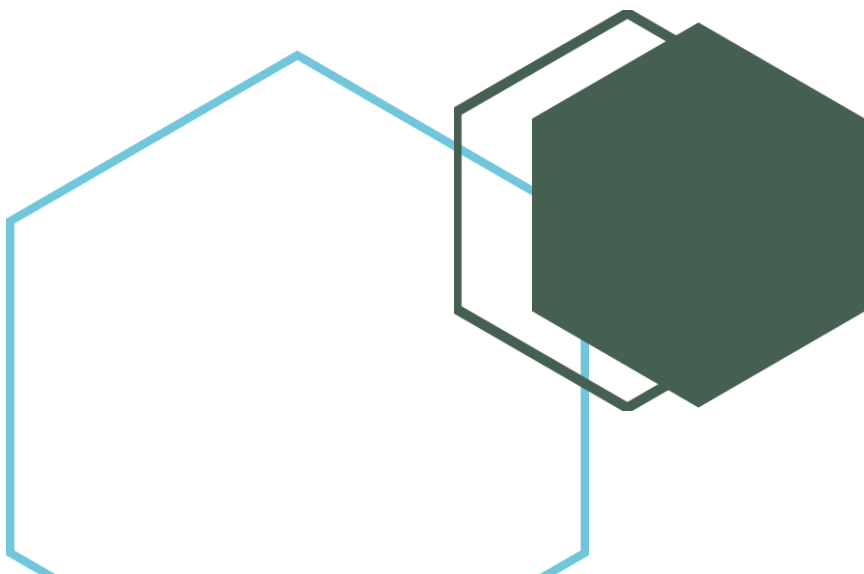




Environmental Education

Distance Learning course

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Environmental Education - Distance Learning course



Volta Redonda

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INTRODUCTON

Environmental education is the focus of the Law No. 9795 of April 27th, 1999, and its Article 1 defines it as “Environmental education is understood as the processes by which the individual and the collective build social values, knowledge, skills, behaviors and competences aimed at the conservation of the environment, a common use of the people, essential to a healthy quality of life and its sustainability”. Environmental education should also be present at all levels and modalities of the formal and non-formal education process.

Considering the continued deterioration of living conditions, which results in an environmental crisis (JACOBI, 2003), the purpose of the Environmental Education course is to offer a complementary program to tertiary students, and it considers not only global aspects, but also environmental issues related to the South of the State of Rio de Janeiro. As Marcatto (2002) states, in many cases, the residents of certain regions are the ones responsible, yet also the victims of part of the existing problems. They are also the best people to identify problems and inspect solution agreements.

The course is the result of a Master's thesis in Environmental Science and Health Teaching at UniFoa, and this is a partnership with Faculdade Sul Fluminense (FASF).

The course syllabus:

Table 1: The course syllabus

Environmental Education Course	
Total class hours:	30hrs (thirty hours)
Modality:	Distance learning
Inaugural class in:	2019
Enrollment limited to:	40 students
Periodicity:	Semiannually
Pre-requisites:	Be enrolled in a higher education course
Place of the class meetings:	Faculdade Sul Fluminense – Volta Redonda/RJ

Justification:

Most of the Brazilian population lives in urban settings. As a result, there is a continued deterioration of living conditions, resulting in an environmental crisis (JACOBI, 2003). Thus, it is important to raise environmental concerns based on a modern perspective, in order to change the way of thinking about these issues, as well as people's behavior (JACOBI, 2003).

Learning objectives:

Based on the National Environmental Education Policy and on the research literature, the objectives of Environmental Education Course can be seen below:

1. Promote environmental awareness and enhancing critical thinking skills regarding environmental and social issues;
2. Develop a consolidated understanding of the environment, including ecological, psychological, legal, political, social, economic, scientific, cultural and ethical aspects;
3. Influence individuals and communities to have different types of behavior regarding environmental concerns, and also encouraging participation in the environmental preservation and recovery.

The objectives defined for the environmental education course aim to follow the categories of environmental education objectives suggested by Dias (2004): Consciousness, Knowledge, Behavior, Skills and Participation.

Course materials:

The classes will be held in a Virtual Learning Environment (VLE) through Moodle platform, a learning management system.

The course has one course packet per unit, developed in accordance with the recommendations for the elaboration of the didactic material for distance learning courses.

Course content:

The course has been divided into three distinct units, and each one includes 2 lessons, totaling 6 lessons, as can be seen in Table 2:

Table 2: Course content.

Unit 1: Critical environmental education and environmental and social issues	
Objective:	Promote environmental awareness and enhancing critical thinking skills regarding environmental and social issues.
Category (ies):	Consciousness and Knowledge
Lessons:	<ul style="list-style-type: none"> • Lesson 1: Introduction to the Study of Environmental Education. • Lesson 2: Environmental and social issues.
Unit 2: The environment and the ecological, psychological, legal, political, social, economic, scientific, cultural, and ethical aspects	
Objective:	Develop a consolidated understanding of the environment, including ecological, psychological, legal, political, social, economic, scientific, cultural and ethical aspects.
Category (ies):	Knowledge
Lessons:	<ul style="list-style-type: none"> • Lesson 3: Ecological, psychological, legal, political, and social aspects of the environment. • Lesson 4: Scientific, cultural, economic, and ethical aspects of the environment.
Unit 2: A new look at the environmental problems	
Objective:	Influence individuals and communities to have different types of behavior regarding environmental concerns, and also encouraging participation in the environmental preservation and recovery.
Category (ies):	Behavior, Skill, Participation
Lessons:	<ul style="list-style-type: none"> • Lesson 5: The Sul Fluminense mesoregion and the environment: Environmental events recollection that have affected the region. • Lesson 6: How can we contribute to improve the environment in our region? Final Paper.

Student evaluation:

At the end of each lesson, the student will be evaluated through activities that consider one of the categories of environmental education objectives suggested by Dias (2004):

Consciousness, Knowledge, Behavior, Skills and Participation. During the Lesson 6, students will be evaluated through an environmental project related to the Sul Fluminense region reality.



ENVIRONMENTAL EDUCATION COURSE

- ✦ **Unit 1:** Critical environmental education and environmental and social issues
 - ✦ **Lesson 1:** Introduction to the Study of Environmental Education
- ✦ **Author(s):** Macsuel Miranda de Oliveira and Denise Celeste Godoy de Andrade Rodrigues

CONTENT OBJECTIVE

The purpose of this lesson is to introduce the students to the study of environmental education.

At the end of this lesson you should be able to:

1. Understand the purpose of environmental education.
2. Discuss the main elements related to environmental education.

“

All have the right to an ecologically balanced environment, which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations”. (Article 225, Constitution of the Federative Republic of Brazil).

INTRODUCTION

Carlos, a Business Administration student at a higher education institution, learned that one of the classes he was taking would offer an environmental education course. In order to clarify some questions, Carlos requested the professor additional information about the course content and how it could contribute to his education.



The professor of the course explained to Carlos that the main objective of the course is to sensitize and make the students aware of regional political issues, to guide the construction of critical thinking, capable of contributing to the change in behavior and attitude, and also stimulate the creation of intervention proposals that can reduce current environmental problems.

Also, Carlos asked how the course would contribute to the practice of his profession. Carlos' teacher explained that they would be holding important discussions and thoughts for the various areas of knowledge, such as Administration, in which concepts like Corporate Social Responsibility and Sustainable Business Development are widely discussed, and they are all related to topics we will study this course.

INTRODUCTION TO THE STUDY OF ENVIRONMENTAL EDUCATION

Welcome to the Environmental Education extension course!

You might be wondering what environmental education really refers to, exactly as our character, Carlos, did. To clarify this, it is important to know how environmental education is conceptualized in the Law No. 9795 of April 27th, 1999, which instituted the National Environmental Education Policy:

*“Environmental education is understood as the processes by which the **individual and the collective build social values, knowledge, skills, behaviors and competences aimed at the conservation of the environment, a common use of the people, essential to a healthy quality of life and its sustainability.**”*

Among those concepts, we highlight the following:

- ✦ **The individual and the collective:** must take care of the environment both individually and collectively. It means that each person must guide their actions in the conservation of the environment in which they live, in order to turn this collective effort into practical actions capable of generating concrete results that benefit society. Let's see an example: if you, as a single individual, are concerned with the correct destination of the different materials you dispose of (such as electronic waste, oil, recyclable material, etc ...), you are individually contributing to the preservation of the environment. Now, imagine that all your neighbors have the same habit, or that all residents of your neighborhood, or of your city, are also concerned about the right dispose of the materials. Collectively, the result is even greater, isn't it? Environmental education can make this awareness possible, both individually and collectively.
- ✦ **Social values, knowledge, skills, behavior and competences:** environmental education must be able to provide the construction of new social values in order to form behaviors from a new perspective: the improvement of the quality of life for different living beings (PHILIPPI Jr; PELICIONI, 2002). Thus, environmental education must provide subsidies for changing human thinking and behavior related to environmental problems.

The cartoon below represents the need to create new social values, in addition to new skills, behaviors and competences:



Source: <http://www.arionaurocartuns.com.br/>

As you can see, the main character of the cartoon demonstrates knowledge about the environmental issue. However, this knowledge is not translated into skills, behavior, and competences to propose and apply solutions. This course aims to reach beyond the theoretical content, intending to raise awareness and encourage you to act regarding of environmental issues, taking as a starting point the theoretical knowledge exposed during the course!

- ✎ **Environment preservation:** this is the main objective of environmental education. In order to be achieved, the Law No. 9795 of April 27th, 1999 determines that environmental education should be at all levels and modalities of education. In this course, environmental education is possible through a distance learning modality and it is associated with higher education. Nonetheless, we know the importance of teaching it since the beginning. On the **Introduction Forum**, you can share with other students if you have already had environmental education experiences and give further information about it.

Did You Know?

Brazil is the only country in Latin America with a National Policy for Environmental Education (Law No. 9795 of April 27th, 1999). Do you remember this Law? The paragraph we presented at the beginning of our class comes from it! You can read the complete Law at this link: http://www.planalto.gov.br/ccivil_03/leis/19795.htm.

- Sustainability:** Is an important concept related to environmental education. It refers to behaviors that facilitate progress without harming the environment. Thus, it is associated to the way in which human beings should relate to nature, maintaining a healthy exploitation of natural resources, ensuring the needs of the current generation and, still, preserving them for the next generations. It is supported by three pillars: environmental (involves natural resources and their use by people and companies), social (refers to people and the way they live) and economic (production and distribution of goods and consumption and their impact on the environment).



Hello, professor! I read the Lesson 1 of the course and I could understand even more the contributions of environmental education! These lessons and studies will be very important for my work in the Administration area, since business practices have a potential impact on the environment!



Well done, Carlos! Now, you should do the following exercise to help you to analyze the environmental education object of study: environmental problems.



Exercise 1:

Analyze the cartoon below. It was made by Jonilson Souza:



The cartoon shows an example of irresponsibility regarding a very common environmental issue in cities. We can see that the responsibility attributed to the municipal government is also a responsibility that should be individual.

Based on the message the cartoon holds and what we have discussed until now, think of some of the environmental problems commonly seen in your municipality. Then, write a short text about the role of the individual, society, and public administration in tackling those problems.

The exercise must be posted in the space assigned to it on the platform.

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Images: Pixabay and Freepick



ENVIRONMENTAL EDUCATION COURSE

- ✦ **Unit 1:** Critical environmental education and environmental and social issues
 - ✦ **Lesson 2:** Environmental and social issues
- ✦ **Author(s):** Macsuel Miranda de Oliveira and Denise Celeste Godoy de Andrade Rodrigues

CONTENT OBJECTIVE

The purpose of this lesson is to stimulate and / or reinforce critical environmental awareness regarding environmental and social issues, and the lesson focuses on the complex and contradictory relationship between man and the environment.

At the end of this lesson you should be able to:

3. Recognize some of the main urban environmental issues.
4. Understand the relationship between environmental and social problems.



Nature produces enough for our wants from day to day, and if only everybody took enough for himself and nothing more, there would be no pauperism in this world, there would be no more dying of starvation in this world. (Mahatma Gandhi).

INTRODUCTION

Man's relationship to his environment is considered convoluted and contradictory. On the one hand, man is seen as part of nature, on the other he is considered external to it, participating only through the appropriation of its natural resources.

This performance through the domination and exploration of nature is associated to the current society mode of production, which determines social, economic, and political relations (RODRIGUES; DE SOUZA, 2012). To illustrate, imagine a fisherman performing in a natural economy, and his livelihood is maintained through fishing. Now imagine another fisherman, who uses the same methods for catching fish, however he aims economic profit for the reproduction of capital. Thereafter, the environment is changing according to our relationship with it, and how we behave in the economic and social systems make a huge difference.



Thus, it is not possible to ignore that the capitalist system is the root cause of the environmental problems. Quintana and Hacon (2011) explained that, by the end of the 20th century, it was already possible to notice an environmental damage, and how fast we needed and still need to do something about it, both on a local and global scale. The environmental impacts caused by the predominant capitalist mode of production is growing, especially because of reckless use of natural resources, which neglects the pace of nature's cycle.

This is an important discussion in Business courses. Since business organizations aim to maximize the wealth of their shareholders, it should not be disregarded that such organizational practice needs to be in accordance with the concept of **sustainability** that we discussed in Lesson 1.

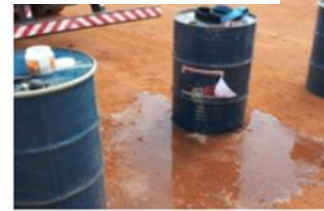
Do you remember?

Sustainability: Important concept related to environmental education. It refers to behaviors that facilitate progress without harming the environment. Thus, it is associated to the way in which human beings should relate to nature, maintaining a healthy exploitation of natural resources, ensuring the needs of the current generation and, still, preserving them for the next generations. It is supported by three pillars: environmental (involves natural resources and their use by people and companies), social (refers to people and the way they live) and economic (production and distribution of goods, and consumption, and their impact on the environment)

URBAN ENVIRONMENTAL AND SOCIAL ISSUE

The Ministry of the Environment (MMA) has an initiative called the National Agenda for Urban Environmental Quality, which aims to improve environmental quality indicators in cities where the guidance for public policies are considered as urgent, more effective and efficient, integrating behaviors in different levels of decision making.

After analyzes, MMA established six different fields with the most significant topics today:

**Ocean Garbage****Solid Waste****Urban Green Spaces****Air Quality****Sanitation and Water Quality****Contaminated Areas**

Source: The Ministry of the Environment (<https://www.mma.gov.br/agenda-ambiental-urbana.html>)

We can discuss social and environmental problems based on the topics presented by MMA. You will notice that they all refer to environmental problems with potential social impact.

Ocean Garbage: Do you go to beaches? Have you ever found unusual objects irregularly discarded on the beach? You probably answered yes to these questions. It is a serious problem that has an impact on marine ecosystems and damages human health. According to MMA (2019), 80% of the waste that reaches the sea originates from the continent. There is a need for changes in habits and also the identification and liability for a competent control of the solid waste in the municipalities.

Solid Waste: According to data from the National Continuous Household Sample Survey 2018, of the Brazilian Institute of Geography and Statistics (IBGE), there are more than 20 million people without access to any type of garbage collection in Brazil. According to the same survey, 83.0% of houses have access to direct garbage collection, 8.1% have it done via waste container, and 8.9% burn the garbage on the property or toss it into ditches.

Urban Green Spaces: In the National Agenda for Urban Environmental Quality, the topic "urban green spaces" is expected to be introduced in the second half of the current year (2019). It covers urban permanent preservation areas, parks and green areas.

Did you know?

“**Permanent Preservation Areas (APP)** were established by the Forest Code (Law 12.651, of May 25th, 2012) and consist of legally protected, environmentally fragile and vulnerable territorial spaces, which can be public or private, urban or rural, covered or not by native vegetation.

Among the several environmental duties or services provided by APP in an urban environment, it is worth mentioning: the protection of the soil, preventing incidents with disastrous consequences associated with the inappropriate use and occupation of slopes and hill tops;

- the protection of bodies of water, preventing floods, water pollution and silting of rivers;
- the permeability of the soil and the water regime maintenance, preventing floods and mudslides, contributing to the recharge of aquifers and avoiding unbalancing the quality and quantity of the public water supply;
- the ecological role of refuge for fauna and ecological corridors that promote the gene flow of fauna and flora, especially between green areas located in urban perimeter and nearby;
- the reduction of intra-urban climatic imbalances, such as excess aridity, thermal and environmental discomfort and the "heat island" effect". (MMA. Available at: <https://www.mma.gov.br/cidades-sustentaveis/areas-verdes-urbanas/item/8050.html>)

Air Quality: We know that industrial and energy generation processes, as well as motor vehicles and bushfires, represent the major causes of emissions of polluting substances into the atmosphere, many of which are harmful to our health and responsible for several damages to flora. Air quality is the result of the interaction of a complex set of factors such as the magnitude of emissions and the weather conditions in the region. The effects of poor air quality are often not clearly noticeable when compared to other damages. However, studies demonstrate its social and environmental impacts, as a result of pulmonary and heart disease. In addition to health problems and damage to the quality of life, air pollution increases government spending, due to the increase in medical care and use of medicines.

Sanitation and Water Quality: the sanitation services provided by states or municipalities to society, include water supply, sewage treatment, rain issues concerns, and urban garbage (ANA, 2019). All of these services are regulated by the National Sanitation Policy (Law No. 11,445 / 2007) and they aim to provide a healthy and hygienic life for the entire population, ensuring a high quality of life and good health, simultaneously with the environmental preservation.

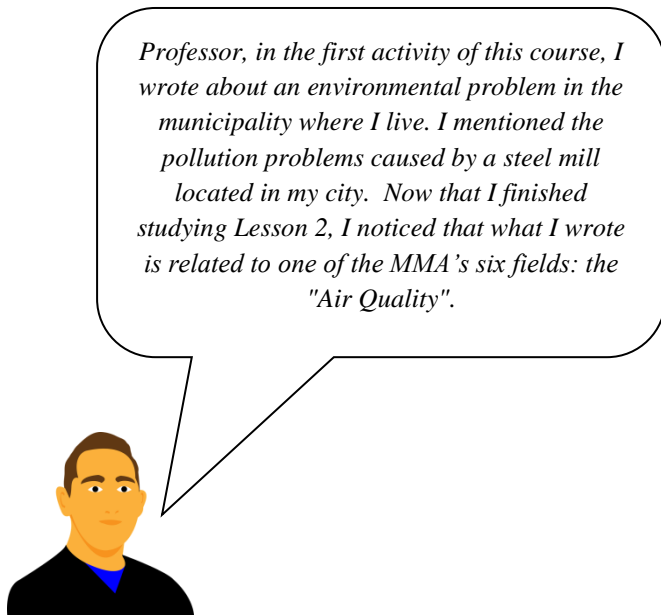
Contaminated Areas: they refer to areas, lands, places, facilities, buildings or improvements where substances or wastes are concentrated, and they may cause health and environmental damages. The contaminants can be spread through different ways, such as: air, soil or water. CONAMA Resolution No. 420, December 28th, 2009, made possible the management of these areas. It was reached through the adoption of measures that facilitate the identification of the characteristics of contaminated areas and their impacts, in order to provide an intervention (MMA, 2019).

Environmental problems are not limited to the topics presented in this book. As you can see, many of them are directly related to social problems. Furthermore, a large part of environmental problems, whether urban or not, are the result of man's interference in nature, by transforming it according to personal interests, and seeking to maximize profits without any concerns about the consequences. In relation to this topic, we suggest you to you watch the video “The origin of things”, available on the platform. It presents important reflections about these issues!

Let's think about it...

After watching the video “The origin of things” and studying the topics presented in this Lesson 2, how do you intend to deal in the future, as an administrator, with the possible impacts from business activity?

Do you remember Carlos? When he finished reading the second lesson, he met the professor at the college's corridor and Carlos asked him about the activity from Lesson 1:



ACTIVITY 2

Can you associate the problems you presented in the Lesson 1 activity with one of the six fields of the National Agenda for Urban Environmental Quality?

If possible, write a short text showing this connection (in the right place for the Lesson 2 activity on the Forum). In case you do not identify a relationship between the environmental problems you listed in Lesson 1 with one of the six fields presented in this class, suggest a new one in which they could be related to.

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ENVIRONMENTAL EDUCATION COURSE

- ✦ **Unit 2:** The environment and the ecological, psychological, legal, political, social, economic, scientific, cultural and ethical aspects.
- ✦ **Lesson 3:** Ecological, psychological, legal, political and social aspects of the environment
- ✦ **Author(s):** Macsuel Miranda de Oliveira and Denise Celeste Godoy de Andrade Rodrigues

CONTENT OBJECTIVE

The purpose of this lesson is to develop an integrated understanding of the environment in its ecological, psychological, legal, political and social aspects.

At the end of this lesson you should be able to:

5. Know the ecological, psychological, legal, political and social aspects of the environment,
6. Develop integrated ideas to understand these aspects.

“

Man did not weave the web of life, he is merely a strand in it. Whatever he does to the web, he does to himself.”
(Chief Seattle)

INTRODUCTION

Dear Students,

We have reached the second unit of this course! Now that you understand the concept of environmental education and have learned some of the main urban environmental problems and how they are related to social issues, in the next pages we will discuss several aspects associated to environmental education.

One of the primary objectives of environmental education, according to Law No. 9795, of April 27th, 1999 (National Environmental Education Policy), is “the development of an integrated understanding of the environment in its multiple and complex relationships, involving ecological, psychological, legal, political, social, economic, scientific, cultural and ethical aspects”. Throughout this unit, all these aspects are going to be discussed, and our starting point will be the ecological, psychological, legal, political and social aspects of the environment. Are you ready?

THE ENVIRONMENT AND ECOLOGICAL, PSYCHOLOGICAL, LEGAL, POLITICAL AND SOCIAL ASPECTS

When we mention the environment, there are many aspects related to it that are worth consideration. In this lesson, we will discuss the psychological, legal, political and social aspects of the environment. How about we start with the ecological aspect?

If you check the definition of the word ecology in an English dictionary, you will find the following definition:

Ecology
e·col·o·gy
noun
The branch of biology dealing with the relations and interactions between organisms and their environment.

Although ecology and environment are interconnected, they are not equivalent. According to the dictionary, the former studies the relationships of living organisms and their

environments, the latter is the environment itself represented by everything that surrounds and influences living beings. As stated by Naime (2018), “ecology is concerned with the harmony of ecosystems and life in nature. Companies are capable planning the exploitation of natural resources through ecological researches, and consequently avoiding the destruction of nature”.

There is another interesting aspect in the environmental study: the psychological. It is important that behavioral variables that relate to environmental degradation and conservation are identified and redirected, and that is the behavioral sciences' concern, among which we highlight the psychology (KUHNNEN, 2010). The environmental psychology emerged in the 1970s. Have you heard of it? It refers to the branch of psychology that is responsible for addressing the complex relationship between psychological factors and environmental problems.

Did you know?

Environmental Psychology studies the individual in their context, and its main interest are the interrelations - not only the relationships - between the person and the physical and social environment (MOSER, 1998, p.1).

Its definition is deeply aligned with the definition of ecology: Ecology studies the relationships of beings with each other and with the environment. Environmental psychology studies the interrelationships between the person, and the physical and social environment.

The word environment can suggest different meanings for people, depending on elements such as their social and professional position and the stage of the human life cycle in which they find themselves. All definitions must be considered legitimate and must be understood according to each context, “because reality is structured according to a system of socially determined meanings, however it also depends on the physical objectivity” (KUHNNEN, 2010, p. 161). As a branch of knowledge dedicated to study the person-environment relationship, the Environmental Psychology seeks to verify how this perception is established and how the environment changes people's behavior.

It is well known that one of the causes of environmental deterioration arises from human actions. However, Kuhnén (2010) states that it is not easy to determine the role they play in relation to environmental issues. It is believed that knowledge, lifestyle, beliefs and behaviors are factors that predispose people to take care of the environment or not.

There are several legal ways to have an ecologically balanced environment, aimed at preserving and maintaining its resources for future generations. Brazil is considered to have some of the most complete and appropriate environmental laws in the world. The 1988 Federal Constitution defines, in the Article 225, the importance of the environment in order to keep the ecosystem balanced. You will see below some of the main Brazilian environmental laws (IUSNATURA, 2019):

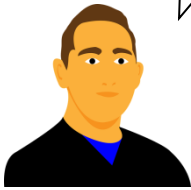
- ✦ **New Brazilian Forest Code** (Law 12.651 / 12): this Law repealed the 1965 Brazilian Forest Code and established the responsibility of the owner over protected spaces between the Permanent Preservation Area (APP) and the Legal Reserve (RL) in order to protect the environment. It recognizes the existing forests in the national territory and the other forms of native vegetation as common interest to all the citizens in the country.
- ✦ **National Environment Policy** (Law 6,938 / 81): it is about the National Environment Policy and aims to preserve, improve and recover the environmental quality essential for life.
- ✦ **Environmental Crimes** (Law 9605/98): it tackles criminal and administrative sanctions related to activities and conduct that can put the environment at a risk.
- ✦ **Pesticides** (Law 7.802 / 89): it is determined by research, production, transportation, storage, marketing, usage and the destination of residues, pesticides containers, their components and related products.
- ✦ **The establishment of IBAMA** (7,735 / 89): Related to the extinction of autocratic policies. It was established by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the body is responsible for implementing the National Environment Policy.
- ✦ **National Policy on Solid Waste** (PNRS) (Law 12,305 / 10): this law establishes principles, objectives and instruments, and sets forth guidelines in relation to integrated management and solid waste management, including hazardous waste, and it indicates the generators and public authorities' responsibilities.

- ✎ **Water Resources** (Law 9,433 / 97): establishes the National Water Resources Management System and states that the intervention in public waters must be authorized by a competent body. It also charges for the water usage, as it is a limited natural resource with high economic value.
- ✎ **Environmental Protection Area** (Law 6.902 / 81): provides for the creation of ecological stations and Environmental Protected Areas (APA's).

Did you know?

“**Ecological Stations** are Brazilian areas representative of ecosystems that must have 90% of the territory untouched and only 10% may be modified for research purposes. On the other hand, **APA's** are related to private properties that can be set aside by Executive Power to protect the environment.”

- ✎ **Agricultural Policy** (Law 8,171 / 91): the aim is environmental protection. By establishing that companies that economically exploit dammed waters, and electric companies must recover natural resources.
- ✎ **Industrial Zoning** (Law 6,803 / 80): deals with the basic guidelines for the industrial zoning in pollution sensitive areas.



How about the political aspects, professor?



Good point, Carlos! First, I would like to direct your attention to the process of choosing our leaders. It is important to check the proposals for the environmental issues in the candidates' government policies.



That's true, professor! I've never thought about it...



Now, let's read about the National Environment Policy (PNMA)!

- ✦ **National Environment Policy** (Law 6,938 / 81): is related to the most important reference in environmental protection. It gives support to article 225 of the Federal Constitution mentioned previously. It aims to regulate the many activities in the environment, in order to keep preservation, improvement and recovery of environmental quality, all essential for life. It also assures the population conditions for their social and economic development.

Many of the environmental problems have a strong relationship with social issues, representing an aspect that must be considered in environmental studies. Throughout the literature, it is possible to see evidence of the connections between the environment and poverty, for example. The environment directly contributes to people's comfort and provides material and energy inputs to produce goods (SERRA; SERRA, 2013). Thus, the degradation of the environment and the lack of resources affect the quality of life in the whole society, don't you agree? But they affect the poorest people's lives even more because they are exposed to risky environments and who often depend on nature as a direct source of subsistence resources (SERRA; SERRA, 2013).

There are also other aspects to be study and they will be introduced in the Lesson 4. *See you later!*

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ENVIRONMENTAL EDUCATION COURSE

- ✦ **Unit 2:** The environment and the ecological, psychological, legal, political, social, economic, scientific, cultural and ethical aspects.
- ✦ **Lesson 4:** Scientific, cultural, economic and ethical aspects of the environment
- ✦ **Author(s):** Macsuel Miranda de Oliveira and Denise Celeste Godoy de Andrade Rodrigues

CONTENT OBJECTIVE

The purpose of this lesson is to develop an integrated understanding of the environment in its scientific, cultural, economic and ethical aspects.

At the end of this lesson you should be able to:

7. Identify ecological, scientific, cultural, economic and ethical aspects of the environment,
8. Develop a consolidated understanding of these aspects.

“

Clean environment is not what you clean most but the least dirty.”
(Chico Xavier)

INTRODUCTION

In order to develop a consolidated understanding of the environment, including its different aspects, we previously studied the ecological, psychological, legal, political and social aspects of the environment.

Through this lesson, we will discuss scientific, cultural, economic and social aspects related to the environment. Let's start with scientific aspects.

THE SCIENTIFIC, CULTURAL, ECONOMIC AND SOCIAL ASPECTS OF THE ENVIRONMENT

Science can produce information, technologies and skills that contribute to the different branches of knowledge, especially through research. Therefore, it refers to an indispensable aspect in its potential contribution in hitting the sustainability target.

According to an article published in *Época* magazine, in June of 2016, titled "Technological Advancements Making Efforts To Protect The Environment", some of the contributions of technological improvements in order to save the environment are: information technology, solar energy, biofuels and water treatment.

For Further Information

check the website link:

<https://epocanegocios.globo.com/Caminhos-para-o-futuro/Desenvolvimento/noticia/2016/06/avancos-tecnologicos-favor-do-meio-ambiente.html>, and read the whole article, in *Revista Época*, about the technological advancements making efforts to protect the environment!

When we mention the cultural aspects of the environment, we can say that culture guides peoples' behavior and contributes to distinguishing groups. Thus, the concern and attention of some groups to environmental issues cannot be totally disconnected from a cultural feature. Although there are other factors such as political, legal and economic, cultural features also determine the behavior of groups in the environment.

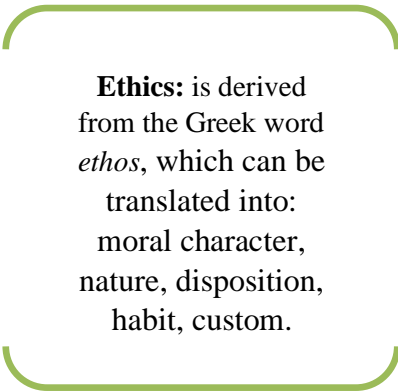
Additionally, it is not possible to forget the cultural environment, which refers to one of the five ecologically balanced environment types mentioned in the Federal Constitution: natural environment, artificial environment, cultural environment, environmental work and genetic heritage. The cultural environment refers to the national cultural heritage and includes cultural, tourism, archeological, landscape and natural relationships.

Now it is time to discuss the economic aspects of the environment. Economic activities, such as agriculture, are highly dependent on natural resources and ecosystem services. Environmental degradation leads to long-term costs for the economy, resulting in losses of production and human capital.

Large-scale agriculture, an important activity of our economy, needs rainfall that is adequate relative to time and location. Atypical fluctuations in temperature will compromise your productivity. Likewise, the electricity generated in our country also depends on an adequate rainfall amount (ABC, 2019). The current model of resource use in Brazil should be at the center of the concerns and debates of the economic team.

As a future administrator, you know what efforts should be made in order to achieve the goal of maximizing the company profits, don't you? However, it does not mean we can forget about the environmental issues.

After discussing many aspects of the environment, our final aspect is the ethical one. Depizzoli and Poiani (2013, p.16) explain to us that the word "ethics" is derived from the Greek word *ethos*, which can be translated as: the distinguishing character, sentiment, moral nature, or guiding beliefs of a person, group, or institution". According to the same authors, ethics can be defined from different perspectives. It is generally considered a branch of philosophy that deals with "societal conventions at a global level, which governs the conduct of human actions".



Ethics: is derived from the Greek word *ethos*, which can be translated into: moral character, nature, disposition, habit, custom.

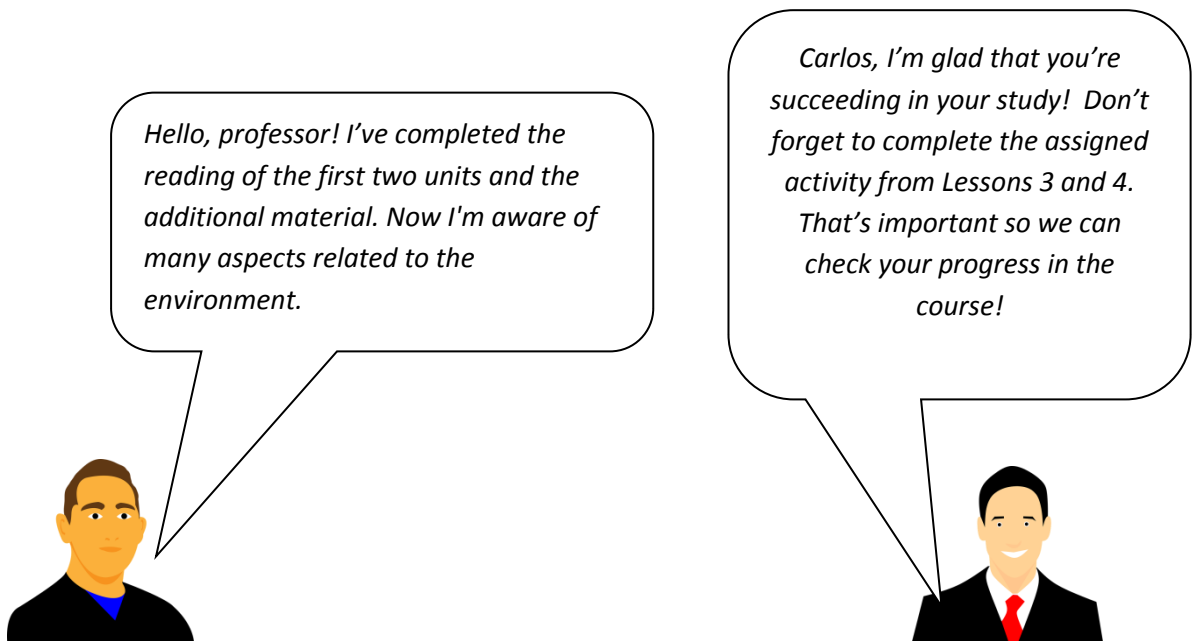
We are living in a time when we must constantly be concerned with our environment, in order to preserve life. The preservation of life and the balance of our ecosystem guarantees health and survival of future generations. Environmental problems are based on a disrespectful relationship between man and the environment in which he lives. Therefore, it requires an ethical discussion when we talk about the environment. Thus, environmental ethics show the relationship between humans and the biosphere. It shows the moral responsibility of human beings towards nature and all forms of life in it.



Think About...

Loving, respecting, and preserving Mother Nature is an obligation to God, who created her. The survival of selfish interest of our own kind leads us to our own destruction. We should be grateful and thankful for all the benefits we received from nature and recognize its divine origin. It gives us the body we live in, the food, the water, the clothes we wear and even the paper in which we write. Through sunlight we can see, read, walk and many other wonderful things.”

(DEPIZZOLI; POIANI, 2013, p.35).



EXERCISE

Do you remember the Lesson 1 exercise? You were asked to talk about environmental problems commonly seen in your city.

Review the problems you wrote in the Lesson 1, then relate them to at least three of the aspects of the environment studied in Unit 2 (Lessons 3 and 4). The exercise should be posted in its assigned place, on the online course platform.

See you in the next Lesson!

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ENVIRONMENTAL EDUCATION COURSE

✦ **Unit 3:** A new look at the environmental problems.

✦ **Lesson 5:** The Sul Fluminense mesoregion and the environment:
Environmental events recollection that have affected the region.

✦ **Author(s):** Macsuel Miranda de Oliveira and Denise Celeste Godoy de Andrade
Rodrigues

CONTENT OBJECTIVE

Introduce the Sul Fluminense mesoregion and the environmental events that have affected it.

At the end of this lesson you should be able to:

1. Discuss the environmental events that have affected the Sul Fluminense mesoregion.



What choice will we make: degradation or recovery, scarcity or abundance, compassion or greed, love or fear, better or worse times?"
(Carl Safina)

INTRODUCTION

Marcatto (2002) states that Environmental Education represents the first step to promote the current situation of environmental degradation recovery. The author believes that, in many cases, the residents of certain regions are the ones responsible, yet also the victims of part of the existing problems. They are also the best people to identify problems and inspect solution agreements. Therefore, we can say that the resolution of environmental problems has a strong connection with the efforts of the local population to solve them.

Through this unit we intend to take a new look at the environmental problems, especially in our region. A critical look and initiatives to seek change.

We will discuss events that have affected the environmental debates in the Sul Fluminense Region, in which we are all included. We intend to motivate you to do something about it! We know that small solutions have a big impact if we keep doing them consistently, so every idea is a potential contribution!

THE SUL FLUMINESE REGION AND THE ENVIRONMENT: AN ENVIRONMENTAL EVENTS RECOLLECTION THAT AFFECTED THE REGION

The Sul Fluminense Region is in the state of Rio de Janeiro. Angra dos Reis and Paraty are the only coastal cities in the state and they are by the South Atlantic Ocean. The list of municipalities of the region include: Angra dos Reis, Barra do Piraí, Barra Mansa, Engenheiro Paulo de Fontin, Itatiaia, Mendes, Paraty, Pinheiral, Piraí, Porto Real, Quatis, Resende, Rio Claro, Rio das Flores, Valença, Vassouras and Volta Redonda (FIRJAN, 2016). Volta Redonda is the largest city in the region, with an estimated 2019 population of 273,012 (IBGE, 2019).

Did you know?

“In the city of Volta Redonda / RJ“ 96.1% of the residences have proper sanitation access, 63.4% of urban residences are on public green places and 75.1% of urban residences build on public areas with proper process of urbanization (Including manhole, sewer, sidewalk, paved streets and curb). When compared to the other cities in the state, Volta Redonda is ranked: 3 out of 92, 43 out of 92 and 3 out of 92, respectively. When compared to other cities in Brazil, its position is 150 out of 5570, 3492 out of 5570 and 49 out of 5570, respectively”(IGBE, 2019)”.

The industrial sector plays a strong role in the Sul Fluminense Region, which represents 32% of its GDP. The region is home of the Cluster Automotivo, where there are many automakers and companies in the metal-mechanical sector (FIRJAN, 2016). The Usina Presidente Vargas is located in Volta Redonda and is the biggest steel-making company in Brazil and Latin America. The Companhia Siderúrgica Nacional (CSN) is responsible for several environmental issues that stimulates the environmental discussions in the region. Below you will see some of the most recent cases reported in the media:

- ✎ 2016: The requirement of an environmental recovery plan: In 2016, the court determined that CSN had to prepare and implement an environmental recovery plan for the areas it polluted in the city of Volta Redonda / RJ. You will find additional information in the report below.

BRASIL

CSN will have to implement a plan in polluted regions of RJ

Court determined that CSN had to prepare and implement an environmental recovery plan for the areas it polluted in the city of Volta Redonda (RJ)

Por Da Redação
© 18 fev 2016, 17h28



Source: Exame. **Read more:**

<https://exame.abril.com.br/brasil/justica-determina-que-csn-tem-que-elaborar-e-executar-plano-para-areas-poluidas-em-volta-redonda/>

- 2018: Emission of pollutants in the air: Teams from the State Environmental Institute (INEA) found an environmental violation related to the emission of pollutants in the air attributed to CSN.

INEA agents confirm environment violation at CSN, in Volta Redonda, RJ

INEA set up an inquiry to investigate irregularities, and fines can reach R\$300,000. Orange smoke emitted over the weekend worries the population.

Por G1 Sul do Rio e Costa Verde
23/07/2018 19h12 · Atualizado há um ano



Source: G1. **Read More:** <https://g1.globo.com/rj/sul-do-rio-costa-verde/noticia/2018/07/23/agentes-do-inea-visitam-csn-em-volta-redonda-rj-e-confirmam-infracao-ambiental.ghtml>

Further Information:

The sad story of residents suffering with CSN pollution turned into a movie

The problem experienced by residents of the city of Volta Redonda, in the west of Rio de Janeiro, is the pollution of black slag dust emitted by the Companhia Siderúrgica Nacional (CSN), and this story became a movie. The movie 'Caminho do Mar' was produced by Bang Filmes, with a running time of 86 minutes. The filmmaker Beбето Abrantes is the writer and the director of the movie.

Read more:

<https://odia.ig.com.br/rio-de-janeiro/2018/06/5550987-drama-de-moradores-com-poluicao-da-csn-virou-filme.html#foto=1>

- 2019: Accumulation of industrial waste: CSN was fined for failure to meet a court-ordered deadline to reduce the steel slag heap in Brasilândia neighborhood, located at Volta Redonda/RJ.

CSN and Harsco fined for accumulation of industrial waste at Volta Redonda.

CSN will have to pay a fine of R\$ 20,000 per day and Harsco R\$ 5,000, until the piles reach 4 meters. The piles are 20 meters today.

Por G1 Sul do Rio e Costa Verde
26/03/2019 14h35 · Atualizado há 7 meses



Source: G1. Read More: <https://g1.globo.com/rj/sul-do-rio-costa-verde/noticia/2019/03/26/csn-e-harsco-sao-multadas-por-acumulo-de-escoria-em-volta-redonda.ghtml>

Other cities in our Region reported events related to environmental issues. For example, in 2008, news portal G1 reported the company Servatis dumped 8,000 liters of industrial wastewater into rivers in the city of Resende. As a result, the city's water supply was compromised, affecting thousands of people. There was also the death of hundreds of fish due to contamination. The affected rivers were the Pirapetinga and Paraíba do Sul. The event occurred due to the failure to discharge a truck, which was carrying chemical products. Could they have prevented this accident? If so, what could they have done?

In 2015, a local TV reported that the residents of Barra Mansa / RJ were concerned with the situation in the Barra Mansa River. Found in the river were garbage bags, wide a variety of trash and tall grass at the edge of it, which could cause flooding. Local residents believe, according to the report, that the accumulated garbage was dumped by residents of other neighborhoods, who would not suffer from its impacts. Residents are not happy with how the river quality has been getting worse each day.

Polluted river concerns Barra Mansa residents.

Matéria publicada em 26 de julho de 2015, 19:07 horas

Wide variety of garbage and tall grass at the edge of the river are one of the residents' complaints



Source: Diário do Vale. **Read More:** <https://diariodovale.com.br/cidade/poluicao-em-rio-preocupa-moradores-de-barra-mansa/>

The mentioned events are some of the many that can be found in a quick search online. Unfortunately, there are many more environmental examples that affected and still affect our region. This is a reality that we would like to change!

Administrators who are aware of their role in society should seek in their professional lives ways to minimize and / or exclude the negative impact of their activities in the environment. It is necessary to consider the company's earnings growth aligned with environmental and social issues. And for that you don't necessarily need to have big ideas and investments. As we have discussed before, small ideas and practices have a big positive impact if they are recurring. Think about it!



LESSON 5 FORUM

Do you remember the Lesson 1 exercise? You were asked to talk about environmental problems commonly seen in your city.

On Lesson 5 forum, you will write about other events, not mentioned in this class, which caused environmental impacts in our region. Do not forget its reference (if you can find it) and your position about it.

See you in the next Lesson!

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ENVIRONMENTAL EDUCATION COURSE

✦ **Unit 2:** A new look at the environmental problems.

✦ **Lesson 6:** How can we contribute to improve the environment in our region?

Final Paper.

✦ **Author(s):** Macsuel Miranda de Oliveira and Denise Celeste Godoy de Andrade
Rodrigues

CONTENT OBJECTIVE

Inspiring new pro-environmental behavior, encouraging participation in the environmental preservation and recovery through the development of small environmental projects.

At the end of this lesson you should be able to:

2. Create and develop small environmental projects that can contribute to the improvement of environmental conditions.

“
*I am I plus my surroundings, and if I
do not preserve the latter I do not
preserve myself*”
(José Ortega y Gasset)

INTRODUCTION

Throughout the last lesson we discussed some of the environmental events in our region - Sul Fluminense. The events discussed in Lesson 5 had a huge impact on our region. However, other minor events occur in our daily lives which have a negative impact on the environment, these include the events you wrote about in the Lesson 1 exercise. Small solutions will result in great results if they can be replicated, as we have discussed before.

Therefore, this lesson is intended to guide you in the implementation of small environmental projects that can contribute to the resolution of problems that you have noticed in your neighborhood, city or region.

We cannot remain passive in the face of these actions that degrade the environment. Let's review a cartoon from Lesson 1. Do you remember it?



This cartoon by Jonilson Souza demonstrates that the responsibility attributed to the municipal government is also a responsibility that should be individual. Pay attention to what the character does; He disposes its waste incorrectly, which clogs the storm drains and causes flooding. However, the character does not evaluate his own actions and does not propose solutions.

From now on, you should take a new look at environmental issues, with critical and creative thinking concepts!

HOW CAN WE CONTRIBUTE TO IMPROVING THE ENVIRONMENT IN OUR REGION?

According to Lesson 5, Região Sul Fluminense is a region in the state of Rio de Janeiro where there are 17 cities (FIRJAN, 2016). Volta Redonda is the largest municipality in Rio de Janeiro, with an estimated population of 273,012, in 2019 (IBGE, 2019).

This is a region with a strong industrial presence, which represents a significant portion of its GDP. Many of the environmental problems that affect the region are caused by the industries, although they are not exclusively industrial problems. We can also attribute these issues to the residents.

Think about what you studied in the previous lessons and based on your own outcomes, in this lesson we want to encourage you to reflect on ways to improve the environment in our region.

For this exercise, we will guide you to elaborate on the environmental projects that can contribute to the improvement of living conditions in our region.

Let's get started!

The suggestions to elaborate on the environmental projects presented here rely on the Global Changemakers program, an association made up of young entrepreneurs, community activists and volunteers from different countries. They are all young activists between 16 and 25 years old, whose mission is to support youth to be agents of a positive social exchange network (GLOBAL CHANGEMAKERS, 2019). These suggestions are question-based and will hopefully encourage reflection.

It is suggested that the environmental project should be developed into 5 stages:

1. Vision
2. Plan
3. Promotion

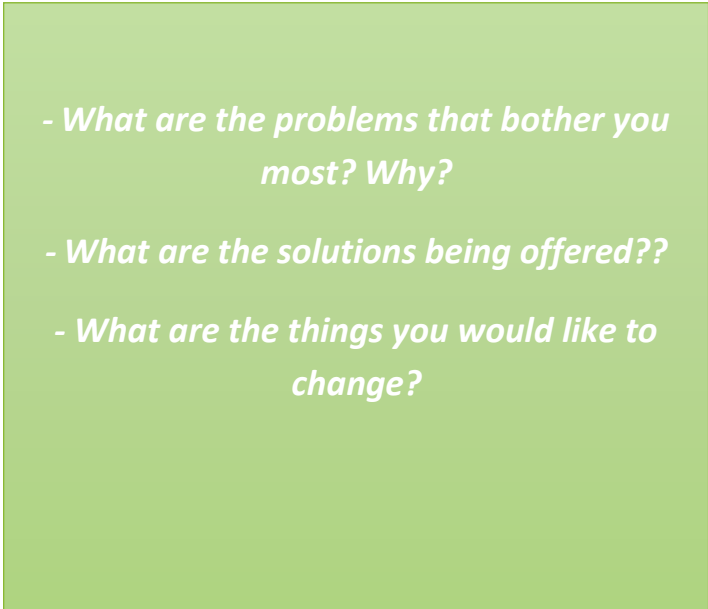
4. Action

5. Review

VISION

Before selecting the environmental problem in your community, you wish to write about it, it is important that you reflect on the following issues:

According to your answers, write a short paragraph about how you envision the future of the environmental issue that bothers you most. Overall, how you would like to see the

- 
- *What are the problems that bother you most? Why?*
 - *What are the solutions being offered??*
 - *What are the things you would like to change?*

environment in the future.

Example: “The Ganges River is no longer toxic; the source of its water will not dry up and its flow has been used to make electricity for the local population. World leaders see the Ganges as an example of youth action, which led sustainable development that addressed the possible impacts and causes of climate change and provided sustainable resources and livelihoods for the local population”.

Using your defined vision of the future, what can be done to make it happen? What ideas can you create? From the ideas identified, select the one that will have the greatest impact, that could be easily implemented and could receive support. From these ideas, select the one you want to develop. Thus, you will have defined your **goal!**

Think about it: Is your idea realistic, but also ambitious?

It is also important that you create a name for your idea. Once this is done, you can summarize all the activities of the vision stage:

- 🍃 **My vision is:**
- 🍃 **My Project name is:**
- 🍃 **My goals are:**

PLAN

Now that you have defined what will be done, it is necessary that, before the project execution, you create a plan. Consider the scope of the action you intend to develop. It is important to identify:

- 🍃 The necessary activities to run the project;
- 🍃 The necessary material resources;
- 🍃 The necessary technological resources;
- 🍃 The necessary human resources.

Other questions that are relevant at this point include: How will the collaborators / volunteers in the project be recruited? What skills are needed by the team? What are the sources of funds needed to run the project? What can go wrong?

Use all your knowledge as a future administrator! Take the opportunity to reflect on the knowledge acquired in the several courses that you have taken so far!

PROMOTION

At this stage, you should think about the following questions:

- What are you promoting?
- Who do you want to reach (target audience)?
- What is your message?
- How will you disclose your message (channels)?
- How do you want you project to be seen/felt?

ACTION

Now that you have a vision, a plan, and a way to promote your project, you need to turn your ideas into actions. Therefore, it is important to start with aspects related to the project

“If you are inspired, it is contagious. If you are engaged with a project in your own community, if you are enthusiastic enough, you can spread that enthusiasm to the rest of your team.”

(Sanya, India, 19)

leader.

Leaders can both direct a project and support it. They need to have vision. A leader's vision is the most powerful skill. Great leaders are always great visionaries: Nelson Mandela, Martin Luther King and other great leaders who had a vision and used it to build a better future.

This skill is required to be a leader and lead the team. Unlike many definitions of leadership that focus on power and status, we advocate that true leaders focus on people, not on themselves. It is important that you keep in mind that people want to be led, not ordered around.

Other significant characteristics to lead environmental projects:

- ✦ **Integrity:** It is very important that the team trusts the leader so they will follow him/her.
- ✦ **Commitment:** Managing any type of project is not easy. There will be hard times. Those are the moments when the leader should remain committed to the cause, no matter what challenges the team might face.
- ✦ **Development:** A leader should think about the personal development skills he/she needs to improve. Strong leaders are constant learners and they are always seeking their own development. They should make a list of qualities and traits they need to improve to upgrade their leadership skills. Reflect on the ways to attain it.

In order to achieve your environmental project objective, meetings should happen regularly, and decisions should be shared. Time management is also necessary to get things done.

REVIEW

The review is an important stage, which is helpful to give investors feedback and to adjust strategies and simplify processes.

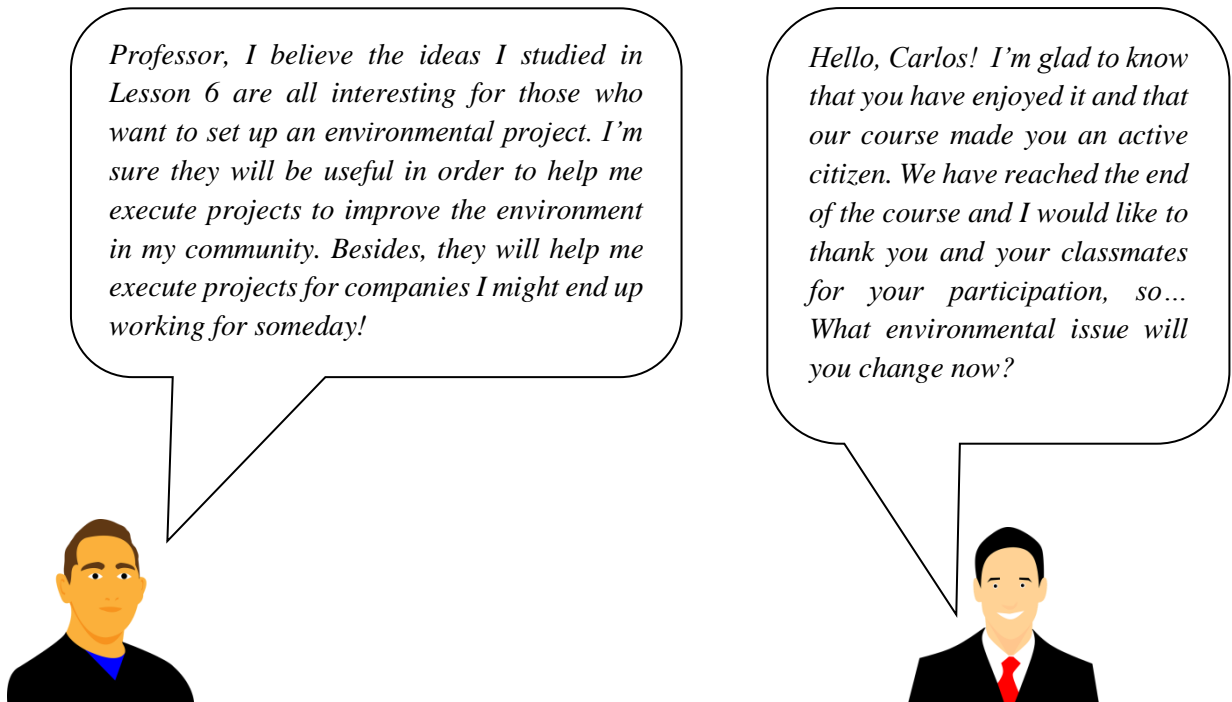
Indicators are a good way to review a project. You probably have already studied about some of those indicators in the Administration course. One of the management systems that can help you during this stage is the Balanced Scorecard (BSC). Have you ever seen it?

➔ **For further information:** What does Balanced Scorecard mean?
Available at: <https://administradores.com.br/artigos/o-que-e-o-balanced-scorecard>

“I believe that even during the project execution it is important to slow down and reflect.”

(Asanda, África do Sul, 21)

Do not wait until the end of your project to review it. Analyze the execution of all activities in your project throughout the whole process in order to check if you are going in the right direction according to your objectives.



LESSON 6 EXERCISE – FINAL PAPER

In Lesson 1, we asked you to present some of the environmental problems commonly seen in your municipality and then write about the role of the individual, the society and the public administration play to tackle environmental issues. In Lesson 2, you related those problems to one of the six lines of action of the National Agenda for Urban Environmental Quality. In the Lessons 3 and 4 we studied several aspects of environmental education and we asked you to relate the environmental problems from Lesson 1 with at least three of those aspects. Lastly, in Lesson 5, we asked you to present events that affected the environment in our region.

Now you are invited to reflect on the environmental problems that you wrote about and relate them to what you studied in the Lesson 6. Reread the questions asked at the beginning of the class:

- **What are the problems that bother you most? Why?**
- **What are the solutions being offered?**
- **What are the things you would like to change?**

After defining the environmental issue that bothers you most, you will have to elaborate on an environmental project related to community or regional problems. What would you suggest to solve or to contribute to the discussed environmental issue? You can do this alone or you can write it with other classmates who share your views.

You need to use all the stages of the environmental project studied in Lesson 6, and the recommendations described here:

1. Vision
2. Plan
3. Promotion
4. Action
5. Review

In case you have any questions, you should leave your comments on the **Forum for questions about the final paper**.

We appreciate your participation!

Macsuel Miranda de Oliveira
Denise Celeste Godoy de Andrade Rodrigues

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ANNEX A - LOAD USE PERMISSION

This attachment refers to the authorization to use the billing product in the dissertation, registered by email.

Em seg, 6 de jul de 2020 10:57, Arionauro Cartuns <arionaurocartuns@gmail.com> escreveu:

Bom dia, Macsuel.

Você pode utilizar uma charge (sobre meio ambiente) de minha autoria em sua apostila.

Lembrando que a charge não pode ser alterada, apenas utilizada sem fins lucrativos.

Gostaria de receber uma confirmação de recebimento desse e-mail.

Atenciosamente,

Arionauro

Arionauro Cartuns
www.arionaurocartuns.com.br