



RMB

Reator
Multipropósito
Brasileiro

Tecnologia Nuclear a Serviço da Vida

INAC 2017

Belo Horizonte - MG
24 de Outubro 2017



MINISTÉRIO DA
CIÊNCIA, TECNOLOGIA,
INOVAÇÕES E COMUNICAÇÕES



REATOR MULTIPROPÓSITO BRASILEIRO



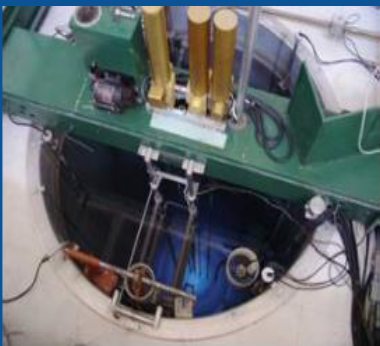
RMB
Tecnologia Nuclear
a Serviço da Vida

RMB Kickoff Meeting
September 3th, 2008



Research Reactors in Brazil

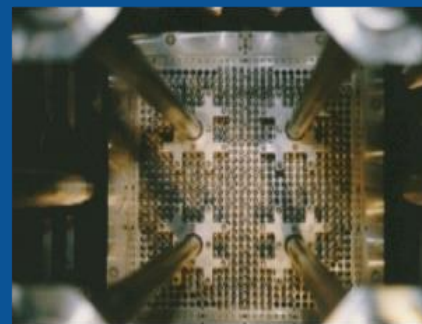
| Name | Utilization | Power | Site | Operation | Type |
|------------|---------------------------------------|---------------|--------------------------------|-----------|--------------------------|
| IPEN/MB-01 | Critical facility – PWR Core analysis | 100 W | IPEN/CNEN-SP São Paulo | 1988 | Open Core - Fuel Rod |
| ARGONAUTA | Research -Education | 500 W | IEN/CNEN-RJ Rio de Janeiro | 1965 | Argonaut |
| IPR-R1 | Research -Education | 100 kW | CDTN/CNEN-MG Belo Horizonte | 1960 | TRIGA MARK-I |
| IEA-R1 | Research Radioisotope Production | 5 MW (2MW) | IPEN/CNEN-SP São Paulo | 1957 | MTR Reactor Open Pool |



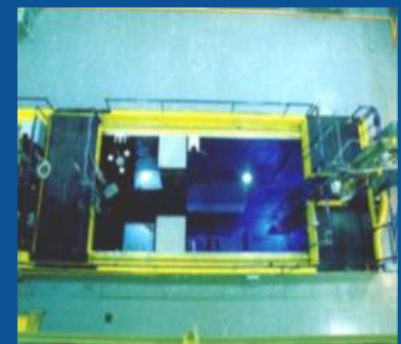
IPR-R1



ARGONAUTA



IPEN/MB-01



IEA-R1

Why a New Research Reactor?

- The RMB will provide Brazil with a **key infrastructure** to national development activities of the nuclear sector for development and application in the areas of:
 - **Social application,**
 - **Strategic and industrial,**
 - **scientific and technological development.**

- **Structuring project.**

RMB Main Objectives

- **Radioisotope Production for Medical and Industrial Applications**
- **Fuel and Materials Irradiation Testing**
- **Neutron Beam National Laboratory**
- **NAA National Laboratory**
- **Education and Training**

Responsibilities

Ministério da Ciência Tecnologia Inovações e Comunicações

Owner

Comissão Nacional de Energia Nuclear - CNEN

Project
Responsible

Diretoria de Pesquisa e Desenvolvimento - DPD



Partnership

AMAZUL

Amazônia Azul Tecnologias de Defesa S.A.

Support



CDPNB - GSI

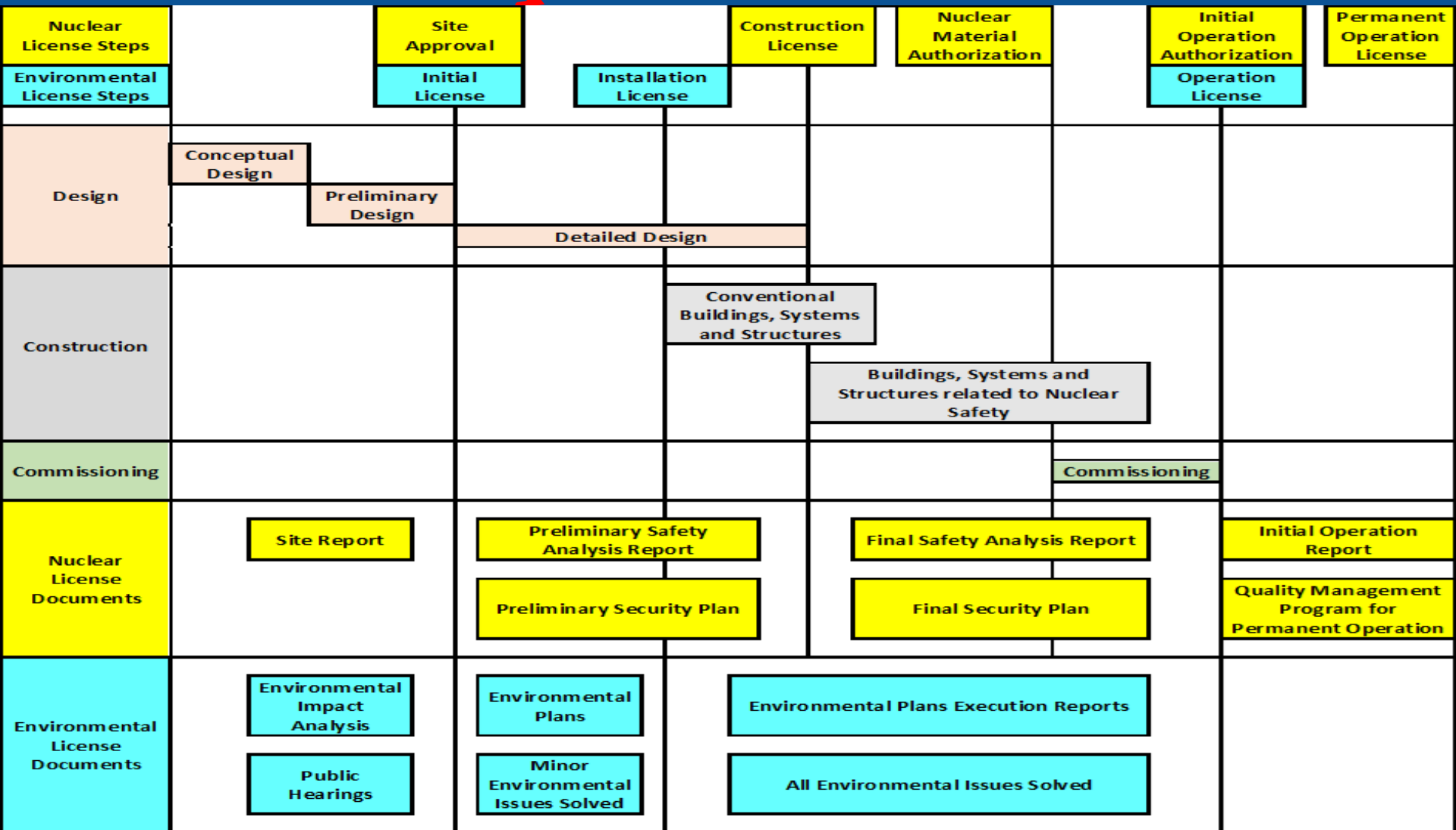


RMB PROJECT STATUS

| Project Steps | Status |
|--|----------------------|
| Site Setup | On going |
| Conceptual Design | Done |
| Basic Engineering Design | Done |
| Detailed Engineering Design | Initiated |
| Fuel Assembly Development and Fabrication | On going |
| Nuclear Licensing | On going |
| Environmental Licensing | On going |
| Procurement | Not initiated |
| Construction | Not Initiated |
| Commissioning | Not Initiated |

Today Status

Licensing Steps



RMB Site in Iperó / SP



RMB Site in Iperó / SP



REATOR MULTIPROPÓSITO BRASILEIRO

Nuclear Research and
Production Area

Administrative Area

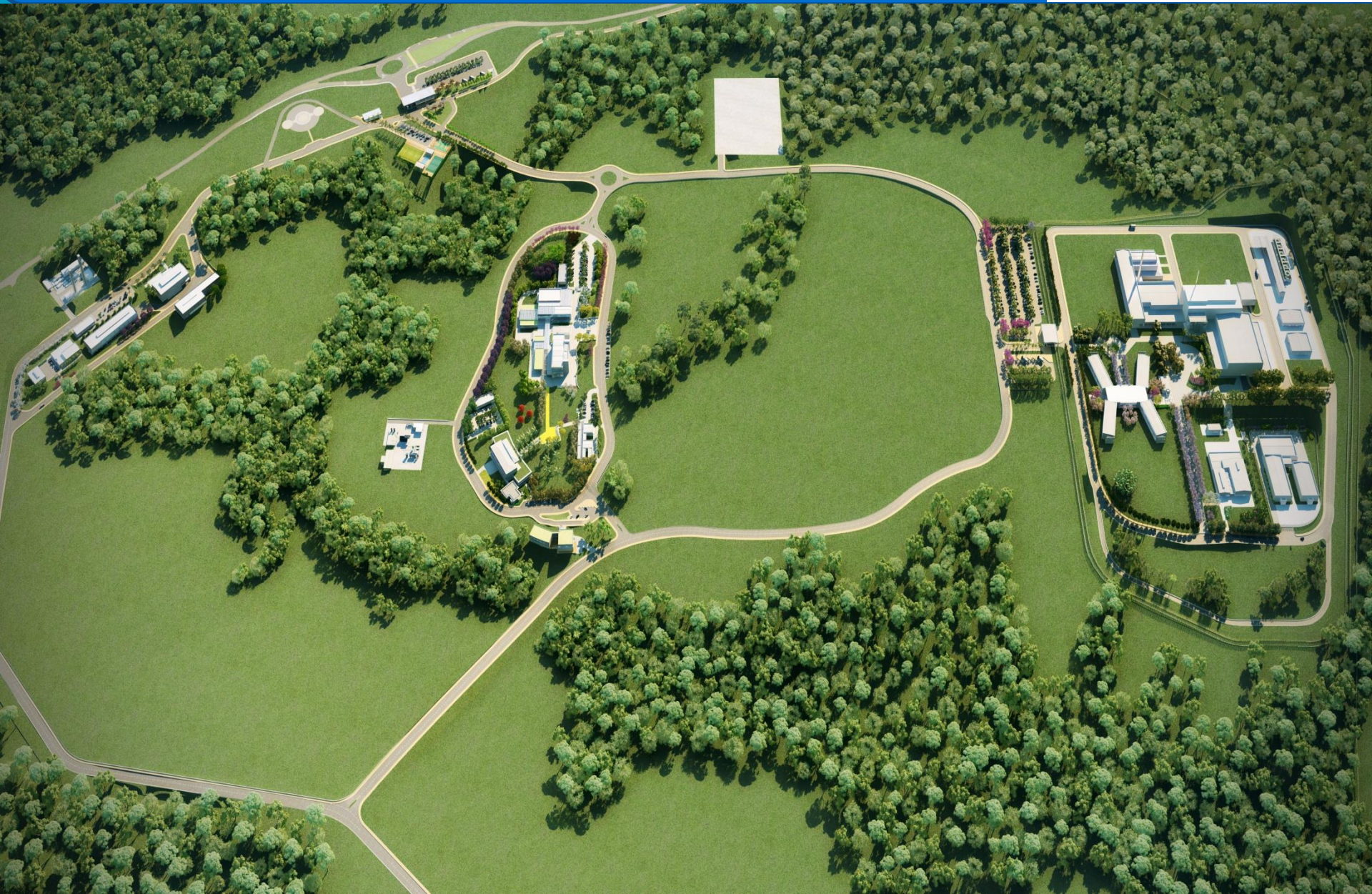
Electrical Station

Infrastructure Area

RMB Entrance



REATOR MULTIPROPÓSITO BRASILEIRO

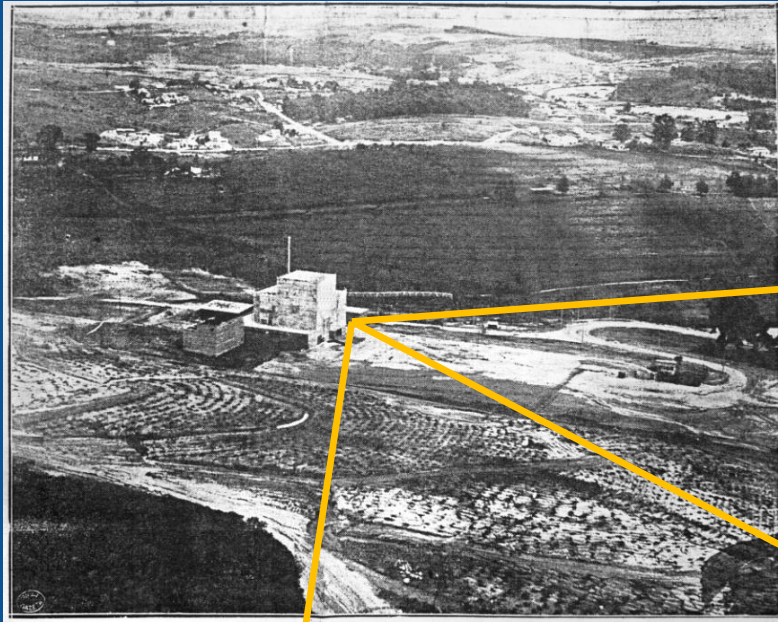


Nuclear Research and Production Area



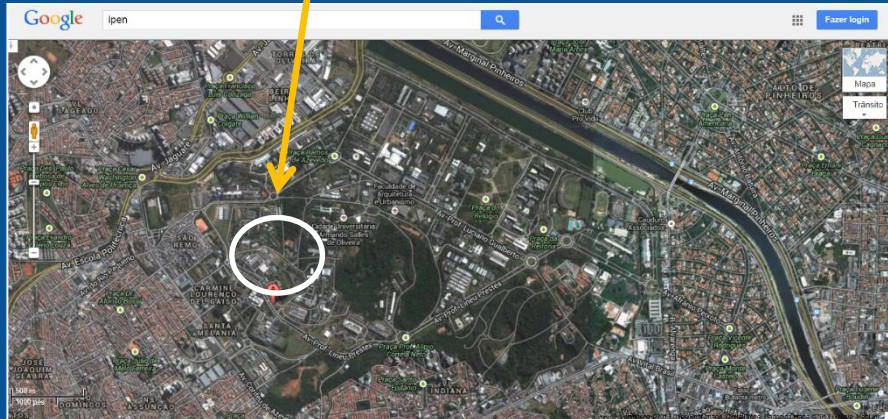
- 1 – NRPA Entrance
- 2 – Researchers Bld.
- 3 – Workshop Bld.
- 4 – Waste Processing and Storage Bld.
- 5 – Electrical Supply Bld.
- 6 – Cooling Towers
- 7 – Reactor Auxiliary Bld.
- 8 – Reactor Bld.
- 9 – Spent Fuel Bld.
- 10 – Post Irradiation Lab.
- 11 – Radioisotope Processing Bld.
- 12 – Radiochemistry Lab.
- 13 – Operator Support Bld.
- 14 – Neutron Beam Lab.

REATOR MULTIPROPÓSITO BRASILEIRO



IEA-R1 (1957) ----- IPEN (2017)

The setup of a research reactor gave rise to the biggest nuclear research institute in Brazil



FUTURE NUCLEAR TECHNOLOGY SITE OF IPERÓ

Marinha

- ✓ Tecnologia e Plantas Piloto do Ciclo do Combustível Nuclear
 - ✓ Conversão
 - ✓ Enriquecimento
 - ✓ Reconversão
 - ✓ Produção de Combustível
- ✓ Reator de Potência de Pequeno Porte (LABGENE)
- ✓ Formação de Recursos Humanos para Área Nuclear e Propulsão Nuclear
- ✓ Treinamento de Operadores para Área Nuclear e Propulsão Nuclear

CTMSP / ARAMAR



RMB

CNEN

- ✓ Reator RMB
- ✓ Laboratório Nacional de Nêutrons
- ✓ Laboratório de Produção de Radioisótopos
- ✓ Laboratório Pós-Irradiação
- ✓ Laboratório Nacional de AAN
- ✓ Laboratório de Fusão Nuclear
- ✓ Laboratório de Aceleradores de Partículas
- ✓ Laboratório de Laser de Alta Potência
- ✓ Centro de Radiofarmácia
- ✓ Centro Integrado para Desenvolvimento de Diagnóstico e Terapia Utilizando Radiação
- ✓ Pós-Graduação em Tecnologia Nuclear
- ✓ Formação de Técnicos para o Setor Nuclear em Saúde

REATOR MULTIPROPÓSITO BRASILEIRO



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THANK YOU!