IAEA/UNDP at Work in South America

No travel posters can do justice to Brazil or to Argentina because they fail to convey the overwhelming thrust and spirit of the population. To help these two nations come closer to realizing their tremendous potential, the United Nations Development Programme (UNDP) has established two large-scale projects for which the IAEA is the executing agency. In Brazil the assistance is a basic one to improve food production, and in Argentina a more sophisticated approach has been taken to help provide a quality control service to industry. They both illustrate the enormous scope of assistance which can be provided within the framework of United Nations expertise.

Brazil has almost half of the land area of South America, and 40% of the people are engaged in agricultural production, which represents 20% of the Gross National Product. The dominant export crops are coffee and sugar cane. For human food, the legumes (beans, soybeans and peanuts) hold first place. However, only 1% of the bean crop is grown from improved seed.

The Brazilian Federal Government, through the National Nuclear Energy Commission (CNEN) has demonstrated a deep interest in exploiting nuclear techniques in agriculture as a means of attacking problems which cannot easily, or at all, be approached by using conventional methods. Just one year ago UNDP, working with the IAEA, launched a separate project at the Centre of Nuclear Energy in Agriculture (CENA) in Piracicaba, a small country town 170 km from São Paulo. This project is to assist the Government in expanding the agricultural application of nuclear technology, particularly in plant breeding and nutrition, in achieving greater effectiveness in the use of fertilizers and in the control of pests and diseases. The aim of the project is to increase and improve the country's agricultural production -- a very essential one in a nation whose annual population growth during the last 10 years has been 2.9%.

CENA works in close collaboration with the nearby Escola Superior de Agricultura, the agricultural college of the University of São Paulo, one of the leading faculties of its kind in Brazil.

ARGENTINA

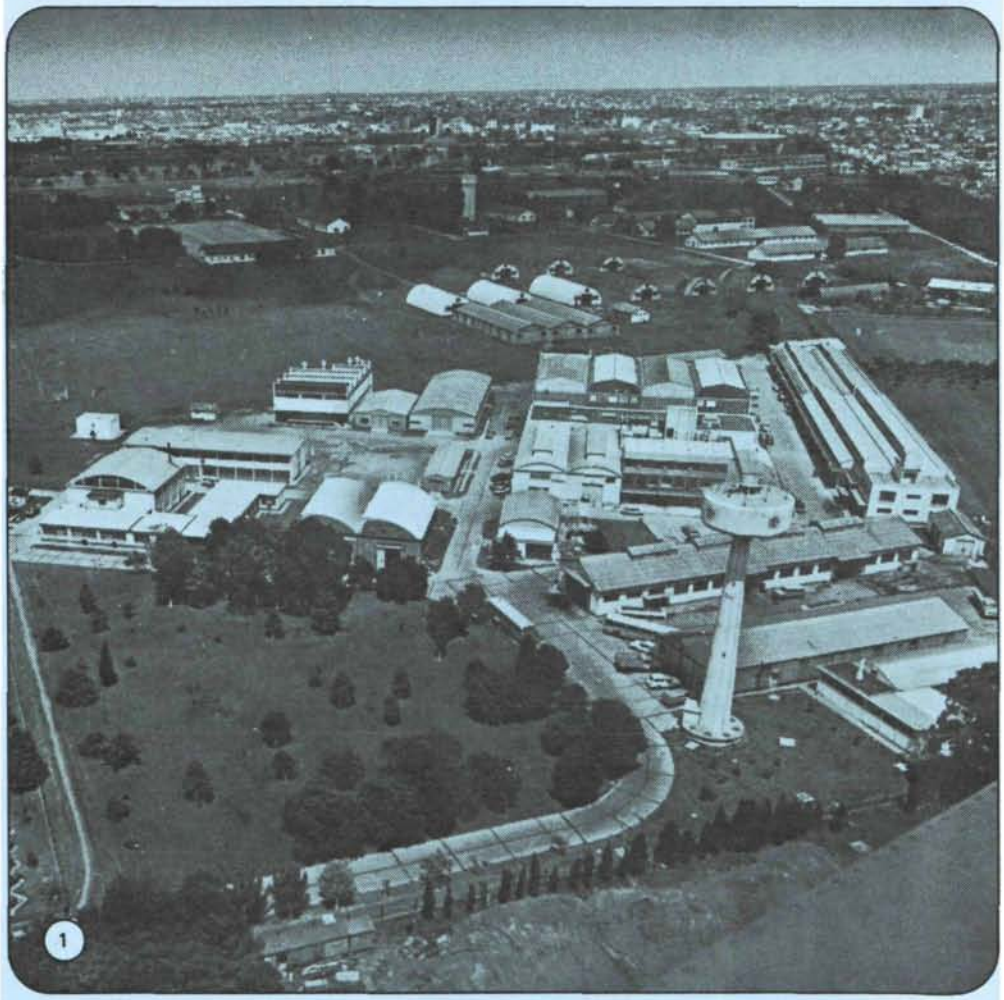
Most of the help given by UN agencies has been focused on the developing nations with such basic needs as better and larger rice crops, the search for sufficient water or the training of experts in fields ranging from education to medicine. However, many countries feel that once they have passed to a stage where survival at a reasonable standard of health and comfort has been reached, they no longer receive the technical help needed to lift them to the next level of industrialization.

Argentine industry, which is expanding at an ever faster rate, needs help in overcoming the problems of improving and/or maintaining the quality and reliability of its products. It is the most productive sector of the economy, but this transition from an agricultural to an industrial society has been achieved in a short space of time. Quality control in applying increasingly complex and sophisticated production processes is therefore of major importance.

UNDP acceded to the Argentine Government's request for assistance in setting up a National Institute for Non-Destructive Testing and Quality Control to complement the small programme already being carried out by the Metallurgy Department of the National Atomic Energy Commission (CNEA).

The new Institute, which is being funded by UNDP with the IAEA as executing agency, in co-operation with UNIDO, was set up at the end of 1972, and is working in a section of the CNEA premises at Constituyentes, Buenos Aires. Its aim is to provide services and technical assistance to different branches of industry and to contribute – through its own programme of research and development – to the advance of non-destructive testing in Argentina. It has already provided training courses for engineers and technicians and hopes to provide additional services through a mobile laboratory. The non-destructive testing methods for which programmes are being set up include radiography and gamma radiography, fluoroscopy, ultrasonics and acoustic emission, and thermal and infra-red methods.

This picture story shows some of the aspects of the work being carried out by UNDP/IAEA both in Brazil and in Argentina.



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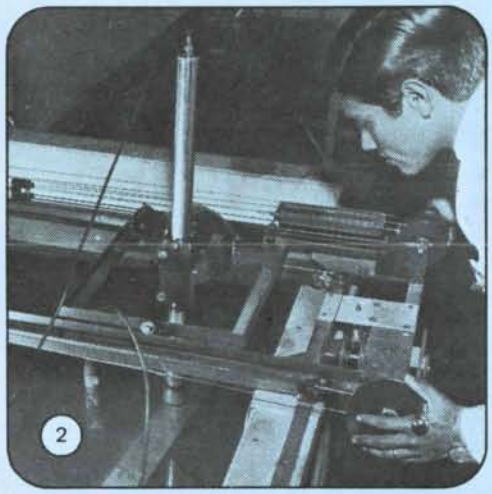
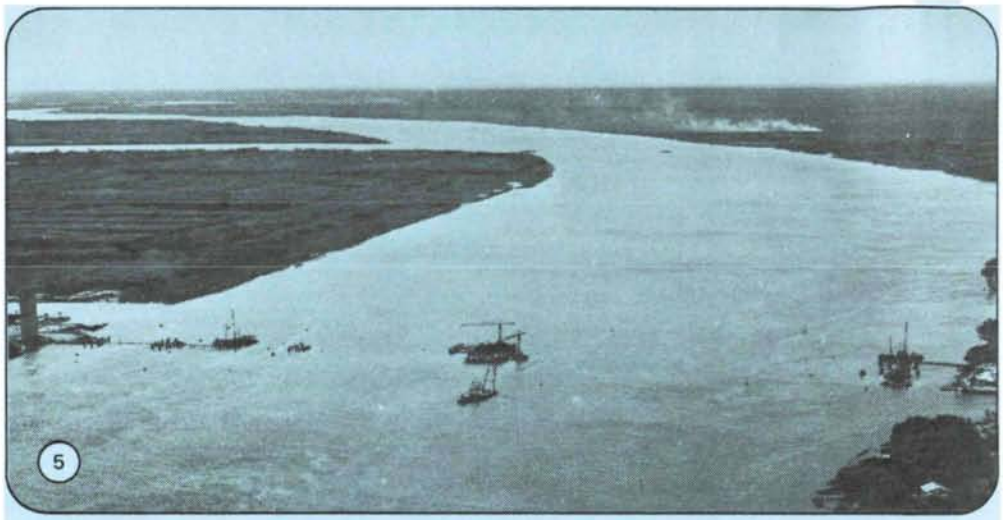
1 Aerial view of the Constituyentes Atomic Centre in Argentina, in which the UNDP/IAEA Project is located.

2 A trainee at the National Institute for Non-Destructive Testing and Quality Control at Constituyentes inspects metallic bonding in cladded specimens with ultrasonic technique.

3 A CENA student checks on water culture experiments being carried out to study the effect of gamma irradiation on bean protein.

4 The modern electron microscope at the Centre of Nuclear Energy in Agriculture (CENA) in Piracicaba is used to study plant virus.





5 A bridge across the Paraná River is part of a major Government development plan for the provinces of Buenos Aires and Entre Rios in Argentina. Non-Destructive Testing is essential as a quality control for the metal and cement construction components of the bridge, which is being manufactured in Argentina.

6 CENA post-graduate student Dr. A. Ando faces thousands of seed samples in screening genetic progress.

7 Construction on the Guazú viaduct on the right bank of the Paraná River is already well under way. In the foreground are the newly-built workshops. This will be the world's first suspended bridge for rail and road. It is 50 metres above water level.

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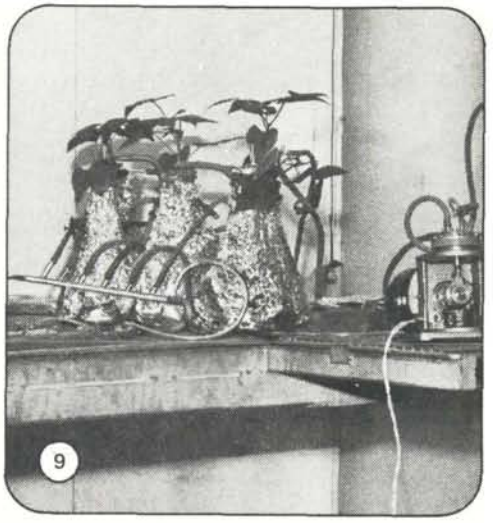

8 A view inside the CENA glasshouse shows the waterculture of beans being tested for the ability of various kinds of Phascolus Vulgaris to utilize nutrients.

9 An experiment to determine nitrogen fixation by innoculated beans using ^{15}N in a closed system is seen inside the growth chamber at Piracicaba.

10 While construction work is still going on to complete some of the new laboratories at the CENA project, visiting expert Dr Yigal Henis, a soil microbiologist explains his theories.