Corporate Guidelines for the Noneconomic Valuation of Cultural Ecosystem Services

Version 1.0
GVCES AND BUSINESS INITIATIVES

Under this context, the Business for Climate (EPC) Platform, Innovation and Sustainability in the Value Chain (ISCV), Local Development and Large Projects (Local ID), Trends in Ecosystem Services (TeSE), and Applied Life-Cycle (CiViA) are GVCES Business Initiatives for networked co-creation of strategies, tools, and public and business policy propositions related to sustainability. We handle issues concerning local development, ecosystem services, climate, and value chain.

Here are GVCES Business Initiatives in 2015:

- **EPC (Business for Climate)**
  - In order to adapt to climate change, a new version of the tool to elaborate business strategies was developed, with three pilot projects.
  - The simulation of the Emissions Trading System (EPC ETS) completed two years of operation. Additionally, a working group elaborated propositions for implementing the Low-Carbon Industry Plan.

- **Inovação Local (Local Development)**
  - Cycle targeted at identifying opportunities for innovation in sustainability in logistics processes of large enterprises, leveraging small and medium businesses. The Supply Management Working Group, also sponsored by the initiative, developed a protocol to build a Risk Matrix for the supply chain.

- **IDLocal (Local ID)**
  - Development of business guidelines to monitor local development and assess impacts in territories where large projects and/or supply chains operate. A call for cases was conducted to identify experiences of large enterprises related to both topics covered throughout the year. Four initiatives were selected, in Brazil and in Latin America.

- **TeSE (Trends in Ecosystem Services)**
  - Development of guidelines for provision ecosystem services and guidelines for the noneconomic valuation of cultural ecosystem services (in partnership with Local ID). Besides, pilot projects were conducted with the companies, based on the Corporate Guidelines for the Economic Valuation of Ecosystem Services (DEVESE 2.0).

- **CiViA (Applied Life-Cycle)**
  - Training of managers on methods to quantify carbon footprint, with hands-on experience based on pilots. Development of a calculation tool to quantify the carbon footprint of products (goods and services), supported by an emission factor data base with over 200 processes adapted according to the Brazilian scenario.

The Center for Sustainability Studies (GVCES) of the Business Administration School at Getulio Vargas Foundation (FGH-EAESP) is an open arena for study, learning, insights, innovation, and knowledge production, formed by people with multidisciplinary background, engaged and committed, with an authentic desire to transform society. GVCES activities are based on the development of public and private management strategies, policies and tools to promote sustainability for local, national and international scenarios, driven by four major pillars: (i) training activities; (ii) research and knowledge production; (iii) debates and exchange of information; and (iv) mobilization and communication.

Companies that participated in the working group
Absurdity as a method

The stage had been set up the day before. As forecasted, the sun shone without clouds. Sweat dripped down the foreheads of the guys wearing suits, and the ladies had a hard time trying to keep their make-up on. Official cars started coming in for the event, after having to go through heavy security inspection. Engineers worked really hard so that everything would be ready. A red button installed on the tribune was waiting for the President, whose presence would convey the proper status to the relevant fact: the implosion of the Sugarloaf, in Rio de Janeiro, Brazil.

After years of geological research, they have detected, at the bottom of the hill, the presence of a rare metal that could impact the telecommunications, aerospace and nuclear industries. A gift from the universe, to be explored in a few minutes. All they needed to do was to implode those two hills, and their country would be considered developed.

The students – attentive, but feeling confused – split into groups, as the professor proceeded with his instructions. Each group would represent a specific stakeholder, and should bring to class some reflection about what service provided by the Sugarloaf would be affected by the implosion. The mayor, neighboring communities, tourist guides and tourists, architects, street vendors, mountaineers, executives and the population in general would show the value assigned by those stakeholders to the benefits offered by the cultural ecosystem service (CES) provided by the Sugarloaf.
Confused, the students risk some opinions. "I, as the Mayor, would think this is great! The Sugarloaf is profitable, but exploitation will bring in much more money", one of them says. "And Mrs. Marta view, does it count?", another one asks. "Can we list more than one service affected?", asks the student sitting back there in the classroom.

The exercise produces a great number of sticky notes attached to the picture of the Sugarloaf region, which is projected on the classroom wall. On the sticky notes, there are drawings of people jogging on the beach, a man climbing up a mountain, an old married couple holding binoculars at their living-room, the sun and drops of rain, someone diving in the sea, dollar signs...

(...)

While absurdity is still on your mind, caves, graveyards, monuments, rivers and landscapes are at stake, or have completely disappeared. Inability of business managers to demonstrate the provision of ecosystem services in their cash flows, or even to size their value perception as a synonym of their importance, leads to completely inadequate decision making, on behalf of what we usually call development.

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These Corporate Guidelines for the Noneconomic Valuation of Cultural Ecosystem Services (DESEC, in the Brazilian Portuguese acronym) present a proposition to diagnose cultural ecosystem services (CES) in the territory to support business decision making. This is the result of a joint work between Trends in Ecosystem Services (TeSE) and Local Development and Large Projects (Local ID) business initiatives throughout 2015, in partnership with member companies, with the TEEB R-L Project and guest experts.

GVces’ drivers to explore the universe of CES valuation includes understanding that the value assigned by local stakeholders to the benefits generated by ecosystems is key to plan proper business interventions in the territory, according to the socioeconomic and cultural context that hosts them. The effectiveness of those interventions, on its turn, directly affects the relationship of the business with its stakeholders and can be determining for business longevity in an increasingly globalized and competitive market.

Who are these Corporate Guidelines for?
DESEC Guidelines were designed to support business decision making. Besides being used by business managers, they can be used by researchers and facilitators of participatory processes who might be interested in using the ecosystem services approach.

How Should these Corporate Guidelines be Used?
DESEC Guidelines can be used independently, or as a complement to the existing instruments used by companies.

CES diagnosis can occur at any time during the company activities in a given territory; however, it is especially useful in the stages of prospection and pre-installation of business activities, with the purpose of understanding the nonmaterial and often little evident contributions of ecosystems to local actors.

Structure of this Publication
To get familiar with the concepts used in the valuation of cultural ecosystem services, please pay special attention to the chapters entitled ‘Introduction’ and ‘Categories of Cultural Ecosystem Services’.

The following chapter describes, step by step, the proposed process to diagnose CES, using the participatory map associated with methods to assign value.

Then, these guidelines provide insights on how to organize the data collected in the field, and also on how to communicate them.

Finally, there is a chapter dedicated to elements aiming at helping reflection for decision making, considering CES mapping and noneconomic valuation.
In its first cycle of activities, launched in 2013, the Trends in Ecosystem Services (TeSE) business initiative made advancements in building tools to support business management to evaluate vulnerabilities and impacts on the natural capital. Thus, the first version of Corporate Guidelines for the Economic Valuation of Ecosystem Services (DEVESE) was developed, with the support of The Nature Conservancy (TNC) and Conservation International (CI-Brazil).

In 2014 cycle, TeSE advanced further in measurements, having developed ten pilot projects and having enhanced DEVESE, which resulted in the production of version 2.0. This new version comprises eight ecosystem services (water quantity; water quality; wastewater assimilation; biomass fuel; global climate regulation; recreation and tourism; pollination; and soil erosion) and comes with a calculation tool. Additionally, in order to help businesses in the challenge to communicate their externalities, the Corporate Guidelines for the Reporting of Environmental Externalities (DEREA) were co-created.

In 2015, TeSE worked in building a method for the economic valuation of provision ecosystem services that complements DEVESE 2.0, and applied the method to other ten pilot projects. Also, TeSE explored the universe of valuation of cultural ecosystem services (CES), which led to the development of these guidelines.

In 2014 and 2015, TeSE relied on the TEEB R-L Project partnership to proceed with the initiative.
**Glossary of Terms**

**Ecosystem**: A dynamic complex of plants, animals, microorganisms and their non-living environment interacting as a functional unit (MEA, 2005). Examples of non-living environments are: the mineral part of the soil, relief, rains, temperature, rivers and lakes – regardless of the species living there.

**Ecosystem Services**: Direct or indirect ecosystem contributions for human well-being (TEEB, 2010).

**Externalities**: Consequence of an action taken by an agent that affects the well-being (or the production function) of another agent without any compensation paid or received. It can be positive or negative (MEA, 2005).

**Natural Capital**: Stock or reserve provided by (biotic or abiotic) nature, which produces a valuable future flow of natural resources or services (Daily & Farley, 2010).

**Natural Resources**: Variety of assets occurring in nature that can be used for production and/or consumption (UN, 1997).

**Value**: Contribution of an action or object to a specific user goal or condition (MA, 2005). In this publication, it is interpreted as a measure of importance or preference assigned to cultural ecosystem services, and it is not necessarily related to economic value.

**Territory**: Territory is the result of historic, cultural, political and economic activities of the different actors that hold their property and transform their history (Santos, 1996). In other words, the concept of territory cannot be dissociated from the human beings who live there and permanently modify it.

**Well-being**: Context and state dependent on basic materials for a good life, freedom of choice, health, physical comfort, good social relationships, security, peace of mind, and spiritual life (MEA, 2005).
INTRODUCTION

Cultural ecosystem services (CES), according to the approach adopted by TEEB – The Economics of Ecosystems and Biodiversity (2010), can be understood as direct and indirect contributions of ecosystems to the cultural and social relationships of a given social group. CES are also defined by the Millennium Ecosystem Assessment (2005) as 'nonmaterial benefits people derive from ecosystems'.

Therefore, the starting point for the concept of CES is understanding the cultures where they are inserted and, consequently, how they are heavily influenced by the ecosystems around them.

CULTURE

When we speak of cultural ecosystem services, it is important to reflect about the concept of culture. It is an expression that has been discussed for centuries in the academy, by different disciplines, and there is no consensual definition for it.

When we cover the culture topic, we should be attentive to aspects such as traditional ways of life, social organization formats supported by family networks, the existence of religions and specific cosmologies, mediation systems and solution of extrajudicial disputes, different notions of time and space.

Historically, the idea that cultures are or could have been eventually confined has prevailed, but currently the concept considers that cultures are continuously changing and there has always been interconnectivity between them.

In order to understand how significant a river or the silence at night are for a certain community or social groups that live in a given territory, it is necessary to understand the role they play in those cultures. For instance: the ritual to wash clothes in a river is also an important space to transmit intergenerational knowledge among women; the round of conversation under moonlight is where disputes are solved by ancient members of the community. Thus, incorporating a view of culture is to be attentive to otherness and different social tissues in the territories.
The interaction between culture and ecosystem in a given territory produces knowledge from the experiences people have when dealing with the environment. In this sense, changes in the ecosystem may significantly impact cultural identity and the social stability of a population or community (MEA, 2005).

In other words, changes in the environment may disturb basic references and interactions people have with the ecosystems, disrupting or restructuring territory dynamics without the leading role of local population. Examples of adverse sociocultural impacts are: loss of social relationships, lack of knowledge about how to relate in a sustainable way in the new territory configuration, and lack of knowledge of how the community can benefit from the ecosystem. On the other hand, there may be changes causing positive impacts on the communities, creating or strengthening structures and channels for interaction between them and the environment.

In this context, it is clear people assign importance or value (both terms are interchangeably used here) to the ecosystems that interact with their culture or their traditional knowledge, and they are relevant for community cohesion.

Thus, getting to know this value is critical to be able to assess in a broader and more realistic context the potential social consequences of a change planned in business projects or policies. The results
of a plan that takes into account the nonmaterial and intangible benefits provided by ecosystems to local stakeholders include a good relationship between the business and the communities, 'social license to operate', reduction of reputation loss risks, reduction of financial loss risks, and they can even generate new business opportunities.

Quantitative approaches in the context of ecosystem services are traditionally based on the economic valuation and monetization of the benefits offered by ecosystems. Those approaches, in spite of the methodological challenges that are inherent to environmental economic valuation procedures, have been quite well accepted when it comes mainly to regulation and provision ecosystem services. And exactly because it allows for direct comparisons between estimated values and values associated with other investment alternatives, the economic valuation has been gaining increasing projection in strategic decision-making processes.

As for CES, however, the economic valuation is extremely controversial. Many authors challenge its ability to access the different and important dimensions of value considered intangible and incommensurate that characterize cultural ecosystem services (Daniel et al. 2012; Chan et al., 2012; Kelemen et al., 2015; Kenter, 2014; Málovics et al., 2009). The way each individual perceives and benefits from CES depends on numerous factors, many of which are subjective and have no economic dimension, such as cultural principles and experiences with CES.

Thus, values associated to the same CES in the same place may vary considerably among stakeholders, depending on different sociocultural bases, and it is challenging to express them in monetary values that are in fact representative to all those social actors. Moreover, some CES, such as cultural identity and spiritual services, are usually seem as irreplaceable by stakeholders. In this context, there is no way to express them monetarily, since it is not acknowledged as an alternative that is capable of translating the real importance assigned to them.

Many companies already have and work with methodologies or standards that allow for accessing cultural aspects associated with the territories where they operate. However, there are still no methodologies consolidated in the literature or in the business sector that specifically address listing and management of cultural aspects offered by ecosystems.

Aiming at contributing to this purpose, the Corporate Guidelines for the Noneconomic Valuation of Cultural Ecosystem Services (DESECC) contribute to existing literature and studies with this proposition of participatory diagnosis in the context of CES – using the participatory map tool and methods associated in a way to support business decision making.

1. Learn more about the economic valuation in the Corporate Guidelines for the Economic Valuation of Ecosystem Services – DEVESE 2.0 (GVces, 2015), available at the website www.fgv.br/ces/tese.
We present here six basic categories of cultural ecosystem services (CES) to help in sorting different sociocultural benefits for human beings when they are in contact with the environment. Although there are many CES categories listed in literature, the classification presented here is based on the work conducted by the international panel of experts Millennium Ecosystem Assessment (MEA, 2005). They are: cultural identity, cultural heritage, spiritual services, inspirational services, aesthetic services, and recreation and tourism.

It is worth noting that CES can be included in more than one category, since one natural element may offer different material and nonmaterial benefits to people belonging to the same group, or to a number of groups that interact with that element. Therefore, those categories should be understood as references that help in mapping and understanding CES, but they are not mutually exclusive. Figure 1 illustrates some CES examples.
Cultural Identity
Human beings have developed in such a close interaction with the ecosystem that it has shaped their identity and their feeling of belonging to the territory. The variety of environmental conditions is certainly one of the reasons for the diversity in knowledge and cultural systems. This can happen through the simplest ways of livelihood, i.e.: shifting agriculture as a way to grow crops.

Cultural Heritage
It is the legacy of the evolution of relationships between communities and ecosystems that are associated with their culture and life experience, inherited from previous generations and transmitted through traditional knowledge and through sociocultural roots linked to the environment. This relationship with the environment conveys the feeling of past/history, defines identity and a sense of belonging, that is, when people associate their origin with a given ecosystem and/or environment.

Spiritual Services
It is the spiritual connection people and communities make with ecosystems or, more specifically, animals or plants that live in the region. Their spirituality and/or sense of existence depend on the environmental context, which is often essential to conduct rituals and ceremonies, considering those to be sacred environments. It is worth noting spirituality can be related to personal reflections and, therefore, it may not necessarily be linked to a certain religion.

Inspirational Services
It is the influence of nature as inspiration for an array of cultural and artistic expressions, such as craft work, paintings, folklore and architecture; but it can also be important to recover or innovate more sustainable agricultural practices, more integrated to local ecologic processes. Cultural experiences associated with ecosystems that inspire people to reflect about any topic or subject can be considered as a benefit generated by that ecosystem service.

Aesthetic Services
It is the feeling of comfort or well-being you have when contemplating a landscape because of its natural beauty. Many people, communities or even populations acknowledge the value of those feelings and choose to live close to landscapes they consider beautiful, or like to visit them. Aesthetic appreciation, however, does not necessarily imply direct interaction with the environment.

Recreation and Tourism
The different characteristics natural or anthropic ecosystems have (such as agricultural landscapes) that attract people to enjoy their leisure time. Among those characteristics, we highlight the chance to be in contact to or close to plants and animals, and recreation activities, such as trekking in natural trails and swimming in rivers and/or waterfalls, among others.
Cultural Ecosystem Services

Direct and indirect contributions of ecosystems to the cultural and social relationships of a given social group (TEEB, 2010)

Cultural Identity

Shifting Agriculture
Communities that live in tropical forests usually adopt the shifting agriculture as an activity to provide food (MA, 2005). This means that the area they need to develop that livelihood activity may be larger than it might seem after a quick visit to the region.

Recreation and Tourism

Ecotourism
The Pantanal, located in the State of Mato Grosso do Sul, is globally known for the aesthetic appreciation of flooded areas and rich biodiversity, and is a famous destination for ecotourism - which is a highlight as an economic activity. Among the activities, we list visitation to natural aquariums, safaris to take pictures, wildlife watching and trekking trails (Guia Quatro Rodas guide, 2014).

According to Mato Grosso do Sul State Tourism Foundation (Fundtur apud Pantanal Ecoturismo, 2013), the number of foreign tourists increased 12.26% in 2012, when compared to 2011.

Cultural Inspiration

Engenho Hill Framing
Aleijadinho Sculptures
In Congonhas (Minas Gerais) you will find the architectural complex known as Bom Jesus de Matosinhos Sanctuary, considered as a cultural heritage by UNESCO in 1985. On the top of the hill, there are soapstone sculptures of the 12 prophets carved by Antonio Francisco Lisboa, commonly known as Aleijadinho. According to researchers, when Aleijadinho carved the prophets, he was inspired by the hills, having the Engenho Hill as a frame for his work, and his sculptures compose the local natural and aesthetic landscape.

Aesthetic Services

Iguazu Falls
That landscape of rare aesthetic appreciation, combined with the rich biodiversity found in the Atlantic Forest transformed the Iguazu National Park into a UNESCO Natural World Heritage Site in 1986. In 2014, the Park attracted about 1.5 million people from 172 countries (LOPES, 2015). The objective of national parks is to preserve ecosystems of great ecologic relevance and aesthetic appreciation to conduct scientific research, educational and environmental interpretation activities, recreation and ecotourism, through the contact with nature (ICMBio, 2015).

Cultural Heritage

Traditional Production of Cajuina in Piauí State
Cajuina is a typical non-alcoholic drink in Teresina region, in the State of Piauí, inherently linked to the local production of cashew. All rituals and sociocultural practices related to cajuina are a cultural heritage in the State and it is the official drink in Piauí. Incorporated into hospitality rituals of the people who define themselves as hospitable hosts, the act of serving cajuina reinforces bonds of reciprocity, weaving networks of sociability (Veloso et. al 2010).

Spiritual Services

Yaokwa Ritual
The Brazilian tribe Enawene Nawe, who lives in the Amazon Forest, conducts the ‘Yaokwa’ ritual as a way to honor the Yakairiti spirits, who are a pillar in the tribe social life. Integrated into the tribe daily activities for seven months throughout the year, the rite includes young people and combines knowledge about agriculture, food processing, craft work and building of houses and dams for fishing. The ritual and the biodiversity it celebrates both depend on the ecosystem conservation (UNESCO, 2011).
CES value perception diagnosis as proposed in these Guidelines is inspired by the participatory appraisal methodology from the Quick Participatory Diagnosis (Chambers, 1992) and proposes using participatory maps to gather CES elements, and it also suggests five complementary tools to understand the value intensity assigned to CES by local stakeholder communities.

The choice was based on TEEB (The Economics of Ecosystems and Biodiversity) recommendation to use the participatory appraisal method because it is “flexible, adaptive and can capture – both in a quantitative and qualitative way – an array of data types and levels of information” (TEEB, 2010, p. 66) from stakeholders. Three key assumptions were adopted to build these Guidelines:

• Participatory Approach: Value perception should be obtained from participation of stakeholders.
• Territory Approach: Diagnosis should be based on the concept of territory2, because it is the unit that better reflects the bonds between people, social groups and institutions that can be mobilized to establish initiatives targeted at the development.
• Simplified Approach: The process should be easy to apply and accessible to businesses and other organizations that might be interested in the topic, but still robust to support decision making.

Although the diagnosis of CES value perception as assigned by local communities can be made through different means, these Guidelines are not intended to be exhaustive when proposing methods and tools for this purpose, and they recommend using the participatory map method. However, it also recognizes that other methods and tools not specified here can be appropriate, depending on the situation. Thus, Figure 2 lists alternatives to conduct the participatory diagnosis in communities when gathering information on CES. Further information can be found in Annex 1.

2. Territory is the result of historic, cultural, political and economic activities of the different actors that hold their property and transform their history (Santos, 1996).
Figure 2 – Some Participatory Methods and Tools

**SEMI-STRUCTURED INTERVIEWS**
A semi-structured questionnaire is applied to key informants.

**FOCAL GROUPS**
Debate of qualitative issues (they can be extracted from the questionnaire) in a group of people, in order to capture the view and the dynamic of the social group about the topic.

**LIFE STORY**
Capture oral stories from a key informant or group (family or theme).

**PARTICIPATORY MAPS**
Graphical depictions showing the community physical distribution and location of natural resources and cultural ecosystem services.

**TRANSVERSAL MAP OR COMMUNITY MAPPING**
Georeferenced maps of communities, natural resources and their cultural ecosystem services.

**NOTE**
Attentively participate in the community routine, trying to get rid of preconceived categories about local reality.

**CHARACTERISTICS OF PARTICIPATORY MAPS**
The participatory map method is proposed in these Guidelines for CES appraisal diagnosis because of the following reasons:

- It is fairly easy to conduct and explain;
- It allows for integration of local people and access to local knowledge;
- It enables quick identification and understanding of the problems;
- It may inspire participants to have a holistic reflection of the problems;
- It is accessible to people who may find it difficult to express their positioning in writing or verbally;
- It consumes fewer resources when compared to other methods (such as questionnaires, semi-structured interviews), showing a good balance between results robustness and time and resources used;

- Like other participatory tools, it may cause some disagreement and conflicts among participants, but in cases in which there are existing conflicts or in which the idea is exactly to understand those conflicts, mapping is strategic.

Source: Elaborated by the authors, based on TEEB, 2010 and Infield et al., 2015.
Process to Diagnose CES Valuation

Four major steps are proposed in Figure 3 to make the diagnosis of local CES value perception. We suggest conducting this process during the prospection and pre-installation stages of business activities in the target territory, relying on a facilitator team with expertise in participatory processes.

Figure 3 - Process for CES appraisal diagnosis

**STEP 1 - PREPARE CES PERCEPTION DIAGNOSIS**

In this step, which occurs before having direct contact with stakeholders, it is necessary to:

(a) Previously gather and analyze all information available about the territory and the target communities using secondary data; and

(b) Prepare the material needed to collect data from stakeholders.

The diagnosis should be planned in order to respond to the objective and strategy it is part of, taking into account the resources available (time, staff and money).
IMPORTANT TIPS IN PARTICIPATORY PROCESSES

It is important to understand that processes involving local participation require special attention. We list here some factors that should be observed:

• Expectation management: Participatory processes may raise awareness and encourage collaboration, but they may also raise unrealistic expectations about the benefits that the consultation will actually bring to the territory and/or demands to solve potential problems that might not have been caused by the company. Possible resistance should always be considered for a number of reasons, such as emotional distress caused by previous consultations, a feeling of invasion, existing disputes with public authorities and/or the business itself, disputes among neighbors, among others.

• Transparency: Participatory processes require a high level of transparency throughout the entire process to ensure, among other things, legitimacy of the initiative. From the very beginning, the company must let participants clearly know the goals of the consultation and what they can expect from the process. This should be conducted in a mutually respectful scenario, after all, the needs of the company will not always necessarily match the needs of the community, and vice-versa.

• Expert(s) in participatory processes as facilitator teams: It is recommended that a facilitator team with expert(s) in participatory process be engaged throughout the entire consultation process, from the inception to the execution of activities included in the participatory map. Processes involving social engagement should be carefully handled, and experts can ensure increased reliability and satisfaction, avoiding attrition and strengthening the relationship among stakeholders.

• Local actors: Identify and establish a partnership for debates and development of the process with some local actors acknowledged by the stakeholders, such as a non-governmental organization that operates in the region, in order to make it easier to approach the stakeholders, obtain their adherence to participation and convey reliability and legitimacy to the results.
Characterization and mapping of stakeholders should be based on previous research about the territory and also on previous contacts with local actors, public authorities, neighborhood associations, religious groups, trade unions, non-governmental organizations operating in the region, among others considered relevant for each case. It is highly recommended to take into account the political scenario where the diagnosis is made, since it can help the territory good governance (IFAD, 2009).

Special attention should be paid to traditional communities, since they have a close relationship with ecosystem services, thus it is critical to effectively and properly engage them. In Brazil, searching for references such as IPHAN (National Institute for Artistic and Historical Heritage)\(^3\), FUNAI (National Indian Foundation)\(^4\), Palmares Foundation\(^5\), MDS (Ministry of Social Development) and MMA (Ministry of the Environment)\(^6\) can help in the process of identifying traditional communities and cultures acknowledged in the territory. Other interest groups, in the context of CES, may include managers, decision-makers, inhabitants and beneficiaries (Infield et al., 2015).

### Limiting the Area of the Study

The area to be considered in CES appraisal diagnosis should be limited based on the previous research on the territory and it can, for instance, use as starting points physical boundaries, such as rivers and mountains, and/or administrative boundaries, villages, protected areas, directly and indirectly influenced areas as determined by the environmental licenses. However, it is critical to have a flexible limitation, and let part of the process be jointly built with the mapping actors themselves, so as to fully cover the territory considered by the stakeholders.

### Collecting Secondary Data Available

After limiting the study area, it is relevant to further collect secondary data available about the territory, covering socioeconomic, cultural and political aspects. This can be done using sources such as the Master Plan, Environmental Impact Studies (conducted in the scope of licensing), academic researches, among others, and will later help in the process of characterizing the stakeholders.

### Determining and Characterizing the Stakeholders

Originally, stakeholders are those who live in the target area, but they may include communities living beyond the limited area who benefit from some CES within the target area, such as communities who go to a specific place for ceremonies and festivals, or even for leisure.
TRADITIONAL COMMUNITIES

Since the 16th century, Brazil has a law on native people, and the Constitution elaborated in 1988 ensured legal acknowledgment of the so-called ‘traditional communities’. Convention 169 concerning Indigenous and Tribal Peoples in Independent Countries from the International Labor Organization (1989) made a key change in the concept of what Indigenous and Tribal Peoples are, validating self-identification as the main reference for the topic. The Convention was made effective in Brazil as of 2003. In 2006, the National Commission of Traditional Peoples and Communities was created, and a government decree established a National Policy. In partnership with the Ministry of the Environment and the Ministry of Social Development, the Policy has the objective to promote sustainable development for Traditional Peoples and Communities, focusing on acknowledgment, strengthening and assurance of their territorial, social, environmental, economic and cultural rights.


In order to be able to identify, acknowledge and ensure rights, those different government agencies, supported by third sector entities and social movements, work on the mapping of those groups in the Brazilian territory and on their sociocultural characterization to provide them with public policies that range from land tenure regularization to cultural valuation. Thus, there is a great amount of secondary data about those culturally different groups that can be very useful for the identification work and discussion on cultural ecosystem services.
Determining the stakeholders will also support determining the units where data will be collected. It is recommended that data be collected at group levels, since values associated with CES have their origin in the relationships between people and are primarily experienced collectively. Therefore, groups are more qualified to interpret values associated with CES, besides offering more accurate estimates about the level of consistency for CES perception in the community (Chan et. al., 2012; Kelemen & Gómez-Baggethun, 2008).

It is worth pointing out the importance of seeking representativeness of a variety of views and perceptions within a social group and ensure the engagement of groups such as women, young people, the elderly, minorities, and vulnerable people (IFAD, 2009, p. 27).

Based on the determination and characterization of the interest group, the strategy to be adopted is established to approach the stakeholders, who should, at least, assess the risk for accuracy of the results, the costs and benefits related to logistics and diagnosis, and the time needed to make the diagnosis.

**Preliminary Contact**

It is strongly recommended to visit the communities at least once before holding the workshops, not only to complement the information collected, but also to get to know them and show them the purpose and the facilitation team, meet leaders and key actors, assess the level of interest in participating, have a look at the resources available for community workshops, and schedule meetings. The preliminary visit of the facilitator team can even make use of the methods and tools mentioned in Annex 1 – Methods and Tools for Participatory Appraisal.

Additionally, it is recommended to identify local formal and informal leaders and key actors and make early contact with them to better understand the local socioeconomic dynamic and have a preliminary view of the relationship stakeholders have with the ecosystem. It also allows to diagnose potential local disputes and relevant demands that will contribute to build a strategy for the approach and manage expectations. Contact with leaders also helps limit the study area and particularly the process to raise awareness and invite the community to participate in the workshops.

**Planning the Field Visit**

After having analyzed preliminary information, it is possible to consolidate the methods and tools to be applied in each step and plan the necessary and available resources: budget, in-house staff, external staff, logistics for the team (transportation, meals etc.), logistics for the diagnosis (a vehicle for visits, arrangements for the place the meeting will be held, coffee break for meetings, etc.), material for diagnosis (office material, CES and value intensity cards, etc.).

Group meetings make diagnosis efforts easier. However, gathering all the stakeholders together in one or a couple of meetings might be quite challenging. For some people, costs of transportation may be high and discourage attendance in the meetings. In cases like that, reimbursement of expenses may be necessary.

Another aspect to be considered in the planning is the period when the diagnosis will be made and when the visits and workshops will be held, making sure the community will be available during that period. For instance, for communities that live from tourism, it is recommended to plan the diagnosis during low season (Infield, 2015).

**TIP!**

The company may choose to complement the results obtained through participatory maps and value attribution tools, applying other associated methods, like the ones listed in Annex I. Consider potential use of those methods while planning, also taking into account the processes of relationships with communities that may have eventually been implemented in the company!
STEP 2 – ACCESS VALUE PERCEPTION OF STAKEHOLDERS ON CES

This step covers the activities to be performed in the community workshop with the stakeholders, and that is when primary data about CES value perception will be collected. In order to have a smooth process during diagnosis, it is important to conduct activities that help setting up a warm welcome environment and make participants feel comfortable to work in groups and to truly express community wishes.

COMMUNITY WORKSHOP

The workshop is a space for collective construction with representatives of the community. Different from a meeting or a lecture, in which the main goal is to transmit knowledge to the community, the workshop enables establishing a political relationship between the company and the community, and building new knowledge.

To realize the full potential of a workshop, it must be well prepared, from the identification of guests (to ensure representativeness), their mobilization and engagement (being attentive to the needs of each group or individual), to the selection of the proper location and facilitation techniques.

For a workshop about CES, the plan is to have the stakeholders familiarized with concepts of cultural ecosystem services (introduction of technical knowledge) and listen to what they have to say about their own reality (local knowledge) concerning the objective that was proposed. A view about CES in a given locality will be collected in the workshop and there will be some perspective for continued debate.

To start the community workshop, it is important to revisit the diagnosis purpose and introduce the method that will be applied in a simple way, without, however, giving previous definitions and examples that might distort the results, and allowing for an environment where CES key elements will be jointly built. It is critical to clarify some things since the first meeting: i) what participatory maps are; ii) who are the people selected to participate in this moment and why (IFAD, 2009, p. 33); and iii) why we want to build a map and what we are going to do with it.

In this step, it is also essential to clarify how important it is to have all the participants engaged, so the map will be as most representative as possible of the group impressions, and not only of the impressions of some of the participants. During the workshops, leaders or people in different social positions may, even though unintentionally, inhibit some participants from expressing themselves. Therefore, with the purpose of making everybody feel comfortable, the facilitator team must have the ability to spot the need to apply the exercises in separate groups that were not planned (using parallel dynamics in the same community workshop or in different times with certain groups, as needed).

It is worth noting that, in addition to the collective approach, it is recommended that one person from the facilitator team play the role of observer during the community workshop, making notes about topics, postures, narratives and any relevant aspects observed in the participants. Also, that person may identify biased views and offer an independent perspective. Alternatively, he or she can ask the group consent to record and tape the activity, so it can be analyzed later, from the perspective of an outsider. Such observation allows for a more complex understanding of CES elements and importance, even though it is subjective and not structured.
STEP 2.1 – GATHERING CES ELEMENTS: PARTICIPATORY MAP

In this step, relevant elements in the territory are graphically collected, under the community perspective, through the participatory map method. The map may have different formats, such as a collective drawing on a piece of paper, a 3D map, and it may even use advanced georeferenced technologies with aerial photos and/or satellite imagery with specialized data.

Once the format is determined, initial elements such as rivers or a meeting point should be depicted as references to start the process. The group will be instructed to express cultural elements related to the ecosystem that they deem important in their territories, although it is not a restrictive instruction. It is important to speak in a simple way, so everybody can understand it.

Facilitators should reinforce that what really matters in the graphic representation is not how beautiful it is, but rather clear identification of what is intended to represent. Thus, people should be encouraged to use an explanatory list of symbols whenever they think it is needed, or ask the facilitators for help, making it clear that accurate scale and geographic location in the graphic representation are not relevant.

Infield (2015) recommends reserving from two to three hours for the graphic representation activity. However, it is critical to assign sufficient time for participants to express themselves, and it is the facilitators’ role to adjust the time according to the group needs. If the activity is extended for too long, there are chances that elements not so relevant will be included.

By completion of the graphic representation activity, it is recommended to ask participants to describe their resulting map and discuss it. In cases which separate groups have developed their own maps, you may ask them to present their maps to one another. This is the time to clarify questions about the representations and about different points of view that might have emerged during discussion. The facilitator team should guide the discussion with the purpose to assess and check the general quality, accuracy and relevance of the mapped area (IFAD, 2009). The discussion held among participants during the elaboration of the map is very rich and should be collected and considered for later analysis of the results.

The resulting maps should be registered (for instance, they can be photographed), and copies should be distributed to the community and to the facilitator team.

STEP 2.2 – ASSIGNING VALUE TO CES GRAPHICAL ELEMENTS

The purpose here is to understand the dimension of the importance of each CES element depicted in the map, by using a complementary tool that allows for making the results of the participatory map tangible. It is recommended to conduct this step during the same community workshop where the participatory map is built, to leverage the presence of stakeholders. However, you should be careful so as not to let the exercise become too tiresome.
Listing Graphical Elements

Before assigning value to CES elements, facilitators should, along with the group, list the elements represented in the map (i.e.; waterfalls, fishing spots, and trails in the forest, among others) and seek to understand the benefits assigned to those elements, in other words, the associated ecosystem service. It is important to point out that, in the map, natural elements will possibly be depicted (i.e.; rivers, trees, mountains), rather than necessarily the service provided by each element (i.e.; leisure, sense of belonging, well-being). So, it is critical that facilitators pay attention to the discussions held among participants, in order to understand the benefits offered by the elements depicted in the map. Understanding this is also important so that, later, the facilitator team can sort the graphical elements in CES categories. At that moment, additional ecosystem services (such as provision and regulation services) other than cultural services may be mentioned and, whenever possible, they should be put aside and reserved for other analyses.

Once the discussion about the elements inserted in the graphical representation is complete, facilitators should ask if there is anything else related to CES that participants would like to add. Stakeholders should be allowed to change the map in order to better express the importance assigned to the elements depicted (IFAD, 2009). Finally, facilitators should summarize and validate with participants all CES elements listed to which they will assign value.

Making the Importance of CES Elements Tangible

Using the list of CES elements jointly extracted from graphical representations, different methods can be used to clarify the level of importance of the elements listed.

In these Guidelines, we suggest five options for methods to make the importance of CES elements tangible, which can be found summarized and detailed in Annex 2. All options can be applied in community workshops; they can be applied to resume the workshop in which the participatory map is built, and you can choose one or more proposed tools, according to the context and the expected result.

7. Please refer to the methods proposed by the Corporate Guidelines for the Economic Valuation of Ecosystem Services – DEVESE 2.0 (GVces, 2015).
Methods to Assign Value to CES

<table>
<thead>
<tr>
<th>METHODS</th>
<th>GENERAL DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy Matrix (Ranking)</td>
<td>A way to numerically sort the importance of each CES</td>
</tr>
<tr>
<td>Prioritization Matrix</td>
<td>A way to compare the importance of each CES</td>
</tr>
<tr>
<td>Prioritization Matrix From Local Value Criteria</td>
<td>A way to qualify the idea of importance assigned to CES</td>
</tr>
<tr>
<td>Preferential Voting or Budget Game</td>
<td>A way to assess to what extent individuals would be willing to pay for resources in case of variation in CES consumption and/or use</td>
</tr>
<tr>
<td>Venn Diagram</td>
<td>A way to assess CES importance and how much the community has currently benefitted from it (and what is preventing this to happen)</td>
</tr>
</tbody>
</table>


Each method suggested has its own peculiarities, some are more quantitative, others more qualitative. Some of them allow for including two or more variables, which enriches the discussion. However, it is worth saying that each CES has its unique value and they are correlated, which makes it superficial to conduct the exercise to prioritize (tell which one is more important) or rank them (sort them according to their level of importance).

Those methods have the purpose to evaluate the importance of CES identified in a community (using data collection methods) under the local perspective. This means that a technical view of the territory can identify other prioritization criteria that the community may not be aware of, even though they are affected by them, such as underground issues (aquifers) or climate change issues. This might or might not be incorporated into the discussion.

Therefore, in all those dynamics, it is critical to capture the discussion about the challenges presented while elaborating the matrix, in order to understand the relationship the community has with those ecosystem services. In other words, the matrices should be interpreted as a way to encourage discussion on prioritization and ranking, rather than a final outcome. To help foster the discussion, some questions have been listed in Annex 3.

UNDERSTANDING THE CURRENT CONDITION AND CES TREND

TEEB approach for integrating ecosystem services into development planning (Kosmus et. al, 2012) suggests that, after collecting relevant SEC, the facilitator team seek to understand the current condition of the relevant SEC collected, in other words, determine the quality and availability of the benefits provided by the ecosystem and who benefits from them. They can take their time in the field to visit locations where CES is provided, or ask stakeholders and experts about that.

Also, it is recommended to reflect about future trends in relevant CES use, both from the perspective of CES supply by the ecosystem, and from the perspective of the demand – who will be benefitted, and how. For instance, what are the change trends for beneficiaries of that CES? Additionally, a third aspect is to look at potential impacts of business intervention: what changes would be caused by the company activities in the territory, and by the ability to provide the CES? To what extent would the activities performed or planned by the company affect provision of listed CES?

This data, those records and reflections in the field can be very useful for analysis, communication and decision making in Step 3 – Organize, Analyze and Communicate Results, and in Step 4 – Support in the Decision Making. Annex 4 reflects the matrix example proposed by Kosmus et. al, 2012 for collecting and organizing CES current condition and future trends.

Learn more in the document entitled ‘Integrating Ecosystem Services into Development Planning’ (Kosmus et. al, 2012).
STEP 3 – ORGANIZE, ANALYZE AND COMMUNICATE RESULTS

These results are equally relevant when it comes to organization and analysis: i) the map(s) that was (were) produced; ii) the results of the value assignment exercise; and, iii) the notes taken by facilitators and observers about the discussions in the workshops. Additionally, the knowledge acquired and the observations made during the experience in the field and the data previously collected about the sociocultural and economic reality of the (primary and secondary) stakeholders are also critical in the analysis of value perception diagnosis results.

To validate the results obtained, you should cross the different information collected and understand whether the results are consistent with one another and whether they support one another, improving reliability of collected data, particularly if it is a small sample.

Organization

First, it may be useful to sort CES elements listed from graphical representations into CES categories (as described in Chapter 2).

When presenting the results of the participatory map, they should highlight the most relevant CES elements in the territory for stakeholders and, if possible, inserting graphical representations or their fragments. For each natural element depicted, the relationship the community establishes between it and their sociocultural well-being, i.e.; the cultural ecosystem service, should be described. Potential variations that emerge from different groups about the relationship with the ecosystem should also be described.

Complementary, the results of the value assignment method, on their turn, can be organized and summarized in tables, followed by descriptions and references to the discussions observed during the process. It is critical to consider the characteristics of the participants in the exercise (young people, women, indigenous people, etc.) to support the analysis of the results obtained (IFAD, 2009).

References made throughout the process to other categories of ecosystem services (provision and regulation, particularly), besides cultural services, should be separately recorded and analyzed, whenever possible, based on economic valuation
methods. Anyway, those results show the relevance of other ecosystem services for the local community, contributing for the company understanding about the importance of ecosystems for the community as a whole.

Organizing data provides a snapshot of the whole scenario to determine where potential trade-offs may be necessary. That assessment contributes to identify the actors that will potentially gain or lose with the result of the company interventions and associated change in cultural ecosystem system in the short- and long-terms (Kosmus et al., 2012)

**Communicating Results**
There are two main focuses to communicate results: i) feedback to participants of the process; and ii) report and communication to society as a whole.

In the first case, it is worth emphasizing that an essential part of the process is to share the collected data and the result analyses with those engaged in the process, such as community leaders, group representatives, or even the whole community involved. That communication can occur even before coming to final conclusions or before making the decision with the purpose of validating and receiving comments on the analyses (Infield, 2015).

In the second case, communicating the results of participatory methods to decision makers and other groups outside the community can be one of the most significant and also one of the most complex components in the process. In this sense, the results of the participatory maps graphical representation are powerful communication tools depicting local knowledge, since they use a language that is easy to understand by people of different backgrounds (IFAD, 2009).

However, to think of how the content will reach the community that participated in the process or the decision makers, it is **always necessary to consider the context in each location and the profile of the people to be informed**. Keeping in mind that the interests of the stakeholders vary, it is important to adapt the communication according to those interests and perspectives, always being careful not to change the essence of the information you are seeking to convey.

Therefore, in order to have effective communication, it is necessary to present the same piece of information in different ways or different formats for different audiences. Thus, it is critical to think of a number of approaches to show the results according to the group and to their goals, considering the proper language and format.

The content of the result should be planned in order to be communicated through numerous communication channels, such as presentations, reports, articles, or face to face meetings, among others. Additionally, along with the results, a clear presentation about the methods used, assumptions made and evaluation limitations should be provided.

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8. Please refer to the Corporate Guidelines for the Economic Valuation of Ecosystem Services – DEVESE 2.0 (GVces, 2015).
9. Trade-off is a balance achieved between two competing, conflicting or somehow incompatible results (Kosmus et al., 2012).
WHAT TO COMMUNICATE?
Here are some suggestions (in a non-exhaustive list) of relevant information to be communicated to the society as a whole:

General information:
• Brief description of the company (i.e.; location, segment in industry)
• Target territory
• Location
• Team involved (facilitators and company representatives)
• CES diagnosis objective
• Description of the intended business intervention

Specific information:
• Area of the territory analyzed
• Biome
• Specific locations
• Period/date data was collected
• Number of community workshops and number of participants in each one of them, besides distinction by gender and ethnicity, among others.

Results:
• Elements identified in CES context by participants, located in a territory map (it may be the graphical outcome of the participatory map or any other map containing relevant spots).
• Relationship between the elements identified and CES, i.e.; containing the description of how those elements generate benefits for the community (discussion records are critical in this item).
• More relevant elements for different socioeconomic groups and analysis: explain why it was considered more important and by whom (the outcomes of value assignment can be complemented by the remarks made during the workshops).
• List or map of CES that can be more affected with the intended business intervention, containing a description of how they would be affected and who would be more affected.

Recommendations:
• A summary for decision makers.
• Considerations on how to leverage positive impacts, or on how to avoid, mitigate and make up for potential adverse impacts.
• Other pieces of information needed for decision making.
• Future research associated with the topic that may be necessary.

Adapted from Infield, 2015

STEP 4 – SUPPORT IN THE DECISION MAKING

The purpose of this diagnosis is to contribute to business decision making when it comes to an intervention in a given target territory. You will find below guiding questions organized within a diagram to help in the decision-making processes, based on the results of the analysis presented, illustrated in Figure 4.

The answers to these questions can be internalized by companies using their different environmental management and social responsibility instruments. Execution of CES strategies can occur, for instance, through action plans, social responsibility programs, social and environmental investments, or any other instrument. CES diagnosis is not, by itself, the answer to the challenges related to the territory and their stakeholders. However, it can be an important instrument to understand, determine a strategy and/or evaluate how its outcomes can contribute to solve challenges posed by a changing territory (IFAD, 2009).
Figure 4 – Diagram of Questions to Support in the Decision Making

- WERE CES DETECTED IN THE TARGET TERRITORY?
- CHECK OTHER ASPECTS OF THE TERRITORY INTERVENTION (I.E., OTHER CES)
- WILL THE COMPANY INTERVENTION HAVE ANY IMPACT ON CES DETECTED?
- WHAT ARE THE CES IDENTIFIED AS MOST VULNERABLE/TOP PRIORITIES?
- WHAT ARE THE CES IDENTIFIED AS LESS RELEVANT?
- WHAT ARE THE VULNERABLE CES?
- THINK OF WAYS TO ENSURE CES ARE MAINTAINED
- IS IT POSSIBLE TO LEVERAGE/OPTIMIZE/IMPROVE THIS CES?
- ARE THERE INTERVENTION ALTERNATIVES TO AVOID IMPACTS DEEMED NEGATIVE?
- ARE THERE ALTERNATIVES TO MITIGATE ADVERSE IMPACTS?
- THOUGHT OF OPPORTUNITIES!
- THINK OF THE IMPACTS OF THAT ALTERNATIVE
- ARE THERE ALTERNATIVES TO COMPENSATE FOR ADVERSE IMPACTS?
- CONSULT STAKEHOLDERS ON ALTERNATIVES

Source: Elaborated by the authors
Contribution of a CES diagnosis to decision making occurs through the attempt to make the trade-offs of business choices tangible in a certain territory. In fact, with CES identification and valuation, the impacts or benefits of the actions planned become more explicit. Managers can better understand the relationship stakeholders have with the ecosystem, which supports their decision making.

In a competitive business scenario where resources are finite, those guidelines allow for understanding and prioritizing CES. They also allow the company to get involved with a complex and integrated topic, pointing out possible strategies.
References

Chan, K. M. A., Satterfield, T., Goldstein, J. (2012). Rethinking ecosystem services to better address and navigate cultural values. Ecological Economics, 74, 8 – 18.


Card 1. Semi-Structured Interview with Key Informants

**Description** | A semi-structured questionnaire applied to key informants.

**Objective** | Collect quantitative and qualitative data about CES.

**With whom** | With pre-selected people who have specific knowledge about a given topic that is relevant to CES, such as healthcare or environmental professionals, teachers, religious leaders, etc.

**Time** | 1-2 hours

**Guiding questions** | Questions are previously determined in a questionnaire, and they may be open-ended (more general, although they may guide the answers) and closed-ended questions (specific questions, multiple choice, etc.) for quantification and comparison purposes.

**How to facilitate?** | Introduce yourself and explain the specific objective of the interview and how data will be used; promise to share the results in the end of the process.

**Materials** | Notepad, pen or audio recorder.

**Tips** | Request consent to record the conversation, in case you think it is necessary.
Card 2. Focal Groups

Description | Debate of qualitative issues (which can be extracted from a questionnaire) in a group of people, in order to capture the view and the dynamic of the social group about the topic.

Objective | Delve deeper into issues that need to be understood (homogeneous focal group) or understand conflicting views (heterogeneous focal group).

With whom | With social subgroups: women, young people, the elderly, farmers, healthcare professionals, education professionals, environmental professionals, etc.
In heterogeneous groups, the mix of guests needs to be determined according to the objective aimed, for instance, to explore intergenerational conflicts in agriculture, you should invite elderly people and young people.

Time | 2-3 hours

Guiding questions | A few questions should be previously determined by facilitators (4-5) to encourage the group to speak, but the focus should be the discussion among participants rather than the answers to specific questions. Often, no convergence in the answer is the result of the research.

How to facilitate? | Invite participants to go to a neutral place and offer facilities where they will feel encouraged and comfortable to speak. Communicate the objective of the focal group, how data will be used and for what purposes. Propose to share the results of the research with them afterwards.

Materials | Chairs, a notepad, a pen, an audio recorder, a camera, a flip-chart or a blackboard.

Tips | In order to ensure good-quality participation, take your time to identify relevant participants, invite them in a nice way, offer a coffee break. To make them feel comfortable and to have them speak openly, it might be useful to play ice-breakers as a group.
Card 3. Life Story

Description | Capture oral stories from key informants or a (family or thematic) group.

Objective | Collect qualitative general data about the community origin, values, family relationships, challenges, success stories, hierarchy, historical facts, and relevant rituals.

With whom | With patriarchs, matriarchs, community or religious leaders, in general, elderly people.

Time | 2-4 hours

Guiding questions | Ideally, you should not ask too much, just show interest in knowing the person and the community life story and delve deeper whenever relevant issues for the research arise (CES, in this case), but in a smooth way, without interrupting the narrative.

How to facilitate? | Facilitation of this technique occurs smoothly. Focus on listening to the informant. You can find further details later.

Materials | Notepad, pen and audio recorder.

Tips | If the informant is a talkative person, just let him/her speak. If he/she is shy, it may be necessary to ask some questions or ask some relatives to help him/her remind the stories. Request consent to record the conversation, in case you think it is necessary.
Card 4. Participatory Map

**Description** | Graphical depictions showing the community physical distribution and location of natural resources and cultural ecosystem services.

**Objective** | Identify natural resources (rivers, forests, etc.), material goods (buildings, cemeteries, etc.) and nonmaterial goods (ritual locations, places where events occurred, etc.) in a visual and specialized format, in a map.

In ‘free-style’ maps, it is also possible to infer the importance of the items remembered and forgotten, and the proportion they are assigned in the graphical depiction (prioritization and ranking objective).

**With whom** | In community workshops or focal groups, with heterogeneous groups. However, if needed, separate unplanned groups can be put together, with homogeneous groups (women or young people, for instance) so they feel more comfortable to express themselves, without feeling inhibited by leaders or people in different social positions.

For instance, a map designed by the entire community will contain everything that is relevant for the community as a whole, but a map designed by children or miners, for instance, may reveal surprises from specific groups.

**Time** | 1-2 hours

**Guiding questions** | The dynamic starts with the invitation to graphically depict the entire community including all that is important there. The concept of cultural ecosystem services should be clearly explained, so they appear in the graphical representation.

As graphical representations are made, facilitators can remind the participants about some topics that are not showing, but are of potential interest; for instance: ‘Where do you fish?’; ‘Where do the children play?’.

**How to facilitate?** | The dynamic varies according to the number of participants. If there are too many, it will be challenging to have everyone working on the same map. If that is the case, you can form random subgroups (using group dynamics) or thematic subgroups (agriculture, religion, etc.).

In the end, the various map produced can be presented to the larger group of participants, and they can have a round of comments about the maps, to determine if there is consensus about the maps, comparing them to see if anything is missing, etc.

It does not mean other maps cannot be graphically represented in other occasions, by a key informant or a focal group, in order to compare the results.

**Materials** | The map can be drawn on a piece of paper, a blackboard or even in the sand or on ground (like a model) and then photographed and scanned. Therefore, it pretty much depends on the context. If there are no local materials, you will need a flip-chart, markers of different colors, different materials, masking tape and glue.

If you want to produce a map using real scale, you need to provide a hard copy of the target area map, containing key references (rivers, mountains, small rural villages, etc.) and ask community members to point to important items.

**Tips** | Initially, there may be some resistance to graphical representation, because people are afraid they ‘are not good at drawing’. You can solve this by clarifying that the aesthetic aspect is not important and suggesting that someone in the group can graphically represent what the group is willing to include, but it is important that the person in charge of the depiction listen to everybody rather than doing it by him/herself.
Card 5. Transversal Map or Community Mapping

**Description** | Georeferenced maps of communities, natural resources and their cultural ecosystem services.

**Objective** | Elaborate an accurate map with georeferenced location of the major natural resources and cultural ecosystem services.

**With whom** | With a group of key informants who know the territory well and the location of natural resources and cultural ecosystem services.

**Time** | 1-2 days (it varies according to the size of the community)

**Guiding questions** | Where are the most relevant natural resources for the cultural ecosystem services topic?

**How to facilitate?** | Select a group of people, share the method objectives and go to the field with a predetermined script. Generally, a ‘transversal selection’ is made in the community, so that the group can visit the entire community, including places that are out of the highway route. If the objective is to produce a complete map of the community and target areas (and in case this is possible), a complete guide of the community should be elaborated.

**Materials** | GPS, camera, notepad

**Tips** | Take water and food, so the guide can be completed as planned. If you need to spend the night in the community, take the opportunity to practice participant observation.
Card 6. Participant Observation

**Description** | Attentively participate in the community routine, trying to get rid of preconceived categories about local reality.

**Objective** | Informally capture relevant data to understand the target community that may be useful to contextualize the data that will be formally captured: behavior, physical structures, symbols, narratives, relationships, etc.

**With whom** | All community members and stakeholders

**Time** | Continuously (while you are in the community). Participant observation is an anthropological method traditionally used in fieldwork, which is longer than the time assigned for development projects.

**Guiding questions** | There is no need to elaborate questions, since the objective here is to be open to issues that cannot be anticipated. Just try to guide the technique towards more relevant topics, such as the relationship with the forest, health, among others.

**How to facilitate?** | Be active in the community, participate in daily routines of community members (washing clothes, going to the farm, etc.), pay attention to what is said and done, ask questions about relevant topics that may come up.

**Materials** | A journal (to take notes afterwards) and a camera

**Tips** | The longer the facilitator stays in the community, the better the quality of the research. Take your time to go to festivals and rituals that may occur during that period.
ANNEX 2 - METHODS TO ASSIGN VALUE TO CES ELEMENTS

Card 7. Hierarchy Matrix (Ranking)

Description | A way to numerically sort the importance of each cultural ecosystem service.

When to use | In workshops, focal groups or interviews.

Pros and cons | Pros: Numeric reference that is easy to understand, possible to apply to large groups, quantifiable and allows for comparisons with other groups and communities.

Cons: The numeric reference does not allow for the elaboration of ranking concepts.

Objective | Using a numeric reference (1-4), assign importance to different cultural ecosystem services elements.

With whom | In a community workshop

Time | 1-2 hours

Guiding questions | Ask them to assign a score to each CES element listed, in a scale that ranges from 1 to 4, being 1 the least important and 4 the most important (or having the highest or lowest ‘value’).

How to facilitate? | Ranking can be negotiated in group, meaning the facilitator proposes that the score is debated by the group or, if the group is too large, they can vote using ballot boxes and then discuss the results.

Materials | A flip-chart, pictures of CES elements depicted in the map, markers, masking tape.

Tips | If there is any doubt about the concept of 'importance' or 'value', you can ask them to proceed with the discussion and each one should keep in mind their own interpretation of those concepts. Other matrices, using ranking and local criteria, delve deeper into this issue.
Table 1. Example of how to assign value to CES by applying the ‘ranking matrix’ tool

**KEY:** SCORE FROM 1 TO 4, BEING: 1 = NOT IMPORTANT AT ALL; 2 = SLIGHTLY IMPORTANT; 3 = IMPORTANT; AND 4 = VERY IMPORTANT.

<table>
<thead>
<tr>
<th></th>
<th>BEACH</th>
<th>CEMETERY</th>
<th>TRAIL IN THE FOREST</th>
<th>FISHING</th>
<th>WATERFALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person 1</td>
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<td>3</td>
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<td>4</td>
</tr>
<tr>
<td>Person 2</td>
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<td>2</td>
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<td>3</td>
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<td>Group Decision</td>
<td>4</td>
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<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2. Example of how to assign value to CES by applying the ‘prioritization matrix’ tool
Card 8. Prioritization Matrix

**Description** | A way to compare the importance of each cultural ecosystem service.

**When to use** | In workshops, focal groups or interviews.

**Pros and cons** | Pros: Comparing items is a reference that is easy to understand and contrast importance levels (qualifying the discussion), it can be applied to large groups and allows for identifying interrelationships in the discussion. In the end, some kind of quantification is performed.

Cons: It is a more specific and qualitative reference than the ranking matrix, but still contains a quantification resource.

**Objective** | By comparing each element of the cultural ecosystem service, obtain qualification data stating why one element is considered more or less important than the other.

**With whom** | In a community workshop

**Time** | 1-2 hours

**Guiding questions** | Ask participants to say which one is more important, comparing them.

**How to facilitate?** | The decision about which ecosystem service is the most important should be made in group. The facilitator will compare each theme, 'Which one is more important – the river or the waterfall?', and let the group debate until they reach a consensus. Finally, the result will show the level of importance, based on the themes considered as the most important ones. In the example, the river was the element mentioned most often, so it is the most important.

**Materials** | A flip-chart, pictures of CES elements depicted in the map, markers, masking tape.
Card 9. Prioritization Matrix From Local Criteria

Description | A way to qualify the idea of importance assigned to cultural ecosystem services.

When to use | In workshops, focal groups or interviews.

Pros and cons | Pros: It enables qualitatively understanding what value/importance is under the community perspective. In other matrices, the meaning of ‘importance’ is associated with abstract references, and here we are able to better qualify the reference to the meaning of importance.
Cons: A specific reference that is not comparable to other groups or communities and demands enhanced skills from facilitators.

Objective | Prioritize natural resources and cultural ecosystem services based on local criteria

With whom | In a community workshop

Time | 1-2 hours

Guiding questions | In order to establish local criteria of importance/value, ask why each element listed is important.
Based on the results, build a ranking matrix listing the criteria of importance and ask them to indicate which criteria apply to each cultural ecosystem service.

How to facilitate? | Then, you should apply the guiding questions and build the matrix.

Materials | A flip-chart, pictures of CES elements depicted in the map, markers, masking tape.

Table 3. Example of how to assign value to CES by applying the ‘prioritization matrix’ tool using local criteria.

<table>
<thead>
<tr>
<th>Sense of belonging</th>
<th>BEACH</th>
<th>CEMETERY</th>
<th>TRAIL IN THE FOREST</th>
<th>FISHING</th>
<th>WATERFALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leisure</td>
<td>*</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Spirituality</td>
<td>*</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
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<tr>
<td>Aesthetic aspect</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incentive to ideas</td>
<td>*</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Local culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
Card 10. Preferential Voting

**Description** | A way to assess to what extent individuals would be willing to pay for resources in case of variation in the use of a cultural ecosystem service.

**When to use** | In workshops, focal groups or interviews.

**Pros and cons** | Pros: Allows for a simplified economic valuation of the environmental service and for measuring the importance of the service in a less abstract way, by finding to what extent people would be willing to use their own resources (even though symbolically) to assign that importance.

Cons: Conceptually, the game proposes a contraposition between the valuation of a common good and individual resources, which is controversial in the cultural services theme.

**Objective** | Rank the importance of natural resources or cultural ecosystem services in a concrete manner, assigning resources from those who are making the assessment.

**With whom** | In a community workshop, with all participants and/or thematic subgroups (fishermen, women, etc.)

**Time** | 2-3 hours

**Guiding questions** | Each participant/group receives an amount of resources (in beads or beans, for instance) and needs to decide how much of those resources they would be willing to allocate to keep each cultural ecosystem service listed.

**How to facilitate?** | Explain the dynamic, distribute the resources and ask them to allocate the resources in the various cultural ecosystem services listed.

**Materials** | A flip-chart, pictures of CES elements depicted in the map, markers, masking tape, beans, plastic lids, (fake) coins, etc.

Table 4. Example of how to assign value to CES by applying the ‘preferential voting’ tool.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>BEACH</th>
<th>CEMETERY</th>
<th>TRAIL IN THE FOREST</th>
<th>FISHING</th>
<th>WATERFALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Women</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>B - Fishermen</td>
<td>3</td>
<td></td>
<td>6</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>C - Young people</td>
<td>5</td>
<td></td>
<td>2</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>D - Teachers</td>
<td>3</td>
<td>2</td>
<td></td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Card 11. Venn Diagram

Description | A way to assess CES importance and how much the community has currently benefitted from it (and what is preventing this to happen).

When to use | In workshops, focal groups or interviews.

Pros and cons | Pros: By using a spatial (rather than a numeric) reference to assess the importance of a resource/service, you open up the chances to a more intuitive judgment. It enables crossing two variables: the importance of the resource/service and how much the community benefits from it. It allows for good group discussions.

Cons: It is not a method that is easy to compare with other groups or communities; its major advantage is qualification.

Objective | Using more abstract (rather than numeric) references, assess the importance of each natural resource or ecosystem service, with the possibility to capture issues that may be preventing the community to benefit from it.

With whom | In a community workshop

Time | 1-2 hours

Guiding questions | - How important is the CES element listed? (in three sizes of bubbles)
- How much has this CES element currently benefitted the community?

How to facilitate? | Explain the dynamic: Each natural resource should be represented by a round bubble of a size that indicates its importance (large, medium or small) and positioned in the diagram according to its contribution to the community at the moment (the community is depicted in the center, by a bubble). Here is an example of a possible situation: "The waterfall is very important for us, but we haven’t visited it anymore, because we are afraid of crossing the railway".

Workshop participants may disagree with any positioning; the facilitator should encourage questioning and take note of the divergence.
Eventually, the group should reach a consensus about where to position each bubble.

Materials | A flip-chart, bubble tags, markers, masking tape.

Tips | The discussion about where to position the bubbles is more important than the final result, thus, make sure you capture the discussion.
Figure 5. Example of how to assign value to CES by applying the ‘Ven Diagram’ tool.

ANNEX 3 – SUGGESTION OF QUESTIONS TO FOSTER THE DISCUSSION IN COMMUNITY WORSHOPS
Source: Infield (2015)

1) What aspects of nature do people benefit from?
• What is important for you? What natural resources are important for you? Are there other things in nature that are important for you?

• What aspects of nature/natural environment/cultural landscape are important for you / do you like?

• What spaces, characteristics or natural resources (species/animals/plants/trees) are important for you or for other people in the community?

• Where are those important natural spaces/natural resources? What is in their surroundings? Do they exist in other places like this/in other places/only here?

2) How do natural resources contribute to well-being, and to whom?
• How do individuals, groups or communities value the natural resources/natural environment/cultural landscape?

• How do you interpret their importance? Why are they important for people? How do they contribute to your life or your community? What meanings does nature/natural environment/landscape have?

• If the resource/configuration/species disappeared/were reduced/changed, could those resources be partially or completely replaced with something else? Could you find another way to get the same benefits? Can you get the same thing somewhere else? What would you accept to replace those natural resources if they were taken away? How would it affect you/your community?

• For whom are these natural resources important and bring benefits? How? Are they equally important for everybody, or more or less important for each person?
3) How might changes affect the delivery of these services and the well-being derived from them?
• How do changes in nature, environment or landscape over time affect your life and your well-being?
• How have nature and landscape been changing over time? How have these important elements for you and for your community changed over time? How do you see them changing in the future? What is causing those changes? What can cause those changes in the future?
• Let’s suppose that, for a few years, a change has occurred (describe a scenario). How would things be different? How would it affect your use of nature? How does this future compare to other futures? Would things be better, worse or just the same?
• How would your life/well-being and the well-being of your community be affected by those changes? How would you/your community benefit or suffer? Who benefits and who suffers with those changes? Would the impacts be the same for all community members, or would some individuals or groups be affected differently?

ANNEX 4 – MATRIX TO RECORD RELEVANT CES CONDITIONS AND TRENDS

TEEB approach (Kosmus et al, 2012) suggests the following matrix to take notes and make reflections about current conditions and future trends of ecosystem services mapped as relevant that can be used in the context of DESEC.

<table>
<thead>
<tr>
<th>ECOSYSTEM SERVICE</th>
<th>PLACE OR HABITAT THAT GENERATES CES</th>
<th>ECOSYSTEM SERVICE CONDITIONS (++, VERY GOOD; +, GOOD; -, BAD; --, VERY BAD)</th>
<th>POSSIBLE FUTURE TRENDS (INCREASE, STABLE, DECREASE)</th>
<th>POTENTIAL IMPACTS OF CHANGE</th>
<th>ACTORS AFFECTED</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CES OFFER</td>
<td>DEMAND FROM LOCAL ACTORS</td>
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</table>

Source: Adapted from Kosmus et al, 2012
Corporate Guidelines for the Noneconomic Valuation of Cultural Ecosystem Services

Version 1.0

An initiative of: In partnership with:

[Logos and names of partners]