



IAEA Technical Meeting on networking for nuclear education

5-8 December 2011, Vienna, Austria

LATIN AMERICAN NETWORK FOR EDUCATION AND TRAINING IN NUCLEAR TECHNOLOGY

LANENT

R. Barrachina, J.L. François



LATIN AMERICAN NETWORK FOR EDUCATION AND TRAINING IN NUCLEAR TECHNOLOGY - LANENT

Created in December 2010 (still in growing stage) to:

- Promote, manage and preserve nuclear knowledge,
- Ensure the availability of qualified human resources,
- Facilitate and improve cooperation,
- etc.

... in education, training and outreach in nuclear technology

Introduction



LATIN AMERICAN NETWORK FOR EDUCATION AND TRAINING IN NUCLEAR TECHNOLOGY - LANENT

Organization

- GENERAL ASSEMBLY
- COORDINATION COMMITTEE
- PRESIDENT (R. Barrachina – Argentina)
- VICEPRESIDENT (J.L. François – Mexico)
- SCIENTIFIC SECRETARY (M. Scaffoni – OIEA)
- WORK PACKAGES:
 - **WEB page, including an educative portal**
www.cnea.gov.ar/lanent
 - **Courses and careers**
 - **Educative material**
 - Students and teachers' mobility and scholarships
 - Academic structures and curricula
 - **Liaisons**
- Membership is open to universities, national educational networks, research centers, governmental entities, and other institutions.
- Others may participate as collaborating members (UPM-Spain).



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International Atomic Energy Agency

LATIN AMERICAN NETWORK FOR EDUCATION AND TRAINING IN NUCLEAR TECHNOLOGY - LANENT

Members

Argentina

- Autoridad Regulatoria Nuclear (ARN)
- Comisión Nacional de Energía Atómica (CNEA)
- Instituto Balseiro (IB)
- Instituto Sabato (IS)
- Instituto de Tecnología Nuclear Dan Beninson (IDB)

Bolivia

- Instituto Boliviano de Ciencia y Tecnología Nuclear

Brazil

- Comisión Nacional de Energía Nuclear (CNEN)

Chile

- Comisión Chilena de Energía Nuclear (CCHEN)
- Universidad Metropolitana de Ciencias de la Educación

Cuba

- Instituto Superior de Tecnologías y Ciencias Aplicadas (InSTEC)



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Members

Ecuador

- Escuela Politécnica Nacional
- Subsecretaría de Control, Investigación y Aplicaciones Nucleares, under the Ministerio de Electricidad y Energía Renovable

Mexico

- Universidad Nacional Autónoma de México
- Red Mexicana de Educación, Capacitación e Investigación Nuclear

Peru

- Instituto Peruano de Energía Nuclear

Paraguay

- Comisión Nacional de Energía Atómica

Uruguay

- Dirección Nacional de Minería y Energía, under the Ministerio de Industria, Energía y Minería

Associated Member

- Universidad Politécnica de Madrid – Spain

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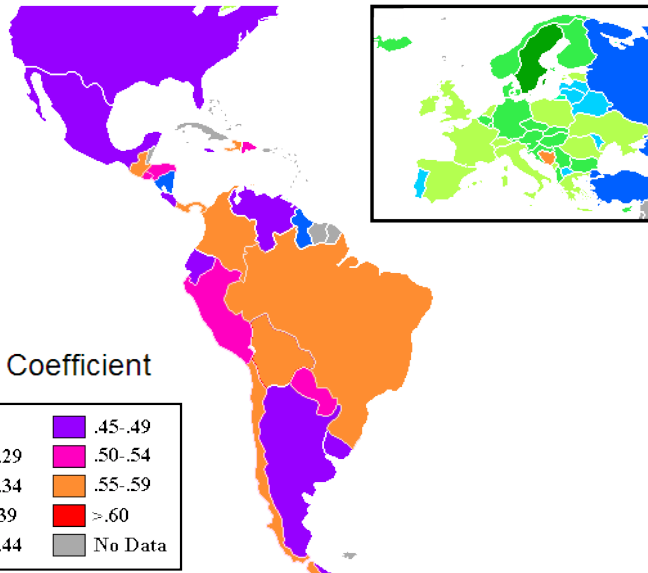
■ Area: $21 \times 10^6 \text{ km}^2$
 ■ Population: 600×10^6
 ■ GDP-nominal: $5 \times 10^{12} \text{ USD}$

5 x
 1.2 x
 0.3 x



absence of cultural or idiomatic barriers.
Português + Español = *Portuñol*

economic, social and cultural
 inequalities



Facts

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NUCLEAR MEDICINE

Status



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Status



ATUCHA - ARGENTINA



ANGRA - BRAZIL



EMBALSE - ARGENTINA



LAGUNA VERDE - MEXICO

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RESEARCH REACTORS

Country	Name	Reactor Type	Thermal Power (kW)	Thermal Flux (n/cm ² /s)	Fast Flux (n/cm ² /s)	Criticality Date
Argentina	RA-0	TANK	0	1.00E+07	1.00E+07	01/01/1965
Argentina	RA-1 ENRICO FERMI REACTOR	TANK	40	1.50E+12	1.00E+12	20/01/1958
Argentina	RA-3	POOL	5000	4.80E+13	1.40E+14	01/08/1968
Argentina	RA-4 (EX. SUR-100)	HOMOG (S)	0	6.00E+07		01/01/1972
Argentina	RA-6	POOL	500	1.10E+13	1.80E+12	23/09/1982
Argentina	RA-8	CRIT ASSEMBLY	0	1.00E+08		17/06/1997 Temp. Shut.
Brazil	ARGONAUTA	ARGONAUT	0	4.40E+09	8.90E+09	20/02/1965
Brazil	IEA-R1	POOL	5000	4.60E+13	1.30E+14	16/09/1957
Brazil	IPEN/MB-01	CRIT ASSEMBLY	0	1.00E+09	6.00E+09	09/11/1988
Brazil	IPR-RI	TRIGA MARK I	100	4.30E+12	1.50E+12	06/11/1960
Chile	RECH-1	POOL	5000	7.00E+13	5.00E+13	13/10/1974
Chile	RECH-2	POOL	2000	1.00E+13	1.00E+13	06/09/1989 Temp. Shut.
Colombia	IAN-R1	POOL	100			20/01/1965
Jamaica	UWI CNS SLOWPOKE	SLOWPOKE	20	1.20E+12	1.00E+11	13/03/1984
Mexico	CHICAGO MODELO 9000	SUBCRIT	0	2.60E+04	9.40E+04	14/05/1969
Mexico	TRIGA MARK III	TRIGA MARK III	1000	3.30E+13	3.10E+13	08/11/1968
Peru	RP-0	CRIT ASSEMBLY	0	1.00E+07		20/07/1978
Peru	RP-10	POOL	10000	1.20E+14	1.00E+14	30/11/1988

Status

Source: www-naweb.iaea.org/naweb/napc/physics/research_reactors/database/database.html

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Collaboration

Agreement between Brazil and Argentina to build two Research Reactors Monday, 31 January 2011 17:03

Today, Mrs. Norma Boero, President of the National Atomic Energy Commission of Argentina (CNEA) and her counterpart Dr. Odair Dias Gonçalves, President of the National Atomic Energy Commission of Brazil (CNEN) signed a cooperation agreement to build two new multipurpose research reactors.

Both reactors, that will be dedicated to the production of radioisotopes and fuel and materials irradiation testing and research with neutron beams, will have 30MW of power and their design will be similar to the OPAL (Open Pool Australian Light -water) reactor, which was designed and built by Argentina for the Australian Nuclear Science and Technology Organization (ANSTO) and inaugurated on April 2007.

The agreement, signed during the first official visit of Brazilian President Mrs. Dilma Rousseff to Argentina, establishes that both CNEA and CNEN, together with other authorities, will intensify their efforts to develop reactors in cooperation, as a means of reducing costs and increasing efficiency in the process.



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Nuclear education



UFRJ - BRAZIL



**UAM – IZTAPALAPA -
MEXICO**



**INST BALSEIRO -
ARGENTINA**

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Graduate studies



Expectations

- Identification of **opportunities to link** LANENT with other networks.
- Facilitate the **communication** between LANENT members and other networks' members.
- **Link Web pages** and educative portals of different networks.
- Identification of **Nuclear Education, Training and Outreach resources** (courses, careers, materials, etc.) available in the networks, that could be shared.
- Identification of **distance and/or e-learning resources** (courses, educative material, etc.) that could be shared between networks.

Expectations (Cont.)

- Identification of **opportunities for exchange** of students and teachers.
- Identification of scholarships, grants and other means of **financial support** for students and teachers.
- Facilitate the exchange and analysis of existing **curricula and core competences**. → common Nuclear Engineering curricula.
- Define and work on a **common “important” project** using ICT (Virtual distance work in a research reactor for educational purposes and/or in a power reactor simulator for training).

Conclusions

- LANENT is looking forward to networking with you in a fruitful and successful collaboration



***THANK YOU
GRACIAS
OBRIGADO***