

Environmental Education Project for Workers - PEAT

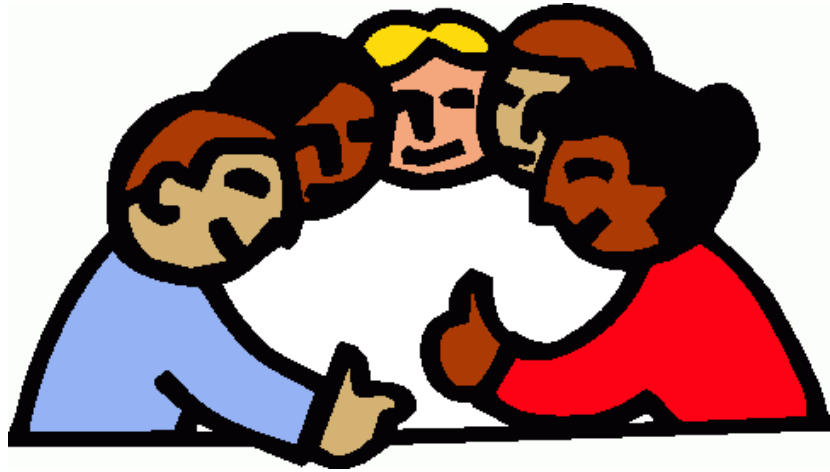
LESSON 1

Opening Activity

- Basic Concepts about the Environment
- Description of the Activity
- Characterization of the Environment
- Environmental Licensing

OPENING ACTIVITY

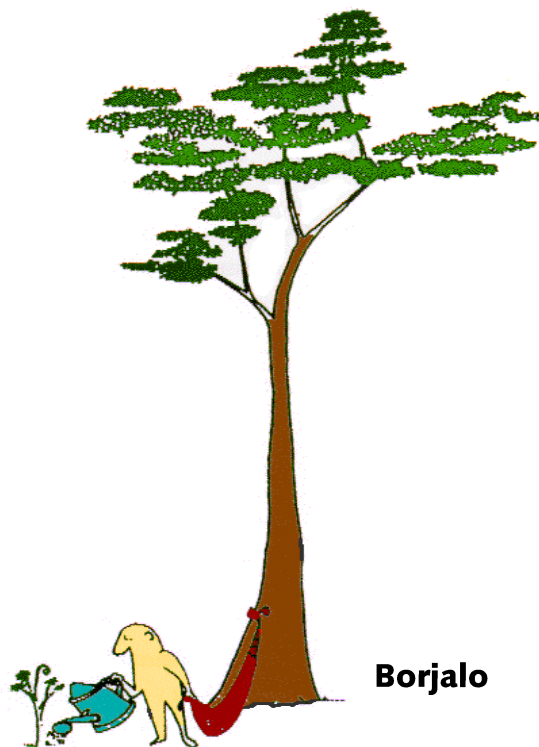
EXERCISING PERCEPTION: THE ENVIRONMENT IS...



GROUP ACTIVITY

GOALS OF THE PEAT

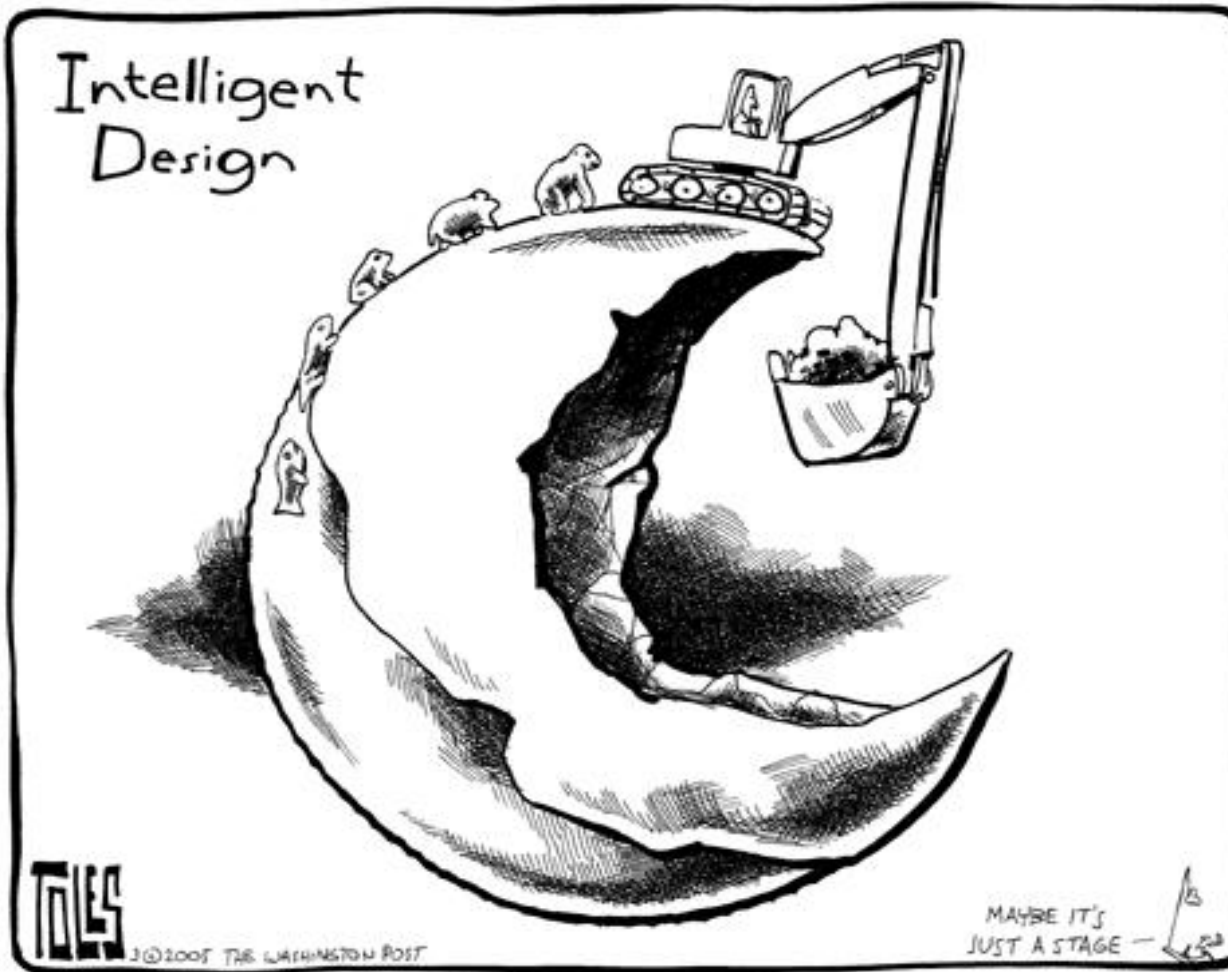
Environmental Education as an Instrument of Environmental Management



Transformation of society is the cause and the consequence of each individual's transformation.

BASIC CONCEPTS

Environment

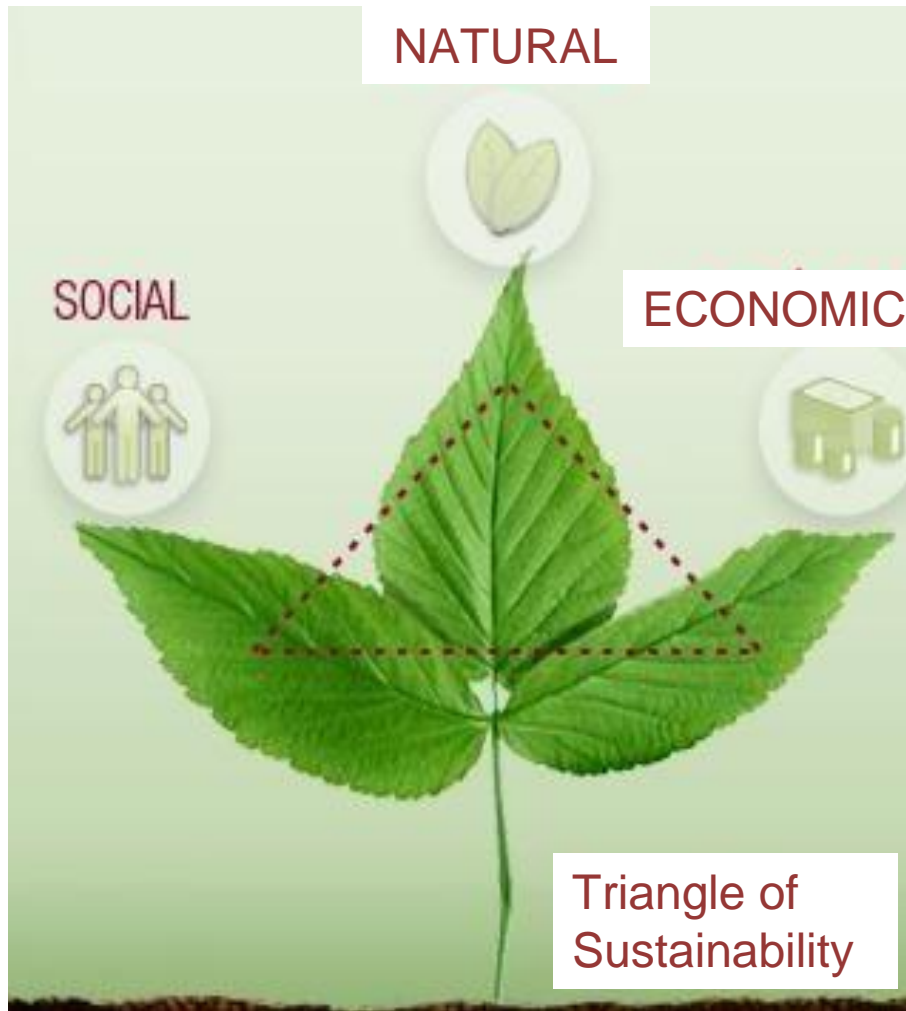


Sustainable Development

- Of what?
- For who?

BASIC CONCEPTS

Environment



BASIC CONCEPTS

Environment

Sustainability

The concept of sustainability means a change in posture in order to deal with global changes.



Licensing Flowchart

The company decides to drill

The company sends information about the activity to IBAMA

IBAMA analyses the information and the framework of the activity and emits the Term of Reference (TR)*

The company elaborates the Environmental Study and sends it to IBAMA along with the License Application Form. The study covers the following elements, among others:

Description of the Drilling Activity

+

Environmental Diagnosis

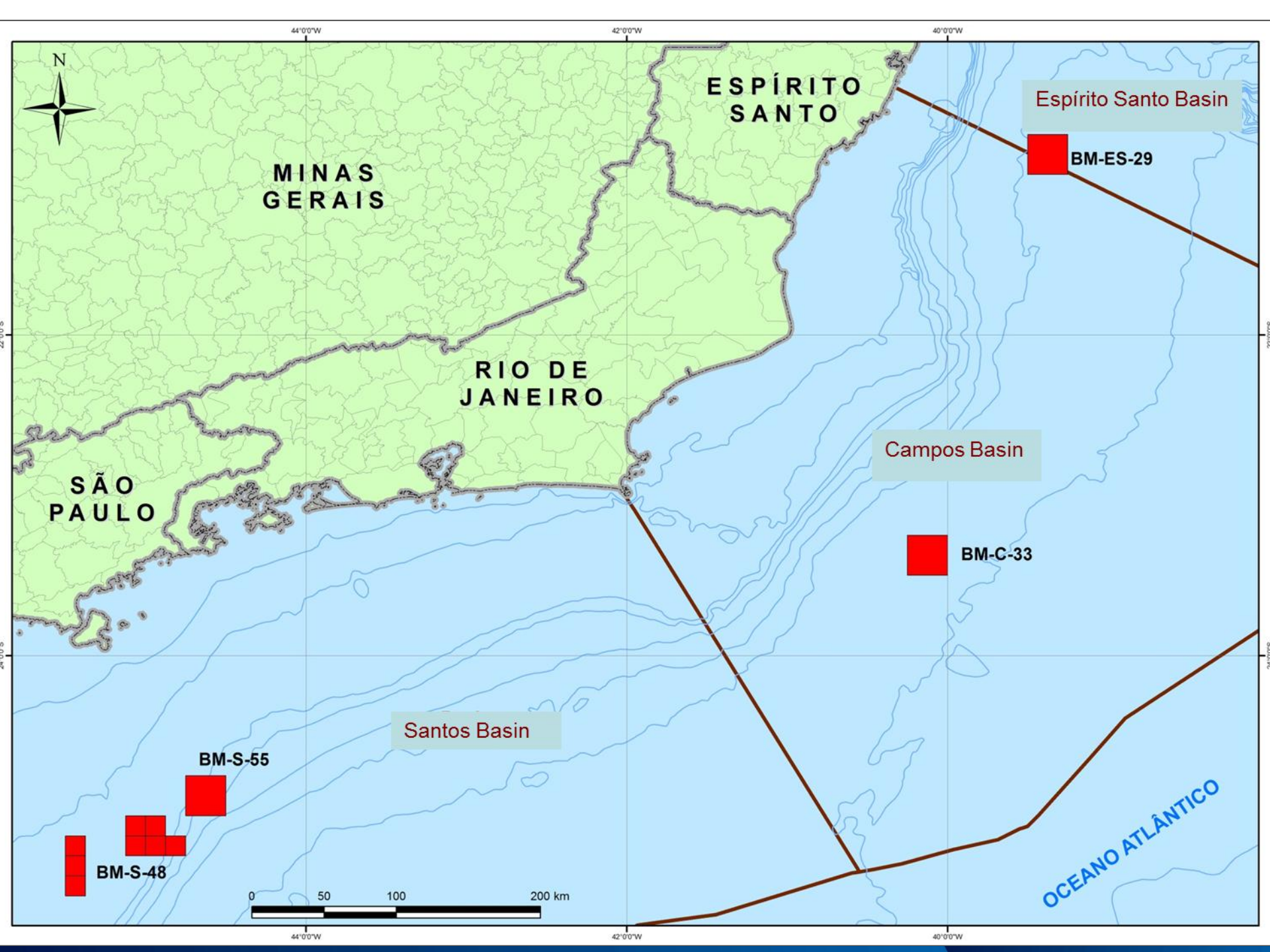
=

Evaluation of Environmental Impacts and Proposal of Environmental Measures

IBAMA analyses the documents that were presented and solicits clarifications and additional information, when necessary

The company presents the necessary additional information and clarifications

IBAMA emits a final Technical Opinion, granting or negating the License for the activity



Campos Basin

Located between 20.3° and 25.3° South, between the northern coast of the state of Rio de Janeiro and the state of Espírito Santo. The Basin occupies about 160,000 km².

UNDERSTANDING THE ACTIVITY

Campos Basin

Drilling activity in Blocks BM-C-33 in the Campos Basin



Drilling unit
Ocean Rig Mylos

Drill-ship

**Equipped to operate in areas
a water depth of up to 3,000 m**

UNDERSTANDING THE ACTIVITY

OFFSHORE DRILLING ACTIVITY

**The goal is to evaluate potential reservoirs
in the Campos Basin**



Mobilization of the drilling unit

**The drill ship will
navigate to the
location and will
secure its
permission using
the dynamic
positioning system.**

Drilling of the Well

**The drill ship applies
a combination of
rotational force,
pressure and weight
to the drilling
column with a drill
bit attached to the
end**

Demobilization of the drilling unit

**The well is
abandoned, and
covered and the
drill ship navigates
to its next location**

UNDERSTANDING THE ACTIVITY

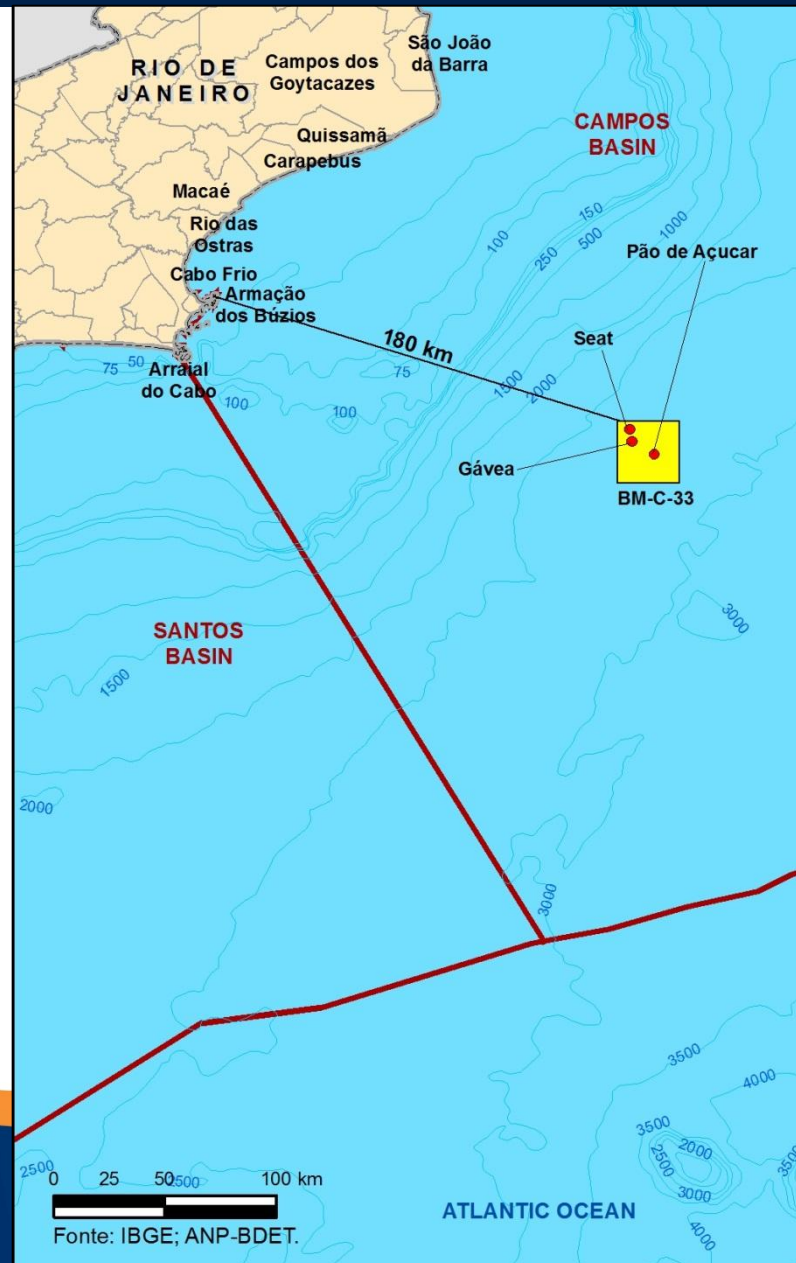
Campos Basin

The activity in Blocks BM-C-33 began in 2009. Four wells were drilled up to 2012.

Block	Wells	Water depth (m)	Status
BM-C-33	Seat	2,666	Drilled in 2009/ 2010
	Gávea	2,710	Drilled in 2010/ 2012
	Gávea 1C	2,709	Drilled in 2010/ 2012
	Pão de Açúcar	2,788	Drilled in 2010/ 2012

UNDERSTANDING THE ACTIVITY

Drilled Wells



UNDERSTANDING THE ACTIVITY

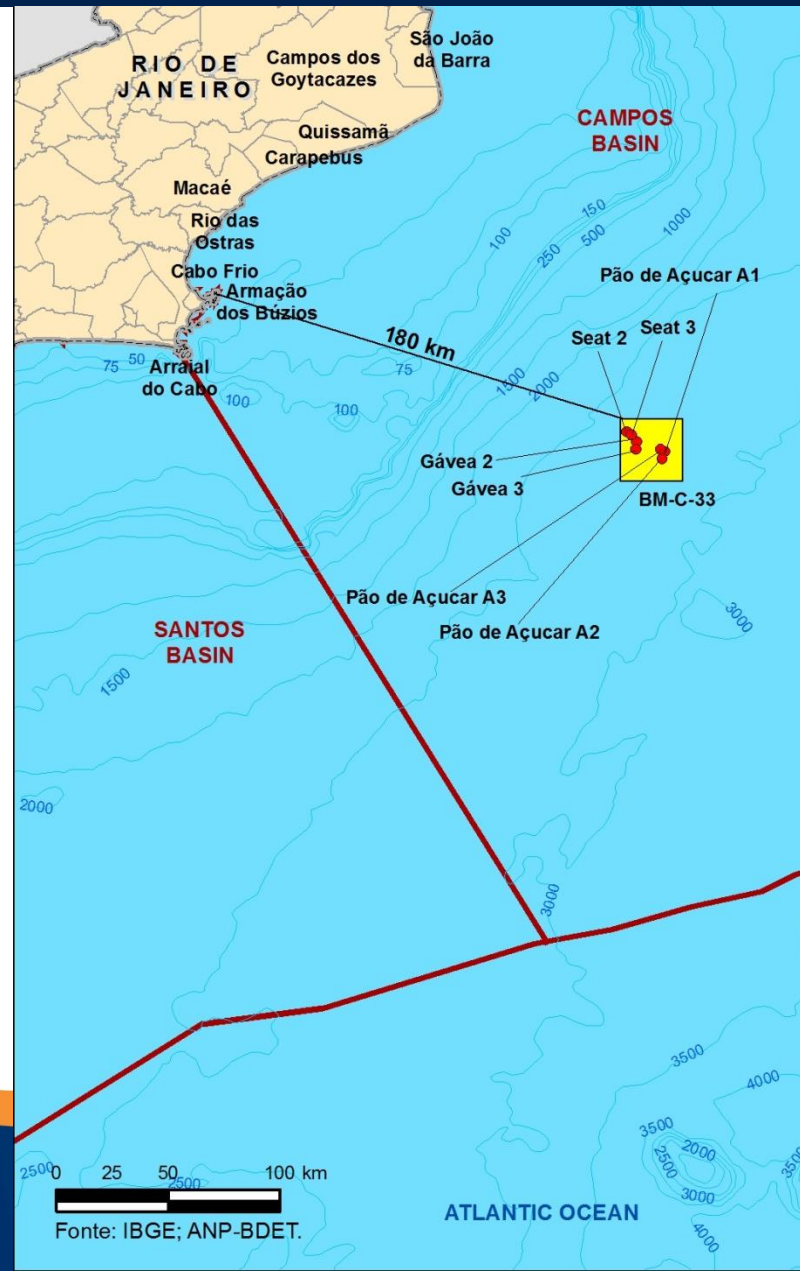
Campos Basin

The next well that will be drilled is the Pão de Açúcar A1, an evaluation well of the original Pão de Açúcar well.

Block	Wells	Water depth (m)	Status
BM-C-33	Seat 2	2,708	Planned
	Seat 3	2,712	Planned
	Gávea 2	2,714	Planned
	Gávea 3	2,714	Planned
	Pão de Açúcar A1	2,807	Planned for october, 2013
	Pão de Açúcar A2	2,813	Planned
	Pão de Açúcar A3	2,781	Planned

UNDERSTANDING THE ACTIVITY

Planned Wells

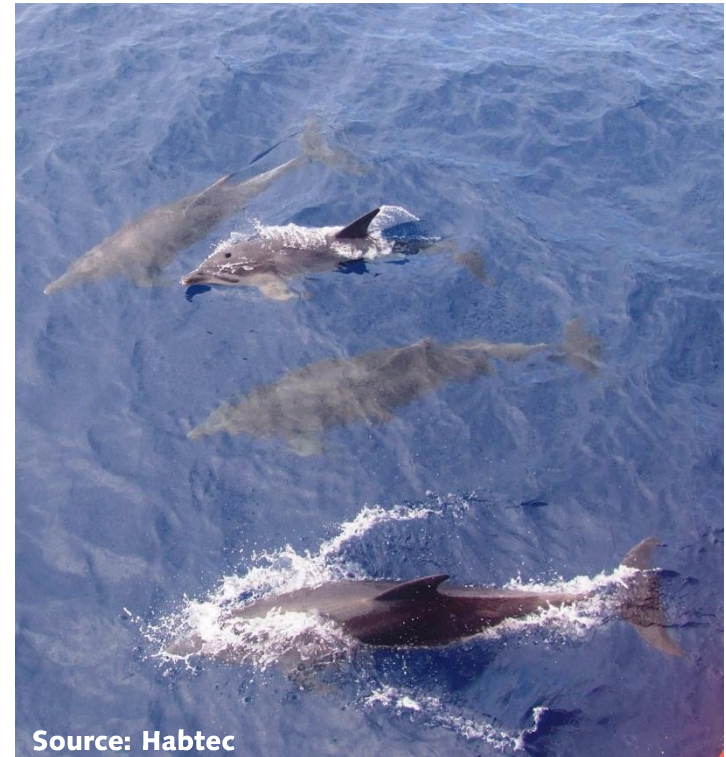


UNDERSTANDING THE ACTIVITY

Campos Basin

Influence area: Area that is or may be affected by the development of the activity

- Block BM-C-33: Instalation of the activity;
- Vila Velha (ES) and Niterói (RJ): marine support bases;
- Rio de Janeiro and Macaé (RJ): air support bases.



Source: Habtec

UNDERSTANDING THE ENVIRONMENT

Physical

- ✓ **Climate**
- ✓ **Ocean floor**
- ✓ **Water**

Biological

- ✓ Preservation Areas
- ✓ Microscopic marine organisms - Plankton
- ✓ Organisms of the ocean floor - Benthos
- ✓ Fish and fishing resources
- ✓ Turtles, whales, dolphins

Anthropic

- ✓ Land use
- ✓ Infrastructure
- ✓ Education
- ✓ Leisure, tourism and culture
- ✓ Environmental control and management
- ✓ Natural resources and their economic Use
- ✓ Fishing activities

UNDERSTANDING THE ENVIRONMENT

Restinga (RJ)



Source: Habtec

Rocky Seashore Natural Monument (RJ)



Source: ICMBio

Araruama Lake (RJ)

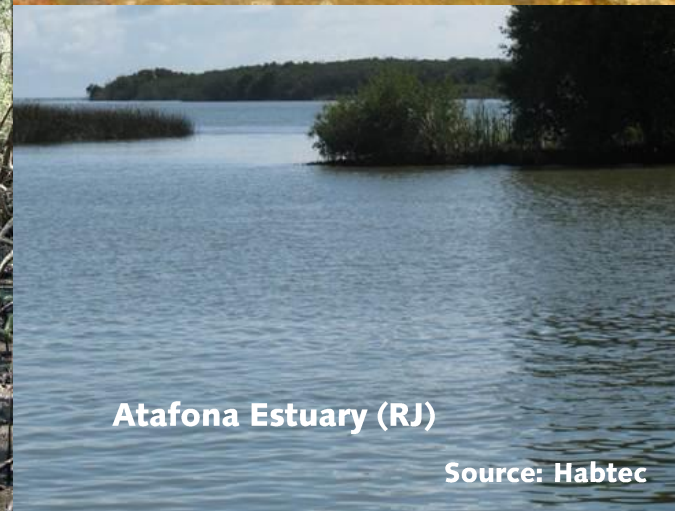


Photo: Pedro Botafogo



Mangroves (RJ)

Source: Habtec



Atafona Estuary (RJ)

Source: Habtec

UNDERSTANDING THE ENVIRONMENT



Bottlenose dolphin (*Tursiops truncatus*)



Loggerhead sea turtle (*Caretta caretta*)

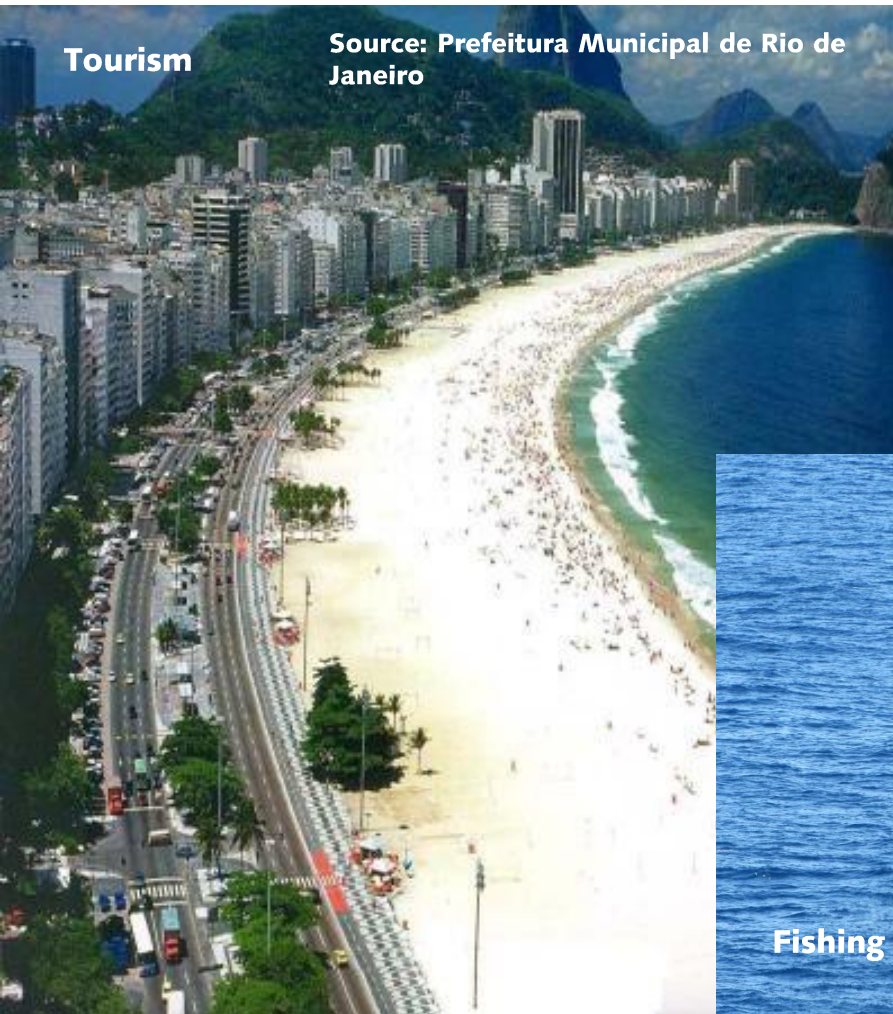


Mahi-mahi (*Coriphaena hippurus*)

UNDERSTANDING THE ENVIRONMENT

Tourism

Source: Prefeitura Municipal de Rio de Janeiro



Petroleum Industry



Source: Habtec

Fishing Activity



Source: Habtec



LESSON 2

Awareness Activity

- Environmental Impacts
- Mitigation Measures
- Environmental Projects
- Notions about Environmental Legislation

ENVIRONMENTAL IMPACTS AND MEASURES

Environmental Aspect – According to ISO 14001, environmental aspects are “features or characteristics of an activity, product, or service that can affect the environment.” They can be anything from an element, like the drill bit, to an activity, like noise generation, that can cause some kind of effect on the environment. **Cause**

Environmental Impact - According to the CONAMA Resolution num. 001/86, an environmental impact is whatever alteration of the physical, chemical and biological properties of the environment, caused by some form of material or energy that results from human activities and that effect, directly or indirectly: I – health, safety and well-being of the population; II- social and economic activities; III – biota; IV – esthetic and sanitary conditions of the environment; V – the quality of the environmental resources. **Effect**

ENVIRONMENTAL IMPACTS AND MEASURES

Mitigation Measure - Measures that are taken to mitigate, meaning reduce, the magnitude of the negative impacts on the environment.

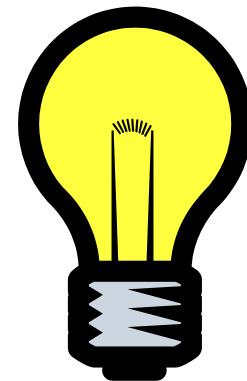
Preventative Measure – Results in the prevention of the occurrence of a negative environmental impact (partially or completely).

Corrective Measure – Results in the correction of a negative environmental impact that already happened (partially or completely).



ENVIRONMENTAL IMPACTS AND MEASURES

- 1° Aspect: **Noise generation**
Impact: **Interference of the cetacean population a população de cetáceos**
- 2° Aspect: **Generation of solid waste**
Impact: **Pressure on the final waste disposal infrastructure**



Mitigation Measures

- 1 **Monitoring of the presence and behavior of cetaceans**
- 2 **Solid waste management; Environmental Education for Workers**

AWARENESS ACTIVITY

WORKING WITH CONCEPTS: IDENTIFICATION OF ENVIRONMENTAL IMPACTS



GROUP ACTIVITY

ENVIRONMENTAL PROJECTS

Environmental Monitoring Project (PMA)

The project's main goal is to monitor and evaluate the possible environmental alterations caused during the drilling activity.



Source: Habtec

Pollution Control Project (PCP)

Contemplates the management of the sources and processes identified as potentially polluting, focusing on effluents and waste so they can be treated, stored and disposed of correctly, following Brazilian and international legislation.



Source: Habtec

ENVIRONMENTAL PROJECTS

Public Relations Communication Project

Brings information about Repsol Sinopec Brasil's activities in the Campos Basin and the possible socio-environmental consequences to the community in order to strengthen a communication channel between



Source: Habtec

Environmental Education Project for Workers (PEAT)

Brings awareness, information and capacity building to workers, focusing on the interferences of the activity on the environment, as well as the actions necessary for the activity as well as promoting the development of



Source: Habtec

ENVIRONMENTAL PROJECTS

Oil Spill Response Plan (PEI)

Developed in accordance with CONAMA Resolution 398/08, the Plan establishes the responsibilities and actions that should be carried out on the drilling unit and supply boats if an oil spill were to occur, defining the procedures, human resources, materials and equipment necessary for the control and cleanup of the spill.



Source: Habtec

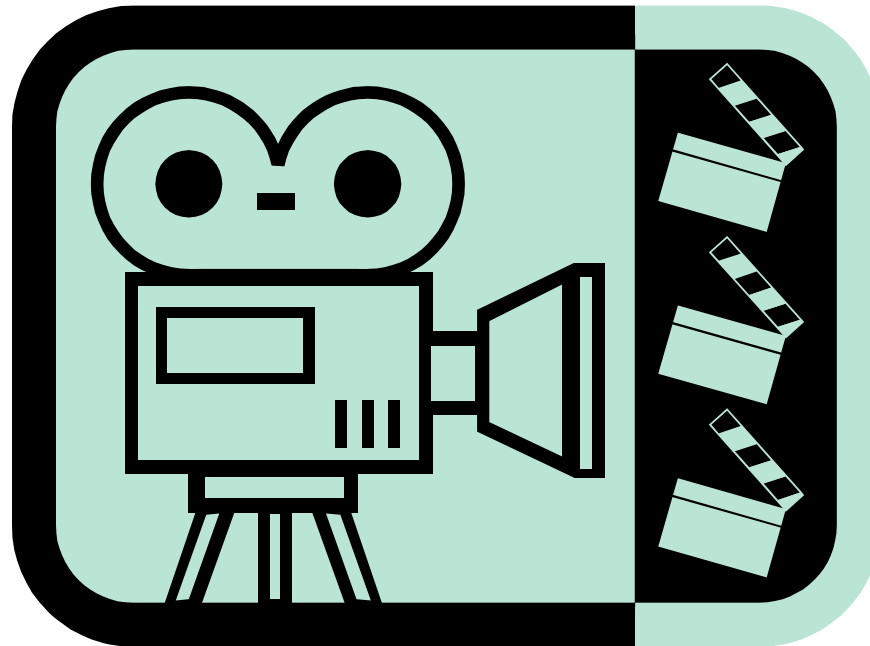
LESSON 3

Awareness Activity

- Oil Spill Response Plan – PEI
- Management of solid waste, liquid effluents and atmospheric emissions

AWARENESS ACTIVITY

Video: Awareness Test



OIL SPILL RESPONSE PLAN - PEI

Lets understand it better...the plan covers:

- The alert system if an oil spill occurs**
- Mobilization of the Organizational Response Structure (EOR)**
- Usage of response equipment and materials**
- External notification (ANP, IBAMA, Port Authority and news agencies)**



Source: OceanPact

OIL SPILL RESPONSE PLAN - PEI

- Law 9966 of 2000 – Prevention, control and inspection of the pollution caused by oil or other hazardous substances in waters under Brazilian jurisdiction.
- CONAMA Resolution 398 of 2008 – Minimum content of the Oil Spill Response Plan for incidents of pollution from oil in Brazilian waters and orientation for the elaboration of the Plan.
- CONAMA Resolution 269 of 2000 – Production, import, use and commercialization of chemical dispersants.

OIL SPILL RESPONSE PLAN - PEI

SOPEP Kits exist in various locations on board the drilling unit to contain and cleanup any spill on the deck. The basic materials are:

- Absorbent barriers;
- Absorbent blankets;
- Absorbent pillows;
- Absorbent material (ex. sawdust);
- Collection shovel;
- Bags;
- Seals.



CONTAINING THE OIL



Source: OceanPact



Containment Barriers: used to deflect the spill and/or contain the spilled oil, helping to accumulate it and making it easier to gather.

They are available in various forms, from floating solids to inflatables.

REMOVING THE OIL

Removal:

Mechanical removal from the surface of the ocean
Available in a variety of forms: Skimmers, Suction Pumps
Absorbent and adsorbent materials are also used.



AWARENESS ACTIVITY

EXERCISING PERCEPTION: THE LEGO GAME



GROUP ACTIVITY

WASTE, EFFLUENTS AND ATMOSPHERIC EMISSIONS MANAGEMENT

WHAT ARE EFFLUENTS?

“All of the waste, in liquid form, originated from any activity on board”

WHAT ARE ATMOSPHERIC EMISSIONS?

“Any material or energy that is sent into the air in the form of gas, vapor or particulate material”

WHAT IS WASTE?

“Leftovers of human activities that are considered to be not useful, undesirable or disposable by those who generated them.”

(ABNT – Associação Brasileira de Normas Técnicas).

WASTE, EFFLUENTS AND ATMOSPHERIC EMISSIONS MANAGEMENT

What should be done?

EFFLUENTS

- **Sewage Treatment Plant for bathroom wastewater**
- **Drainage system for industrial wastewater**
- **Oil and Water Separator System**

ATMOSPHERIC EMISSIONS

- **Equipment maintenance**

WASTE

- **Separation at the source, conditioning and correct disposal**

WASTE MANAGEMENT

ENVIRONMENTAL RESULTS

- **Reduction of generation**
- **Correct destination**
- **Reuse and recycling**



**Sustainable
Development (in
practice!)**

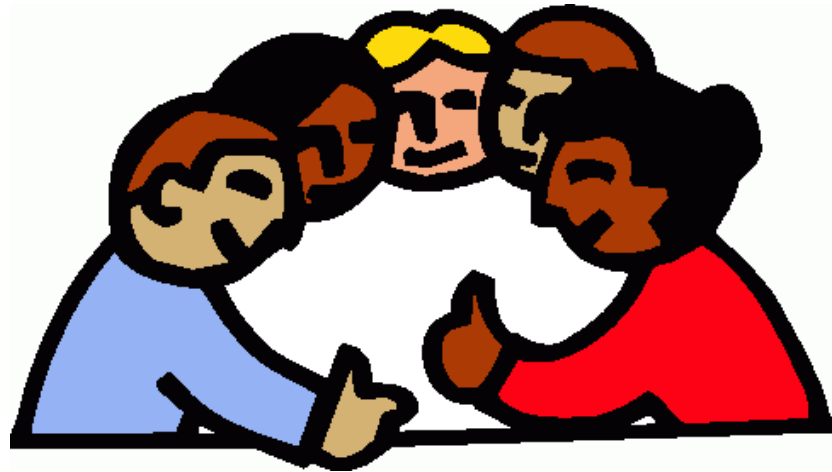


ATTENTION!

The generator is always responsible

AWARENESS ACTIVITY

EXCERCISING CONCEPTS: THE COLOR GAME



GROUP ACTIVITY

THE COLOR CODE

Kind of Waste	Examples of Allowed Materials
Paper	Journals and magazines, cards and cardboard, printer paper
Plastic	Plastic cups, containers, PVC
Glass	Cups and bottles, pots, lamps
Metal	Metal sheets, aluminum, wire, nails, scrap metal
Wood	Pallets, non-contaminated wood
Infirmiry waste*	Bandages, surgical gloves
Food waste	Leftover food
Common waste	Non-recyclable, cigarette butts, dirty napkins, adhesive tape
Tetra Pak	Milk and juice packages

* Sharp objects should be placed in a specific container (Descartex).

THE COLOR CODE

Materials that are not allowed

Stickers, paper contaminated with food, oil, paint or chemicals

Plastic contaminated with oil, paint and chemicals

Mirrors, fluorescent lamps, ceramic

Cans contaminated with oil, paint or chemicals

HAZARDOUS WASTE

Waste contaminated with oil

Fluorescent light bulbs

Aerosol

Print cartridges

Batteries

Electronic devices

Cooking oil

WASTE SEGREGATION



WASTE SEGREGATION

GREY



G
R
E
E
N



ORANGE



BLUE



WHITE



GREY



GREY



FINAL DISPOSAL - RECYCLING

✓ **Fluorescent Lamps**
Company: Apliquim

✓ **Batteries**

✓ **Print Cartridges**
Company: Suzaquim

✓ **Cooking Oil**
Company: S.O.S Óleo



✓ **Paper**

✓ **Metal**

✓ **TetraPak**

✓ **Plastic**

✓ **Glass**

Company: CRR

FINAL DISPOSAL – BLENDING for CO-PROCESSING



- ✓ **Waste contaminated with oil**
- ✓ **Non-recyclable**

Company:
Essencis

FINAL DISPOSAL – THERMAL DISINFECTION, INCINERATION and INDUSTRIAL LANDFILL



✓ **Infirmmary**

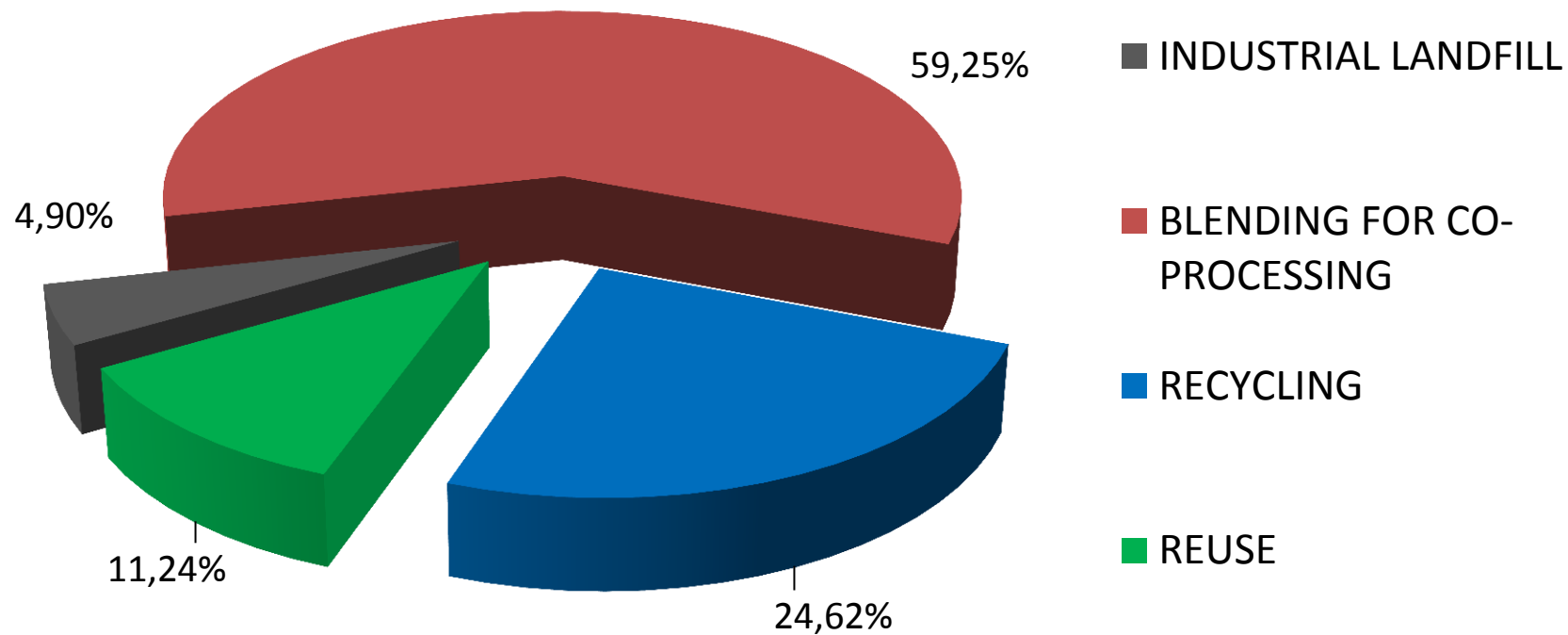
**Company: Aborgama or
Essencis
CTR Alcântara**

FINAL DISPOSAL– OTHERS

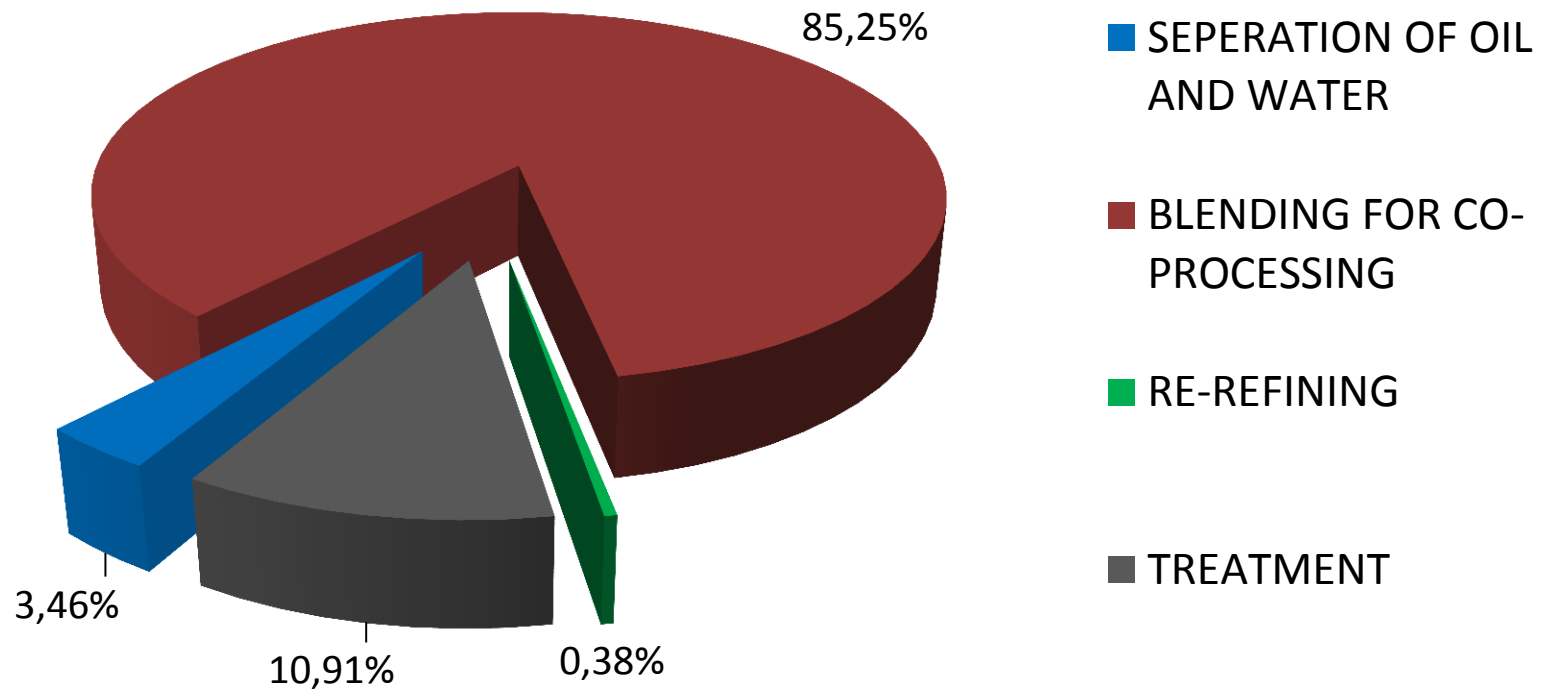
- ✓ **Oily water <15ppm and sewage (treated and discarded into the ocean)**
- ✓ **Oily water >15ppm (re-refined or treated)**
Company: Essencis ou Control
- ✓ **Wood (reuse)**
Company: Recipallet
- ✓ **Food waste (ground and then discarded into the ocean)**



TOTAL WASTE PER KIND OF DISPOSAL



TOTAL EFFLUENTS PER KIND OF DISPOSAL



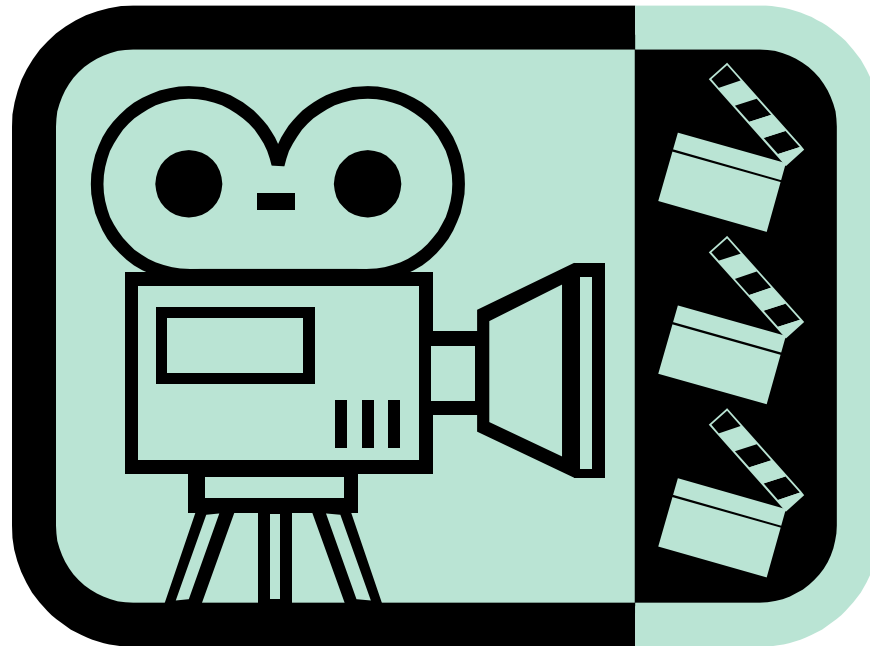
LESSON 4

Awareness Activity

- Energy conservation
- Evaluation

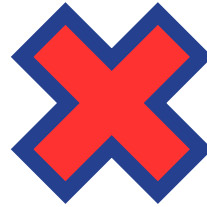
AWARENESS ACTIVITY

VIDEO: It always comes back around



ENERGY CONSERVATION

**Energy
Conservation**



**Rational use of
natural
resources**

How can we improve the way in which we use energy and natural resources without compromising our comfort and the advantages electricity brings us?

How can we decrease our consumption and reduce our costs, without losing efficiency and quality of life?

ENERGY CONSERVATION

Where do I fit in?

"SMALL ACTS, BIG ATTITUDES"



Group Activity

ENERGY AND NATURAL RESOURCE CONSERVATION

INDIVIDUAL ACTIONS, DEGRADATION AND HEALTH



• O Rio Sarapuí começa com uma bela cachoeira e acaba levando um mar de lixo à Bala de Guanabara. O GLOBO percorreu três rios com o mesmo destino trágico. **Página 26**



EVALUATION OF THE ENCOUNTER

- ✓ Thermometer
- ✓ Group evaluation



Thank you for participating!

If you have any questions about waste segregation, please write to:

pcp.repsolsinopec@habtec.com.br