

Improving the effectiveness of national nutrition programmes

IAEA interregional project
INT/6/058 “Contributing to the
evidence base to improve stunting
reduction programmes”

Project strategy and objectives

To support national efforts to combat stunting, the International Atomic Energy Agency (IAEA) has developed an interregional project in cooperation with national Ministries of Health and national research institutions in participating countries. The project has also been developed together with representatives of United Nations Children’s Fund (UNICEF) and other developmental organizations. It aims to support national efforts to assess the effectiveness of government programmes to improve the nutritional status of children, with a longer term goal of providing policymakers with an evidence base to select and introduce targeted and effective interventions to reduce stunting in children under the age of five years in their countries. Those interventions may include promotion of breastfeeding, improved dietary practices, and improved hygiene and sanitation, as well as food fortification and preventive zinc supplementation.

The interregional project aims to provide objective tools for the assessment of: (i) nutrient absorption in the context of unsanitary conditions as an underlying cause of stunting; (ii) the impact of breastfeeding promotion; and (iii) quality of growth. These tools will complement current or planned surveys for programme monitoring and impact evaluation.

One or more of the following three assessments will be conducted in each participating country within the framework of the interregional project:

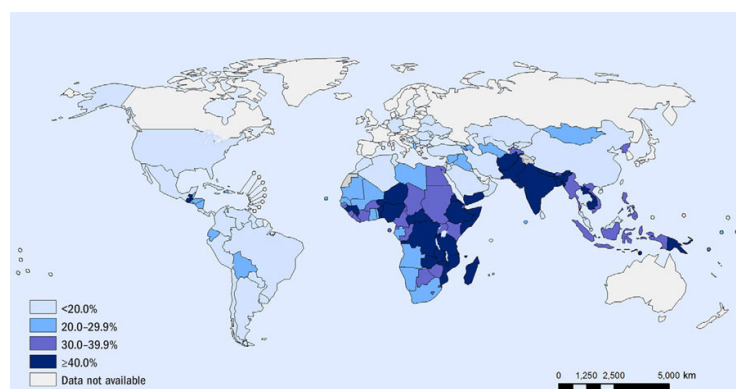


Figure 1: Country prevalence estimates for stunting among children under five years of age (Source: de Onis et al., 2012. Public Health Nutrition)

What causes stunting?

Stunting is caused by chronic undernutrition and recurrent infections during the most critical period of growth and development in a child’s life. Children from 0 to 59 months of age who are shorter than their peers in the World Health Organization (WHO) reference population are considered to be stunted. Today, about 165 million children under five years of age are stunted. Most of these children live in low and middle income countries (Figure 1).

Child chronic undernutrition results from a combination of inadequate infant and young child feeding practices, from a lack of access to health care, and from diseases due to an unhealthy environment. Stunting not only reflects a process of linear growth failure, it also has long lasting harmful consequences for cognitive development, school performance and ultimately for future earnings. This in turn affects the development potential of countries.

Under the Scaling Up Nutrition (SUN) movement, many countries have adopted national policies to bring about measurable improvements in the nutritional status of children, with the aim of reducing stunting.



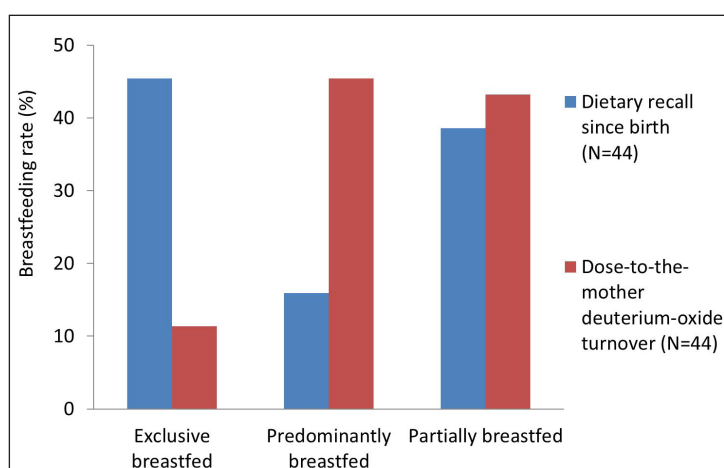
(i) Assessment of the absorptive capacity of the small intestine:

Children affected by gut dysfunction due to unsanitary conditions have a reduced capacity to absorb nutrients and have chronic inflammation. This is called environmental enteric dysfunction and seems to play an important role in a child's growth faltering in low and middle income countries. It is assumed that one of the causes for the moderate effect of nutritional interventions targeting child growth is reduced nutrient absorption, owing to environmental enteric dysfunction.

A breath test using selected stable isotopes can provide an accurate and direct assessment of the absorptive capacity of the small intestine.

(ii) Assessment of breast milk intake and breastfeeding patterns:

Children who are exclusively breastfed during the first six months of life are less prone to diarrhoea, acute lower respiratory infections and pneumonia, and have a lower risk of infant mortality. Studies suggest that optimal breastfeeding improves brain development and may protect against cardiovascular diseases.



Evaluation of breastfeeding promotion often relies on maternal reporting, which is easy and cheap to conduct, but can be biased (Figure 2). The deuterium oxide 'dose-to-mother' technique is used to assess objectively whether a child is exclusively breastfed, and to measure the amount of breast milk consumed by the child during the continued breastfeeding period.

(iii) Assessment of body composition:

A balanced diet provides carbohydrates, fat, protein and most of the micronutrients necessary for energy, growth and body repair, maintenance and protection. When exposed to nutritional interventions, undernourished children achieve catch-up growth in weight more easily than in height. An imbalance between protein and energy in the diet could be one of the factors that contribute to a failure in achieving the potential linear growth of a child.

The deposition of lean mass is considered an indicator of dietary quality and health. It can be measured using stable isotope techniques. The assessment of body composition (relative amounts of fat mass and lean mass) indicates whether food fortification or supplementation programmes – with or without a behaviour change component – improve the quality of growth.

These assessments will be conducted in cooperation with national research institutions. The IAEA will contribute to capacity building through training, supporting expert advice on evaluation aspects, providing consumables for assessing the additional indicators, and supporting sample and data analysis.

Figure 2: Comparison of breastfeeding patterns based on data obtained from dietary recall since birth and from dose-to-the-mother deuterium-oxide turnover (Medoua et al., 2012. Maternal & Child Nutrition).

The project at a glance

Overall goal	To provide the evidence base to improve stunting reduction programmes for children under the age of five years
Potential participating countries:	Bangladesh, Benin, Bolivia, Burkina Faso, Guatemala, Madagascar, Malawi, Mauritania, Mozambique, Myanmar, Nepal, Philippines, Senegal, Viet Nam and United Republic of Tanzania
Potential partners:	UNICEF, the World Bank, the Inter-American Development Bank, CARE International, Ministries of Health of the participating countries and selected local research institutions
Thematic area:	Health and nutrition
Related sustainable development goal (SDG):	SDG2 : 'End hunger, achieve food security and improved nutrition and promote sustainable agriculture', and SDG3, 'Ensure healthy lives and promote well-being for all at all ages'
Expected start:	January 2016
Expected duration:	4 years
Estimated project budget (in EUR):	1 082 000 Euros through the IAEA; 670 000 Euros through extrabudgetary funding

Email: Official.Mail@iaea.org

<https://www.iaea.org/technicalcooperation/Topics-in-focus/Nutrition/index.html>

<https://nucleus.iaea.org/HHW/Nutrition/index.html>