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## Sustainability Perceptions



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### Definition

Sustainability Perception can occur in diverse ways since the environment is perceived by individuals in multiple and differentiated ways and understanding occurs from a subjective perspective based on a concrete reality. Thus, perception is conditioned by factors inherent to the individual himself; by educational and cultural factors imprinted by society, which condition their sensitivity and attitude; and by emotional, affective, and sensory factors, derived from relations obtained with the environment (Hoefel and Fadini 2007).

### Introduction

Given the high rates of natural resources exploitation and in recent years the planet degree of degradation and pollution, recognition of the need for an urgent paradigm shift has intensified. The shift is related with changes in the way

progress and growth are perceived to a sustainable development paradigm, which conceives a new ideal of human beings and nature.

Such a coexistence concept foresees a balance between global economy and sustainable exploitation of the planet's resources, necessary for modern life. However, this transformation is closely related to how each social group perceives the environment and how in each culture it is understood.

Environmental awareness in this context means the construction of environmental “ideas,” as being the involvement of “[...] both responses and reactions to impressions, feelings and stimuli mediated by the senses, mental processes related to individual experiences, conceptual associations and cultural conditioning” (Hoefel and Fadini 2007, p. 225).

In this conception of sustainable living, given the role of human perception in environmental conservation, it has become vital, the creation of environmental programs and policies, that value the environment preservation, in consonance with needs and improvement of local communities quality of life.

This way, it is important to notice the seventeen goals/targets proposed by Agenda 2030, supported by a diagnosis of global scenario, conceiving the interconnection between people and planet. It involves prosperity, peace, and partnership, to ensure possible, concrete, and achievable global planning, which aims to environmental,

economic, and human preservation, prioritizing the promotion of equality between people.

In view of the above, the first part of this work highlights the concepts of sustainable development, environmental awareness, and conservation areas, bringing out the principles mentioned by Agenda 2030, deliberated on the seventieth anniversary of the United Nations, and today's social, economic, and environmental demands.

The second part presents the environmental perception analysis of residents and tourists in the vicinity of the Environmental Protected Area Bairro da Usina Dam (EPA Bairro da Usina Dam) located in Atibaia-SP, Brazil. The survey data was conducted in a research project developed in a higher education institution UNIFAAT – University Center and sought to highlight the relationship between conservation proposals present in the study area and the view of the local community and visitors about this reality.

## Environmental Awareness and Conservation Units

This entry was developed based firstly on the principles and concepts set out in Agenda 2030 to sustainable development – decided in 2015 by Heads of State and Government and High Representatives, gathered at the 17th anniversary of the United Nations. The document characterizes environmental problems of our time and is an action plan, aimed at the prosperity of people and the planet (United Nations 2015).

The document considers current global scenario, marked by growing inequality, depletion of natural resources, and environmental degradation, and foresees:

[...] understanding and unprecedented significance. Accepted by all countries and applicable to all, it takes into account the different national circumstances, capacities and levels of development, respecting policies and priorities of each country. It deals with objectives and universal goals that apply to everyone, both developed and developing countries. (United Nations 2015, p. 3)

The 17 stipulated targets consider the importance of the areas: people, planet, prosperity,

peace and partnership, in an interconnected way, aiming to ensure completion of this new global planning for environmental, economic, and human protection (United Nations 2015). Such an integrated perception refers to the essentiality of thinking on sustainable development, which integrates a new paradigm of coexistence on the environment and society, deepened subsequently.

On the issue here exposed, the most important goal is number 15, as it comments on the need to “[...] protect, recover and promote the sustainable use of terrestrial ecosystem, sustainably manage forests, fighting against desertification, detain and reverse land degradation, and halt loss of biodiversity” (United Nations 2015, p. 29). This relates strictly to the issue of environmental perception, since it foresees, for example, reduction of habitat degradation, end trafficking of fauna and flora species and also conservation and sustainable use of biodiversity and ecosystems, reachable as the relationship of man with the world is strengthened in a new perspective of sustainable development (United Nations 2015).

Thus, before exposing the conceptualization of environmental awareness, essential to the understanding of this entry, it is essential to contextualize the composition of sustainable development mentioned above. Guimarães (2007) exposes a new paradigm, based on a critical environmental diagnosis by admitting the urgency of overcoming the definition of development by a concept of sustainable human development, more comprehensive.

This is due to the central role of the human being in this process, indicating that transformation through a new ethic of growth, covers aspects which enables this new paradigm to be:

[...] environmentally sustainable in access, use and preservation of natural resources and biodiversity; socially sustainable in reducing poverty and social inequalities, and to promote justice and equity; culturally sustainable in preserving the system of values, practices and symbols that define national identity through the ages; and politically sustainable to deepen democracy and ensure access and participation of all in decision-making. (Guimarães 2007, p. 185)

Such understanding ponders the idea that “[...] man will only protect nature in as much as

he gets protected” (Guimarães 2007, p. 185); in other words, sustainable development will succeed only and/or will be accepted, as it provides improved quality of human life. Thus, there is the recognition of a primordially in investing in citizen ethics construction because:

It is never enough to remember that the challenges due to situations of social inequality and environmental degradation cannot be defined as individual problems, becoming, in fact, as social, collective. [...] the satisfaction of basic needs required the recovery of collective practices (solidarity) to the achievement of material and spiritual aspirations to ensure human well-being. (Guimarães 2007, p. 191)

Although the subject uniqueness is considered, in the world interpretation, relationships, and life, there is recognition of great cultural influence intrinsically, in the construction of a collective perception of the world. Thus, even if initially the discussion of environmental problems were related essentially to biological issues, it has been widening, encompassing various areas of knowledge and is currently present in all sectors of human life involving biological, socio-economic, ethical, and philosophical, spreading the concept of environmental sustainability (Stahel 2002).

Thus, with regard to environmental issues and the growing need for changing the concept of development, in a sustainable perspective, we consider the satisfaction of human needs, quantitatively and qualitatively, in harmony and conscious relationship with the environment. In this respect, the concept of perception acquires essential value, as is the investigation of similarities and differences between values and meanings in different contexts, inherent to each social group (Hoeffel et al. 2008).

For Abram (2012) and Ferreira and Coutinho (2000), environmental perception is conditioned by the subject inherent factors, such as educational and cultural transmitted values, and their emotional and sensitive relationship from direct environment observation. Thereby, according to Tuan (2015) and Ogunseitan (2005), something that is essential for the understanding of human perception is the influence of sensory senses, as

they enable man to feel, understand, and respond to environmental stimuli in which they are inserted. However, it considers, in the process, the entire sociocultural baggage, lifestyles, and the subject previous experience.

Still for Rodaway (2011), perception is seen as a process, which involves the organism and environment influenced by the senses and mental conceptions. “Thus, ideas about environment involve both responses and reactions to impressions and feelings, mediated by the senses, the mental processes related to individual experiences, conceptual associations and cultural conditioning” (Hoeffel et al. 2008, p. 133).

Thus, it is possible to understand the concept of perception as something broader, as it relates to information and assimilation capacity, overcoming the physical limitation, since it covers the sociocultural instance of this process, the construction of thought and formation of individual and collective ethical values. Therefore, at:

[...] shared environmental management context, the perception of the population becomes an important ally for the government as to the reading of social reality, configured as a means of supporting instruments and environmental management system tools. (Rodrigues et al. 2012, p. 99)

As far as environmental awareness is concerned, the study of the relationship between man and nature is focused, involving scientific, social, and political research, which comprises performing analysis, not “[...] about what people perceive of spaces, but as the spaces are perceived by the people” (Merleau-Ponty 1999, cited by Rodrigues et al. 2012, p. 100).

Therefore, it is necessary to consider social participation in the identification of environmental problems and planning of actions that start from the perception of man on the environment, to promote a more balanced and effective environmental management (Rodrigues et al. 2012).

In this scenario, when considering Brazil, as one of the countries with the highest biodiversity in the world, which has “[...] established a system of protected natural areas, called Conservation Units (CUs), which have been implemented with the main objective of protecting most of the diversity of ecosystems and species” (Torres and

Oliveira 2008, p. 228), it is essential to create strategies that promote the conservation of these spaces, both civil and political, as ethical and educationally.

The National System of Conservation Units was established by Law No. 9985, of July 2000, and Conservation Unit is understood, according to Article 2 as:

I – Conservation Unit: territorial space and its environmental resources, including jurisdictional waters, with relevant natural characteristics, legally instituted by the Government, with conservation and defined limits Goals, under special administration regime, which is subject to appropriate guarantees of protection (Brasil 2000).

Such spaces, besides promoting preservation of natural resources, should encourage learning and awareness on the concept of sustainability, for the subjects who live in it. Thus, it is necessary to research on environmental awareness, as this enables a greater understanding of man's interrelationship with environment, and expectations, judgments, and behaviors, allowing a better foundation in environmental education planning, essential for achievement of better results with respect to participation in conservation processes (Torres and Oliveira 2008).

In this context, the importance of the creation of protected areas management is still considered, in complementing a serious environmental policy, with actions aimed at the prevention of degradation and conservation of natural resources (Silva 2006). Therefore, to be successful, in its implementation the following must be considered:

[...] the possible political interference, on economy, social, cultural and environmental. Planning strategies should respect the interests and growth needs of urban activities, industry, the expansion of the agricultural frontier, as well as the maintenance and conservation of environmental attributes, such as the remaining vegetation, the remarkable landscape components, water resources, archaeological, cultural heritage and other legally provided attributes. (Silva 2006, p. 32)

The Environmental Protected Area, to be exposed, is characterized by art. 15, as:

[...] a generally extensive area with a certain degree of human occupation, equipped with abiotic, biotic, aesthetic or cultural attributes especially important

for the quality of life and well-being of human populations. They have as main objectives to protect biological diversity, and order the occupation process and ensure the sustainable use of natural resources.

Corresponds to a Sustainable Use Conservation Unit objective, according to the above by law no. 9985, art. 7, paragraph 2, “[...] reconcile nature conservation with sustainable use of part of its natural resources.”

The next section will expose considerations about the analysis of data related to the case study, conducted by UNIFAAT – University Center in the EPA Bairro da Usina Dam, located in Atibaia, São Paulo State, Brazil.

## Environmental Perception in EPA Bairro da Usina Dam Conservation Unit

The Environmental Protected Area (EPA) Bairro da Usina Dam is characterized as a Sustainable Use Conservation Unit, with possible deployment in public and private areas without the expropriation of property. It aims to reconcile economic activities undertaken at the site, with due protection of natural resources (Silva 2006).

The EPA, corresponds to the Atibaia River dam, which is responsible for the river flow, flood control, and power generation. It covers the entire region surrounding the Bairro da Usina hydroelectric dam, located in the city of Atibaia, São Paulo (Silva 2006).

The EPA Bairro da Usina Dam was established on September 4, 1986, by law number 5280, in which, besides establishing a wildlife protection zone, including flora, fauna and all remaining natural aspects (article 4), with prohibition of degrading activities or potentially degrading (article 5), aims to prevent, according to article 3, second paragraph:

I – the implementation of potentially polluting activities, that could affect water sources, soil and air;

II – the execution of earthworks and opening channels implying substantial alteration of local ecological conditions, especially in the wildlife area;

III – activities capable of causing accelerated soil erosion or siltation sharp in basins;

IV – the exercise of activities that threaten to extinguish the rare species of flora and fauna (Brasil 1986).

As stated, this conservation unit, a priori, does not show much legal specificity, since, although it relates to the protection of dam waters, the law (number 5280), does not establish clear goals, mentions exact perimeters or describes with details attributes, which must be protected (Silva 2006).

Returning to the theoretical foundation required to perform the analysis, it is necessary to highlight the difference between “the visitor and the native,” in relation to environment, since the case study to be presented, discussed the perception of residents and tourists at EPA Bairro da Usina Dam.

According to Tuan (2015), in the context of a highly mobile society, impressions of people passing through should also be considered where in general we can say that only the visitors (especially tourists) has a point of view; their perception often comes down to use their eyes to compose pictures. In contrast, the natives have a complex derived immersion attitude of the totality of their environment. The visitor’s point of view, because it is simple, is easily stated. [...] On the other hand, the native complex attitude can only be expressed with difficulty and indirectly through the behavior of local tradition, knowledge, and myth.

As stated above, the assessment of space by the tourist is more explicit, aesthetic, and may represent a space new perspective, as it is able to realize the merits and defects in one environment, which are not more visible to the resident (Tuan 2015). But the resident, to live in that environment, has few opportunities to exhibit their perceptions because values are implicit in the economic activities of people, behavior, and lifestyle (Tuan 2015).

The study performed by UNIFAAT interviewed: 50 residents (24 males and 26 females), 18 tourists from second home (11 males and 7 females), and 42 1-day tourists (37 males and 5 females) (Table 1).

Table 2, about age range, helps to identify the predominant profile, which reveals a majority of individuals who live/visit the EPA aged from 31 to over 60 years, as the numbers show significant concentration in this age group (there are 43 residents, 17 tourists of first residence, and 31 1-day tourist), which predicts a relative maturity and greater life experience of these subjects.

The difference of education (Table 3), information collected to assess the profile of respondents may help in understanding the way in which each group makes their perception of the location and environment, as well as comprise other environmental problems, and also allows to highlight the demand in each stage of education. According to the data collected, it was characterized eight categories of education.

For the period related to basic education, about five individuals said they had not studied (four residents and 1-day tourist); 37 have not completed primary education (21 residents, 3 tourists from second homes, and 13 tourists 1-day tourist); 13 completed this educational stage (three residents, three second homes tourists, and seven 1-day tourists); 17 have incomplete high school (five residents, two second residence tourists, and ten 1-day tourists) and 22 concluded (12 residents, 3 second homes tourists, and 7 1-day tourists).

The concentration of individuals in the period related to basic education demonstrates the need to strengthen environmental education in schools, “[...] because we only learn to preserve or to make the Environment sustainable and biodiverse when we learn to create between us and for us, an egalitarian, differentiated, supportive and free world” (Brandão 2007, p. 7).

With regard to higher education, the numbers are even more restricted; only 12 of 110 have a higher education degree (three residents, six second homes, and three 1-day visits); three did not complete (two residents and one 1-day tourist), and only one (second home Tourist) has post-graduation degree. It is noticeable, based on absolute numbers, that there is a concentration of locals and 1-day tourists between elementary school and high school education, while the second residence tourists hold a larger share in the level of higher education.

**Sustainability Perceptions, Table 1** Gender

Category of answers	Residents	Tourists	
		Second home	One-day tourist
Male	24	11	37
Female	26	7	5
<b>Total</b>	<b>50</b>	<b>18</b>	<b>42</b>

**Sustainability Perceptions, Table 2** Age range

Category of answers	Residents	Tourists	
		Second home	One-day tourist
Up to 20 years old or less	2	1	1
From 21 to 30 years old	5	–	10
From 31 to 40 years old	9	4	11
From 41 to 50 years old	11	2	4
From 51 to 60 years old	12	5	8
Above 61 years old	11	6	8
<b>Total</b>	<b>50</b>	<b>18</b>	<b>42</b>

**Sustainability Perceptions, Table 3** Degree of education

Category of answers	Residents	Tourists	
		Second home	One-day tourist
Complete primary education	3	3	7
Incomplete primary education	21	3	13
Complete high school	12	3	7
Incomplete high school	5	2	10
Complete higher education	3	6	3
Incomplete higher education	2	–	1
Postgraduate	–	1	–
No study	4	–	1
<b>Total</b>	<b>50</b>	<b>18</b>	<b>42</b>

Among the residents (Table 4), four of them have lived in the area for less than 1 year; 12 between 1 and 5; 5 between 6 and 10 years; 3 between 11 and 16 years; 9 between 17 and 25 years and 17 have lived for more than 25 years.

In addition to residents (Table 5), among tourists from second home, five have visited the area from 1 to 5 years; one from 6 to 10 years; five from 11 to 16 years; and seven for over 25 years. Considering 1-day tourist group, of these 15 visit the area less than a year; six from 1 to 5 years; three from 6 to 10 years; five from 11 to

16 years; four from 17 to 25 years; and nine over 25 years.

A concentration in the number of individuals who pass/live in the EPA was recorded in two predominant periods, from less than 1 to 5 and over 25 years. This data are observable by comparing the approximate percentage of these two periods, with the total of each cluster: from less than 1 to 5 years, there are about 32% of the residents; 27.5% of second residence tourists and 48.3% tourists a day; while in the visitation group over 25 years is approximately 34% of the

**Sustainability Perceptions,****Table 4** How long have you lived in the area?

Residents	
Category of answers	
Less than 1 year	4
From 1 to 5 years	12
From 6 to 10 years	5
From 11 to 16 years	3
From 17 to 25 years	9
Above 25 years	17
<b>Total</b>	<b>50</b>

**Sustainability Perceptions,****Table 5** How long have you been visiting the area?

Category of answers	Tourists	
	Second home	One-day tourist
Less than 1 year	–	15
From 1 to 5 years	5	6
From 6 to 10 years	1	3
From 11 to 16 years	5	5
From 17 to 25 years	–	4
Above 25 years	7	9
<b>Total</b>	<b>18</b>	<b>42</b>

residents; 38.5% of second residence tourists and 20.7% of 1-day tourists.

Besides the characterization of the profile, five questions were raised (Tables 6, 7, 8, 9, 10, and 11), which will be shown below in a comparative way, with the respective analysis. Data were collected related with the interviewee perception of what they see as “environment,” issues related to environmental problems in the area and opinion about accountability to the preservation of the environment and study area.

Regarding environment perception, greater specificity from tourists is clear (both second home and 1-day tourists), considering it primarily as nature and awareness area, preservation, and care. Residents, on the other side, fall into a wide range, where sometimes the environment comes down to nature and awareness, or environmental issues and resources.

Such a conceptualization of environment is associated with the way they relate to space and how they see environmental problems and their causes. Recognizing such perceptions is relevant

for providing information in the process of management and public policy since,

In this context of shared environmental management, the perception of the population becomes an important ally for the government as to the social reality, configured as a means of supporting instruments and environmental management system tools. (Rodrigues et al. 2012, p. 99)

According to the concept of environment, based on the answers, in comparison with the others, there was a higher percentage of choice in two options: “Nature” (Residents: 13, Second home tourists: 5, and 1-day tourists: 8) and “Raise awareness/preserve/care” (Residents: 12, second residence tourists: 5, and 1-day tourists: 4).

This finding relates to what respondents characterized as the cause of environmental problems, which as set forth in Table 8, it is prevalent in options that allude to lack of human consciousness (14 residents and 22 tourists in total), which shows determined lack of consistency between such associative responses.

**Sustainability Perceptions, Table 6** What is environment?

Category of answers	Residents	Tourists	
		Second home	One-day tourist
All	–	4	
Trees	2	–	
Trees/ivers	–	–	3
Raise awareness/preserve/care	12	5	4
Cleaning	1	–	4
Water/dam/forest/animals	–	–	5
Water/dam	2	1	–
Nature	13	5	8
Everything that people do not care	1	–	–
Resources needed for us	2	–	1
All interrelations between the beings on this planet	2	–	1
All that is degrading nature	1	–	–
Our house, our air, our environment	3	–	2
Stage between town and country	1	–	1
Essential, without it there is no life	1	1	3
Everything good in nature/leisure	–	–	4
All that does not destroy	1	–	–
Good things that people look for	1	–	1
Do not know/no answer	7	2	5
<b>Total</b>	<b>50</b>	<b>18</b>	<b>42</b>

**Sustainability Perceptions, Table 7** Are there any environmental problems in your area?

Category of answers	Residents	Tourists	
		Second home	One-day tourist
Did not answer	4	3	4
There is not	14	4	10
Garbage	6	1	18
Infrastructure (asphalt, barrier)	–	–	2
Lack of water	1	–	1
Lack of sewage treatment network/sewage in dam	5	4	
Burned	6	–	–
Lack of care from residents and second home tourists	1	–	–
Cutting trees/deforestation/lack of supervision	2	–	–
Incorrect destination of contaminated packaging used by farmers	1	1	–
Bad smell coming from the dam, river pollution	8	2	4
Silting of plant dam	1	3	–
Illegal fishing	–	–	1
Lack of awareness	–	–	2
<b>Total</b>	<b>50</b>	<b>18</b>	<b>42</b>

If environment is seen as awareness, preservation, and care, as the major cause of the environmental problems of the study area is this precisely

the lack of environmental awareness? This question allows the identification of the need to strengthen the reflection on the theme, as well as



**Sustainability Perceptions, Table 8** Why do these environmental problems occur?

Category of answers	Residents	Tourists	
		Second home	One-day tourist
Lack of awareness, education and responsibility	11	3	16
Do not have sewer network and sewage treatment	2	2	1
Tourist lack of awareness	1	–	–
People lack of awareness	–	2	–
Ignorance	2	–	1
Lack of people union	2	1	2
Incorrect disposal of waste	–	–	2
No specific collection of waste	3	1	–
Historical heritage of misuse and exploitation of environment	2	–	1
Lack of supervision	7	–	1
Urban growth	1	–	–
Abuse	1	–	–
Lack of municipal assistance	2	3	2
Neglect	–	–	2
Did not answer	16	6	14
<b>Total</b>	<b>50</b>	<b>18</b>	<b>42</b>
	<b>110</b>		

**Sustainability Perceptions, Table 9** Who should care for the environment in the area?

Category of answers	Residents	Tourists	
		Second home	One-day tourist
Major/government/public agencies	23	7	19
The residents	3	–	3
Major and the residents	3	1	3
Everybody	13	5	8
The tourists	–	–	3
The farmers	1	–	–
Do not know/did not answer	7	5	6
<b>Total</b>	<b>50</b>	<b>18</b>	<b>42</b>

**Sustainability Perceptions, Table 10** Do you know EPA Bairro da Usina Dam?

Category of answers	Residents	Tourists	
		Second home	One-day tourist
Yes	26	9	7
No	24	9	35
<b>Total</b>	<b>50</b>	<b>18</b>	<b>42</b>

support public policies to preserve the environment, with emphasis on social-collective aspect, with an appreciation of environmental education, which should prioritize, as provided for in subsection III of Article 5 of law no. 9795/99

“encouragement and strengthening of a critical awareness of social and environmental issues” (Brasil 1999).

The information gathered about the area environmental problems are correlated to “what” the

**Sustainability Perceptions, Table 11** What is the EPA for?

Category answers	Residents	Tourists	
		Second home	One-day tourist
Park	1	–	–
Energy supply	–	–	1
Leisure park/to protect environment	4	4	2
It is an area for the preservation of fauna, flora, and the aquifer	1	2	–
Park/water recreation	1	–	–
Holding events	1	–	–
To protect the water	5	–	–
Environmental protection	2	1	1
To help with farm problems	–	–	–
Do not know	10	1	3
For nothing	1	–	–
<b>Total</b>	<b>26</b>	<b>8</b>	<b>7</b>

respondents regard as environmental issues and the way they live with the space. The high number of people who did not answer or said they “did not have” any environmental problem, both residents (18), as tourists (21), reveals a lack of “sensitivity” to what happens in the study area, since when environmental problems become daily realities, their perception becomes more fragile.

A considerable amount of respondents (13 residents and 11 second residence tourists) also lists the environmental problems in the area as lack of sewage treatment and the stench from the dam/river, closely linked issues. The issue of waste is also very present in the perception of 1-day tourists, as set out in Table 7, 18 respondents listed it as environmental issues. This reference discloses certain deficit in the municipality infrastructure and urban and environmental planning.

When questioned about why these problems occur, about 36 people could not answer; there is still predominance on options that associate them with lack of awareness, education, unity, and responsibility of individuals, with a total of 41 respondents. Related to lack of urban infrastructure such as lack of sewage treatment, incorrect disposal of waste and lack of municipal and environmental assistance, 18 respondents mentioned this theme. Also mentioned were historical inheritance misuse and exploitation of the environment (three), lack of supervision (eight), urban growth (one), and abuse and neglect (three).

This concentration of answers enables policy guidance and awareness towards caring for the space, the environment and improving the quality of community life. It is evident the need for investment in environmental education, collective collaboration in nature’s care and urgency of urban investment, especially on the issue of sanitation and reduction of pollution, since the predominant objective in this EPA is water preservation.

When respondents were asked about the question of who should care for the environment in the area, there is a prevalence between those who give such a commitment to the government or the general population. About 23 residents, 7 second home tourists and 19 1-day tourists said to be the mayor/government/public agencies, a number that represents almost half of the respondents and that demonstrates the approach that transfers to the government the environment responsibility.

Considering the total number of interviewees (residents, second home tourists, and 1-day tourist), six think that the residents themselves should take care of the environment in the area; another seven think it should be the mayor and residents; and 26 think it should be all people. This shows a certain awareness of environmental responsibility as it is the government along with the population.

As stated by Tuan (2015), the tourist has a different perspective on the space, since the short residence time makes them more sensitive to

certain characteristics, already common to residents. Therefore, the survey of tourists from second residence collected data on the aspects that could improve the study area.

However, only 26 residents interviewed said they knew the EPA Bairro da Usina Dam, which shows the existence of an information deficit between government and citizens, since even being present in the EPA, they are unaware of it. Only nine second home tourists interviewed know EPA Bairro da Usina Dam. These data demonstrate the lack of knowledge on the EPA and among 1-day visit, the situation is even worse, as 7 out of 42 respondents reported having known something about the conservation area.

These data demonstrate that while some people know the EPA name, some have no idea about what it does; however, the great majority follow a line of reasoning focused on environment preservation through parkland and recreation. The conception of the purpose (is it for) the preservation area thus reveals a lack of awareness of the conservation area, since, although there is the idea of space preservation, most of the participants do not know or understand it as a recreational area, or just as protection of the waters.

In view of the results achieved, it is worth mentioning the adopted methodology limitations, which involve the fact that the research is sampled and in this way does not reach all residents and tourists (second home and 1-day tourist) present in the study area and thus provide a limited volume of information but which express the perceptions and opinions of the participants. In this way, the data obtained can contribute to the elaboration of a scenario for the Bairro da Usina Environmental Protected Area, based on the interviewees' perceptions, which demonstrates the need for the elaboration of environmental education and management programs that collaborate with the study area environmental conservation.

## Final Considerations

The entry aims to expose, survey, and analyze the environmental perception of residents and tourists in the vicinity of the Environmental Protected

Area Bairro da Usina Dam in Atibaia-SP, establishing a relationship between the conservation proposals present in the study area and the view of the local community and visitors.

These data were exposed and analyzed according to a literature based on the concepts of sustainability, environmental awareness, and conservation units, in line with the 2030 agenda of the goals set by the United Nations, and information related to a qualitative case study, which examined the prospect of residents and tourists about the EPA, through interviews with both groups.

From the diagnosis of a socioenvironmental reality in critical condition, which comprises the urgency for changing the concept of development and economic growth to the idea of sustainable development that balances socioeconomic demands and enable equity among peoples, it becomes necessary the responsible management of natural resources in order to sustain human life for generations to come.

The data allowed us to understand the difference in the perception of residents and visitors, in order to identify how each group perceives, understands and acts on environmental preservation. The data allowed to realize that there is a considerable lack of awareness and information on the local environment and space, especially by the residents, which sometimes exposed a vague or erroneous idea about the purpose and function of the area.

Besides this, the existence of environmental issues in the area made it possible to identify a deficiency in the EPA infrastructure, which was exposed by the interviewees recognizing the problems with lack of basic sanitation and garbage collection.

## Cross-References

- ▶ [Behaviour Change for Sustainable Development](#)
- ▶ [Education for Responsible Consumption and Sustainable Development](#)
- ▶ [Education for Sustainable Development](#)
- ▶ [Engineering Education for Sustainable Development](#)

- ▶ Importance of Sustainability Indicators
- ▶ Incorporation of Sustainability
- ▶ Social Responsibility and Sustainability
- ▶ Sustainability Barriers
- ▶ Sustainability Challenges
- ▶ Sustainability Change Agents
- ▶ Sustainability Implementation
- ▶ Sustainability Research
- ▶ Sustainable Development
- ▶ Sustainable Values, Attitudes, and Behaviour
- ▶ Transformative Responses to Sustainability

## References

- Abram D (2012) *The spell of the sensuous*. Vintage Books, New York
- Brandão CR (2007) Prefácio. In: Ferraro Jr LA (org) *Encontros e Caminhos: Formação de Educadoras (es) Ambientais e Coletivos Educadores*, vol 2. MMA, Brasília, pp 3–13
- Brasil (1986) Lei n. 5.280, de 04 de setembro de 1986. Declara área de proteção ambiental a região que circunda a represa hidrelétrica do Bairro da Usina no Município de Atibaia. [www.al.sp.gov.br/repositorio/legislacao/lei/1986/lei-5280-04.09.1986.html](http://www.al.sp.gov.br/repositorio/legislacao/lei/1986/lei-5280-04.09.1986.html). Accessed 20 Dec 2017
- Brasil (1999) Lei n. 9.795, de 27 de abril de 1999. Dispõe sobre a educação ambiental, institui a Política Nacional de Educação Ambiental e dá outras providências. [www.planalto.gov.br/ccivil\\_03/leis/l9795.htm](http://www.planalto.gov.br/ccivil_03/leis/l9795.htm). Accessed 10 Feb 2018
- Brasil (2000) Lei n. 9.985, de 18 de julho de 2000. Regulamenta o art. 225, § 1o, incisos I, II, III e VII da Constituição Federal, institui o Sistema Nacional de Unidades de Conservação da Natureza e dá outras providências. [www.mma.gov.br/port/conama/legiabre.cfm?codlegi=322](http://www.mma.gov.br/port/conama/legiabre.cfm?codlegi=322). Accessed 9 Dec 2017
- Ferreira LF, Coutinho MCB (2000) Educação ambiental em estudos do meio: a experiência do bioma educação ambiental. In: Serrano C (org) *A educação pelas pedras*. Chronos, São Paulo, pp 171–188
- Guimarães RP (2007) Ética e as dimensões sociais de sustentabilidade. In: Ferraro Jr LA (org) *Encontros e Caminhos: Formação de Educadoras (es) Ambientais e Coletivos Educadores*, vol 2. MMA, Brasília, pp 185–194
- Hoeffel JL, Fadini AAB (2007) Percepção Ambiental. In: Ferraro LA Jr (ed) *Encontros e Caminhos: Formação de Educadoras (es) Ambientais e Coletivos Educadores*, vol 2. MMA, Brasília, pp 225–262
- Hoeffel JL, Fadini AAB, Machado MK (2008) Trajetórias do Jaguarú – Unidades de Conservação, Percepção ambiental e Turismo: Um estudo da APA do Sistema Cantareira, São Paulo, 2008. *Ambient Soc* 11(1): 131–148
- Ogunseitán OA (2005) Topophilia and the quality of life. *Environ Health Perspect* 113(2):143–148
- Rodaway P (2011) *Sensuous geographies*. Routledge, London
- Rodrigues ML, Malheiros TF, Fernandes V, Darós TD (2012) A percepção ambiental como instrumento de apoio na gestão e na formulação de políticas públicas ambientais. *Saude Soc* 21(3):96–110. <http://www.scielo.br/pdf/sausoc/v21s3/09.pdf>. Accessed 10 Dec 2017
- Silva IX (2006) *Gestão das áreas de proteção ambiental – APAs – no Estado de São Paulo: estudo e avaliação*. Tese, Universidade de São Paulo
- Stahel AW (2002) *Tempos em crise: a base temporal das contradições da modernidade*. Tese, UNICAMP
- Torres DF, Oliveira ES (2008) Percepção ambiental: instrumento para educação ambiental em Unidades de conservação. *Rev Eletrônica Mestr Educ Ambient* 21:227–235. <https://www.seer.furg.br/remea/article/view/3046>. Accessed 10 Nov 2017
- Tuan Y (2015) Topofilia: um estudo da percepção, atitudes e valores do meio ambiente. *Eduel*, Londrina
- United Nations (2015) The 2030 agenda for sustainable development. <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>. Accessed 10 Nov 2017