development, uses of nature for healing and personal satisfaction purposes. The findings strengthen the IPBES deliberation that people relate and attach plural values to nature and that socio-cultural valuation of nature is only complete upon a comprehensive assessment of such socio-cultural elements of the studied society (IPBES, 2017; Pascual et al., 2017). Disclosing socio-cultural elements, what they mean to people, and how they shape people and relationship with nature is not usually shown in the socio-cultural valuation of nature.

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<sup>1</sup> The community in our study area belongs to the vaKwangali sub-tribe, one of the five tribes in the former Kavango Region. The entire tribe of Kavango people is called Vakavango.

## 6. Conclusions and Outlook: Lesson learned from photovoice

Photovoice brought dimensions of SCE to light which are not usually reflected in socio-cultural assessments of ecosystem services. Although people's interaction with nature is changing (due to the selling of natural resources) SCEs are still known and valued in the society. Single SCE, such as the *Ekongoro* myth, are associated not only with provisioning services (e.g. fish) but also with complex ecosystem functional and regulating services (e.g. water flow) as the myth touch on the whole river and all services associated with the river. We did not assess the degree to which SCE are respected, practised or obeyed. The findings show that photovoice is practical and suitable to identify plural socio-cultural elements that reveal how people relate and value their natural environments. In this study, the biggest advantage was the ability to obtain visual representation and comprehensive narratives with no or minimal influence on what the participants shared. At the end of photovoice exercise, we asked the participants to reflect whether the photovoice was a suitable approach to share their stories that reflect socio-cultural values. All participants responded positively, even those who were reluctant to participate fearing an inability to express themselves due to their illiteracy, among other factors. Participants appreciated taking photos themselves stating that it stimulated them to remember beliefs and discuss issues which would have been challenging to depict. Though time-consuming, photovoice has proven to be to use with rural people in understanding how they value and relate to nature. The next step in the assessment is to extract socio-cultural values from the socio-cultural elements.

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