

The Research Contract Programme

Article III of the IAEA's Statute states that the Agency is authorized to encourage and assist research on, and development and practical application of, atomic energy for peaceful purposes throughout the world and to foster the exchange of scientific and technical information, as well as the exchange of scientists in the field of peaceful uses of atomic energy. The IAEA in accordance with Article III of its Statute works to foster the role of nuclear science and technology in support of sustainable development. In the field of Nuclear Sciences and Applications, this involves both advancing knowledge through research and applying this knowledge to tackle pressing worldwide challenges of mankind - hunger and malnutrition, poverty, disease, degradation of natural resources, environmental pollution, climate change and to other goals of sustainable development.

The Agency implements its research agenda through the development and implementation of the Research Contract Programme. The Agency's co-ordinated research activities are designed to contribute to this mandate, by stimulating and coordinating the undertaking of research by scientists in IAEA Member States in selected topics using nuclear and related techniques. These co-ordinated research activities are normally implemented through Co-ordinated Research Projects (CRPs) that bring together research institutes in both developing and developed Member States to collaborate on the research topic of interest. The Agency may also respond to proposals from institutes for participation in the research activities by awarding individual contracts not related to a CRP. A small portion of available funds is used to finance individual projects, which deal with topics covered by the Agency's scientific programme. The research that is supported encourages the acquisition and dissemination of new knowledge and technology generated through the use of nuclear technologies and isotopic techniques in the various fields of work covered by the Agency's mandate.

Research is implemented according to policies and procedures approved by the Director General of the IAEA. General Information on these, current research activities and proposal forms can be found in the website of the programme at: <http://www-crp.iaea.org/>.

Research efforts supported by the IAEA are included as tasks in the approved Programme of Work and Budget of the Agency. The IAEA provides financial support to conduct research activities agreed in the work plan of the project through the formation of research networks called Co-ordinated Research Projects (CRPs), which involve scientists from National Agricultural Research Systems (NARS) in developing countries (5 - 7 Contract Holders) and from International Agricultural Research Centers (IARCs) of the CGIAR system and Advanced Research Institutes (ARIs) from developed countries (3 - 5 Agreement Holders). Contract holders receive US \$ 6,000 to 9,000 per year renewable upon satisfactory evaluation of a progress report. The project duration is normally 5 years with Research Co-ordination Meetings (RCMs) every 18 months. At the end of 2003, the IAEA Research Contract Programme had 120 active CRPs, of which 29 (or 24 %) were in the field of Food and Agriculture. Similarly, in the year 2003, from a total of US \$ 7 million awarded by the IAEA to institutes in Member States under contractual arrangements and to fund research co-ordination meetings, some 37 % (US \$ 2.58 million) was spent in the Food and Agriculture Programme.

In the IAEA Programme of Work and Budget (PWB) for the 2004-2005 biennium six CRPs are co-ordinated by the SWMCN sub-programme under three project areas ([Table 1](#)).

The move towards CRPs that involve integration of soil, water and nutrient management requires the use of a suite of nuclear-based techniques, which increases the cost and complexity of the research endeavour. The new approach also calls for the creation of databases and application of models to integrate large and complex sets of data obtained under a range of climatic, edaphic and agronomic conditions. In the quest for a sharper focus for the projects of the sub-programme, a move towards regional rather than global CRPs has occurred, targeting cropping systems or agro-

ecological zones with the highest agricultural potential (e.g. Cereals such as maize, sorghum, millet/grain legumes in the savannas of Africa and Latin America; the rice-wheat system in Asia). However, a global approach was utilized in the projects that address soil erosion (Soil Conservation CRP) and organic matter dynamics (Conservation Agriculture CRP) because of the nature and scale of the sustainability issues.

Table 1. Co-ordinated Research Projects of the Soil and Water Management & Crop Nutrition Sub-programme (Operational during IAEA PWB 2004-2005)

Project E1.01: Development of integrated plant nutrient and water management practices for increasing soil fertility and crop yields		
Title	Participating NARS/IARCs/ARIs	Duration
Use of Nuclear Techniques for Developing Integrated Nutrient and Water Management Practices for Agro-forestry Systems (CRP D1.20.07)	Contracts: Benin, China, Chile, Costa Rica, Kenya, Malaysia, Sri Lanka, Uganda and Zambia. Agreements: Australia, France, ICRAF-Kenya, TSBF/CIAT-Kenya and UK.	1998-2005
Project E1.02: Development of soil management and conservation practices for sustaining crop production and environmental protection		
Development of Management Practices for Sustainable Crop Production Systems on Tropical Acid Soils through the Use of Nuclear and Related Techniques (CRP D1.50.06)	Contracts: Benin, Brazil (2), Burkina Faso, Cuba, Mexico and Venezuela. Agreements: TSBF/CIAT-Kenya, IITA-Nigeria. Technical contracts: IFDC-USA (2), Germany.	1999-2004
Integrated Soil, Water and Nutrient Management for Sustainable Rice-Wheat Cropping Systems in Asia (CRP D1.50.07)	Contracts: Bangladesh, China (2), India (2), Nepal and Pakistan. Agreements: Australia, CIMMYT-India Technical contracts: Australia, IRRI-Philippines.	2001-2006
Assess the effectiveness of soil conservation measures for sustainable watershed management using fallout radionuclides (CRP D1.50.08)	Contracts: Argentina, Brazil, Chile, People's Republic of China (2), Morocco, Pakistan, Poland, Romania, Turkey and Viet Nam Agreements: Australia, Austria, Canada, Japan, Switzerland and USA Technical Contract: United Kingdom	2003-2007
Integrated soil, water and nutrient management for conservation agriculture (CRP D1.50.09)	Contracts: Argentina, Brazil, India, Morocco, Pakistan, Turkey, Uganda, Uzbekistan Agreements: Australia, TSBF/CIAT-Kenya Technical Contract: Chile	2005-2009
Project E1.05: Identification and development of crop germplasm with superior resource use efficiency and nutritional value and adapted to harsh environments		
Selection for greater agronomic water use efficiency in wheat and rice using carbon isotope discrimination (CRP D1.20.08)	Contracts: Algeria, People's Republic of China, India (2), Morocco, Pakistan and Yemen Agreements: IRRI-Philippines and USA Technical Contracts: Australia and CIMMYT-Mexico	2003-2007