4.2. Socio-cultural valuation approaches

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Introduction

Any evaluation of ES requires an integrated analysis, taking into account the supply and demand of ES and their biophysical, socio-cultural and economic value dimensions (see Chapters 4.1, 4.2 and 4.3, respectively). Recent literature has acknowledged that many of the contributions on ES valuation still use the term 'value' exclusively in a monetary sense, ignoring the broader contributions of ecosystems and biodiversity to society in terms of cultural, therapeutic, artistic, inspirational, educational, spiritual or aesthetic values.

To fill this scientific gap, literature on socio-cultural valuation approaches has grown in the last ten years, mostly related to cultural ES (Figure 1). The recent increase in the number of scientific papers on socio-cultural valuation of ES coincides with the creation of the Intergovernmental Platform of Biodiversity and Ecosystem Services (IPBES) in 2012. Some of the challenges addressed by IPBES are related with socio-cultural valuation of ES, such as the inclusion of different knowledge-systems or the recognition of value pluralism.

Despite the increase in the number of publications, socio-cultural valuation approaches have not yet formalised a common methodological framework. Designing a methodological framework, able to explore ways of representing cognitive, emotional and ethical responses to nature, alongside ways of expressing preferences, needs and the desires of people in relation to ES, is very much needed. In this context, the present chapter aims to contribute to this challenge through the review of socio-cultural valuation methods that have been frequently applied in ES literature.

Socio-cultural valuation is defined in this chapter as an umbrella term for those methods that aim to analyse human preferences towards ES in non-monetary units. Under this umbrella, terms such as 'psycho-cultural valuation', 'social valuation', 'deliberative valuation', 'qualitative valuation' and 'subjective assessment' represent valuation approaches that aim to uncover individual and collective values and perceptions of ES without relying on market logic and monetary metrics.

A comprehensive review

There are multiple approaches to uncover socio-cultural values of ES depending on data availability and the purpose of the valuation. In this chapter, we will focus on seven methods that are frequently used in literature.
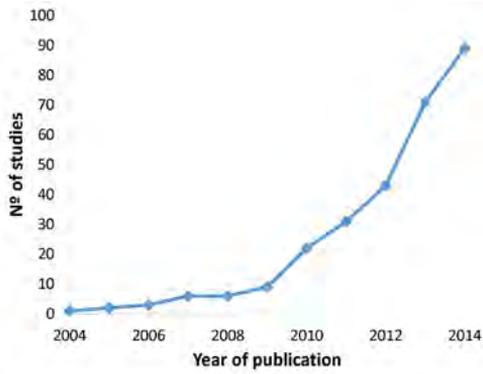
Figure 1. Trends in the scientific literature exploring socio-cultural valuation approaches for cultural ES.[1]

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[1] Note: this illustration is not representing the total number of published papers on cultural services valuation, but the timeline of publications of the most relevant papers which focus on six cultural ES: non-extractive recreation and tourism (e.g. outdoor recreation, ecotourism), (2) extractive recreation and tourism (e.g. sport fishing, recreational hunting), (3) local ecological knowledge, (4) scientific knowledge and environmental education, (5) spiritual interactions with nature and (6) aesthetic experience.

Preference assessment is a direct consultative method that assesses the individual and social importance of ES by analysing motivations, perceptions, knowledge and associated values of ES. Data is collected through free-listing exercises, ecosystem service ranking, rating, or other selection mechanisms. Techniques for weighting the preferences related to impacts on the ecosystem service of different management alternatives such as multi-criteria analysis are examples of integrated preference assessment valuation.

In the same manner, but aiming at a more quantitative indicator of socio-cultural values of ES, the **time use method** creates hypothetical scenarios for willingness to give up time (WTT). This method estimates the value of ES by asking people how much time they are willing to dedicate for a change in the quantity or quality of a given ecosystem service. This method is not only a non-monetary metric, but also a way of measuring the willingness to actively contribute to nature conservation through practical actions.

Photo-elicitation surveys seek to uncover the socio-cultural value of ES by translating people's visual experiences, perceptions and preferences of landscapes into ecosystem service values. The use of photo-elicitation surveys has proven to be a useful technique for eliciting socio-cultural values of ES as it uses a communication channel (i.e. photographs) which is easily understood by multiple social actors (for instance see Chapter 7.3.3).

Narrative methods differ from the previous three as they are mainly used to collect qualitative data. By using narrative methods (e.g. structured, semi-structured and unstructured interviews, focus groups, participant observation, content analysis, voice and video recording of events, artistic expression, etc.), participants can articulate the plural and heterogeneous values of ES through their own stories and direct actions (both verbally and visually).

Three other approaches, frequently used in socio-cultural valuation, focus on the integration of knowledge systems, disciplines and diverse data. **Participatory mapping** of ES (or sometimes referred to as participatory geographical information systems or review and standarized PGIS, see Box 1) assesses the spatial distribution of ES according to the perceptions and knowledge of stakeholders via workshops and/or surveys. PGIS facilitates the participation of various stakeholders (e.g. community members, environmental professionals, NGO representatives, decision-makers, etc.) integrating their perceptions, knowledge and values in maps of ES (see Chapter 5.6.2).

Scenario planning combines various tools and techniques (e.g. interviews, brainstorming or visioning exercises in workshops, often complemented with modelling) to develop plausible and internally consistent descriptions of alternative futures, where values of ES can be elicited. Assumptions about future events or trends are questioned and uncertainties are made explicit to establish transparent links between changes in ES and human well-being.

Deliberative methods comprise various tools and techniques to engage and empower non-scientific participants. These methods (e.g. valuation workshops, citizens' juries, photo-voice, etc.) invite stakeholders and citizens to form their preferences for ES together through an open dialogue. Deliberative methods can address ethical beliefs, moral commitments and social norms and are often used in combination with other approaches (e.g. mapping or monetary valuation).

Scrutiny of specific socio-cultural valuation methods

The diversity of socio-cultural methods described above is determined by different methodological requirements (Table 1) and the ability of the different methods to provide different outputs and to uncover different types of values (Table 2). Regarding methodological requirements, socio-cultural methods can be clustered into three different groups: (1) methods that require multiple observations as they are quantitative methods and are usually developed in collaboration with scholars from the same field (i.e. preference assessment, time-use and photo-elicitation), (2) methods based on qualitative data that are usually applied in collaboration with non-academic stakeholders (i.e. narratives), (3) methods that are able to gather qualitative and quantitative data by collaborating with scholars from other fields and non-academic stakeholders (for instance PGIS, participatory scenario planning and deliberative valuation), also called integrated approaches (Table 1). This third group of methods has been applied to uncover ES values at national scales (and international in the case of scenarios) while the first two groups are not usually applied at such broad scales. Further, the third type of methods can contribute to social learning and knowledge co-production as it fosters discussion between different stakeholder groups regarding the importance of different ES (deliberative valuation), their spatial distribution (PGIS) and the future trends of ES and their implications for human well-being (participatory scenario planning).

PGIS is also the most suitable method to provide spatial outputs, although preference assessment, time use and photo-elicitation may also contribute with spatially explicit results by estimating representative values for different geographical areas. PGIS is particularly suited to identify ecosystem service benefiting areas, i.e. places where use or demand of ES converge (see Chapters 5.2 and 5.6.2).

Despite all developments regarding socio-cultural valuation of ES, the question of how socio-cultural valuation methods can elicit the broad range of values associated with nature is still relatively unexplored. Following the conceptual definitions provided for value categories in the Total Economic Value (TEV), the Economics of Ecosystems and Biodiversity (TEEB) and the IPBES, an integrative approach to socio-cultural valuation methods has the capacity to uncover most of the different value categories (Table 2). Broadly speaking, Table 1 shows that some methods are more specific towards certain value types (e.g. narrative methods), while other methods are generally able to capture multiple values, but not specifically designed for any value type in particular (e.g. participatory

scenario planning or deliberative valuation). All value types are appropriately covered by one or more methods, but all methods have blind spots, which imply bias and conditional application. Consequently, using multiple methods is necessary to cover all values types.

The resulting analyses reflect the extent to which diverse valuation methods capture specific value types or have integrative potential, as well as which set of complementary methods can be applied to capture multiple values.

Table 1. Methodological requirements of socio-cultural methods for valuing ES. Methods are evaluated according to their suitability to value ES at different spatial scales and to uncover quantitative or qualitative data - (●) high, (●) moderate, (●) low - and according to the level of requirements in terms of data, collaboration, time and economic resources - (●) high, (◖) medium, (◗) low - Source: Kelemen et al. (2015).

SOCIO-CULTURAL METHODS	SPATIAL SCALE			DATA			COLLABORATION			RESOURCES	
	Local	Regional	National	Amount of data	Qualitative	Quantitative	Researchers' own field	Researchers' other field	Non-academic stakeholders	Time	Economic
Preference assessment	●	●	●	●	●	●	●	●	◵	◖	◖
Time use	●	●	●	●	●	●	●	◖	◵	◖	◖
Photo-elicitation surveys	●	●	●	●	●	●	●	●	◵	◖	◖
Narratives	●	●	●	◖	●	●	◵	◵	●	◖	◖
Participatory GIS (PGIS)	●	●	●	◖	●	●	◵	●	●	◖	◖
Scenario planning	●	●	●	◖	●	●	◵	●	●	◵	◖
Deliberative valuation	●	●	●	◖	●	●	◵	●	●	◖	◖

Table 2. Main socio-cultural methods are presented in relation to their capacity to integrate different types of values - (●) high, (●) moderate, (●) low, (○) not appropriate - and according to their capacity to integrate values - (●) high, (◐) medium, (◷) low - Source: Kelemen et al. (2015).

SOCIO-CULTURAL METHODS	IPBES values			TEEB values			Total Economic Value					Integrative Potential
	Intrinsic	Relational	Instrumental	Ecological	Socio-cultural	Monetary	Direct use values	Indirect use values	Existence values	Bequest values	Option values	
Preference assessment	low	moderate	moderate	low	high	not appropriate	moderate	moderate	moderate	moderate	low	◐ medium
Time use	low	moderate	moderate	low	moderate	low	moderate	moderate	moderate	low	low	◐ medium
Photo-elicitation surveys	low	low	moderate	moderate	high	low	moderate	moderate	moderate	moderate	moderate	◐ medium
Narratives	moderate	moderate	moderate	high	high	not appropriate	not appropriate	not appropriate	low	low	low	◷ low
Participatory GIS (PGIS)	low	high	low	high	high	low	moderate	low	high	high	moderate	● high
Scenario planning	low	high	high	moderate	moderate	moderate	low	high	high	high	high	● high
Deliberative valuation	moderate	high	moderate	moderate	high	low	low	moderate	moderate	moderate	moderate	● high
Degree of values captured by all methods	◷	◐	◐	◐	●	◷	◷	◐	◐	◐	◐	

Internal variability of socio-cultural valuation methods

A key similarity amongst socio-cultural methods is the assumption that values of ES are rooted in individuals and, at the same time, shaped by individuals' social and cultural context. In fact, socio-cultural approaches have the capacity to elicit collective and shared values of ES through participatory and deliberative techniques that go beyond the aggregation of individual preferences. Socio-cultural valuation methods aim at valuing ES in a considered way by discovering the psychological, historical, cultural, social, ecological and political contexts and conditions, as well as social perceptions that shape individually held or commonly shared values.

Variability among methods makes socio-cultural valuation capable of flexible

adaptation to specific worldviews and decision contexts. Key aspects of this variability include (Figure 2):

1. The type of values elicited: methods focusing on the value to individuals versus methods focusing on the value to society. Values can be considered at the level of the individual (what is considered useful, important, good or morally acceptable by a person) and at higher levels of societal organisation, including a group, a community or the society as a whole (Figure 2). The latter type includes social and cultural values and refers to the fact that societies hold shared principles and virtues, as well as a shared sense of what is worthwhile and meaningful. Shared social values influence individual values because all of us are part of and have been socialised within, a specific community and social context. Valuation methods differ in terms of focusing on personal (individual) understandings of value, or eliciting those value dimensions that are shared by a group of people and culturally embedded within a society.

2. The type of rationality attributed to participants (value providers): self-oriented versus others-oriented methodological approaches. We can distinguish between individual (I) and collective (We) rationality as the two main rules of thumb behind reasonable actions (Figure 2). When following "I" rationality, we consider individual benefits and costs of personal actions and choose the most beneficial option for ourselves. On the other hand, following "We" rationality means that before acting, we consider what is good and bad for our community/society and how our actions can impact others. Therefore, "I" rationality refers to self-oriented actions and choices, while "We" rationality refers to other-regarding actions and choices.

3. The process of including participants (value providers) in valuation: observation,

consultation or engagement methods. There are three options to gain knowledge on preferences, depending on whether preferences (values) are considered as pre-existing or in the process of formation. Preferences can be observed and reported when participants have a direct relation with the subject of valuation (e.g. they frequently use or enjoy some ES). However, not having a direct relation with the subject of valuation does not necessarily mean that participants do not attribute value to it. To explore these social preferences, participants can be consulted or asked via questionnaires or interviews about their perceptions of ES. If preferences are not expected to exist *a priori*, or are in the process of formation (i.e. participants do not have *a priori* knowledge about, or have not faced others' perceptions of certain ES), we can also engage participants in a joint preference formation process through deliberative valuation, participatory scenario planning or PGIS.

4. The dominant approaches to handling data: predominantly quantitative, predominantly qualitative and mixed methodological approaches. All three types of methods can be used to collect quantitative, as well as qualitative data. Quantitative data can be collected in numerical form from large populations and, if representative, can provide results that are applied, in a general sense, from local to regional or even broader spatial scales. Quantitative data can be collected both at individual and group level and then aggregated to generalise the results from the sample to larger populations. Qualitative data allow an in-depth understanding of values and underlying motivations, but usually for a much smaller (and often non-representative) sample. Qualitative data can be collected at the individual and group level in the form of narrative arguments (mainly words, but also pictures, drawings, etc.). Due to the heterogeneity of types of data, aggregation is often impossible and other

means of synthesis have to be used (e.g. narrative methods or deliberation). In practice, quantitative and qualitative approaches can be placed along a continuum (Figure 2) and, in many cases, they are used in a mixed and complementary approach.
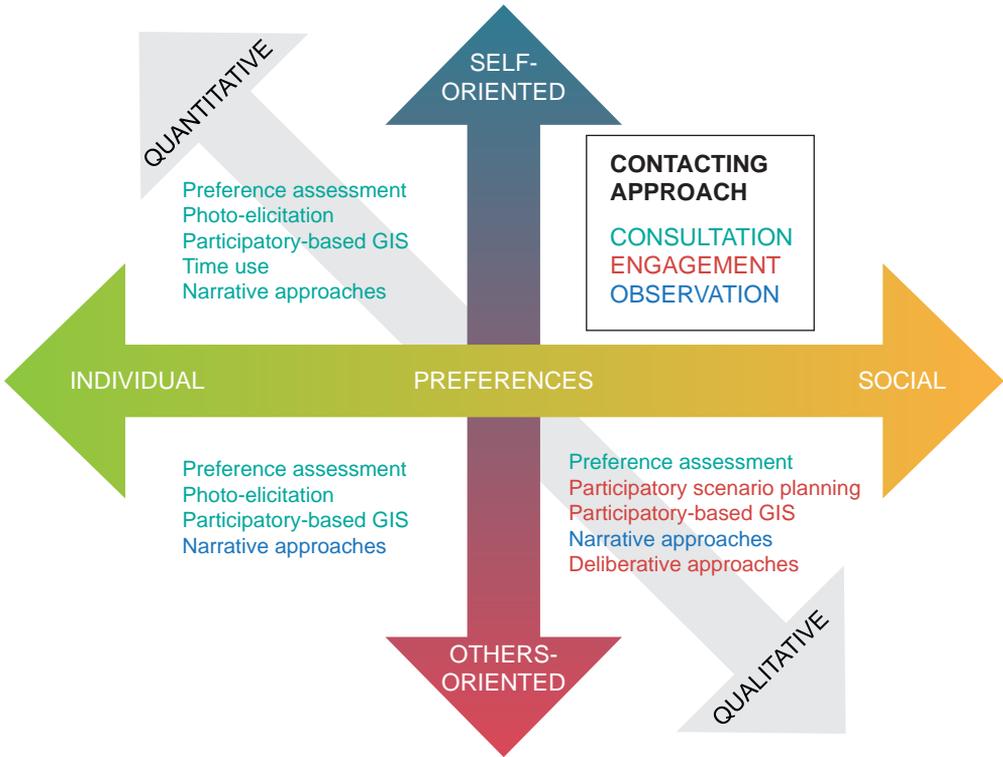

Figure 2. Variability among socio-cultural valuation methods in relation to three axes: type of values elicited, type of rationality attributed to value providers, and the dominant approach of handling data.

Implementation of socio-cultural valuation methods in the decision-support

Ecosystem service assessments have increasingly been called to support environmental planning, mainly based on biophysical and economic indicators. However, the expectations of decision-makers in relation to how these assessments can support decision-making are not always fulfilled. Moreover, few studies have included the socio-cultural dimension of ES, despite its being considered a research priority. Overlooking the socio-cultural dimension might obscure human-nature relationships and hinder the mainstreaming of ES across societal sectors and in decision-support.

Integrated valuation aims to clarify the interdependencies between the multiple values associated with different ES (see also Box 2 for an example). The biophysical dimension, i.e. an ecosystem's capacity to supply services, determines the range of potential uses by society which also influences its socio-cultural and monetary values. Socio-cultural values might also have an influence on monetary values because indi-

vidual and social motivations determine the 'utility' a person obtains from a particular service. Conversely, monetary values have social interpretations and the process of monetary valuation is value-articulating in itself. These interdependencies between value dimensions and the different information provided by them, justify combining the different value domains to properly inform environmental decision-making processes.

In this section, we formulate several propositions regarding how socio-cultural valuation methods can provide support in decision-making:

1. Socio-cultural approaches help broaden the valuation scope and capture multiple values that complement other valuation methods. Socio-cultural valuation methods can be used to identify how values and perceptions toward ES differ among stakeholders and offer insights into the motivations for conserving nature and the symbolic, cultural and spiritual values that are frequently invisible in other valuation approaches. Further, socio-cultural valuation methods can address relational values that are preferences, principles and virtues associated with nature-human relationships. For example, deliberative methods allow the consideration of ethical beliefs, moral commitments and social norms.

2. Socio-cultural valuation methods can cover different spatial scales. Values derived from large representative samples of a population can be transferred to other locations when the social, cultural and ecological conditions are similar and aggregated to larger scales than the original study. Given the emphasis of socio-cultural valuation methods on social formation and context-dependency of values, some approaches such as value transfer, aggregation and scaling are less common than in economic valuation where assumptions of pre-existing individual preferences encour-age comparisons across contexts. In addition, a number of socio-cultural valuation methods are applied at local scales to assess certain values in depth.

3. Socio-cultural valuation methods are a useful tool to identify how plural values are interlinked. These help identify plural and heterogeneous values that are relevant for different people (e.g. different socio-demographic profiles, different cultures or cosmologies), at different temporal scales (e.g. seasons of the year) and different choice situations (individual versus group). Socio-cultural valuation methods can reveal how plural and heterogeneous values are interlinked and contribute to human wellbeing.

4. Socio-cultural methods are more appropriate in situations of social conflict than other valuation methods. Aiming for an in-depth understanding of human-nature relationships, some socio-cultural methods integrate different forms of knowledge (e.g. expert or technical knowledge and experiential and local knowledge) held by different social actors. Sometimes, the interests of one stakeholder group might be in conflict with the interests of other stakeholders and power relations might operate between them. In that case, socio-cultural valuation can support the identification of conflicts arising from different perceptions, needs and uses of ES, as well as power inequities in the access to ES.

5. Socio-cultural preferences can serve as indicators of the impact of different management options on the ecosystems' capacity to deliver services. Socio-cultural preferences are often associated with ecosystem service bundles. They are helpful in identifying ecosystem service synergies and trade-offs resulting from stakeholders' diverging interests and knowledge. Social preferences for ES can be used as indicators of present and future pressures on landscapes and land-use

change. For example, multi-criteria analysis can combine a biophysical ecosystem service assessment with people's willingness to trade off one ecosystem service for another, establishing a ranking order of landscape management alternatives that can be used in priority-setting.

In summary, socio-cultural valuation methods can provide decision-support in the form of awareness-raising, value and knowledge recognition, value conflict identification and priority-setting. They also help bring different voices and stakeholders into the decision-making process.

Box 1. Participatory mapping of ecosystem service flows in a National Park (Sierra Nevada, Spain)

Participatory GIS seeks to produce ecosystem service maps in regions of data scarcity while engaging stakeholders through the mapping process. These two aims were pursued in the process developed in Sierra Nevada to map ecosystem service flows. In a two day workshop, 20 participants mapped the supply and demand (i.e. Service Provision Hotspots and Service Benefiting Areas) of 11 ES. Results showed the importance of protected areas to deliver ES and allowed the elaboration of concrete policy proposals for the protected area and its surrounding landscape. Regarding ecosystem service supply, potential restoration areas and areas that require a value enhancement strategy were identified. Ecosystem service demand maps showed the need of a multi-scale strategy for protected area management beyond protected area boundaries to be able to manage the demand that affects the ecosystem within the protected area.

Participatory mapping of ES developed by experts (i.e. managers and scientists) in Sierra Nevada Protected Area.

Mapping Ecosystem Services

Box 2. Socio-cultural valuation of ES in Hungary (Homokhátság)

The major aim of this ES study was to help local stakeholders and decision-makers move towards a more sustainable landscape management system. To this end, in-depth and semi-structured interviews and focus groups were applied. We carried out narrative methods to understand the institutionalised mechanisms affecting farmers' choices that are often in conflict with nature conservation.

Moreover, we carried out deliberative valuation to understand how farmers relate to biodiversity and whether it has different meanings and values to different groups of farmers. A preference assessment survey was carried out to mobilise community members and collect information on their knowledge, opinion and feelings related to ES. This was then channelled into a participatory scenario planning process, combined with modelling, to enable stakeholders and experts to explore alternative future options and choose the most desirable one(s) together. This long lasting research process was able to highlight multiple dependencies between local inhabitants and their surrounding environment. We could identify plural and heterogeneous values and their possible changes across time and space.

Focus group with local stakeholders using visual stimuli to elicit socio-cultural values of ES and their spatial distribution in the landscape.