



The IAEA's Role in Nutrition Programmes

The International Atomic Energy Agency (IAEA) programme on nutrition enhances countries' capabilities to combat malnutrition for better health throughout life. It complements the work of other United Nations (UN) agencies, non-governmental organizations (NGOs) and interested stakeholders in the field of nutrition and health, by encouraging the use of accurate nuclear techniques (including stable isotopes) to design and evaluate interventions aimed at addressing malnutrition in all its forms with specific focus on: infant and young child feeding; maternal and adolescent nutrition; diet quality; prevention and control of non-communicable diseases (NCDs); and healthy ageing.

Examples of applications of nuclear and stable isotope techniques

BREASTFEEDING PROMOTION	Objectively measure whether a child is exclusively breastfed, and the amount of human milk consumed (using the deuterium oxide dose-to-mother technique). This method is used to assess accuracy of information reported by the mothers, effectiveness of breastfeeding promotion campaigns, and nutrient intake through human milk.
RECOVERY OF MALNOURISHED CHILDREN	Assess the success of re-feeding programmes for severely and moderately wasted children using body composition (lean mass and fat mass by the deuterium dilution technique) as an outcome indicator. Rapid catch-up weight gain could be associated with disproportionately higher amounts of body fat gain, which could lead to higher risk of NCDs during adult life.
QUALITY OF DIET AND INDIVIDUAL FOODS	<p>Assess body composition as an indicator of nutritional status reflecting the quality of the diet.</p> <p>Measure bioavailability and bioconversion of provitamin A, using isotope labelled β-carotene.</p> <p>Measure absorption and retention of:</p> <ul style="list-style-type: none"> iron and zinc, using their least common stable isotopes from fortified or biofortified foods, or from diverse diets that contain enhancers and inhibitors of absorption; protein from plant foods, using isotope labelled amino acids and protein.
VITAMIN A DEFICIENCY	Measure changes in vitamin A body stores to assess the effect of interventions to prevent vitamin A deficiency (using isotope labelled vitamin A).
OBESITY PREVENTION AND CONTROL	<p>Monitor changes in body composition (lean mass and fat mass using deuterium dilution technique) as they are associated with physiological changes in the body that can lead to NCDs.</p> <p>Assess total energy expenditure using doubly labelled water to estimate energy requirements, and validate measurements of physical activity and dietary assessment tools in different age groups.</p> <p>Assess the distribution of body fat, which is related to NCD risk. Dual energy X ray absorptiometry is used to assess body composition, it provides valuable information on body fat distribution and can measure bone mineral content, which is an indicator of the risk of osteoporosis later in life.</p>

Photo credit: Marjorie Haskell

SUPPORT MECHANISMS OF THE IAEA

These mechanisms include:

1. The Coordinated Research Activities (CRA), which encourage and assist development of and research on nuclear applications for peaceful purposes throughout the world.
2. The Technical Cooperation (TC) programme addresses important development challenges of IAEA Member States by building capacity in the peaceful application of nuclear science and technology, where they complement or offer an advantage over other methods.

COORDINATED RESEARCH ACTIVITIES

- Call for research proposals
- Respond to research questions
- Small group of research institutes
- Duration: 4-5 years
- Small annual grants
- Regular research coordination meetings

TECHNICAL COOPERATION PROGRAMME

- Project requests received from Member States
- National and regional projects
- Building and strengthening capacity for evidence-based nutrition programming, using stable isotope and related techniques
- Biennial planning and implementation cycle
- Training, expert advice, equipment, sample analysis, data management and analysis



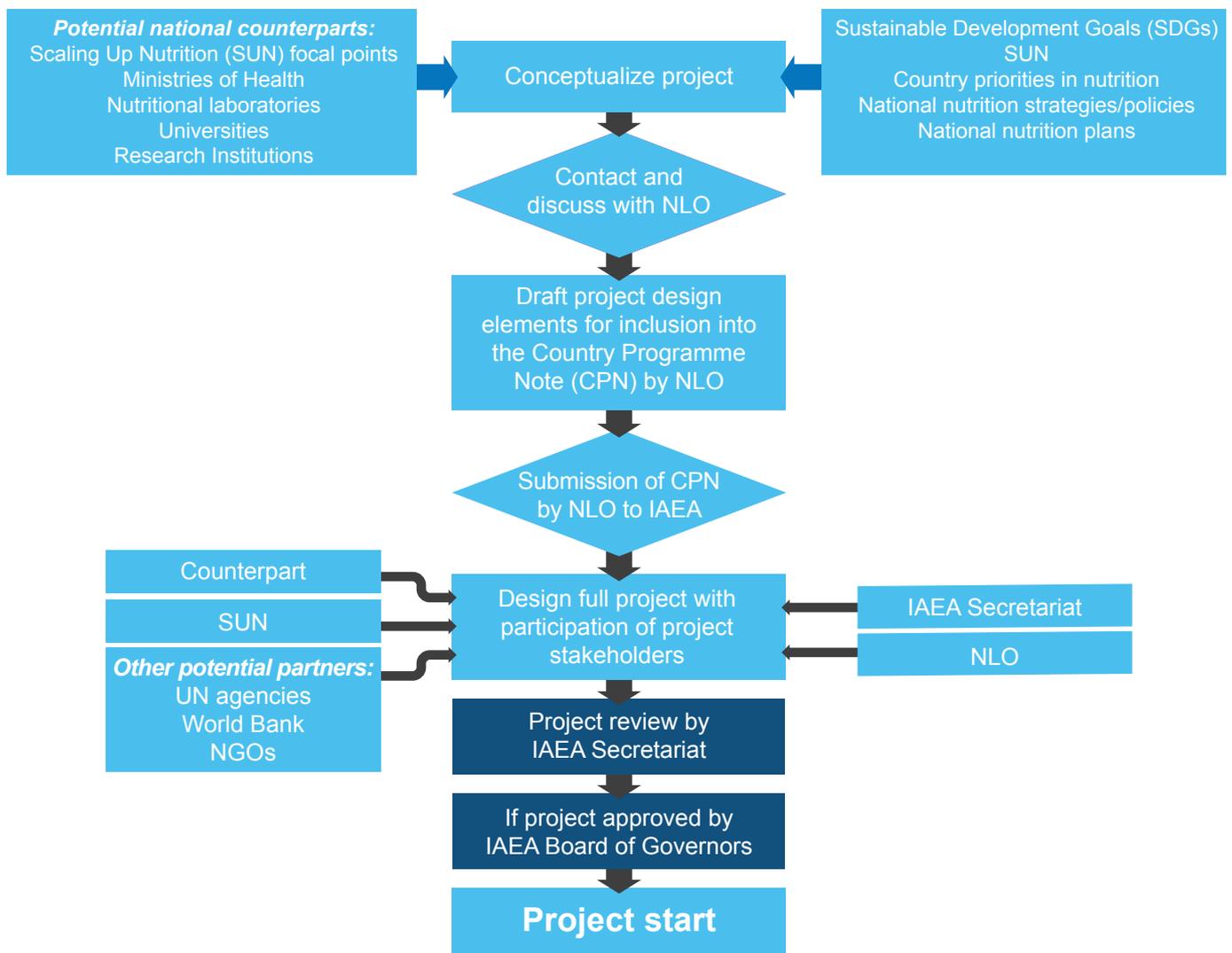
Nuclear Sciences and Applications



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Concrete steps to request project support

The IAEA supports Member States in developing and evaluating nutrition interventions through capacity building, scientific and technical advice, laboratory upgrading, study supplies, networking and knowledge sharing through project meetings, special training courses and fellowships. The National Liaison Officer (NLO), who is designated by the Government in a Member State and recognized by the IAEA, coordinates the TC programme within their country and serves as the primary contact person for the IAEA. The NLO is key to all stages in project design, monitoring and implementation of each IAEA Member State's programme. The TC programme operates in two-year project cycles. Each cycle is preceded by a project design phase whereby the Member States submit their project proposals, which are aligned to prioritized developmental needs that can be addressed using well developed nuclear and nuclear-related techniques, to the IAEA. The steps in the project design phase are outlined below:



The IAEA's efforts will contribute towards Sustainable Development Goals

