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Editorial

Measurement: Food

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Since its foundation in 1963, the Codex Alimentarius requires standards for safe, sufficient and nutritious food, ensuring good health and wellbeing for all and in accordance with a sustainable and responsible management of natural resources. These aims are also (or still?!) at the core of the 2030 Agenda for Sustainable Development.

However, the EAT Lancet Commission proclaimed in 2019 our current food systems as unsustainable [1]. Greenhouse gas emissions from the food value chain account for up to 37% of the greenhouse gas emissions worldwide, and still about one third of all food produced is lost or wasted. On top of that, our food supply, including nutrition-sensitive agriculture and food systems, has to admit the charge of inequality: while yields per hectare have increased significantly in many parts of the world in the last few decades, worldwide over 680 million people are still food insecure.

Besides inadequate supply of vitamins and/or minerals, malnutrition includes forms of undernutrition, but also overweight and obesity, that are increasing the risk for diet-related non-communicable diseases: globally, 11 million deaths were attributable to dietary risk factors [2]. Worldwide, 1.9 billion adults are overweight or obese while 462 million are underweight. Around 45% of deaths among children are attributable to undernutrition. These mostly occur in low- and middle-income countries [3], where early undernutrition often coexists with later overweight – putting at risk those humans living in remote areas with poor infrastructure on one site and those in cities living an increasingly sedentary lifestyle and with steady food access on the other [4].

Food environments play a major role in food choices and dietary intake. Currently, food environments often do not ensure that the healthy choice is the easiest choice. Government policies have the potential to support healthy diets and to reduce levels of malnutrition-related disorders [5]. According to the INFORMAS (International Network for Food and Obesity/non-communicable diseases Research, Monitoring and Action Support), structural policies are more likely to result in sustainable improvements in population nutrition than 'downstream' approaches, and can improve the availability, affordability, acceptability and accessibility of healthy diets for the most vulnerable groups [6].

Habitats – air, soils and water – are increasingly degraded, causing an unprecedented decline in biodiversity, impairing our ability to produce safe und sufficient food and increasing the risk of new diseases with pandemic potential, such as the present SARS-CoV-2 outbreak. Also, ever more food is a trading commodity in a world with complex and often non-transparent supply chains that hinder accountability and can lead to exploitation and fraud. Transformation to more sustainable food systems allowing for healthy, diversified and balanced diets for all humans worldwide requires drastic changes in how we produce, process, transport, retail, consume and dispose of food.

A major constraint allowing those changes and strategies is the dependency of consumers and authorities on reliable data based on valid assessment methods: studies are needed integrating metrological concepts into the measurement process improving quality assurance in, for example, food authenticity, traceability and food crops monitoring, as well as food processing, packaging, and storage.

On the other side, considering the individual or populations, surveillance studies monitoring food choice and diet, and epidemiologic studies examining diet in relation to health, also rely on the strength of the assessment methods. Particularly, biomarkers of nutritional status have been discussed as a more proximal measure of nutrient status. Hence, studies identifying biomarkers of nutritional status and full metabolic profiles aiming to complete them with the genetic makeup of individuals are compulsory as they are less error-prone compared to self-reported intakes.

Measurement: Food is devoted to providing a much-needed space for innovative and cutting-edge research, but also studies of confirmatory nature, introducing metrological principles and improving methods and measures for diet, bringing together experts in nutrition, health, agriculture, food chemistry and engineering from academia, industry, governments/ ministries and non-governmental organizations. The journal welcomes contributions from across those fields.

For questions, comments or feedback, kindly contact the editors.

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