



**open innovations**

moscow international forum  
for innovative development

**Global High-tech Firm  
in unfavorable (?) environment:  
producer of satellites  
and nuclear reactors in Argentina**

**HÉCTOR OTHEGUY**

**General Manager and CEO**

**Moscow, October 31, 2012**

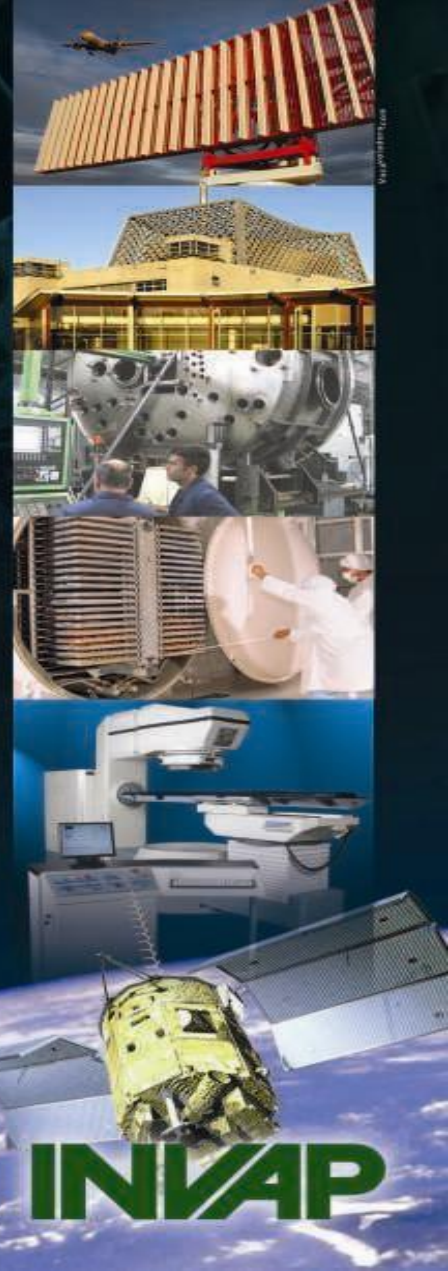
**In Argentina, is there an enterprise capable of designing and building  
satellites, radars, and multipurpose research and  
radioisotope production reactors ?**

**INIA**P

**Global enterprise dedicated to complex technological systems**

# BUSINESS AREAS

- NUCLEAR
- AEROSPACE & GOVERNMENT
- INDUSTRY
- MEDICAL SYSTEMS



# COMPETITIVE LEVEL IN NUCLEAR OPAL REACTOR

*“The largest single investment ever in Science and Technology  
in Australia’s history”*

Professor Helen Garnett,  
ANSTO Chief Executive  
July 2000





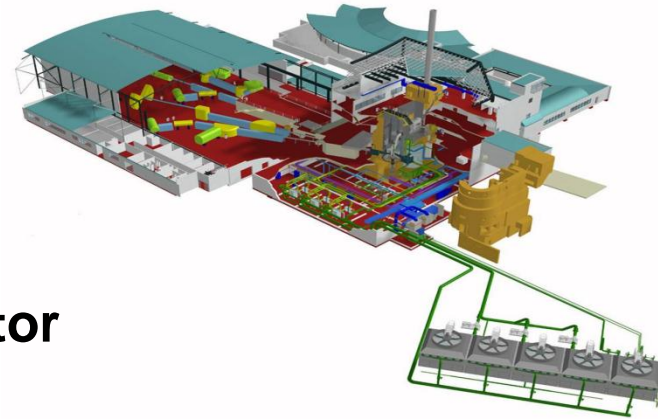
## **ANSTO**

Australian Nuclear Science and Technology Organization

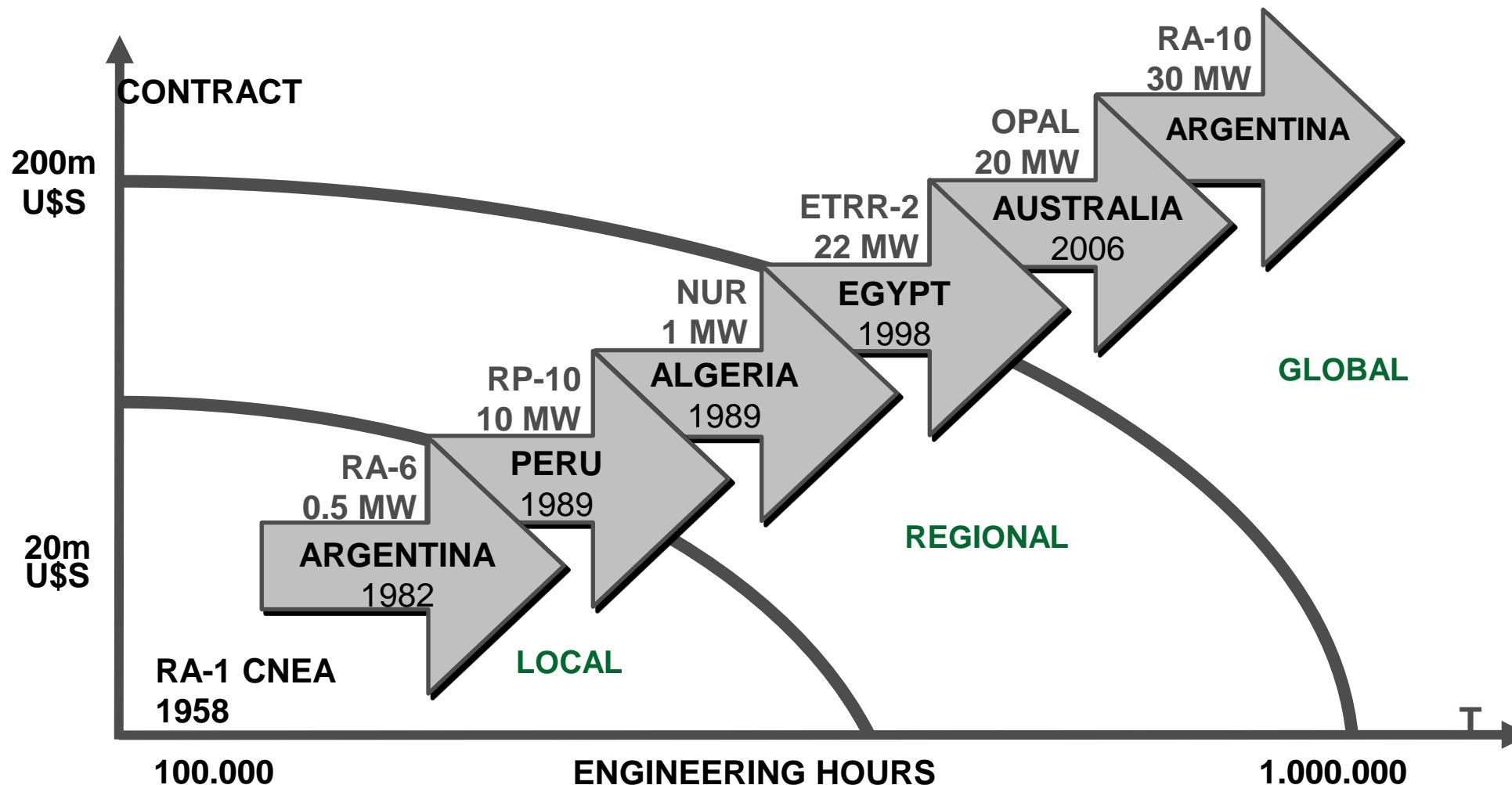
## **OPAL**

Open Pool Australian Light Water Reactor

- International BID
- Neutron beam and radioisotope production reactor
- \$200 MM USD
- AECL (Canada), SIEMENS (Germany), TECHNICATOME (France), **INVAP** (Argentina)
- Contract Awarded July 2000
- November 2006 Maximum Power: 20 MW



# INVAP'S GROWTH IN THE RESEARCH REACTOR MARKET



# **COMPETITIVE LEVEL IN SPACE**

## **SAC-D/AQUARIUS MISSION**



# **SAC-D / Aquarius**

## **International Partnership Program**

### **CONAE - NASA**



**Provides Service Platform  
and SAC-D Science  
Instruments,  
Mission Operations  
& Ground System**



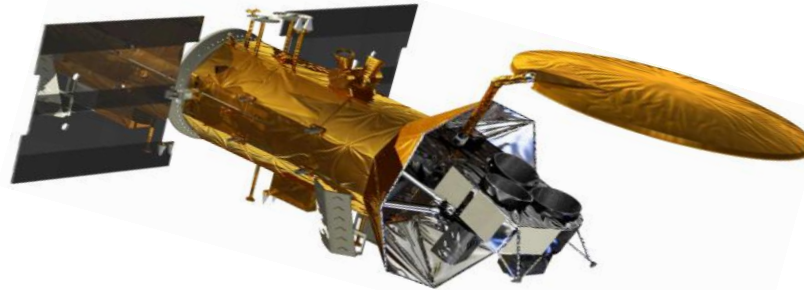
**Provides launch vehicle and  
scientific instrumentation:**

**Aquarius**

**Salinity**

**Microwave**

**Instrument**



# **INVAP**

**Prime contractor for design, development,  
fabrication and operations**



## **SAC-D/Aquarius Mission**

### **Global Ocean Salinity Measurement**



**NASA'S Aquarius Project Payload**  
**(VALUED AT USD 180 MILLION)**  
**flies on Argentine SAC-D spacecraft.**



## **THE COMPANY**

- **Created September 1976**
- **State owned - Province of Rio Negro**
- **Operates as a Private Company**
- **Annual Sales: 200 Million USD**
- **+ 970 employees (85% Professionals and Technicians)**
- **Subsidiaries in Brazil and USA, branches in Australia, Egypt and Venezuela**
- **Backlog: \$ 500 M USD**

Have other companies, in particular small and medium companies and academic centers of research sprouted about INVAP ?

**YES !**



## S&T ORGANIZATIONS



**ZVALT**  
ENERGÍA EN MOVIMIENTO

**MICROWATT**  
MICROCENTRALES HIDROELECTRICAS

**Petroplastic**

**Convertec**

Energía Alternativa Inteligente

**TecnoAcción**

## ENTERPRISES

**UTN**  
UNIVERSIDAD TECNOLÓGICA NACIONAL

  
Instituto  
Balseiro



 UNIVERSIDAD  
**FASTA**

## UNIVERSITIES



## FOUNDATIONS



FUNDACIÓN  
JOSÉ A. BALSEIRO



FUNDACIÓN  
BARILOCHE

Río Negro Association  
of Technological Innovators



How was all this highly unusual development possible in a country devoid of a tradition in technology ?

- Did it come about thanks to Government planning?
- Or rather, did it come about thanks to continued activities that paved the way for the appearance and development of a technological enterprise?

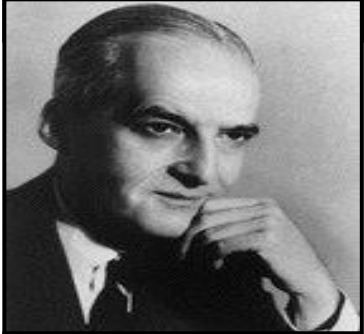
**LET'S TAKE A LOOK AT A BIT OF HISTORY:**



## **1947 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE**

**BERNARDO ALBERTO HOUSSAY (1887 – 1971)**

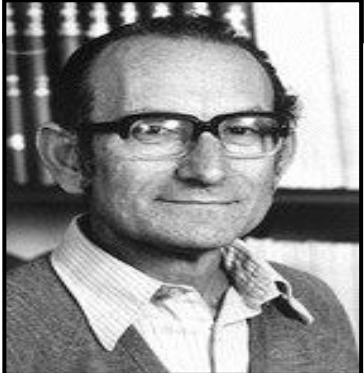
For his discovery of the part played by the hormone of the anterior pituitary lobe in the metabolism of sugar.



## **1970 NOBEL PRIZE IN CHEMISTRY**

**LUIS FEDERICO LELOIR (1906 – 1987)**

For his discovery of sugar nucleotides and their role in the biosynthesis of carbohydrates.



## **1984 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE**

**CÉSAR MILSTEIN (1927 – 2002)**

For the theories concerning the specificity in development and control of the immune system and the discovery of the principle for production of monoclonal antibodies.

## **SOME S&T MILESTONES IN NUCLEAR FIELD**

**1948** → Huemul Project for nuclear fusion

**1950** → Creation of the National Commission of Atomic Energy (CNEA)

**1955** → Creation of the Instituto Balseiro

**1958** → Local construction of the first nuclear reactor in Latin America,  
including the provision of the fuel elements

**1974** → First nuclear power plant in Latin America: Atucha I

## **SOME S&T MILESTONES IN NUCLEAR FIELD STEPS TOWARD THE BIRTH OF OUR ENTERPRISE**

- 1972** → Some applied research groups spearhead research with the light of technological development
- 1976** → Creation of INVAP, a Government owned company as a spin-off of CNEA
- 1983** → Argentina announces the country has achieved control of the technology for the enrichment of uranium



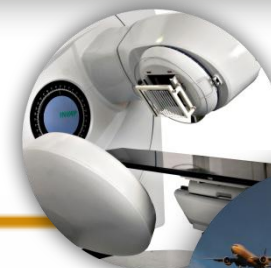
- **Scientific “fertile ground”: crucial to the viability of this nuclear development.**
- **At the beginning serendipity played a part (Huemul Project in Bariloche) but later, strategic policy driven by the need for nuclear technology development.**

**INVAP's diversification from Nuclear to Space and to  
Defense driven by the need to survive during  
Nuclear slow-down.**

**1972  
NUCLEAR**



**1985 MEDICAL SYSTEMS**



**2002 RADARS**



**1989 AEROSPACE**



**2009**

**COMMUNICATIONS**



**1978 INDUSTRY**



How to develop and place on the international market sophisticated equipment and plants coming from a country devoid of an established position as an exporter of high technology? WITH NO ADDITIONAL COST TO THE GOVERNMENT...

By means of the **strategic use of federal government purchasing power**



## **STRATEGIC USE OF PURCHASING POWER**

**THE STRATEGIC USE OF GOVERNMENT PURCHASING POWER IS NECESSARY TO PROMOTE THE LOCAL DEVELOPMENT OF STRATEGIC AND COMPETITIVE INDUSTRIES**

- **Local projects, besides satisfying the needs of the country, are launching-platforms for the global market.**
- **International competition helps to develop and polish competitive skills, improving quality and confidence.**
- **Success abroad allows for the undertaking of larger and more ambitious domestic projects which in turn will serve as launching-projects of the global market.**

# CONCLUSION

# спасибо



INVAP EMPLOYEES  
January 2010