First Seminary on Exchange with the Nuclear Energy Agency (NEA)

Public Acceptance of Nuclear Energy of Nuclear Sector in Brazil

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Comissão Nacional de Energia Nuclear (CNEN)

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Summary

1. A little bit of Brazil – bases of the context to public acceptance
2. Basic concepts
3. Background of public acceptance in Brazil and some examples of action toward it
4. Final remarks

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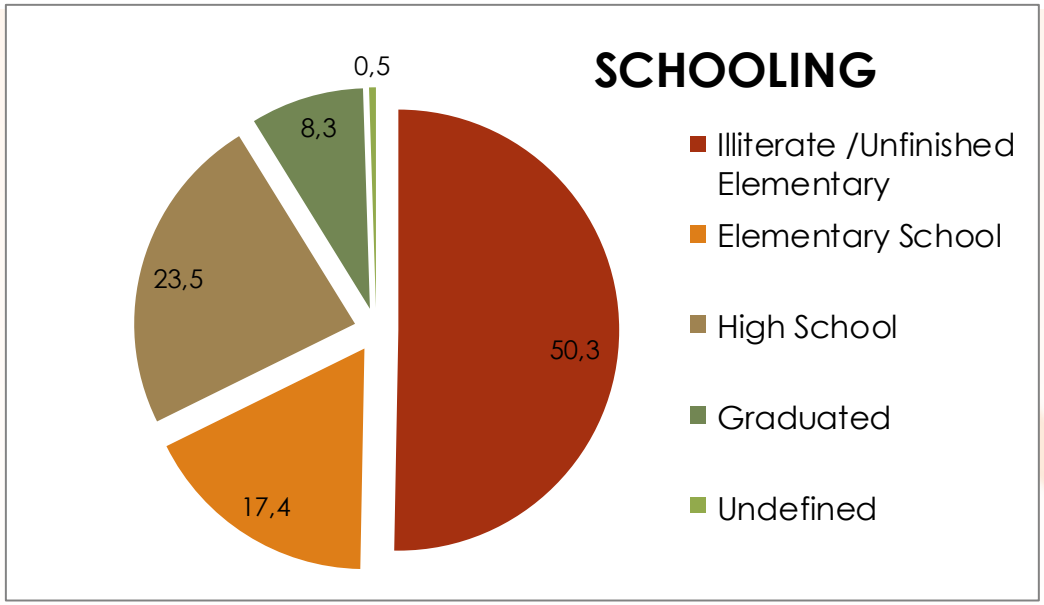
1. A LITTLE BIT OF BRAZIL

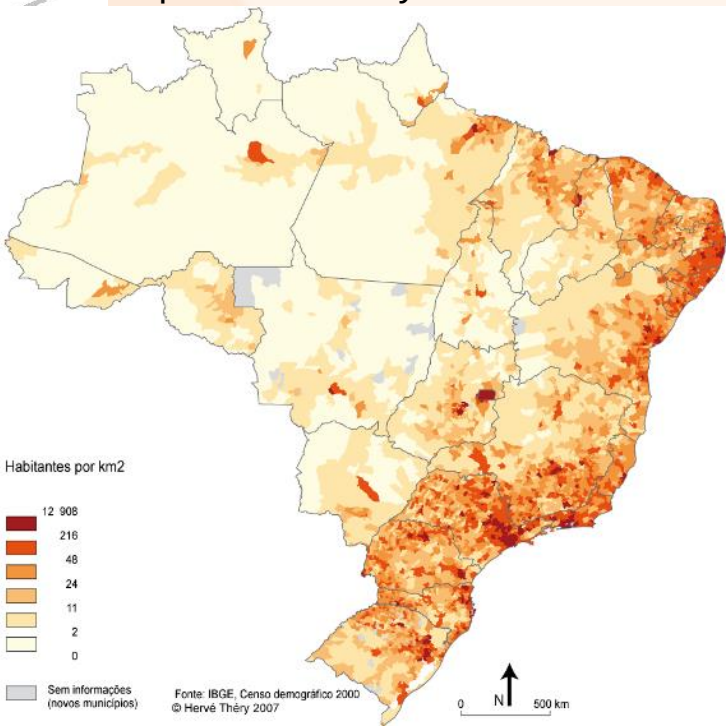
Presidential Republic

Population: 205million
Area: 8 515 767 km^2
GDP US$ 3,072 trillion
HDI 0,755

HUGE CONTRASTS

Population density:



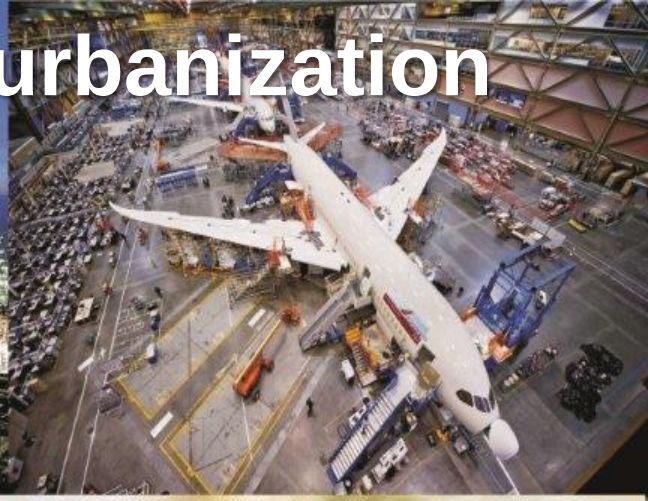
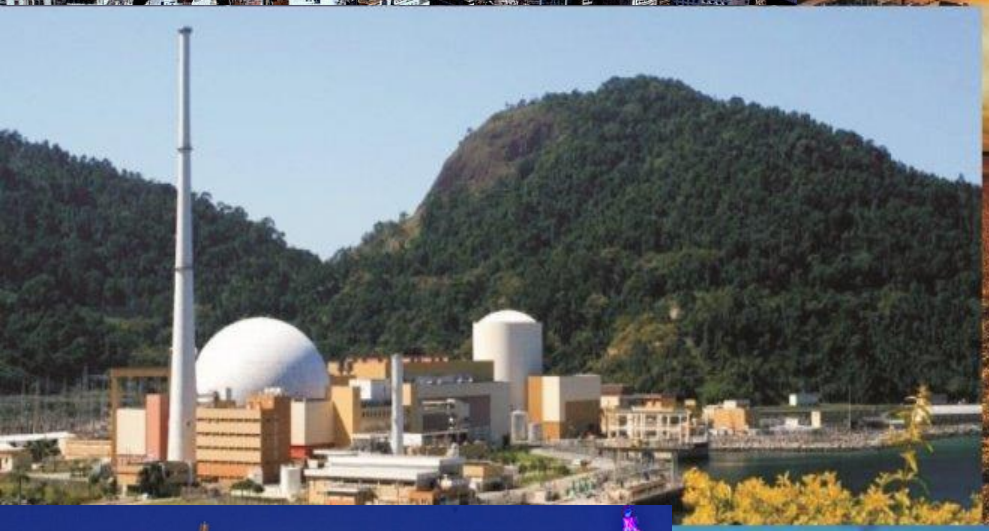
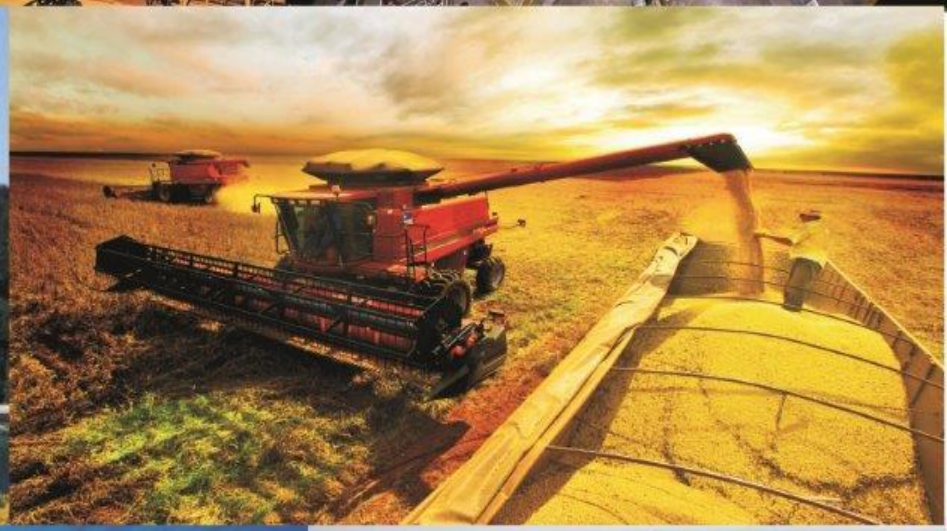


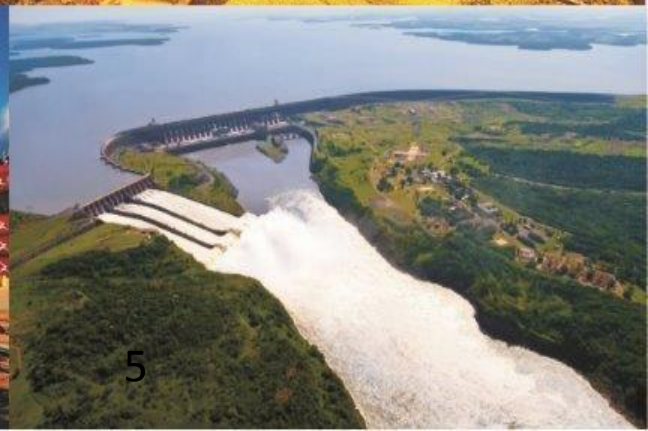
Source: Census, 2010, IBGE

Natural Resources

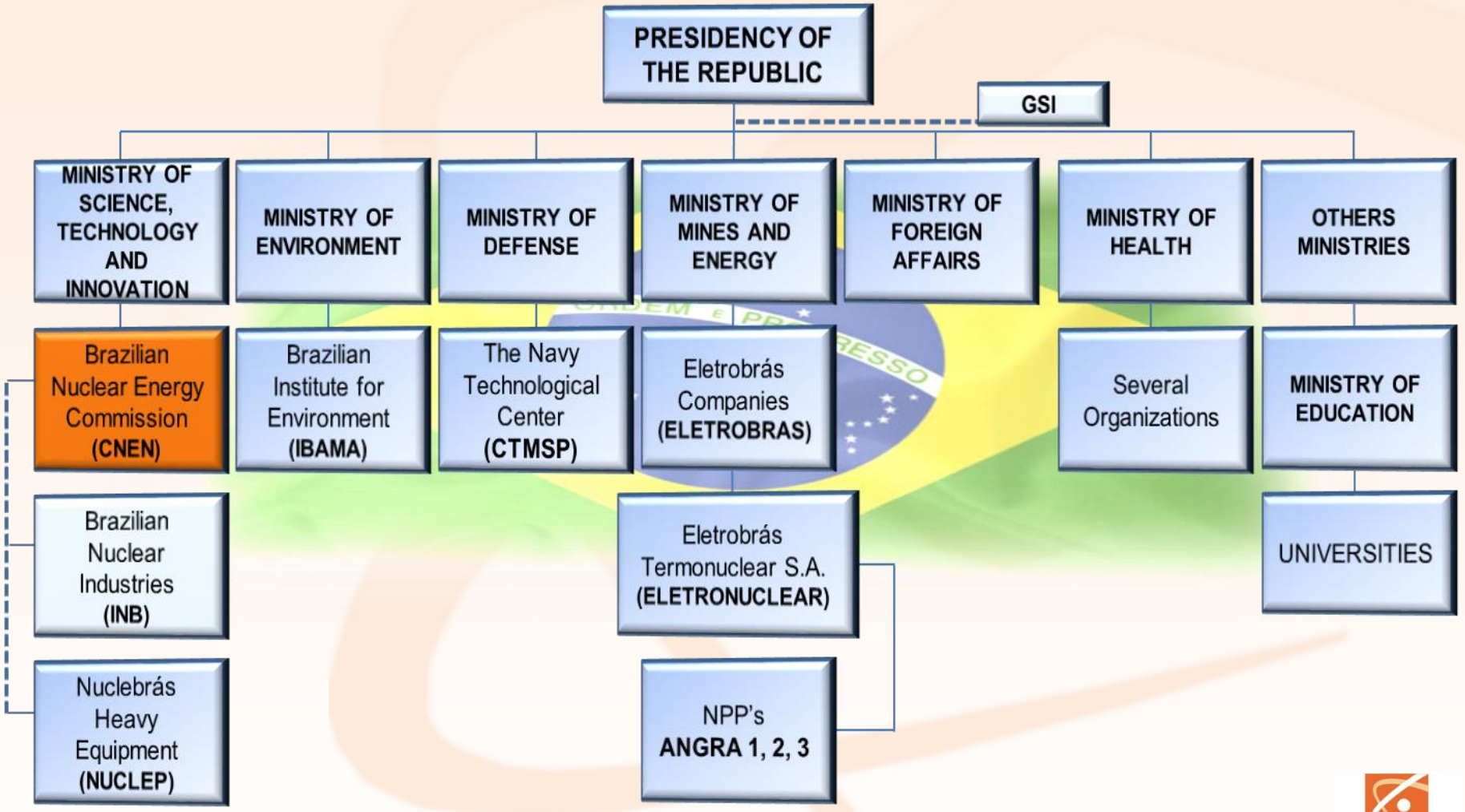
Technological development, urbanization



Nuclear Sector in Brazil



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THE BRAZILIAN NUCLEAR INDUSTRY

Mining & Processing | **Conversion** | **Enrichment** | **UO_2 powder** | **Pellets** | **Fuel Elements** | **Power Generation, Medicine, Industry, Security uses**

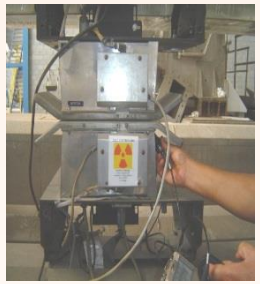






A synergic mix of:

- Large uranium reserves;
- Fuel cycle technology;
- PWR technology;
- Non-proliferation;
- Intensive use in medicine industry and security.

CNEN Comissão Nacional de Energia Nuclear

Eletrobras Eletronuclear

INB Indústrias Nucleares do Brasil

AMAZUL

NUCLEP

IBON Instituto Brasileiro da Qualidade Nuclear

ABEN Associação Brasileira de Energia Nuclear

ABDAN

CTMSP Centro Tecnológico da Marinha em São Paulo MARINHA do BRASIL

SIPRON

2. Basic Concepts

PUBLIC ACCEPTANCE

Communication is not what you say, but what the other person understands about what you say.

"The most important thing in communications is to listen to what was not said. "

Peter Drucker

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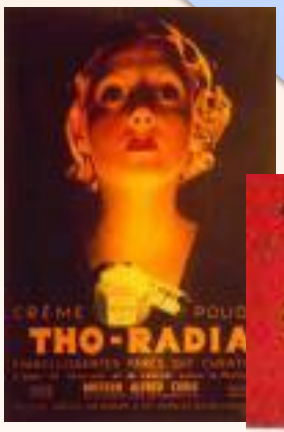
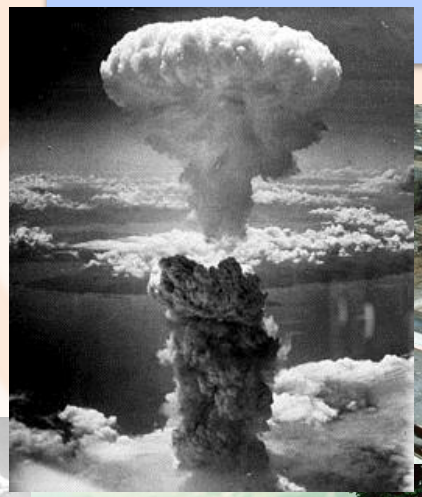
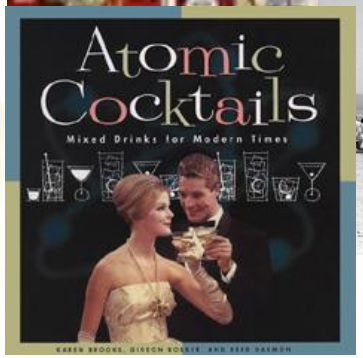
ATTITUDES RELATED TO RADIOACTIVITY AND NUCLEAR TECHNOLOGY

From enthusiasm and fascination

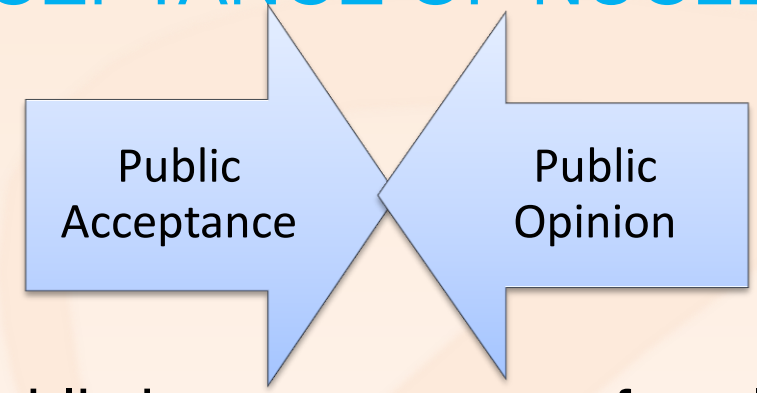
To negative stigma







PUBLIC ACCEPTANCE OF NUCLEAR ENERGY?



- How did the public become aware of nuclear energy?
  - The experience at the time of the first contact or knowledge of a technology or product is crucial for its acceptance
- What is our strategy (as a sector) for presenting nuclear energy?
- What is our strategy to demonstrate the benefits - and even the risks - of our product? **We talk a lot more about risks than about the benefits**.
- What is our strategy to show that society needs our product? Applications in medicine, industry, agriculture, power generation etc.

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PUBLIC ACCEPTANCE OF NUCLEAR ENERGY?

- Acceptance?
  - action or effect of accepting, agreeing or consenting;
  - easiness of being welcomed (by the public); receptivity
- It´s not a passive action, it´s an individual choice, not an imposition.
- “I accept, but Not in my backyard”.
  - NIMBY – not in my backyard
  - NIABE – not in anyone backyard
  - BANANA – built absolutely nothing anywhere near anybody
  - LULU - locally unwanted land use

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3. BACK GROUND OF PUBLIC ACCEPTANCE AND INFORMATION IN BRAZIL 1/2

- ✓ In general, governmental institutions and the Government are seen and regarded as unreliable; however people trust some technicians, mainly the ones who live around the facilities.
- ✓ The nuclear sector is always subject to prejudice and rejection, no matter which activity it relates to.
- ✓ The Cesium accident in Goiânia has still been considered a threat in the view of the majority of the population.
- ✓ Lack of information on the nuclear sector, by the public and the media.
- ✓ For those whose level of schooling is low understanding nuclear matters is much more difficult.

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BASIC SITUATION OF PUBLIC ACCEPTANCE AND INFORMATION IN BRAZIL 2/2

- ✓ Public doesn´t perceive some operators as transparent as they should be.
- ✓ "Judicialization" - if the community is not allowed to take part in all different steps of the process, they will seek access and impeach through the law (legal right).
- ✓ Addressing the risks to community opposition was not effectively done before the projects begun.
- ✓ There aren´t national opinion pools on the perception and the opinions about nuclear area.
- ✓ There are very few politicians who are in favor of nuclear energy due to the fact that it does not result in votes.

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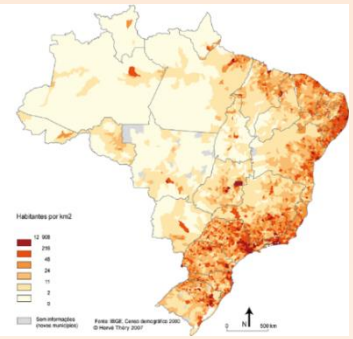
CNEN UNITIES IN BRAZIL AND MAIN NUCLEAR INSTALATIONS



● *CNEN's Institutes*

● *Main nuclear installations in Brazil*

Northeast Regional Center for Nuclear Science
CRCN-NE
Recife (PE)

Fortaleza District
DIFOR
Fortaleza (CE)

Uranium Mine
Santa Quitéria (CE)

Brasília Office
ESBRA
Brasília (DF)

Caetité District
DICAE
Caetité (BA)

Uranium Mine
Caetité (BA)

Central-West Regional Center for Nuclear Science
CRCN-CO
Abadia de Goiás (GO)

Radiation Protection and Dosimetry Institute
IRD
Rio de Janeiro (RJ)

ARAMAR Experimental Center
Iperó (SP)

Headquarters
Rio de Janeiro (RJ)

Nuclear Fuel Factory
Resnde (RJ)

Center of Development of Nuclear Technology
CDTN
Belo Horizonte (MG)

Nuclear Engineering Institute
IEN
Rio de Janeiro (RJ)

Uranium Mine
Poços de Caldas (MG)

Porto Alegre District
ESPOA
Porto Alegre (RS)

Resende Office
ESRES
Resende (RJ)

Poços de Caldas Laboratory
LAPOC
Poços de Caldas (MG)

Angra District
DIANG
Angra dos Reis (RJ)

Nuclear Power Plants
ANGRA 1, ANGRA 2, ANGRA 3
CNAAA
Angra dos Reis (RJ)

Nuclear and Energy Research Institute
IPEN
São Paulo (SP)

Medical and Industrial Operating facilities: 2504

INB Indústrias Nucleares do Brasil

CTMSP Centro Tecnológico da Marinha em São Paulo – Marinha do Brasil

Eletrobras Eletronuclear

CNEN Comissão Nacional de Energia Nuclear

Actions towards acceptance

- Formal requests for information received through e-mail and specific systems in 2017 : 41.818.
- Participation in major Nacional Science Fair, Seminars and Conferences.
- News on website, intranet, contact proactivity and reactivity with journalists.
- Support in Public hearings – most of them are conducted by operators.
- Lectures in Schools – CNEN used to perform them but currently the operators are in charge of them in their communities.

CNEN – Visiting Programs in all unities

crcn-co

ipen

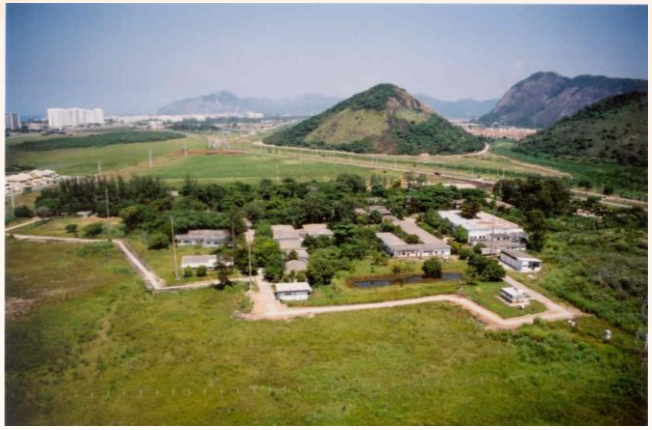
Research Institutes

IPEN São Paulo

Headquarters
Rio de Janeiro

CDTN - Belo Horizonte

IEN – Rio de Janeiro



IRD – Rio de Janeiro

CRCN-NE
Recife

CRCN-CO
Goiânia

LAPOC - Poços de Caldas

Scientific Communication:

CIN – Centro de Informações Nucleares (Nuclear Information Center)

- Articles, papers, books, presentations, most of them in technical and academic language
- Free access to public
- Private area for technicians
- Lectures

http://www.cnen.gov.br/centro-de-informacoes-nucleares

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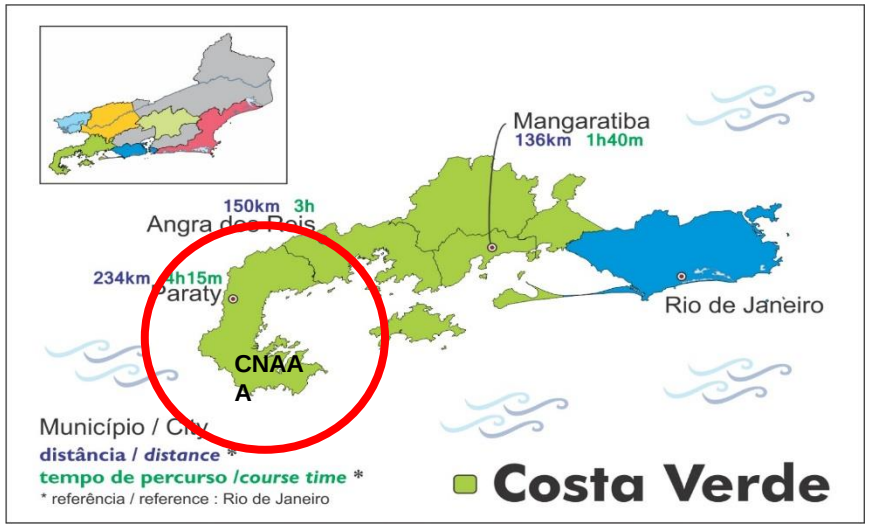
Eletronuclear



- ✓Target audience: 250.000 inhabitants, (25.000 living in a 15km distance of the NPP
- ✓Low level of schooling, large socioeconomic differences
- ✓< 20.000 visitors/year at the Information Center in CNAAA
- ✓Permanent Consciousness Campaign
- ✓Lectures and events in schools and universities
- ✓Virtual tour **in website**

Source: Communication - Eletronuclear

Eletrobras
Eletronuclear

- ✓Public Hearings
- ✓Intensive presence in social media
- ✓Strong communication with internal public
- ✓Nuclear on the road - Itinerant exhibition circulated by 3 municipalities and was visited by more than 3.500 people

Source: Communication Eletronuclear

ELETRONUCLEAR + CNEN + CIVIL DEFENSE + TOWN HOUSE IN ANGRA DOS REIS E PARATY

Teachers coaching

PARTNERSHIP WITH PUBLIC SAFETY BODIES, REGULATORS (ENVIRONMENTAL AND NUCLEAR) AND MAYORS

IN 5 YEARS, 20% OF THE TEACHERS OF ANGRA AND PARATY CONCLUDED THE COURSE

32 HOURS / CLASSROOM WITH A TECHNICAL VISIT TO THE NUCLEAR POWER PLANT

Communication actions during Emergency Exercise

- ✓ Visits to units in Caetité, Caldas and Resende;
- ✓ Chat with the neighborhood - visits to family homes or residents' associations
- ✓ Radio Talk show in Caetité
- ✓ Environmental Education Program
- ✓ Public Hearings

Espaço de Cultura INB Caetité

Source: INB website

4. Final remarks: Working on "Social Acceptance" – Communication, Clarification?

- Understanding the psychological determinants of social acceptance for a specific technology;
- Factors to be considered:

  Risk, confidence, perceived benefits, knowledge, fears, individual differences and attitudes, cultural differences and international context, implications for future generations
- Reversal of the usual treatment given by the media and activists, correlating nuclear energy with danger, deadly radiation, bomb, accident.
- Lack of knowledge and promotion of applications.
- Establish communication strategy.

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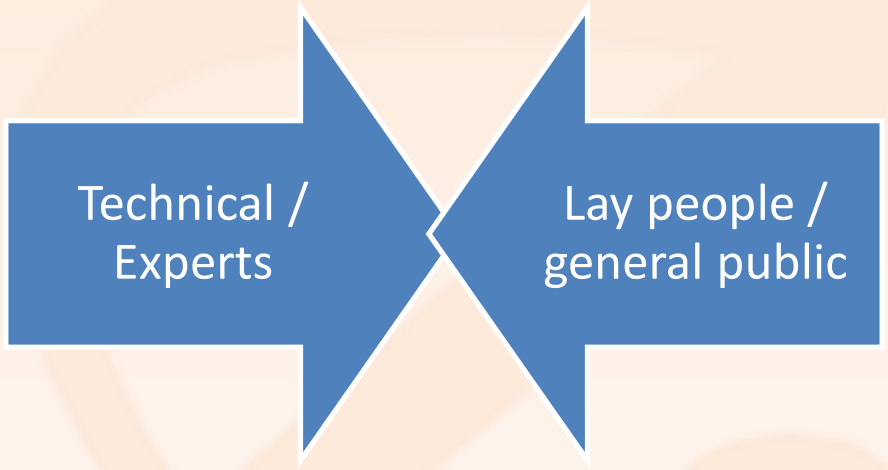
Language – Barrier and bridge



Rational, logical, scientific, statistical language, associated with technology, benefits and peaceful applications

Colloquial language, intuitive, passionate, common sense; associated with the threat to future generations, potential catastrophe and nuclear weapons

What is great in man is that he is a bridge and not the end.

Nietzche

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STRATEGIES FOR THE NUCLEAR SECTOR TO WORK "PUBLIC ACCEPTANCE“

- Communicate more (two-way communication);
- Listen more (get feedback), learn more about public perception;
- Explore the emotional bases for the risk judgment (expand the knowledge) ;
- Clarify and Inform in plain language;
- Practice communication actions from the strategy and planning to the development, application and commercialization of technologies, products and projects.

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One good answer can lead the regular citizen into becoming a partner

Figure 2 Page 23 of draftDS460

Figure 2 Page 23 of draft Safety Guide DS460
Communication and Consultation with Interested Parties by the Regulatory Body

IAEA International Atomic Energy Agency

First Seminary on Exchange with the Nuclear Energy Agency (NEA)

Muito obrigada!

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