Progress Report 2011 - 2013

Instituto de Pesquisas Energéticas e Nucleares
São Paulo - Brasil
2014

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Progress Report *2011-2013 is an extraordinary publication with limited edition.*

All the research activities, products and services are responsibility of the scientific staff of IPEN.

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Electronic edition available through www.ipen.br

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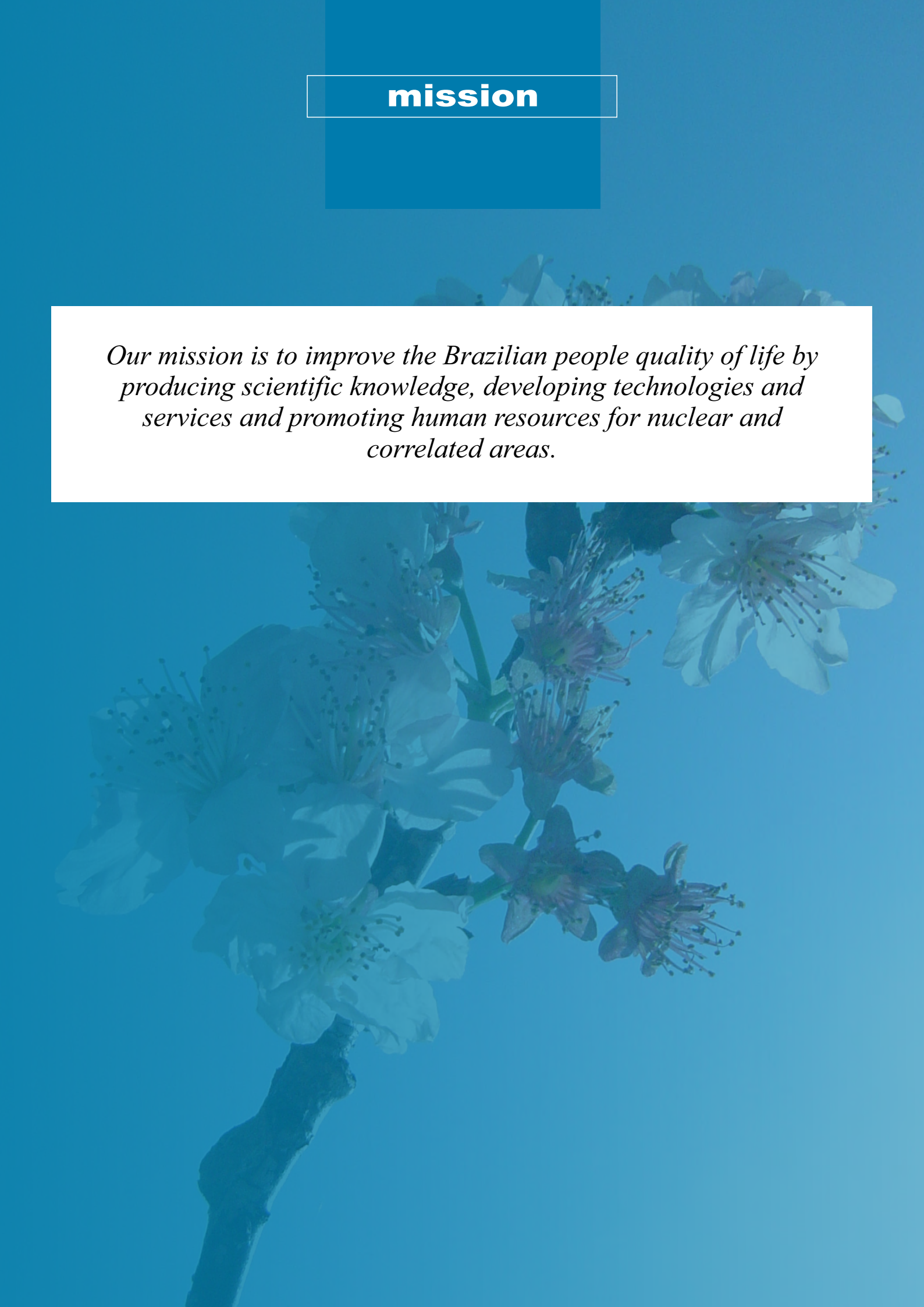
mission

Our mission is to improve the Brazilian people quality of life by producing scientific knowledge, developing technologies and services and promoting human resources for nuclear and correlated areas.



O *Ipen* é uma autarquia vinculada à Secretaria de Desenvolvimento Econômico, Ciência, Tecnologia e Inovação do Estado de São Paulo, associada à Universidade de São Paulo e gerida técnica, administrativa e financeiramente pela Comissão Nacional de Energia Nuclear, órgão do Ministério da Ciência, Tecnologia e Inovação.

foreword

The period covered by this report, 2011-2013, is marked by several events essential to the progress of activities developed at IPEN.

The agreement between the Federal government through the regulating agency, CNEN, and the Ministry, MCTI, the São Paulo State Government and the University of São Paulo, that was designed during the last few years was signed on May 31 of 2012, assuring the necessary conditions for sustaining the institution for the next 25 years besides bringing back to IPEN its role in the Brazilian Innovation process. A discussion of the future of CNEN and its engagement in the Nuclear Brazilian Program was started and IPEN took part of the discussion panels.

IPEN maintained the efforts to overcome the ^{99}Mo supply crisis that began in 2009. An immediate solution was achieved by an agreement between Brazil and Argentine. A new scheme for ^{99}Mo import was initiated with three different suppliers and a new schedule for the production of ^{99m}Tc generators was implemented three times a week. The project of nationalizing the production of ^{99}Mo by the fission of LEU targets was started, together with the new Brazilian multipurpose reactor (RMB) project.

The conceptual design of RMB systems and associated facilities are being developed by the technical staff of the National Nuclear Energy Commission (CNEN) led by IPEN. IPEN has also led the development and presentation of the Site Survey Report to obtain the nuclear and environmental licenses of the site.

The Nuclear Technology Graduate Program of IPEN, in association with the University of São Paulo, achieved the mark of 2217 titles concluded: 1511 masters and 706 doctorates and maintained the excellence mark (grade 6) in the Federal Government Evaluation (CAPES) for the period 2010-2012.

There was also the Fukushima accident on March 11 of 2011. This accident was a major drawback for the public acceptance of nuclear energy. This event raised concerns that had to be clarified with the Institute assistance.

The results of the R&D centers are presented according to the main programs: Radiopharmacy, Ionizing Radiation Applications, Nuclear Science and Technology, Nuclear Reactors and Fuel Cycle, Renewable Energies, Materials and Nanotechnology, Environmental Science and Technology, Biotechnology and Lasers Technology. It must be emphasized that all these results were accomplished due the efforts and dedication of the IPEN staff and were supported by CNEN, MCTI, SDECT/SP, University of São Paulo, IAEA, FAPESP, FINEP, CAPES and CNPq.

organization chart

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short profile

IPEN - Nuclear and Energy Research Institute is a State of São Paulo autarchy, associated to the University of São Paulo - USP for educational purposes and supported and operated technically and administratively by the National Nuclear Energy Commission - CNEN, a federal agency of the Ministry of Science, Technology and Innovation.

The Institute was founded in 1956 with the main purpose of doing research and development in the fields of nuclear energy and its applications. It is located at the campus of USP, in the city of São Paulo, in an area of nearly 500,000 m^2. It has over 900 employees and 36% of them have qualification at master or doctor level.

IPEN is recognized as a national leader institution in research and development in the areas of radiopharmaceuticals, industrial applications of radiation, basic nuclear research, nuclear reactor design and operation and nuclear applications, materials science and technology, laser technology and applications.

Along with the R&D, it has a strong educational activity, having a graduate program in Nuclear Technology, in association with the University of São Paulo, USP, ranked as the best university in the country. The Federal Government Evaluation institution CAPES, granted to this course grade 6, considering it a program of Excellence. This program started at 1976 and has awarded 706 Ph.D. degrees and 1511 master degrees since them. The actual graduate enrollment is around 400 students.

The internal organization structure comprehends two levels, one for strategic and political issues and for decisions making, composed by the Technical and Administrative Council - CTA and another for the executive and operational actions, coordinated by the Research and Development Centers, grouped according to their research, development and innovation activities.

IPEN has a rigorous program of radiological control and nuclear safety for the activities related to nuclear and radiological aspects. This program comprises personal and environmental monitoring and radiological emergency assistance.

contents