DOI: 10.4455/eu.2021.040

# Coming to terms with the implementation of agriculture-nutrition trans-disciplinary research projects Gießen and Göttingen

## September 2021

Editors:

Dr. Irmgard Jordan, Gießen, Dr. Eleonore Heil, Gießen, Dr. Gudrun Keding, Göttingen


Based on a workshop held in Giessen in November 2019 funded by the German Federal Ministry of Food and Agriculture (BMEL) with the support of the German Federal Office for Agriculture and Food (ptble).

List of workshop participants: Déley Sylvain Dabadé, Dorah Kwamboka Momanyi, Duke Omayio Gekonge, Ernst-August Nuppenau, Esther Evang, Gabriella Chiutsi Phiri, Gracia Glas, Gudrun Keding, Irmgard Jordan, Johnny Mugisha, Kathrin Meinhold, Lydiah Waswa, Mathias Honsou, Michael Krawinkel, Olaide Ruth Aderibigbe, Paul Falakeza Fatch, Peter Kandiado, Sahrah Fischer, Samwel Mbugua, Sheilla Natukunda, Sophie Nansereko, Willis Owino

Gefördert durch:

Bundesministerium für Ernährung und Landwirtschaft

ptble Projektträger Bundesanstalt für Landwirtschaft und Ernährung

aufgrund eines Beschlusses des Deutschen Bundestages

# Workshop results – Term collection

**Why do we need a term collection?**

Working in trans-disciplinary agriculture-nutrition research projects seems to be only natural in order to apply a holistic approach, to understand the various connections and linkages between food production and consumption, and to find balanced solutions for food and nutrition security challenges. However, within trans-disciplinary projects or when presenting results at conferences it was realised that several technical terms and indicators were used assuming that they would be universally understood. At the same time, researchers from other disciplines heard the same term or indicator but understood it in a completely different way. This begins when talking about micro- and macronutrients (for humans or for plants?), about processing (on the field like seed cleaning or in the kitchen like vegetable cooking?), about diversity (agricultural or dietary?), about variety (of a species or in the food?) or about the different forms of malnutrition (under-nutrition, over-nutrition or hidden hunger?) and the various indicators how to measure them.

**What does this term collection comprises?**

With a group of researchers from a number of BMEL/BLE-funded projects working all on agriculture-nutrition linkages in one way or the other in Sub-Sahara Africa or South-East-Asia, a workshop was held to discuss and come up with a list of technical terms and indicators, which are frequently used in nutrition-agriculture research projects. Definitions for terms and indicators were sourced from the literature searching on the FAO, WHO and UNICEF websites, on websites from different CGIAR centres such as IFPRI and Bioversity International and in Google/ Google Scholar. All definitions are listed verbatim so that we did not use any quotation marks. Changes which were made for better understanding were highlighted as followed:

1. Sentences, which were not used completely, will be signed with "/" at the end
2. Words, sentences or paragraphs which have not been considered from the original reference will be indicated as follows: a) for missing of words [.] b) for missing sentences [..] c) for missing paragraphs […]
3. [*word*] indicate inserted amendments or changes made by the authors for better understanding
4. Formats like italic or **„***Name***"** which were used in the original text will be taken off
5. ( ) are used by the authors to indicate that the words can be neglected for the understanding of the respective term or indicator

**What if a term is missing or a definition is outdated?**

The list might be not exhaustive and as new terms might become relevant with time, we are keen to get any type of feedback and input with further terms and up-to-date definitions. Please contact Irmgard Jordan: Irmgard.Jordan@ernaehrung.uni-giessen.de or Eleonore Heil: Eleonore.A.Heil@ernaehrung.uni-giessen.de or Gudrun Keding: gkeding@gwdg.de.

In addition, this list of terms is only in English language while misunderstandings of different terms in other languages – and especially between the languages, when translating e.g. questionnaires into local languages – are a major concern as well. Working on similar list of terms in other languages is very much encouraged and we would appreciate to notify us in case other groups have already established a similar list in another language.

| Term | Definition | Reference |
|---|---|---|
| **Acceptability of food** | 1) Acceptability: The quality of being satisfactory and able to be agreed to or approved of.<br>2) States should recognize that food is a vital part of an individual's culture, and they are encouraged to take into account individuals' practices, customs and traditions on matters related to food [so that it is acceptable to eat this food].<br>3) Food acceptability involves both sensory and affective dimensions of food. Sensory relates to the perception of the gustatory, olfactory, textural, visual, thermal, and other attributes of food. Affective studies concern people's evaluative reactions on a like–dislike or hedonic dimension.<br>4) Acceptability is a multi-faceted construct that reflects the extent to which people delivering or receiving a (healthcare) intervention [or any innovation, e.g. promotion of new foods] consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention [or any innovation].<br><br>See also: Right to food and Sustainable diet and Food security | 1) (Cambridge University Press, 2020a)<br>2) (FAO, 2005)<br>3) Adopted from (Meiselman and Cardello, 2003)<br>4) (Sekhon, Cartwright and Francis, 2017) |

| Term | Definition | Reference |
|---|---|---|
| **Additives** | 1) Food additives are substances added to food to maintain or improve its safety, freshness, taste, texture, or appearance. [They] need to be checked for potential harmful effects on human health before they can be used. The Joint FAO/WHO Expert Committee on Food Additives (JECFA), is the international body responsible for evaluating the safety of food additives. Only food additives that have been evaluated and deemed safe by JECFA, on the basis of which maximum use levels have been established by the Codex Alimentarius Commission, can be used in foods that are traded internationally.<br>2) Food additive means any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result, (directly or indirectly) in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include contaminants or substances added to food for maintaining or improving nutritional qualities.<br>3) Food additives are substances added intentionally to foodstuffs to perform certain technological functions, for example to colour, to sweeten or to help preserve foods. In the European Union all food additives are identified by an E number. Food additives are always included in the ingredient lists of foods in which they are used. Product labels must identify both the function of the additive in the finished food (e.g. colour, preservative) and the specific substance used either by referring to the appropriate E number or its name (e.g. E 415 or Xanthan gum). The most common additives to appear on food labels are antioxidants (to prevent deterioration caused by oxidation), colours, emulsifiers, stabilisers, gelling agents and thickeners, preservatives and sweeteners.<br>4) Feed additives are products used in animal nutrition for purposes of improving the quality of feed and the quality of food from animal origin, or to improve the animals' performance and health, e.g. providing enhanced digestibility of the feed materials. Feed additives may not be put on the market unless authorisation has been given following a scientific evaluation demonstrating that the additive has no harmful effects, on human and animal health and on the environment. | 1) (WHO, 2020a)<br>2) (FAO, 2021a)<br>3) (EFSA, 2020b)<br>4) (European Commission, 2016) |

| Term | Definition | Reference |
|---|---|---|
| **Adequate diet** | 1) [ ] adequate diets are reaching but not exceeding needs. [The diet is] adequate [.] in energy and nutrients for growth and development, and to meet the needs for an active and healthy life across the lifecycle.<br>2) Adequate nutrition is obtained by a combination of all the food essentials, namely, calories, protein, minerals, vitamins, roughage, and water. [..] Adequate nutrition also means that all food essentials must be present in the diet in the proper amounts if the body is to function at its optimal capacity. There should be no hollow hunger due to the absence of enough food; nor hidden hunger where quantities of food are consumed but some food essentials are omitted.<br>3) This diet not only provides adequate calories (per the energy sufficient diet above), but also relevant nutrient intake values of 23 macro- and micronutrients through a balanced mix of carbohydrates, protein, fat, essential vitamins and minerals within the upper and lower bounds needed to prevent deficiencies and avoid toxicity. Macronutrient intakes are within the Acceptable Macronutrient Distribution Range (AMDR) set by the Institute of Medicine (2006). | 1) (FAO and WHO, 2019a)<br>2) (Westerman, 1941)<br>3) (FAO, 2020c) |
| **Affordability of food** | 1) [.] The cost of the diet of a household relative to the household's income [.] [and an] important determinant of food choices and, accordingly, dietary patterns, nutrition and health.<br>2) [.] A food affordability index is a ratio of food prices to wages; it is not a measure of price level itself, as is the case with the domestic food price index, nor does it quantify the intensity of food price fluctuations, as the volatility of food prices does. Although a standardized food affordability index does not yet fully exist, researchers are currently working on developing one through the Affordability of Nutritious Diets in Africa (IANDA) project [https://ianda.nutrition.tufts.edu/]. This indicator is considered an 'emerging indicator' because it has not been fully validated and is not in common use.<br>3) Affordability of diets is determined by the cost of food relative to people's incomes.<br><br>See also: Right to food | 1) (Lee *et al.*, 2013)<br>2) (INDDEX, 2020)<br>3) (FAO, 2020c) |

| Term | Definition | Reference |
|---|---|---|
| **Agriculture** | 1) The science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products.<br>2) Agriculture is the art and science of growing plants and other crops and raising animals for food, other human needs, or economic gain.<br>3) Agriculture is the most comprehensive word used to denote the many ways in which crop plants and domestic animals sustain the global human population by providing food and other products. The English word agriculture derives from the Latin *ager* (field) and *colo* (cultivate) signifying, when combined, the Latin *agricultura*: field or land tillage. But the word has come to subsume a very wide spectrum of activities that are integral to agriculture and have their own descriptive terms, such as cultivation, domestication, horticulture, arboriculture, and vegeculture, as well as forms of livestock management such as mixed crop-livestock farming, pastoralism, and transhumance. | 1) (Merriam Webster Dictionary, 2020)<br>2) (Bareja, 2010)<br>3) (Harris and Fuller, 2014) |
| **Agro-ecological zones** | [Agro-ecological] zoning divides the area into smaller units based on distribution of soil, land surface and climate. The level of detail to which a zone is defined depends on the scale of the study, and sometimes on the power of the data processing facilities. | (FAO, 1996) |
| **Agricultural biodiversity** | See: Diversity | |
| **Aquaculture** | Aquaculture is the farming of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated. For statistical purposes, aquatic organisms which are harvested by an individual or corporate body which has owned them throughout their rearing period contribute to aquaculture, while aquatic organisms which are exploitable by the public as a common property resources, with or without appropriate licences, are the harvest of fisheries. | (Edwards and Demaine, 1998) |
| **Balanced diet** | A balanced diet is a diet that provides energy and all essential nutrients for growth and a healthy and active life. Since few foods contain all the nutrients required to permit the normal growth, maintenance and functioning of the human body, a variety of food is needed to cover a person's macro and micronutrient needs. Any combination of foods that provides the correct amount of dietary energy and all essential nutrients in optimal amounts and proportions is a balanced diet. | (CFS, 2012) |

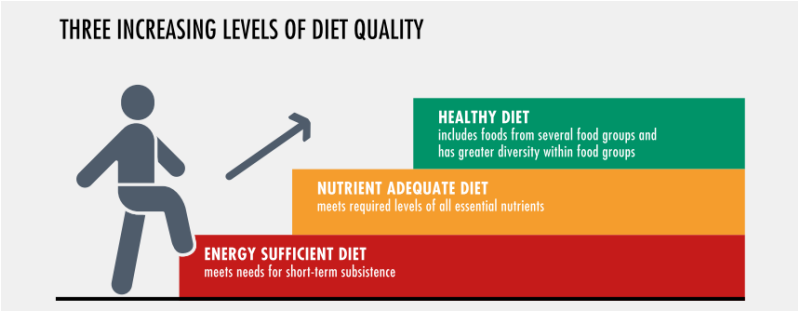
| Term | Definition | Reference |
|---|---|---|
| **Behaviour Change Communication (BCC)** | See: social behaviour change communication and consumer behaviour | |
| **Best before** | The term Best Before will be appropriate for the vast majority of foods, as it indicates the period for which a food can reasonably be expected to retain its optimal condition (e.g. bread will not be stale) and so relates to the quality of the food.<br>Providing food is stored in appropriate conditions and has not become otherwise contaminated – i.e. as instructed on the label by the manufacturer, it will be safe to consume for a period of time following the expiry of a Best Before date, but it may not be at its best.<br><br>See also: Use by | (WRAP, Food Standards Agency UK and Department for Environment Food and Rural Affairs, 2019) |
| **Biodiversity** | See: Diversity | |

<table>
<tr><th>Term</th><th>Definition</th><th>Reference</th></tr>
<tr><td>Body mass index</td><td>[The body mass index (BMI) is a person’s] weight in kilograms divided by the square of [his or her] height in metres.<br>International classification of adults according to BMI (WHO 2000)<br><br><table><tr><th>Classification</th><th>BMI (kg/m²)</th></tr><tr><td>Underweight</td><td>< 18.50</td></tr><tr><td>Normal range</td><td>18.50 – 24.99</td></tr><tr><td>Overweight:</td><td>≥ 25.00</td></tr><tr><td>Preobese</td><td>25.00 – 29.99</td></tr><tr><td>Obese class I</td><td>30.00 – 34.99</td></tr><tr><td>Obese class II</td><td>35.00 – 39.99</td></tr><tr><td>Obese class III</td><td>≥ 40.00</td></tr></table><br>[.] [There is a debate that] WHO cut-off points do not provide an adequate basis for taking action on risks related to overweight and obesity in many populations in Asia [as Asians have a higher percentage of body fat than white people of the same age, sex, and BMI]; [.] additional trigger points for public health action were identified: BMI ≥ 23kg/m² increased risk; BMI ≥ 27,5kg/m² high risk</td><td>(WHO, 2000)<br>(de Onis, 2007)<br>(WHO expert consultation, 2004)</td></tr>
</table>

| Term | Definition | Reference |
|---|---|---|
| **Consumer(s)** | 1) [.] Consumers [are individuals or a group of individuals, e.g. farmers, farmers groups or households], who – through their knowledge, available time, resources (purchasing power), age, sex, culture, religion, etc. – develop certain preferences that influence their food choices.<br>2) Consumer behaviour reflects the choices made by consumers, at household or individual levels, on what food to acquire, store, prepare and eat, and on the allocation of food within the household (including gender repartition, feeding of children). Consumer behaviour is (…) influenced by personal preferences determined [by taste, convenience, culture and other factors.] However, consumer behaviour is also shaped by the existing food environment [ ]. [ ] Collective changes in consumer behaviour can open pathways to more sustainable food systems [that enhance food security and nutrition (FSN) and health].<br>3) Consumer behaviour reflects all the choices and decisions made by consumers on what food to acquire, store, prepare, cook and eat, and on the allocation of food within the household.<br>4) Consumer benefits, [.]are the desires, preferences or expectations that consumers seek to fulfil when purchasing or consuming a product, have been suggested as one of the most important means of identifying different consumer food segments.<br>5) Food is a significant consumer of resources, such as land, soil, energy and water.<br><br>See also: Social and behaviour change and food systems | 1) (Berkum, Dengerink and Ruben, 2018)<br>2) (HLPE, 2017; Schönfeldt and Pretorius, 2018)<br>3) (CFS, 2020a)<br>4) (Heide and Olsen, 2018) (Onwezen *et al.*, 2012)<br>5) (Parsons and Hawkes, 2019) |
| **Crop** | 1) a plant or animal or plant or animal product that can be grown and harvested extensively for profit or subsistence<br><br>see also: crop diversity | 1) (Merriam-Webster Online Dictionary, 2021) |

| | | |
|---|---|---|
| **Cross-Contamination** | 1) [.] [Plant breeding:] the occurrence of a contamination event depends on the interaction of several factors such as plant genotype, environmental conditions, the microbe and its community, and plant management practices.<br>2) [.] Contamination of non-GM crops by GM crops and also of relatives established outside planted areas.<br>3) One of the dangers of planting specialty crops near one another is that they may cross contaminate, impacting each crop's ability to achieve its full potential. [..]It's simply a fact of modern farming-no matter what the crop-cross contamination can occur. However, maintaining the integrity of hybrids depends on lessening the likelihood of cross contamination.<br>4) Chemical contamination refers to food that has been contaminated by some type of chemical substance. Because chemicals can be very useful when cleaning in the kitchen, they can easily contaminate food. Chemicals must be properly labelled and stored separately for foodstuff to minimise the risk of contamination.<br>There are also chemicals that occur naturally in foods, like toxins in some fish, and in some cases, minimal chemical contamination might not actually lead to illness. However, the food handler must always be aware of the presence of chemicals in food and take all reasonable precautions to make sure that chemical contamination doesn't happen.<br>Biological contamination refers to food that's contaminated by substances produced by living creatures – such as humans, rodents, pests or microorganisms. This includes bacterial contamination, viral contamination or parasite contamination that's transferred through saliva, pest droppings, blood or faecal matter. Bacterial contamination is thought to be the most common cause of food poisoning worldwide, and the best way to protect against it occurring is by maintaining the best food safety practices.<br>Physical contamination refers to food that has been contaminated by a foreign object at some stage of the production process. These objects have the ability to injure someone and can also potentially carry harmful biological contaminants, which then cause illness. An additional consequence of physical contamination is the upset caused to the person who finds the object. Things like band-aids, fingernails and pieces of cooking equipment are the last thing you would like to find in your meal.<br>5) [.] Cross-contamination of farm chemical residue occurring from the farm worker to any member of their family, following the use of a chemical at work.<br>6) Pesticide-treated seed and structural treatments to grain storage and handling areas may leave | 1) (Melotto *et al.*, 2020)<br>2) (Price and Cotter, 2014)<br>3) (Terning Seeds, 2018)<br>4) (Australian Institute of Food Safety, 2020b)<br>5) (Curtis and Rural Industries Research and Development Corporation (Australia), 2014)<br>6) (Government of Western Australia, 2014; Australian Institute of Food Safety, 2020b) |

| Term | Definition | Reference |
|---|---|---|
| | chemical residues in cereals, pulses and oilseeds unless managed effectively. Treated grain storage and transport surfaces should be cleaned before coming into contact with newly harvested grain to prevent contamination.<br><br>See also: food safety | |
| **Deep-scaling** | [.] Scaling deep refers to changes in culture or social norms, which is a form of intensification.<br>See also: up-scaling and out-scaling | (van den Bosch and Rotmans, 2008; Omann *et al.*, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Diet quality** | 1) Although a universal definition of the concept of diet quality is lacking, there is general agreement that it comprises 3 main dimensions: 1) nutrient adequacy, 2) food variety or food diversity, and 3) moderation of foods, food groups, or energy and nutrients.<br>2) Diet quality is measured by scoring food patterns in terms of how closely they align with national dietary guidelines and how diverse the variety of healthy choices is within core food groups or equivalent international groupings. [..] Indices of diet quality are used to measure associations with biomarkers and health outcomes. We found that lower diet quality scores are consistently associated with higher rates of all-cause mortality and selected disease specific rates or mortality. [..] As there are numerous diet quality indices and variations of each method, it is recommended that researchers model indices on existing tools and select more than one when testing associations with health outcomes. This will allow examination of how robust findings are across the indices and facilitate comparison across studies. Finally, there is enough evidence to recommend that diet quality tools should be adapted for use in clinical dietetic practice and for self-evaluation of dietary intake, particularly those scored in a way that identifies which foods need to be increased to obtain a more healthful score and therefore potentially reduce chronic disease risk.<br>3)  | 1) (Trijsburg *et al.*, 2019) (Alkerwi, 2014)<br>2) (Wirt and Collins, 2009)<br>3) (FAO, 2020c) |
| **Dietary Energy** | Dietary energy is supplied by all the macronutrients (carbohydrates, fats and protein) and is measured in terms of calories, kilocalories or joules. It is essential to life because the body requires energy to perform basic involuntary functions, as well as to carry out willed activity, be it work that is necessary for survival or activity that is undertaken for pleasure. When the quantity of dietary energy consumed is insufficient, people lose weight and when it is excessive, they gain weight. | (CFS, 2012) |

| Term | Definition | Reference |
|---|---|---|
| **Dietary fibre** | For more than 15 years, the international CODEX Alimentarius Commission debated a definition of fibre and was agreed in 2009. The European Commission (EC), in line with discussions at CODEX, previously agreed a definition for fibre in November 2008. The EC defines fibre as carbohydrate polymers with three or more monomeric units (to exclude mono- and disaccharides, simple sugars of one or two molecules). These polymers are neither digested nor absorbed in the small intestine.<br>Dietary fibre consists of one or more of:<br>• Edible carbohydrate polymers naturally occurring in the food as consumed;<br>• Carbohydrate polymers that have been obtained from food raw material by physical, enzymatic or chemical means and which have a beneficial physiological effect demonstrated by generally accepted scientific evidence;<br>• Synthetic carbohydrate polymers which have a beneficial physiological effect demonstrated by generally accepted scientific evidence.<br>With the exception of non-digestible edible carbohydrate polymers that occur naturally in foods, the definition states that there should be evidence of a beneficial physiological effect of any other material captured by the definition. Any beneficial physiological effect of other material needs to be supported by generally accepted scientific evidence.<br>Discussions about how best to measure dietary fibre so as to enable consistent applications of the new definition are now underway at the European level. | (British Nutrition Foundation, 2018a) |
| **Dietary fibre vs crude fibre** | Southgate has employed the term unavailable carbohydrates to describe dietary fibre, and he has set forth modern methods of analysis by which the constituent substances - cellulose, lignin, pentosans and so forth - can be estimated. As yet no food tables have been published which record the unavailable carbohydrates present in the diet of man.<br>Crude fibre is determined by internationally accepted methods of the Association of Official Agricultural Chemists and is shown in food tables. Crude fibre is the portion of carbohydrate that resists extraction by boiling first with sulphuric acid and subsequently with sodium hydroxide. Crude fibre is often stated to be merely cellulose, but lignin, extremely resistant to sulphuric acid, is also present. Crude fibre is not the same as dietary fibre but at the present time the former must serve as an approximate, even if inaccurate, measure of the latter. It is dietary fibre, not crude fibre that may protect against diverticular diseases, appendicitis and cancer of the colon. | (Trowell, 1972) |

| Term | Definition | Reference |
|---|---|---|
| **Dietary patterns** | A dietary pattern is defined as the quantity, variety, or combination of different foods and beverage in a diet and the frequency with which they are habitually consumed. | (Sánchez-Villegas and Sánchez-Tainta, 2018) |
| **Diversity** | **Biodiversity**<br>1) [.] The variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.<br>2) Agricultural Biodiversity [also agrobiodiversity] refers to the variety and variability of animals, plants and microorganisms on earth that are important to food and agriculture which result from the interaction between the environment, genetic resources and management systems and practices used by people. | 1) (United Nations, 1992)<br>2) (FAO, 1998) |
| | **Crop diversity**<br>1) Crop diversity [.] refers to crops and varieties that farmers cultivate and use for their subsistence. They consist of local farmers' varieties [.], modern varieties of traditional crops bred by commercial seed companies, introduced crops [.], as well as the crop wild relatives, weedy forms of crops and wild species used by communities for food and agriculture.<br>2) [.] Crop diversity describes the observable variation in a particular plant feature or set of features either within or among distinct crop populations of the same species, as these populations are identified in fields by farmers or scientists. In other chapters, the term designates the variation that can only be identified using molecular techniques in the laboratory or knowledge of the crossing history and ancestors of the crop populations under study. | 1) (Engels, Diulgheroff and Alvarez, 2014)<br>2) (Meng *et al.*, 2000) |

| Term | Definition | Reference |
|---|---|---|
| | **Dietary diversity**<br>Dietary diversity is a qualitative measure of food consumption that reflects household access to a variety of foods, and is a proxy for nutrient adequacy [.].<br>Various scores are used, namely a) household dietary diversity score, b) dietary diversity (infant and young children) (see also here) and c) minimum dietary diversity score for women (MDD-W)<br><br>a) The household dietary diversity score (HDDS) is meant to reflect, in a snapshot form, the economic ability of a household to access a variety of foods.<br>b) The dietary diversity score (DDS) refers to the number of different food groups consumed by [a person] the day before the survey (irrespective of the number of food items in each group). The frequency of consumption and the amount of food consumed are not taken into account.<br>c) CDDS (child dietary diversity score) is a dichotomous indicator and refers to the child 6-24 months of age receiving 5+ of the following food groups: breast milk, grains, roots and tubers, legumes and nuts, dairy products (milk, yogurt, cheese), flesh foods (meat, fish, poultry and liver/organ meats), eggs, vitamin A rich fruits and vegetables, other fruits and vegetables<br>d) MDD-W is a dichotomous indicator of whether or not women 15-49 years of age have consumed at least five out of ten defined food groups the previous day or night. The proportion of women 15–49 years of age who reach this minimum in a population can be used as a proxy indicator for higher micronutrient adequacy, one important dimension of diet quality. MDD-W can be generated from population-based surveys. It provides a new tool for assessment, target-setting, and advocacy.<br><br>See also: Variety | (Kennedy, Ballard and Dop, 2010)<br>(Tufts University and INDEX-Project, 2021)<br>(WHO, 2008; WHO *et al.*, 2010)<br>(FAO and FHI 360, 2016)<br>(Savy *et al.*, 2005) |
| | **Crop diversification**<br>Crop diversification is based on cultivating more than one variety of crops belonging to the same or different species in a given area. Crop diversification is one way of developing a resilient agricultural system, especially where communities depend largely on agricultural products (food and fodder) for their livelihoods. [..] In addition, crop diversification brings about higher and spatial temporal biodiversity on the farm and increases resilience, i.e., the ability of an ecosystem to return to its original productive state after being disturbed. | (Mango *et al.*, 2018) |

| Term | Definition | Reference |
|---|---|---|
| **Dietary Reference Values (DRVs)** | Dietary reference values (DRVs) is an umbrella term for a set of nutrient reference values that includes the average requirement (AR), the population reference intake (PRI), the adequate intake (AI) and the reference intake range for macronutrients (RI). These values guide professionals on the amount of a nutrient needed to maintain health in an otherwise healthy individual or group of people. DRVs also include the tolerable upper intake level (UL), which is the maximum amount of a nutrient that can be consumed safely over a long period of time.<br>DRVs are not nutrient goals or recommendations for individuals. They are used by policy makers in the EU and its Member States to issue recommendations on nutrient intake to consumers. DRVs are also used as the basis for information on food labels and for establishing dietary guidelines. Such guidelines can help consumers make healthy dietary choices. | (EFSA, 2020a) |
| **Double burden of malnutrition** | "/" Coexistence of undernutrition along with overweight and obesity or diet-related noncommunicable diseases[.] [within individuals, households and populations and across the life-course]. | (WHO, 2017) |
| **Ecosystem** | 1) An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscapes, work together to form a bubble of life.<br>2) [.]Ecosystem services [are] defined as the direct and indirect contributions of ecosystems to human wellbeing<br>3) An ecosystem service is any positive benefit that wildlife or ecosystems provide to people. The benefits can be direct or indirect—small or large.<br><br>See also: food systems and systems | 1) (National Geographic Society, 2011)<br>2) (Ecosystem Services, 2020)<br>3) (National Wildlife Federation, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Efficiency** | 1) The good use of time and energy in a way that does not waste any: energy efficiency<br>2) A situation in which a person, company, factory, etc. uses resources such as time, materials, or labour well, without wasting any: efficiency drive, business/economic/operational efficiency, achieve/boost/improve efficiency, improved/increased/greater efficiency, efficiency gains/improvements/savings<br>3) Productivity refers to how efficiently resources are used; it can be measured in terms of all factors of production combined (total factor productivity) or in terms of labour productivity, which is defined as output or value added divided by the amount of labour used to generate that output. Labour productivity increases when value added rises through the better use, coordination, etc. of all factors of production.<br>4) A farm is technically [efficient] when it does [ ] produce the maximum level of output that can be expected given the type of available inputs | 1) (Cambridge University Press, 2014a)<br>2) (Cambridge University Press, 2014a)<br>3) (International Labour Organization (ILO), 2020)<br>4) (FAO, 2017) |
| **Enrichment** | The Codex General Principles for the Addition of Essential Nutrients to Foods defines fortification, or synonymously enrichment, as the addition of one or more essential nutrients to a food whether or not it is normally contained in the food, for the purpose of preventing or correcting a demonstrated deficiency of one or more nutrients in the population or specific population groups.<br><br>See also: Fortification | (Allen *et al.*, 2006) |
| **E Numbers** | see also: Additives<br><br>The E numbers in the ingredients list of packaged foods replace the chemical or common name of particular food additives. These are used to enhance the colour, flavour, texture or prevent food from spoiling | (Snelson and Coughlan, 2020) |
| **Famine** | Famine is defined as extreme scarcity of food, resulting in acute hunger that affects a specific population group in a defined geographic area. It usually results in starvation and death of part of the affected population. | (CFS, 2012) |

| Term | Definition | Reference |
|---|---|---|
| **Feasibility** | 1) The possibility that can be made, done, or achieved, or is reasonable "/"<br>2) [.]feasibility to indicate that local foods can meet the dietary needs and preferences of a local population—which will vary with food production, distribution/processing, and retail environments.<br>3) A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the [.] environment, the resources required to carry through, and ultimately the prospects for success. In its simplest terms, the two criteria to judge feasibility are cost required and value to be attained.<br>4)<br>See also: Social Behaviour Change | 1) (Cambridge University Press, 2014b)<br>2) (O'Sullivan, 2012)<br>3) (Anonymous, 2020a) |
| **FIES** | The FIES (Food Insecurity Experience Scale) is a measure of access to food at the level of individuals or households. It measures severity of food insecurity based on people's responses to questions about constraints on their ability to obtain adequate food | See (FAO, 2020a; FAO *et al.*, 2021) |
| **Food** | For people, food is what they eat. For policy makers, food is any substance intended for human consumption.<br>See also: Crop | (CFS, 2012) |
| **Food and nutrition security** | Food and nutrition security exist when all people at all times have physical, social and economic access to food, which is safe and consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life.<br><br>See also: food safety and food security and food quality and diet quality and nutrition security and food insecurity | (CFS, 2012)<br>(Ingram, 2020) |
| **Food Desert** | 1) Food deserts are areas where people have limited access to a variety of healthy and affordable food.<br>2) Food deserts constitute a major problem in rural areas, areas characterized by young families moving away, a less-educated citizenry, and small grocery stores that often are run out of business.<br><br>See also: Food systems | 1) (Babu, Gajanan and Sanyal, 2014)<br>2) (Pantaleoni, 2012) |

| Term | Definition | Reference |
|---|---|---|
| **Food ecosystem** | The food ecosystem is one of the largest manufacturing sector in the European Union […] maintaining a standard quality of daily living, and the economic benefits (e.g., employment opportunities and investment) "/"<br>[ ] We consider food systems the physical structures of food supply chains (e.g., stakeholders, institutions, farms, retailers, producers, etc.), and posit that these systems evolve into an 'ecosystem' when the interdependent relationships between members, and systems themselves, are recognized as drivers of overall system procedures, culture, and transformation.<br><br>See also: ecosystem and system | (De Bernardi and Azucar, 2020) |
| **Food environment** | 1) The food environment refers to the physical, economic, political and socio-cultural context in which consumers engage with the food system to acquire, prepare and consume food. The food environment consists of: food entry points, i.e. the physical spaces where food is obtained; the built environment that allows consumers to access these spaces; personal determinants of food choices (including income, education, values, skills, etc.); and the political, social and cultural norms that underlie these interactions. The key elements of the food environment that influence food choices, food acceptability and diets are: physical and economic access to food (proximity and affordability); food promotion, advertising and information; and food quality and safety.<br>2) Food environments may be defined in terms of geographic access to food in a community or neighbourhood, consumer experiences inside food outlets, services and infrastructure in institutional settings, or the information available about food. Community food environments most closely fit within the area of environmental health practice known as health and the built environment.<br><br>See also: supportive environment | 1) (HLPE, 2017)<br>2) (Rideout, Mah and Minaker, 2015) |
| **Food based dietary guidelines** | National food-based dietary guidelines are another important source of information and guidance for consumers, producers and policy makers. They provide recommendations based on the latest evidence of the composition of healthy diets adapted to national contexts and available food, representing also a helpful source of information for policy makers in several sectors (i.e. to promote more investment towards healthier and a more diverse range of products). | (CFS, 2020a) |

| Term | Definition | Reference |
|---|---|---|
| **Food globalisation** | The phenomenon of globalization is having a major impact on food systems around the world. [..]Thus these changes in food systems affect availability and access to food through changes to the food production, procurement and distribution systems and the food trade environment. | (Kennedy *et al.*, 2004) |
| **Food groups** | 1) [.] Food [.] [groups usually] reflect the role of foods in the diet and [.] [are] intuitively understood by non-specialist users. The food grouping used in the FAO/WHO GIFT platform was developed based on the food groups used for Dietary Diversity Score indicators, as well as those typically used in food-based dietary guidelines.<br>2) [.] The major food groups for human consumption: [are] cereals, fruits, pulses, roots and tubers, and vegetables.<br><br>See also: dietary diversity | 1) (FAO/WHO GIFT, 2020)<br>2) (Herrero *et al.*, 2017) |
| **Food insecurity** | 1) The prevalence of moderate or severe food insecurity is used as one indicator to monitor SDG 2.1 by estimating how many people do not have access to nutritious and sufficient food due to lack of money or other resources.<br>- People experiencing moderate food insecurity face uncertainties about their ability to obtain food, and have been forced to compromise on the quality and/or quantity of the food they consume.<br>- People experiencing severe food insecurity have typically run out of food and, at worst, gone a day (or days) without eating.<br>2) Food insecurity exists whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain.<br><br>See also: FIES and food security and nutrition security and Food and Nutrition Security | 1) Adopted from (FAO *et al.*, 2019)<br>2) (Anderson, 1990) |

| Term | Definition | Reference |
|---|---|---|
| **Food loss and waste (FLW)** | 1) Food Losses and Waste (FLW) occur between the moment when a product is ready to be harvested or harvested, and the moment when it is consumed or removed from the food supply chain.<br>2) Food losses refer to the decrease in edible food mass throughout the part of the supply chain [.] [leading] specifically [.] to edible food for human consumption. Food losses take place at the production, post-harvest and processing stages in the food supply chain. [.] [Food waste refers to] losses occurring at the end of the food chain (retail and [.] consumption) [.].<br>3) There is increasing interest from the international community and national governments on FLW. However, there is no consensus about the definitions and measurement of FLW, the rationale for reducing them, the optimal level of their reduction, the likely impacts on food and nutrition security and on the environment, as well as the policies to implement for efficiently reducing FLW.<br>4) Food losses and waste are a major challenge mainly caused by poor handling, inadequate storage, transport conditions and lack of infrastructure. Strategies towards improving infrastructure and adopting efficient practices and technologies can have a positive impact on food systems by improving access to fresh and other perishable food, increasing shelf life and improving food safety. | 1) (Berjan *et al.*, 2018)<br>2) (Parfitt, Barthel and Macnaughton, 2010; Gustavsson, Cederberg and Sonesson, 2011)<br>3) (Bellù, 2017)<br>4) (CFS, 2020a) |
| **Food Policy** | 1) The term Food Policy has a number of very diverse definitions, and even within these definitions there are terms such as Food Security and The Right to Food that are commonly used, particularly in relation to the Food Policy that should be present in developing countries and regions.<br>2) Food policy is a balanced government strategy regarding the food economy, which takes account of its interrelationships with both the national and international economy. | 1) (Smith, 2016)<br>2) (Chambolle, 1988) |
| **Food preservation** | It was noted that several Divisions, including those of Fisheries, Animal Production and Health, Plant Production and Protection, were engaged in food technology activities in their respective fields of interest. The Nutrition Division's interest was mainly, in their nutritional implications, in particular in reducing wastage of food, in preventing losses in nutritive value and in conserving or enhancing palatability. In certain fields, there was co - operation with other Divisions in FAO, with UNICEF and WHO, and with certain governmental and nongovernmental organizations.<br><br>See also: food processing and meal preparation | (FAO, 1959) |

| Term | Definition | Reference |
|---|---|---|
| **Food processing** | 1) Food processing is the action of performing a series of mechanical, [biological,] or chemical operations on food in order to change or preserve it.<br>2) Food processing involves the transformation of raw animal or plant materials into consumer-ready products, with the objective of stabilizing food products by preventing or reducing negative changes in quality.<br>3) Food processing facilities add value to a food product.<br>4) Food processing is a series of unit operations to convert unprocessed food-to-foodstuffs with prolonged shelf life and enable storage that abolishes or reduces time or effort spent in culinary procedures for increased consumption. The principle of food processing in the majority of developing countries helps to modify taste, aroma, and texture to enhance shelf life and aesthetic properties and to improve the nutritional value of foods.<br>5) [.] The specific types of processing that modify food attributes and risks of disease – either negatively or positively – [.]. [..] Food processing [.] involves physical, biological and chemical processes that occur after foods are separated from nature, and before they are consumed or used in the preparation of dishes and meals.<br>6) Food processing is any method used to turn fresh foods into food products. This can involve one or a combination of various processes including washing, chopping, pasteurising, freezing, fermenting, packaging, cooking and many more. Food processing also includes adding ingredients to food, for example to extend shelf life.<br><br>See also: food processor and food preservation | 1) Oxford Dictionary (plus biological)<br>2) (Hogan, Kelly and Sun, 2005)<br>3) (Bowser, 2019)<br>4) (Ghoshal, 2018)<br>5) (Monteiro *et al.*, 2016)<br>6) (Floros *et al.*, 2010; Monteiro *et al.*, 2010; Dwyer *et al.*, 2012; Weaver *et al.*, 2014; eufic, 2020) |

| Term | Definition | Reference |
|---|---|---|
| | **Informal food processing**<br>1) [.] informal sector food processing units. Food processing stalls have been established along the streets and other locations of the cities, including market places, taverns and bottle stores. [..] These foods are purchased mainly by the urban poor people who do not have enough money to eat in good restaurants or those working but unable to travel to their faraway homes during lunch hours.<br>2) The informal sector exists in many forms. It includes small manufacturing enterprises and small traders and service providers, legal and illegal activities and a wide array of artisans. The fields of activity also vary extensively, from construction, auto-repair and transport, through arts and crafts to food and agriculture. | 1) (Phiri, Mumba and Mangwera, 2006)<br>2) (FAO, 2003) |
| **Food processor** | A food processor is a kitchen appliance used to facilitate repetitive tasks in the preparation of food. Today, the term almost always refers to an electric-motor-driven appliance, although there are some manual devices also referred to as food processors. | (Anonymous, 2020b) |
| **Food production** | 1) Food production is a complex process and generally involves the use of shared equipment at all stages from the transport of raw materials, through manufacturing to packaging. Production is the process of creating, growing, manufacturing, or improving goods. It also includes the quantities produced.<br>2) Process of preparing food by converting raw materials into ready-made food products<br><br>See also: food processing and agriculture | 1) (Brown, 2008)<br>2) (Amadi and Allen, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Food quality** | 1) Food quality represents the sum of all properties and assessable attributes of a food item. Usually this is done by the three accepted categories of quality: sensoric value, suitability value and health value. All three deal with assessments, that is, judgements with a subjective component. In addition to the value-related interpretation of quality there is the value-neutral term in the sense of condition, that is the sum of properties of a product. From this can be concluded that quality is not easily definable scientifically and that it comprises many different aspects.<br>2) [Food] quality includes all [.] attributes that influence a product's value to the consumer. This includes negative attributes such as spoilage, contamination with filth, discoloration, off-odours and positive attributes such as the origin, colour, flavour, texture and processing method of the food.<br>3) There is general agreement that quality has an objective and a subjective dimension. Objective quality refers to the physical characteristics built into the product and is typically dealt with by engineers and food technologists. Subjective quality is the quality as perceived by consumers.<br>4) [.] TFQ is (a) A partly objective concept; we are assessing properties like nutritional quality, safety of use, shelf-life, etc., which are not strictly related to the human senses. In any case, definition and appraisal of TFQ standards are not only bound to the raw materials employed but also to technological processing and gastronomic preparations. (b) A partly subjective concept; the consumer is the main instrument of appraisal of the sensory properties of the product, immediately perceived by the human senses.<br>5) [.] within each food group, different foods can vary greatly in their nutritional quality despite often having similar energy (caloric) values. This study aimed to develop a novel unit of measure that accounts for both the quantity of energy and the quality of nutrients, as defined by caloric and micronutrient density, respectively, in foods and to demonstrate its usability in identifying high quality foods within a food group.<br>6) Quality labels protect and promote the origins, traditions and unique characteristics of many distinctive EU products.<br>7) USDA's Agricultural Marketing Service (AMS) provides American agriculture with valuable tools and services, such as grading, certification, and verification, that help create marketing opportunities. Through these services we guarantee the quality of American food and add value to American products. | 1) (Leitzmann, 1993)<br>2) (FAO and WHO, 2003)<br>3) (Grunert, 2005)<br>4) (Giusti, Bignetti and Cannella, 2008)<br>5) (Jomaa, Hwalla and Zidek, 2016)<br>6) (European Commission, 2020)<br>7) (USDA, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Food safety** | 1) Food safety refers to all those hazards, whether chronic or acute, that may make food injurious to the health of the consumer. It is not negotiable.<br>2) Food safety is a critical piece of the storage and distribution functions of food systems. This includes the handling, preparation, storage, and distribution of food in ways that prevent foodborne illness, transmission or contamination of naturally occurring toxins (e.g., Mycotoxins). It also includes the training of food handlers and the adoption of scientific, risk-based practices to provide safe food while contributing to the retention of nutritional value.<br>3) Food safety is foundational to all parts of the food system and is critical to prevent food-borne pathogens, hazards and illness, as well as naturally occurring toxins and contaminants, residues of pesticides, antibiotics antimicrobials and heavy metals. Animal and plant diseases are likewise threats to the safety and resilience of food systems and to human health and nutrition. Food cannot be considered nutritious if it is not safe, and poor food safety hinders the adoption of healthy diets.<br><br>See also: contamination and food security and food and nutrition security | 1) (FAO and WHO, 2003)<br>2) (CFS, 2020a)<br>3) (CFS, 2020c) |
| **Food Science** | Food Science can be defined as the application of the basic sciences and engineering to study the fundamental physical, chemical, and biochemical nature of foods and the principles of food processing. | (Potter and Hotchkiss, 1995) |
| **Food security** | Food security exists when all people at all times have physical [, social] and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.<br>The four pillars of food security are availability, access, utilization and stability. The nutritional dimension is integral to the concept of food security and to the work of CFS.<br>See also: nutrition security and food and nutrition security | (CFS, 2012)<br>(Ingram, 2020) |
| **Food strategy** | [Strategies:] [.] identification of objectives and strategic lines and seem to have a more communicative character;"/" [food strategy:] potential role of food as catalyst of policies (from health to environmental protection, from social justice to economical innovation) and a key for planning sustainable territorials systems.<br><br>See also: Nutrition strategy | (Coppo, Stempfle and Reho, 2017) |

| Term | Definition | Reference |
|---|---|---|
| **Food supply chain** | 1) Food supply chains consist of the activities and actors that take food from production to consumption and to the disposal of its waste […], including production, storage, distribution, processing, packaging, retailing and marketing.<br>2) Food supply [chains] patterns play a [crucial and structural] [..] role in health and environmental sustainability [, resilience and regeneration.] Food [supply chains] - from production, storage [ ] and post-harvest handling], processing and packaging, distribution, and [marketing and consumption] [and market access] - operate at [multiple and ] assorted scales, structures, and levels, from simple to highly complex[, from local to global,] involving many food system actors.<br>*please note: this definition originates from the third round of negotiations of the voluntary guidelines on food systems and nutrition - document indicating sections under negotiations using [..].*<br><br>See also: Value Chain | 1) (HLPE, 2014)<br>(CFS, 2020a)<br>(HLPE, 2017)<br>2) (CFS, 2020a, 2020c, 2021) |
| **Food Systems** | Food systems gather all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socio-economic and environmental outcomes.<br>Sustainable food systems are food systems that ensure food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition of future generations are not compromised.<br>[*Please note*: Systems borders are often applied by using geographical terms: local, regional, global, African, European, American etc. or by other descriptors like sustainable, modern, traditional…. ]<br><br>See also: Systems | (HLPE, 2014)<br>(CFS, 2020a) |
| **Food sovereignty** | Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts […] those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined | (NGO/CSO Forum for Food Sovereignty, 2007) |

| Term | Definition | Reference |
|---|---|---|
| | by local producers. Food sovereignty prioritises local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal - fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just income to all peoples and the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage our lands, territories, waters, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social classes and generations. | |
| **Food Technology** | The food we buy in our supermarkets is mainly industrially manufactured. Agriculturally produced raw materials such as grain pass through many stages of processing and chemical, physical and microbiological changes before they are ready to be sold as food. That is what makes food technology an interdisciplinary engineering science. | (Hochschule Fulda, 2020) |
| **Food value chain** | See Value Chain | |
| **Food Well Being** | [ ] The concept of Food Well Being (FWB) [is] defined as a positive psychological, physical, emotional, and social relationship with food at both the individual and societal levels. As such, FWB is necessarily influenced by the cultural, environmental, and legal factors that govern people's food attitudes and behaviour. | (Block *et al.*, 2011) |
| **Fortification** | Food fortification refers to the addition of micronutrients to processed foods. […] Food fortification is usually regarded as the deliberate addition of one or more micronutrients to particular foods, so as to increase the intake of these micronutrient(s) in order to correct or prevent a demonstrated deficiency and provide a health benefit.<br><br>See also: Enrichment | (Allen *et al.*, 2006) |
| **Genetic Modification** | [ ] "genetically modified food/plant" is used to describe foods or food ingredients that are, or are derived from, plants that have been modified (engineered) through the use of recombinant DNA techniques. | (Joint FAO/WHO Expert Consultation, WHO Food Safety Programme, and FAO, 2000) |

| | | |
|---|---|---|
| **Healthy diet** | 1) A balanced, diverse and appropriate selection of foods eaten over a period of time. A healthy diet] ensures that the needs for macronutrients (proteins, fats and carbohydrates including dietary fibres) and essential micronutrients (vitamins, minerals and trace elements) are met specific to the person's gender, age, physical activity level and physiological state.<br>2) A healthy diet is a diet that comprises a combination of different foods including staples, mainly starch, legumes, fruits and vegetables and foods from animal sources. A healthy diet helps to protect against malnutrition in all its forms, as well as noncommunicable diseases (NCDs), including such as diabetes, heart disease, stroke and cancer. Unhealthy diet and lack of physical activity are leading global risks to health. [ ] WHO indicates that for diets to be healthy: a) daily needs of energy, vitamins and minerals should be met, but energy intake should not exceed needs; b) consumption of fruit and vegetables is over 400 g per day; c) intake of saturated fats is less than 10% of total energy intake; d) intake of trans-fats is less than 1% of total energy intake; e) intake of free sugars is less than 10% of total energy intake or, preferably, less than 5%; f) intake of salt is less than 5 g per day.<br>A healthy diet for infants and young children is similar to that for adults, but the following elements are also important: a) Infants should be breastfed exclusively during the first 6 months of life; b) Infants should be breastfed continuously until 2 years of age and beyond; c) From 6 months of age, breast milk should be complemented with a variety of adequate, safe and nutrient-dense foods. Salt and sugars should not be added to complementary foods.<br>3) This diet provides adequate calories and nutrients (per the energy sufficient and nutrient adequate diets above), but also includes a more diverse intake of foods from several different food groups. As described in the last section of Part 1 of this report, this diet is intended to meet all nutrient intake requirements and to help prevent malnutrition in all its forms, including diet-related non-communicable diseases.<br>4) Healthy diets are those diets that are of adequate quantity and quality to achieve optimal growth and development of all individuals and support functioning and physical, mental and social well-being at all life stages and physiological needs. Healthy diets are safe, diverse, balanced, and based on nutritious foods. They help to protect against malnutrition in all its forms, including undernutrition, micronutrient deficiencies, overweight and obesity and lower the risk of diet-related non-communicable diseases. The exact make-up of healthy diets varies depending on an individual's characteristics (e.g. age, gender, lifestyle and degree of physical activity), geographical, demographical, cultural patterns and contexts, food preferences, availability of foods from | 1) (FAO *et al.*, 2019)<br>2) (WHO, 2020b) (WHO, 2018)<br>3) (FAO, 2020c)<br>4) (CFS, 2021)<br>5) (FAO and WHO, 2019b)<br>6) (Neufeld, Hendriks and Hugas, 2021) |

| Term | Definition | Reference |
|---|---|---|
| | local, regional and international sources, and dietary customs. Healthy dietary practices start early in life – breastfeeding fosters healthy growth and improves cognitive development and has long-term health benefits.<br>5) Sustainable Healthy Diets are dietary patterns that promote all dimensions of individuals' health and wellbeing; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable. The aims of Sustainable Healthy Diets are to achieve optimal growth and development of all individuals and support functioning and physical, mental, and social wellbeing at all life stages for present and future generations; contribute to preventing all forms of malnutrition (i.e. undernutrition, micronutrient deficiency, overweight and obesity); reduce the risk of diet-related NCDs; and support the preservation of biodiversity and planetary health. Sustainable healthy diets must combine all the dimensions of sustainability to avoid unintended consequences.<br>6) A healthy diet is health-promoting and disease-preventing. It provides adequacy without excess, of nutrients and health promoting substances from nutritious foods and avoids the consumption of health-harming substances. | |
| **Hidden hunger** | 1) Hidden hunger is a lack of vitamins and minerals.<br>2) Hidden hunger occurs when the quality of food people eat does not meet their nutrient requirements, so the food is deficient in micronutrients such as the vitamins and minerals that they need for their growth and development.<br>2) [Micronutrient deficiency], which is a form of undernutrition that occurs when intake or absorption of vitamins and minerals is too low to sustain good health and development in children and normal physical and mental function in adults. Causes include poor diet, disease, or increased micronutrient needs not met during pregnancy and lactation. | 1) (WHO, 2014)<br>2) (WHO, 2014)<br>2) (IFPRI, Deutsche Welthungerhilfe e.V. and Concern Worldwide, 2014) |
| **High Risk Area** | The section in the food preparation area where the food is mostly contaminated | Definition based on (Grassmann, 2019) |
| **High Risk Food** | High-risk foods, also called potentially hazardous foods, are foods that are more likely to harbour dangerous bacteria and other disease-causing pathogens. High-risk foods must be kept within a certain temperature range to minimise bacterial growth or the formation of toxins that can cause food poisoning. | (Australian Institute of Food Safety, 2020a) |

| Term | Definition | Reference |
|---|---|---|
| **Hunger** | Nutritionists have estimated the amount of dietary energy that people of different ages and sex with different activity levels in different cultures require to maintain a healthy and active life. When people do not have access to the amount of dietary energy needed for their normal level of activity, they feel hungry. If the situation persists over a longer time, it leads to undernutrition. Chronic energy deficiency can lead to a reduction in physical activity, weight loss or both. In severe forms, chronic energy deficiency can lead to wasting and eventually death. Hunger is not synonymous with malnutrition or undernutrition, but there are overlaps between these two. | (CFS, 2012) |
| **Knowledge** | Understanding of or information about a subject that you get by experience or study, either known by one person or by people generally. | (Cambridge University Press, 2014c) |
| **Low Risk Area** | Opposite of High Risk Area | |
| **Macronutrients** | Human:<br>Macronutrients [are] [.] calorie-containing components of food (e.g. fat, protein, carbohydrate) which [are] needed in significant quantities for normal growth, development and maintenance of health.<br><br>See also: Dietary energy | (British Nutrition Foundation, 2018b) |
| | Plants:<br>1) Macronutrients are nutrients that are required in large amounts, to maintain plant functions and carry out the activities of life. They include N,P, K, S, O, H, Ca, Mg.<br>2) Plant nutrients include the macronutrients nitrogen, phosphorus and potassium, sulfur, calcium and magnesium. | 1) based on (Marschner and Marschner, 2012)<br>2) (FAO, 2021c) |

| Term | Definition | Reference |
|---|---|---|
| **Malnutrition** | Malnutrition is defined as nutritional disorder in all its forms and includes both undernutrition and overnutrition. It relates to imbalances in energy, and specific macro and micronutrients- as well as in dietary patterns. Conventionally, the emphasis has been in relation to inadequacy, but it also applies to both excess and imbalanced intakes. Malnutrition occurs when the intake of essential macronutrients and micronutrients does not meet or exceeds the metabolic demands for those nutrients. These metabolic demands vary with age, gender and other physiological conditions and are also affected by environmental conditions including poor hygiene and sanitation that lead to food- as well as waterborne diarrhoea (WHO Global Nutrition Policy Review). When micronutrient malnutrition occurs in persons who are of a normal weight or who are overweight or obese, it is sometimes referred to as hidden hunger. Hidden hunger often has no visible warning signs, leaving sufferers unaware of their dietary deficiency and its potentially adverse impact on their health. Pregnant and lactating women have additional specific needs. The additional food needed during pregnancy and lactation is critical to ensuring adequate nutrient intake sufficient in both quantity and quality for fetal growth and production of breast milk. Maternal undernutrition at this stage can lead to intrauterine growth retardation and low concentrations of certain nutrients in breast milk. Malnutrition is especially serious for infants during the first 1000 days of life (from conception through the age of two), and for young children and has largely irreversible long-term effects on the ability of children to grow and learn, and to develop into productive adults later in life. This can restrict the development potential of whole societies and nations, and create a costly and continuing health and humanitarian burden for the country. | (CFS, 2012) |
| **Marketable [Food] Product** | 1) Related to crop quality at harvest/ after harvest<br>2) Food meeting the quality standards (for international marketing)<br>3) Food accepted and consumed by consumers having a potential to succeed on the food market<br><br>See also food quality and food safety and consumer and crop and food | Authors own definitions |
| **Meal Preparation** | 1) A value-added approach […] with application to household processing of foods into meals.<br>2) Meal prepping can describe several different food preparation methods, but basically, it's almost like organizing leftovers for easier breakfast, lunches, or dinners. | (Bivens and Volker, 1986)<br>(Picard, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Measurable qualitative & quantitative loss of food after harvest** | 1) The measurable decrease in the quantity or quality of food produce. It is the result of any reduction in the availability of food or in the edibility, wholesomeness, or quality of food that reduces its value to humans. […] Food loss is [considered as] the unintended result of an agricultural process or technical limitation in storage, infrastructure, packaging or marketing.<br>2) Quantitative food loss can be defined as reduction in weight of edible grain or food available for human consumption. The quantitative loss is caused by the reduction in weight due to factors such as spillage, consumption by pest and also due to physical changes in temperature, moisture content and chemical changes. This definition is unsatisfactory since food grains undergo reduction in weight due to drying, a necessary postharvest process for all grains. Although this process involves considerable reduction in weight, there is no loss of food value, and therefore, should not be counted as loss.<br>3) Quantitative loss is a loss in terms of physical substance, meaning a reduction in weight and volume and can be assessed and measured. Qualitative loss, however, is concerned particularly with the food and reproductive value of products and requires a different kind of evaluation.<br>It should be noted that we shall not consider losses occurring during the production period and caused by various crop pests (insects, weeds, disease), even though they have a major influence on food preservation conditions and account in part for the nature and size of post-harvest losses.<br>See also: Food loss and waste | 1) adopted from (Lipinski *et al.*, 2013)<br>2) Definition based on (FAO, 1980)<br>3) (Grolleaud, no date) |
| **Micronutrient deficiency** | *Micronutrient deficiencies* refer to inadequate intake of vitamins and minerals. Those of greatest public health concerns are Vitamin A, iron and iodine. Vitamin A deficiency is the leading cause of preventable blindness in children and increases the risk of disease and death from infections. Iron-deficient anaemia is of significant concern for many women around the world leading to low cognition and work productivity. Iodine deficiency during pregnancy can compromise children's mental health and even survival. Other important deficiencies are Vitamin D, B12, folate, calcium and zinc. | (HLPE, 2017) |

| Term | Definition | Reference |
|---|---|---|
| **Micronutrients** | Human:<br>1) Micronutrients are vitamins and minerals needed by the body in very small amounts. However, their impact on a body's health are critical, and deficiency in any of them can cause severe and even life-threatening conditions. They perform a range of functions, including enabling the body to produce enzymes, hormones and other substances needed for normal growth and development.<br>2) [ ] micronutrients are individual vitamins and minerals. While they, too, are crucial for health, you need much smaller amounts. [ ] Micronutrients can be divided into four categories: water-soluble vitamins, fat-soluble vitamins, microminerals, and trace minerals. | 1) (WHO, 2020e)<br>2) (Harvard Health Publishing, 2019) |
| | Plants:<br>1) Micronutrients are essential nutrients that are needed in small amounts to maintain plant functions. They include Fe, B, Zn, Mn, Cu, Ni, Cl, Mo.<br>2) Micronutrients are essentially boron, chlorine, copper, iron, manganese, molybdenum and zinc. | 1) based on (Marschner and Marschner, 2012)<br>2) (FAO, 2021c) |
| **Multisectoral Approach** | Multisectoral coordination refers to deliberate collaboration among various stakeholder groups (e.g., government, civil society, and private sector) and sectors (e.g., health, environment, economy) to jointly achieve a policy outcome. By engaging multiple sectors, partners can leverage knowledge, expertise, reach, and resources, benefiting from their combined and varied strengths as they work toward the shared goal of producing better health outcomes. Public health problems are complex, and in many cases, a single health issue may be influenced by interrelated social, environmental, and economic factors that can best be addressed with a holistic, multisectoral approach. | (Health Policy Project, 2014) |
| **Neglected and underutilized species** | Are useful plant species which are marginalized if not entirely ignored by researchers, breeders and policy makers. They are non-commodity crops and belong to a large biodiverse group of thousands domesticated, semi-domesticated, wild species. | (Padulosi, Thompson and Rudebjer, 2013) |
| **NTFPs (Non timber forest products)** | *Non-timber forest products* (NTFPs) are useful substances, materials or commodities obtained from forests that do not require the harvesting of trees. In the past, forest departments and other government agencies have tended to pay only limited attention to NTFPs and forest ecosystem services, but this is changing. NTFPs are now more widely viewed as crucial for sustainable forest use, providing benefits for local communities and wider societies and offering an important means for development, especially in drylands. | (Sacande, Parfondry, and Food and Agriculture Organization of the United Nations, 2018) |

| Term | Definition | Reference |
|---|---|---|
| **Nutrients** | Nutrients are the substances and chemical elements and compounds that food contains. They make us grow, maintain our bodies in good repair, give us energy and keep us healthy. Those that are required in large quantities are classified as macronutrients (carbohydrates, fats and protein) and those required in only very small amounts but being essential as micronutrients (vitamins, minerals and trace elements). All foods contain at least one of the macronutrients, and most, though not all foods contain at least a few micronutrients. Essential micronutrients need to be consumed as the body cannot produce them on its own. For all nutrients, recommendations for daily intake and safe levels of intake exist. | (CFS, 2012) |
| **Nutrimod** | As one supportive tool serves the nutrition-ecological modelling technique NutriMod which supports integrative problem-solving processes by facilitating problem analysis, supporting to work on complex problems and assisting the impact assessment. In inter- or transdisciplinary processes, it can help to get a common understanding of the phenomenon and can support discipline-transcending knowledge integration.<br><br>See also Nutrition Ecology | (Hoffmann, Schneider and Leitzmann, 2011)<br>(Schneider and Hoffmann, 2011b) |
| **Nutrition** | Nutrition is the consequence of the intake of food and the utilization of nutrients by the body. Good nutrition produces a healthy physical and physiological condition. It is secured when food intake, absorption and utilization provide all essential nutrients in required amounts. Poor nutrition produces an unhealthy physiological condition and is caused by lack of physical, economic, social or physiological access to the right amounts of dietary energy and nutrients. Consequences of poor nutrition can be impaired physical and mental development, reduced immunity, increased susceptibility to disease, decreased ability to do work and reduced productivity. Since parasites, poor hygiene and diseases can compromise a person's ability to absorb and biologically utilize the nutrients consumed, a safe food supply, clean drinking water, a sanitary environment, adequate health, education and care are essential for good nutrition, along with a balanced diet. Optimal nutrition supports development to obtain each individual's full genetic potential. | (CFS, 2012) |

| Term | Definition | Reference |
|---|---|---|
| **Nutrition Ecology** | Nutrition ecology focusses on dealing with complexity, multidimensionality of nutrition-related issues and, in parallel, on dealing with the rising fragmentation of knowledge. Multidimensionality as one key-concept in Nutrition Ecology means that nutrition is depicted in the four dimensions health, environment, economy, and society. This allows including the complete spectrum of aspects in the field of nutrition. In accordance with the concept of sustainable development with integration as an important claim even in the nutrition ecological research approach the dimensions have to be considered simultaneously and coequally. Coequally means that the focus is not primarily on health but on all four dimensions of nutrition, as they all are usually involved in the causality of a problem or its solution. The aim is to develop future concepts of food and nutrition which are compatible with health, environment, economy, and society - with a local and a global perspective. | (Hoffmann, Schneider and Leitzmann, 2011)<br>(Schneider and Hoffmann, 2011a) |
| **Nutrition education** | 1) Any combination of educational strategies, accompanied by environmental support, designed to facilitate voluntary adoption of food choices and other food and nutrition related behaviours conducive for health and wellbeing "/"<br>2) Education on food and nutrition at school, in communities and at universities, strengthens consumers', farmers' and food processors' understanding of the nutritional value of various food sources and preparations, and empowers consumers to make informed choices and prioritize good nutrition and healthy habits. Nutrition education, as part of other services such as mother-child health care and school meal programmes, can provide information and guidance on healthy (and sustainable) feeding practices, including breastfeeding. Nutrition education for adolescents, especially girls, is a key entry point as it could contribute to improve the nutritional status of the adolescent, their nutritional behaviour and status in later life and of their children, positively impacting the intergenerational cycle of malnutrition.<br><br>See also social behaviour change communication | 1) (Contento, 2016)<br>2) (CFS, 2020b) |
| **Nutrition security** | Nutrition security exists when all people at all times consume food of sufficient quantity and quality in terms of variety, diversity, nutrient content and safety to meet their dietary needs and food preferences for an active and healthy life, coupled with a sanitary environment, adequate health, education and care.<br><br>See also food security and food and nutrition security | (CFS, 2012)<br>(Ingram, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Nutrition Strategy** | The purpose of a nutrition strategy is to define a framework through which available technical, human, and financial resources may be mobilized in order to ensure the health and nutrition status of a population is significantly improved.<br><br>See also Food strategy | Definition based on (WHO, 2012) |
| **Nutrition transition** | The *nutrition transition* refers to changes in lifestyle and dietary patterns driven by urbanization, globalization and economic growth, and their resulting impacts on nutrition and health outcomes. As countries urbanize and become wealthier, in general, obesity rises. However, these global trends should not hide the significant diversity of diets around the world, reflecting the diversity of food production landscapes and ecosystems, socio-economic conditions, cultures and beliefs. Studies of food systems adapted to their local context and of the associated traditional knowledge built up over millennia can provide new insights and pathways towards more sustainable food systems. | (HLPE, 2017) |
| **Nutritional status** | The nutritional status of a person can be measured by different methods, such as anthropometry, biochemical, clinical assessment and dietary intake methods. Anthropometry is the method commonly used. It can be defined as the measurement of physical dimensions and gross composition of the human body. The nutritional status of a person alone does not indicate the causes of this status. | (CFS, 2012) |
| **Nutritional yield** | The number of adults who would be able to obtain 100% of their recommended DRI of different nutrients for 1 year from a food item produced annually on one hectare […]. | (DeFries *et al.*, 2015) |
| **Nutritious diet** | 1) Nutritious diet means it is adapted to special individual needs to reach optimal health, that is, it supplies optimal levels of food and nutrients to maintain the body in a healthy state without excess, which may lead to increase in body weight or toxicity symptoms from some nutrients.<br>2) […] 'nutritious' is a descriptor; 'nutrition' is a state or condition.<br><br>See also healthy diet and nutrition and food and nutrition security | 1) (Alkerwi, 2014)<br>2) (Ingram, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Nutritious food** | 1) Nutritious food contains substances which help your body to be healthy.<br>Synonyms (of "nutritious"): nourishing, beneficial, wholesome, healthful<br>2) […] the inclusion of the adjective 'nutritious' signal […] that food also needs to contain sufficient nutrients — nutrients are a necessary contributor to food security.<br><br>See also Right to Food | 1) (Collins English Dictionary, 2020)<br>2) (Ingram, 2020) |
| **Out-scaling** | *Scaling out* refers to the transfer of a set of practices, e.g. a business model or a Win-win solution, from one physical location to another.<br><br>See also Deep-scaling and Up-scaling | (Omann *et al.*, 2020) |
| **Overweight / obesity** | Overweight and obesity are defined as abnormal or excessive fat accumulation that [presents a risk to health]. A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in metres). A person with a BMI of 30 or more is generally considered obese. A person with a BMI equal to or more than 25 is considered overweight.<br>[Overweight and obesity] are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer. Once considered a problem only in high income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings. | (WHO, 2020c) |
| **Participation** | A person who takes part in or becomes involved in a particular activity. […] The fact that you take part or become involved in something. | (Cambridge University Press, 2014d) |

| Term | Definition | Reference |
|---|---|---|
| **PHN/ Public Health Nutrition** | The problem with public health nutrition is that it is difficult to agree exactly what it is. In Public Health Nutrition: From Principles to Practice, Mark Lawrence and Tony Worsley contend that public health nutrition is concerned with promoting and maintaining the nutritional health of populations, which is a fundamental resource for the social, cultural, and economic wellbeing of local, national, and global communities. This is, indeed, a good statement of what public health nutrition does and why it is important, but it does not define what it is.<br>The UK Nutrition Society defines public health nutrition as the application of nutrition and physical activity to the promotion of good health, the primary prevention of diet-related illness of groups, communities, and populations (not individuals). This is a narrow definition, but it does differentiate public health nutrition from clinical nutrition and medical nutritional practices. | (Uauy, 2007) |
| **Post-harvest** | **Post-harvest** is defined as changes after harvest and before processing (transport, threshing, storage). A post-harvest system should be thought of as encompassing the delivery of a crop from the time and place of harvest to the time and place of consumption, […]. | (Grolleaud, no date) |
| | **Post-harvest loss**<br>1) Rough estimates, based on only a handful of studies, suggest that around one third of the annual food produced in the world for human consumption, approximately 1.3 billion tons, gets lost or wasted. According to a study by the FAO (2013), 54 percent of the world's food losses and waste occurs "upstream" during production, post-harvest handling and storage, while the remaining occurs “downstream," at the processing, distribution and consumption stages.<br>2) Food losses can be qualitative, such as reduced nutrient value and undesirable changes to taste, texture, or colour, or quantitative as measures by decreased weight or volume.<br>3) The qualitative loss can occur[…] [through] physical changes or chemical changes in fat, carbohydrates and protein and by contamination of mycotoxins, pesticides residues, insect fragments, or excerta of rodents and birds and their dead bodies. | 1) (Bellù, 2017)<br>2) (Buzby and Hyman, 2012)<br>3) (Aulakh and Regmi, 2013) |
| | **Post-harvest win**<br><br>Enhance the food value while taking into account potential trade-off between nutritious and economic values and optimizing both aspects: Values addition in terms of increasing the price, desirability of food or shelf-life and value addition in terms of stabilizing nutrients, preserve nutrients. | Definition based on (Grolleaud, no date) |

| Term | Definition | Reference |
|---|---|---|
| **Private sector** | FAO considers the private sector to encompass a broad array of entities, ranging from farmers, fishers, foresters, livestock herders, and MSMEs (including cooperatives, farmers/fishers/foresters/livestock producers' organizations and social enterprises) to large firms, both domestic and multinational companies, and philanthropic foundations. [ ] industry and trade associations and consortia that represent private sector interests. Any consortium, organization or foundation largely funded or governed by private entities will be considered private sector, as well as state-owned enterprises (SOEs). Academia and research institutions are not covered [ ]. | (FAO, 2021b) |
| **Product specification** | One of the most important product related documents is the product specification. This document contains a detailed description of the product, all the requirements related to the production process as well as technical and functional aspects of the product. | (Duteil, 2016) |
| **Productivity** | Agricultural productivity is a measure of the amount of agricultural output produced for a given amount of inputs […].<br>Productivity (land) measures the amount of land needed to meet food needs, and thus the potential level of pressure on land currently providing other environmental services (e.g., crop yields per unit of land; tons of wheat per hectare of land). Land quality is a major component of natural resources and has clear-cut effect on agricultural and land productivity. | (Michel Serres Institute, 2012) |
| **Production diversity** | [.] the number of crop and livestock species produced on a farm […] | (Sibhatu, Krishna and Qaim, 2015) |
| **Qualitative Modelling** | 1. To optimize a recipe to improve industrial food processing.<br>2. To optimize a recipe while e.g. reducing salt and sugar content while keeping the sensorics' properties | Authors own definition |
| **Quality Assurance** | Quality Assurance (QA) is a set of activities used by food companies to ensure that the process by which products are developed and produced meets a set of standards and specifications. The goal of QA is to prevent defects with a focus on the process used to make the product. | (BAKERpedia, 2020) (Motarjemi and Lelieveld, 2014) |
| **Food Quality Control** | […] food quality control [includes] the identification and reduction of forbidden compounds but also [.] monitoring the key compounds that enhance the food value. | (Ornelas-Soto, Barbosa-García and Lopez-de-Alba, 2011) |

| Term | Definition | Reference |
|---|---|---|
| **Resilience** | 1) The quality of being able to return quickly to a previous good condition after problems.<br>2) The ability to prevent disasters and crises as well as to anticipate, absorb, accommodate or recover from them in a timely, efficient and sustainable manner. This includes protecting, restoring and improving livelihoods systems in the face of threats that impact agriculture, nutrition, food security and food safety.<br>3) We define resilience of a farming system as its ability to ensure the provision of the system functions in the face of increasingly complex and accumulating economic, social, environmental and institutional shocks and stresses, through capacities of robustness, adaptability and transformability. | 1) (Cambridge English Dictonary, 2020)<br>2) (FAO, 2020b)<br>3) (Meuwissen *et al.*, 2019) |
| **Right to food** | The right to adequate food is realized when every man, woman and child, alone or in community with others, has the physical and economic access at all times to adequate food or means for its procurement. | (CESCR, 1999) |
| **Reduction strategy** | Food/ nutrition:<br>1) (…) reduction in mean population intake of [an additive or food or substance, e.g. salt, sugar]<br>2) The aim is that processed foodstuffs contain less energy, sugar, fats and salt, but still have sufficient nutrients such as vitamins and minerals. "/" [..] the BMEL [Federal Ministry of Food and Agriculture, Germany] and representatives of the food industry and artisanal food sector recognises that [food sector] is part of the solution to achieve a balanced energy intake of the population while improving nutrient supply. | 1) based on (European Commission, 2012)<br>(WHO, 2020d)<br>2) (BMEL, 2020) |
| | Poverty:<br>"/" poverty reduction actually encompasses many goals, some of which are contradictory "/" poverty reduction defined as a permanent reduction in the global poverty headcount "/" While the idea of a single overarching objective of poverty reduction is rhetorically attractive, the single objective masks a complex set of choices and trade-offs. As is often the case in welfare economics, there are important trade-offs for policy-makers who have to make choices among different kinds of improvements made in lives of different individuals. | (Barder, 2009) |
| **Season** | **On-season/ Plenty season/ Harvest season/ Fat period**<br>[.]there is considerable variation in food intake during the course of the calendar year with an identifiable period when food is relatively abundant […] | (Randolph *et al.*, 2007) |

| Term | Definition | Reference |
|---|---|---|
| | **Off-season/ Lean season/ Hunger season**<br>[…] when preferred foods are scarce, and lower-quality, abundant foods (fallback foods) are consumed. […] Many lean season foods are classified as "fallback foods" or foods for which use is negatively correlated with the availability of preferred foods; these foods are assumed to be of poor nutritional quality and high abundance. | (Irwin et al., 2014)<br>(Marshall and Wrangham, 2007) |
| | **Dry season/ wet season**<br>1) The dry season is a yearly period of low rainfall, especially in the tropics. The weather in the tropics is dominated by the tropical rain belt, which moves from the northern to the southern tropics and back over the course of the year. The tropical rain belt lies in the southern hemisphere roughly from October to March; during that time the northern tropics have a dry season with sparser precipitation, and days are typically sunny throughout. From April to September, the rain belt lies in the northern hemisphere, and the southern tropics have their dry season. Under the Köppen climate classification, for tropical climates, a dry season month is defined as a month when average precipitation is below 60 millimetres, […] [while] a wet season month is defined as a month where average precipitation is 60 millimetres (2.4 in) or more.<br>2) The wet and dry seasons [were defined] based on the number of months with less than 100 mm/month (dry-season precipitation) or with more than 100 mm/month (wet-season precipitation) of rain. This threshold was selected based on published studies dealing with multiple small-scale comparisons or with global observations. | 1) (Peel, Finlayson and McMahon, 2007) (Murray-Tortarolo *et al.*, 2017)<br>2) (Murray-Tortarolo *et al.*, 2017) |
| **Sensory Descriptors** | The selected descriptors [..] refer to human perception of the (sensory) properties of the product. At the same time and in an ideal way, descriptors should be veridical labels adequately denoting the products as well as their properties. Yet, the verbalization of sensory properties is a questionable issue as simple word meanings do not exactly (regularly) fit to concepts nor to personal experiences. | (Giboreau *et al.*, 2007) |
| **Shelf life** | Shelf-life is defined as the time during which the food product will: remain safe; be certain to retain desired sensory, chemical, physical and micro-biological characteristics; comply with any label declaration of nutritional data, when stored under the recommended conditions.<br><br>See also best before and use by | (Kilcast and Subramaniam, 2000) |

| Term | Definition | Reference |
|---|---|---|
| **(Social) Behaviour Change** | 1) Social and behaviour change communication (SBCC) is the use of communication to promote behaviour change by positively influencing knowledge, attitudes and practices. SBCC coordinates messaging across a variety of communication channels to reach multiple levels of society to stimulate community engagement and buy-in, ultimately influencing behaviour, social norms and demand.<br>2) Social Behaviour Change **(**SBC) is understood as a process involving individuals, communities or societies that enables them to adopt and sustain positive behaviours. It does so by identifying the various factors that influence people's behaviour and addressing these by using those approaches that are most likely to be effective.<br><br>See also: Supportive environment and Acceptability and Feasibility | 1) (CFS, 2020b)<br>2) (GIZ, 2019) |
| **Soil fertility** | Soil fertility is the ability of a soil to sustain plant growth by providing essential plant nutrients and favorable chemical, physical, and biological characteristics as a habitat for plant growth.<br><br>See also macronutrients and micronutrients | (FAO, 2021c) |
| **Stakeholder** | A person such as an employee, customer, or citizen who is involved with an organization, society, etc. and therefore has responsibilities towards it and an interest in its success. | (Cambridge University Press, 2014e) |
| **Standardized food processing** | A procedure that is reproducible, that transforms food into various forms maintaining food quality that is acceptable to consumers and follows defined standards. | Authors own definition |

| Term | Definition | Reference |
|---|---|---|
| **Supportive environment** | 1) [.] the term supportive environment refers to both the physical and social aspects of our surroundings. It encompasses where people live, their local community, their home, where they work and [where they] play. It also [includes] the framework which determines access to resources for living, and opportunities for empowerment.<br>[…] [There are] four aspects of supportive environments:<br>• The social dimension, which includes the ways in which norms, customs and social processes affect health. In many societies traditional social relationships are changing in ways that threaten health, for example, by increasing social isolation, by depriving life of a meaningful coherence and purpose, or by challenging traditional values and cultural heritage.<br>• The political dimension, which requires governments to guarantee democratic participation in decision-making and the decentralization of responsibilities and resources. It also requires a commitment to human rights, peace, and a shifting of resources from the arms race.<br>• The economic dimension, which requires a rechannelling of resources for the achievement of Health for All and sustainable development, including the transfer of safe and reliable technology.<br>• The need to recognize and use women's skills and knowledge in all sectors - including policy-making, and the economy - in order to develop a more positive infrastructure for supportive environments. The burden of the workload of women should be recognized and shared between men and women. Women's community-based organizations must have a stronger voice in the development of health promotion policies and structures.<br>2) [.] a combination of factors in the environment that play a role in the development or nurturing of entrepreneurship and entrepreneurial activities<br><br>See also food environment and (social) behaviour change and nutrition education | 1) (WHO, 1991)<br>2) (Okhomina, 2010) |
| **Sustainability** | 1) The quality of causing little or no damage to the environment and therefore able to continue for a long time.<br>2) Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. | 1) (Cambridge University Press, 2014f)<br>2) (World Commission on Environment and Development, 1987) |

| Term | Definition | Reference |
|---|---|---|
| **Sustainable diet** | 1) Sustainable diets are those with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources<br>2) [.] Dietary patterns that promote all dimensions of individual's health and well-being [with] low environmental pressure and impact [ ]<br><br>See also healthy diet and sustainable food systems and sustainability | 1) (Burlingame, 2012)<br>2) (FAO and WHO, 2019a) |
| **Systems** | A system is a set of interrelated components working together towards some kind of process.<br><br>See also food systems and ecosystem and food ecosystem | (Pidwirny and Scott, 2020) |
| | **Farming system**<br>A farming system[..] is defined as a population of individual farm systems that have broadly similar resource bases, enterprise patterns, household livelihoods and constraints, and for which similar development strategies and interventions would be appropriate. Depending on the scale of the analysis, a farming system can encompass a few dozen or many millions of households. | (FAO, 2001) |
| | **Food system**<br>A food system gathers all the elements […] and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socio-economic and environmental outcomes. This report ["Nutrition and food systems" by the HLPE 2017] pays specific attention to nutrition and health outcomes of food systems. It identifies three constituent elements of food systems, as entry and exit points for nutrition: food supply chains; food environments; and consumer behaviour.<br><br>See also: Nutrition security and food systems | (HLPE, 2017) |
| **Technology Transfer** | The transfer of technology is the simple transmission of the knowledge from one party to another, which encompasses also the absorption of that knowledge by the recipient. | (McInerney, 2014) |

| Term | Definition | Reference |
|---|---|---|
| **Tolerance Level** | 1) The amount and flexibility allowed when making a product - in terms of weight- colour, size – so that it meets quality standards<br>2) Allowable levels for pesticide residues in foods, known as tolerances in the US and as maximum residue limits (MRLs) in much of the world, are widely yet inappropriately perceived as levels of safety concern. | 1) (Harper, 2015)<br>2) (Winter and Jara, 2015) |
| **Traceability** | Traceability can be defined as the ability and opportunity to review the product flow throughout the manufacturing and supply chain. The word *Traceability* combines *Trace* and *Ability*, which means the opportunity to track something [e.g. causes of contamination]. | (CAJO Technologies, 2019) |
| **Transfor-mation** | 1) This will set in motion a transformation of existing food systems that makes them resilient and sustainable […[ [food systems] needed transformation to significantly accelerate progress to-wards achieving the SDGs by 2030.<br>2) Digestion is a series of mechanical and chemical transformation. Mechanical digestion involves a coarse reduction of the size of foodstuff particles, increasing their surface area to make their chemical digestion easier. With chemical digestion, these particles are reduced into finer particles and complex nutrients are then transformed into simple nutrients to facilitate their absorption into the body.<br><br>See also food systems | 1) (FAO, 2020c)<br>2) (Alimentarium Academy, 2020) |
| **Undernourish-ment** | Undernourishment is defined as the condition in which an individual's habitual food consumption is insufficient to provide the amount of dietary energy required to maintain a normal, active, healthy life.<br>SDG Indicator 2.1.1, the prevalence of undernourishment (PoU), is FAO's traditional indicator used to monitor hunger at the global and regional levels. It is computed from aggregated country-level data on food available for human consumption. | (FAO *et al.*, 2019) |
| **Undernutri-tion** | The outcome of poor nutritional intake in terms of quantity and/or quality, and/or poor absorption and/or poor biological use of nutrients consumed as a result of repeated instances of disease. It in-cludes being underweight for one's age, too short for one's age (stunted), dangerously thin for one's height (suffering from wasting) and deficient in vitamins and minerals (micronutrient deficiency). | (FAO *et al.*, 2019) |

| Term | Definition | Reference |
|---|---|---|
| **Underutilized species** | Species whose potential to improve people's livelihoods, as well as food security and sovereignty, is not being fully realized because of their limited competitiveness with commodity crops in mainstream agriculture. While their potential may not be fully realized at national level, they are of significant importance locally, being highly adapted to marginal, complex, and difficult environments and contributing significantly to diversification and resilience of agroecosystems. This means they are of considerable interest for future adaptation of agriculture to climate change. Underutilized species include not just food plants but also many other species—wild or cultivated—used as sources of oil, fuel, fiber, fodder, beverages, stimulants, narcotics, ornamental, aromatic compounds, and medicine. | (Padulosi *et al.*, 2011) |
| **Up-scaling** | 1) Scaling up refers broadly to moving sustainable practices from experimentation to mainstream or practices becoming embedded in the regime.<br>2) The Scaling up Agroecology Initiative aims to accompany and support national agroecology transition processes through policy and technical capacity that builds synergies between countries. It will build alliances among different stakeholders, strengthen networks and allow co-creation of knowledge and knowledge sharing.<br><br>See also: Deep-scaling and Out-scaling | 1) (van den Bosch and Rotmans, 2008)<br>(Omann *et al.*, 2020)<br>2) (FAO, 2018) |
| **Use by** | 1) The 'use by' is the date up until which a food may be used safely i.e. consumed, cooked or processed, once it has been stored correctly. After the 'use by' date a food is deemed unsafe in accordance with article 14(2) of Regulation EC No. 178/2002 and cannot be sold.<br>2) A use by date on food is about safety. This is the most important date to remember. Foods can be eaten until the use by date but not after. You will see use by dates on food that goes off quickly, such as meat products or ready-to-eat salads.<br><br>See also shelf life and best before | (Food Safety Authority of Ireland, 2017)<br>(Food Standards Agency UK, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Value addition** | Value-addition takes place when enhancement is added to a product or service by a company before the product is offered to customers. In the case of bee products, they can be considered value-added if the original raw product, such as honey or beeswax, is somehow modified, changed or enhanced to increase in value. This incorporates them into other 'secondary' products that have higher net worth, so that each unit of the product can be sold at a higher price and achieves a higher return. To give an example from beekeeping, let us suppose that 0.5 kilograms of honey sells at US$5. However, just a few grams of honey (worth just a few cents of that US$5), if mixed with some other ingredients – that are in isolation also worth just a few cents each – may be combined to create a sweet-smelling cosmetic which, if attractively packaged and well marketed, may also sell at US$5. The selling price of each gramme of honey has been greatly increased: value has been added. | (Bradbear and Organització de les Nacions Unides per a l'Agricultura i l'Alimentació, 2009) |

| Term | Definition | Reference |
|---|---|---|
| **Value chain** | 1) A value chain [is] the full range of activities [.] required to bring a product or service from conception, through the different phases of production,[..] transformation and delivery to final consumers and to final disposal after use.[ A value chain is made up of a series of actors (or stakeholders)—from input suppliers, producers and processors, to exporters and buyers—engaged in the activities required to bring a product from its conception to its end use.]<br><br>A value chain is made up of a series of actors (or stakeholders) from input suppliers, producers and processors, to exporters and buyers engaged in the activities required to bring agricultural product from its conception to its end use (Kaplinsky and Morris, 2001).<br><br>2) Agricultural value chains [consist of] a set of actors and activities that bring a basic agricultural product from [production in the] field to final consumption and add value at each stages of the production process,<br>3) The food supply chain encompasses all activities that move food from production to consumption, including production, storage, distribution, processing, packaging, retailing and marketing. The decisions made by the many actors at any stage of this chain have implications for other stages. They influence the types of food available and accessible, as well as the way they are produced and consumed.<br>4) The food value chain consists of all the stakeholders who participate in the coordinated production and value-adding activities that are needed to make food products. | 1) (Kaplinsky and Morris, 2001)<br>(Ambaw, 2019)<br>2) (Cattaneo, 2013)<br>3) (HLPE, 2017)<br>4) (Neven, 2014) |

| Term | Definition | Reference |
|---|---|---|
| **Variety** | 1) Food variety score (FVS). This refers to the number of different dietary items consumed by [a person] the day before the survey. The frequency of consumption and the amount of food consumed are not taken into account.<br>Dietary diversity score (DDS). This refers to the number of the different food groups to which the above food items belong (irrespective of the number of representatives of each group).<br>2) [Crop] variety means a plant grouping, within a single botanical taxon of the lowest known rank, defined by the reproducible expression of its distinguishing and other genetic characteristics<br><br>See also Dietary diversity and Food and Crop diversity and Crop | 1) (Savy et al., 2005)<br>2) (InforMEA, 2020) |
| **Vegan, vegetarian** | 1) Veganism is a philosophy and way of living which seeks to exclude—as far as is possible and practicable—all forms of exploitation of, and cruelty to, animals for food, clothing or any other purpose; and by extension, promotes the development and use of animal-free alternatives for the benefit of animals, humans and the environment. In dietary terms it denotes the practice of dispensing with all products derived wholly or partly from animals.<br>2) Vegetarianism describes the behaviour of not consuming animal products, such as meat and fish. However, it often includes the consumption of products from living animals, such as milk, and eggs. | 1) (The Vegan Society, 2020)<br>2) (Leitzmann and Keller, 2020) |

| Term | Definition | Reference |
|---|---|---|
| **Water footprint** | The water footprint is a measure of humanity's appropriation of fresh water in volumes of water consumed and/or polluted.<br>The three water footprints [are]:<br>Green water footprint is water from precipitation that is stored in the root zone of the soil and evaporated, transpired or incorporated by plants. It is particularly relevant for agricultural, horticultural and forestry products.<br>Blue water footprint is water that has been sourced from surface or groundwater resources and is either evaporated, incorporated into a product or taken from one body of water and returned to another, or returned at a different time. Irrigated agriculture, industry and domestic water use can each have a blue water footprint.<br>Grey water footprint is the amount of fresh water required to assimilate pollutants to meet specific water quality standards. The grey water footprint considers point-source pollution discharged to a freshwater resource directly through a pipe or indirectly through runoff or leaching from the soil, impervious surfaces, or other diffuse sources. | (water footprint network, 2020)<br>(SABMiller and WWF-UK, 2009) |
| **Willingness to pay** | 1) The quality of being happy to do something if it is needed<br>2) Economists, psychologists, and marketing researchers rely on measures of consumers' willingness to pay (WTP) in estimating demand for private and public goods and in designing optimal price schedules. Existing market research techniques for measuring WTP differ in whether they provide an incentive to consumers to reveal their true WTP and in whether they simulate actual point-of-purchase contexts. | 1) (Cambridge University Press, 2020b)<br>2) (Wertenbroch and Skiera, 2002) |
| **Women and youth empowerment** | 1) Women empowerment refers to the women's ability to make decisions that affect outcomes of importance to themselves and their families. Control over one's life and resources is often stressed.<br>2) Women's own power of self-determination and decision-making, including aspects of their control of assets, income, time, labour and knowledge. | 1) (Malhotra and Schuler, 2005)<br>2) (FAO, 2016) |
| **Z-score** | A method that measures the deviation of an individual's anthropometric measurements (value) from the reference mean or median value in terms of standard deviations. It measures how far a child's anthropometric measurements are from the mean measurement. | (Gibson, 2005) |

Alimentarium Academy (2020) *Mechanical and chemical transformation | Alimentarium*. Available at: https://academy.alimentarium.org/en/teacher/digestive-system/92/stages-digestion/mechanical-and-chemical-transformation (Accessed: 11 December 2020).

Alkerwi, A. (2014) 'Diet quality concept', *Nutrition*, 30(6), pp. 613–618. doi: 10.1016/j.nut.2013.10.001.

Allen, L. *et al.* (2006) 'Guidelines on food fortification with micronutrients'. WHO/FAO. Available at: http://www.who.int/nutrition/publications/micronutrients/9241594012/en/ (Accessed: 16 October 2020).

Amadi, L. and Allen, F. (eds) (2020) *Global Food Politics and Approaches to Sustainable Consumption: Emerging Research and Opportunities*. IGI Global (Advances in Environmental Engineering and Green Technologies). doi: 10.4018/978-1-7998-0125-2.

Ambaw, T. (2019) *Value Chain Analysis of Groundnut - In Pawi Woreda, Metekel Zone, Ethiopia*. Thesis. Beles Paradise College. Available at: https://www.grin.com/document/505489 (Accessed: 5 May 2021).

Anderson, S. A. (1990) 'Core Indicators of Nutritional State for Difficult-to-Sample Populations', *The Journal of Nutrition*, 120(suppl_11), pp. 1555–1600. doi: 10.1093/jn/120.suppl_11.1555.

Anonymous (2020a) *Feasibility Study*. Available at: https://en.wikipedia.org/wiki/Feasibility_study (Accessed: 15 November 2020).

Anonymous (2020b) 'Food processor', *Wikipedia*. Available at: https://en.wikipedia.org/w/index.php?title=Food_processor&oldid=962496914 (Accessed: 15 November 2020).

Aulakh, J. and Regmi, A. (2013) 'Post-Harvest Food Losses Estimation - Development of Consistent Methodology'. Food and Agriculture Organization of the United Nations.

Australian Institute of Food Safety (2020a) *What Are High-Risk Foods?*, *Australian Institute of Food Safety*. Available at: https://www.foodsafety.com.au/blog/what-are-high-risk-foods (Accessed: 10 December 2020).

Australian Institute of Food Safety (2020b) *What are the different types of food contamination?*, *Australian Institute of Food Safety*. Available at: https://www.foodsafety.com.au/faq/what-are-the-different-types-of-food-contamination (Accessed: 14 November 2020).

Babu, S. C., Gajanan, S. N. and Sanyal, P. (2014) 'Chapter 6 - Impact of Market Access on Food Security—Application of Factor Analysis', in Babu, S. C., Gajanan, S. N., and Sanyal, P. (eds) *Food Security, Poverty and Nutrition Policy Analysis (Second Edition)*. San Diego: Academic Press, pp. 139–175. doi: 10.1016/B978-0-12-405864-4.00006-5.

BAKERpedia (2020) ‘Quality Assurance | Food Safety’, *BAKERpedia*. Available at: https://bakerpedia.com/food-safety/quality-assurance/ (Accessed: 11 December 2020).

Barder, O. (2009) ‘What is Poverty Reduction?’, *SSRN Electronic Journal*. doi: 10.2139/ssrn.1394506.

Bareja, B. G. (2010) *What is Agriculture: Definition and Concept*, *CropsReview*. Available at: https://www.cropsreview.com/what-is-agriculture.html (Accessed: 21 October 2020).

Bellù, L. G. (2017) ‘Food losses and waste: Issues and policy options’, in. Rome: Food and Agriculture Organization of the United Nations.

Berjan, S. *et al.* (2018) ‘Food Losses and Waste: A Global Overview with a Focus on Near East and North Africa Region’, *International Journal of Agricultural Management and Development*, 8.

Berkum, S. van, Dengerink, J. and Ruben, R. (2018) *The food systems approach: sustainable solutions for a sufficient supply of healthy food*. 2018–064. The Hague: Wageningen Economic Research, p. Available at: https://library.wur.nl/WebQuery/wurpubs/538076 (Accessed: 14 November 2020).

Bivens, G. E. and Volker, C. B. (1986) ‘A Value-Added Approach to Household Production: The Special Case of Meal Preparation’, *Journal of Consumer Research*, 13(2), pp. 272–279.

Block, L. G. *et al.* (2011) ‘From Nutrients to Nurturance: A Conceptual Introduction to Food Well-Being’, *Journal of Public Policy & Marketing*, 30(1), pp. 5–13. doi: 10.1509/jppm.30.1.5.

BMEL (2020) *BMEL - Healthy diet - The National Reduction and Innovation Strategy: Less sugar, fats and salt in processed foods*. Available at: https://www.bmel.de/EN/topics/food-and-nutrition/healthy-diet/reduction-innovation-strategy-less-sugar-fat-salt.html (Accessed: 6 May 2021).

van den Bosch, S. and Rotmans, J. (2008) ‘Deepening, Broadening and Scaling up: a Framework for Steering Transition Experiments.’ Available at: https://repub.eur.nl/pub/15812 (Accessed: 16 October 2020).

Bowser, T. J. (2019) ‘Chapter 24 - Food Processing Facility Design’, in Kutz, M. (ed.) *Handbook of Farm, Dairy and Food Machinery Engineering (Third Edition)*. Academic Press, pp. 623–649. doi: 10.1016/B978-0-12-814803-7.00024-5.

Bradbear, N. and Organització de les Nacions Unides per a l'Agricultura i l'Alimentació (2009) *Bees and their role in forest livelihoods a guide to the services provided by bees and the sustainable harvesting, processing and marketing of their products*. Rome: Food and Agriculture Organization of the United Nations. Available at: http://www.fao.org/docrep/012/i0842e/i0842e00.htm (Accessed: 21 October 2020).

British Nutrition Foundation (2018a) *Dietary fibre - British Nutrition Foundation*. Available at: https://www.nutrition.org.uk/nutritionscience/nutrients-food-and-ingredients/dietary-fibre.html?start=1 (Accessed: 16 October 2020).

British Nutrition Foundation (2018b) *Glossary - British Nutrition Foundation*. Available at: https://www.nutrition.org.uk/healthyliving/resources/glossary.html (Accessed: 20 October 2020).

Brown, M. H. (2008) *Chilled foods: a comprehensive guide*. Boca Raton, Fla.; Cambridge, U.K.: CRC ; Woodhead. Available at: http://www.foodnetbase.com/books/8111/wp8775_c000.pdf (Accessed: 19 October 2020).

Burlingame, B. (2012) *Sustainable diets and biodiversity - Directions and solutions for policy research and action Proceedings of the International Scientific Symposium Biodiversity and Sustainable Diets United Against Hunger*. Rome: FAO.

Buzby, J. C. and Hyman, J. (2012) 'Total and per capita value of food loss in the United States', *Food Policy*, 37(5), pp. 561–570. doi: 10.1016/j.foodpol.2012.06.002.

CAJO Technologies (2019) *Traceability is quality control*, *Cajo*. Available at: https://cajotechnologies.com/traceability-is-quality-control/ (Accessed: 11 December 2020).

Cambridge English Dictonary (2020) *RESILIENCE | meaning in the Cambridge English Dictionary*. Available at: https://dictionary.cambridge.org/dictionary/english/resilience (Accessed: 11 December 2020).

Cambridge University Press (2014a) *EFFICIENCY | Bedeutung im Cambridge Englisch Wörterbuch*. Available at: https://dictionary.cambridge.org/de/worterbuch/englisch/efficiency (Accessed: 16 October 2020).

Cambridge University Press (2014b) *FEASIBILITY | Bedeutung im Cambridge Englisch Wörterbuch*. Available at: https://dictionary.cambridge.org/de/worterbuch/englisch/feasibility (Accessed: 19 October 2020).

Cambridge University Press (2014c) *KNOWLEDGE | Bedeutung im Cambridge Englisch Wörterbuch*. Available at: https://dictionary.cambridge.org/de/worterbuch/englisch/knowledge (Accessed: 20 October 2020).

Cambridge University Press (2014d) *PARTICIPANT | Bedeutung im Cambridge Englisch Wörterbuch*. Available at: https://dictionary.cambridge.org/de/worterbuch/englisch/participant (Accessed: 21 October 2020).

Cambridge University Press (2014e) *STAKEHOLDER | Bedeutung im Cambridge Englisch Wörterbuch*. Available at: https://dictionary.cambridge.org/de/worterbuch/englisch/stakeholder (Accessed: 21 October 2020).

Cambridge University Press (2014f) *SUSTAINABILITY | Bedeutung im Cambridge Englisch Wörterbuch*. Available at: https://dictionary.cambridge.org/de/worterbuch/englisch/sustainability (Accessed: 21 October 2020).

Cambridge University Press (2020a) *ACCEPTABILITY | meaning in the Cambridge English Dictionary*. Available at: https://dictionary.cambridge.org/dictionary/english/acceptability (Accessed: 19 October 2020).

Cambridge University Press (2020b) *WILLINGNESS | Bedeutung im Cambridge Englisch Wörterbuch*. Available at: https://dictionary.cambridge.org/de/worterbuch/englisch/willingness (Accessed: 14 November 2020).

Cattaneo, O. (2013) *Aid for Trade and Value Chains in Agrifood*. Geneva: World Trade Organization. Available at: http://www.oecd.org/dac/aft/Agrifood_Full_04July.pdf (Accessed: 15 October 2020).

CESCR (1999) 'General Comment No. 12: The Right to Adequate Food (Art. 11)'. UN Comittee on Economic, Social and Cultural Rights.

CFS (2012) *Committee on World Food Security; Thirty-ninths Session: Coming to terms with terminology*. 39/4. Rome. Available at: http://www.fao.org/3/MD776E/MD776E.pdf (Accessed: 16 October 2020).

CFS (2020a) *CFS Voluntary Guidelines on Food Systems for Nutrition (VGFSyN) - 3rd round for Negotiations*, *CFS: Food Systems and Nutrition*. Available at: http://www.fao.org/fileadmin/templates/cfs/Docs1920/Nutrition_Food_System/Negotiations/CFS_VGFSyN_3rd_Round_Negotiations_Rev1.pdf (Accessed: 14 November 2020).

CFS (2020b) 'CFS_Zero_Draft_Voluntary_Guidelines_Food_Systems_and_Nutrition.pdf'. Available at: http://www.fao.org/fileadmin/templates/cfs/Docs1819/Nutrition/CFS_Zero_Draft_Voluntary_Guidelines_Food_Systems_and_Nutrition.pdf (Accessed: 5 May 2021).

CFS (2020c) 'Voluntary Guidelines on Food Systems and Nutrition (VGFSyN) - 2nd round of negotiatons'. Rome, Italy.

CFS (2021) 'The CFS Voluntary guidelines on food systems and nutrition (VGFSyN)'. Committee on World Food Security. Available at: http://www.fao.org/3/ne982en/ne982en.pdf (Accessed: 8 April 2021).

Chambolle, M. (1988) 'Food policy and the consumer', *Journal of Consumer Policy*, 11(4), pp. 435–448. doi: 10.1007/BF00411855.

Collins English Dictionary (2020) *Nutritious food definition and meaning | Collins English Dictionary*. Available at: https://www.collinsdictionary.com/dictionary/english/nutritious-food (Accessed: 21 October 2020).

Contento, I. R. (2016) *Nutrition education: linking research, theory, and practice*. Third edition. Burlington, Massachusetts: Jones & Bartlett Learning.

Coppo, G., Stempfle, S. and Reho, M. (2017) 'Urban food strategies and plans: considerations on the assessment construction', *City, Territory and Architecture*, 4(1), pp. 1–7. doi: 10.1186/s40410-017-0064-2.

Curtis, N. and Rural Industries Research and Development Corporation (Australia) (2014) *Cross-contamination by chemicals of farming family members: a snapshot of farmers' health in the Esperance Port Zone: 2010-2013*.

De Bernardi, P. and Azucar, D. (2020) *Innovation in food ecosystems: entrepreneurship for a sustainable future*. Available at: https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=2320281 (Accessed: 19 October 2020).

DeFries, R. *et al.* (2015) 'Metrics for land-scarce agriculture', *Science*, 349(6245), pp. 238–240. doi: 10.1126/science.aaa5766.

Duteil, B. (2016) *Product specification in the food industry: what you need to know*. Available at: https://blog.ecratum.com/product-specification-in-the-food-industry-what-you-need-to-know (Accessed: 11 December 2020).

Dwyer, J. T. *et al.* (2012) 'Is "Processed" a Four-Letter Word? The Role of Processed Foods in Achieving Dietary Guidelines and Nutrient Recommendations', *Advances in Nutrition: An International Review Journal*, 3(4), pp. 536–548. doi: 10.3945/an.111.000901.

Ecosystem Services (2020) *Aims & scope - Ecosystem Services | ScienceDirect.com by Elsevier*. Available at: https://www.sciencedirect.com/journal/ecosystem-services/about/aims-and-scope (Accessed: 15 November 2020).

Edwards, P. and Demaine, H. (1998) *Rural Aquaculture: Overview and Framework for Country Reviews. 1. Definitions - Aquaculture*. Available at: http://www.fao.org/3/x6941e/x6941e04.htm (Accessed: 16 October 2020).

EFSA (2020a) *Dietary reference values*, *European Food Safety Authority*. Available at: https://www.efsa.europa.eu/en/topics/topic/dietary-reference-values (Accessed: 14 November 2020).

EFSA (2020b) *Scientific topic: Food additives | European Food Safety Authority*. Available at: https://www.efsa.europa.eu/en/topics/topic/food-additives (Accessed: 14 November 2020).

Engels, J., Diulgheroff, S. and Alvarez, J. S. (2014) 'Management of Crop Diversity: Key Practices for DRR Implementers'. FAO.

eufic (2020) *Processed Food: What Is the Purpose of Food Processing?* Available at: https://www.eufic.org/en/food-production/article/processed-food-qa (Accessed: 10 December 2020).

European Commission (2012) *Implementation of the EU Salt Reduction Framework: results of member states survey*. Luxembourg: Publications Office of the European Union. Available at: http://edepot.wur.nl/376090 (Accessed: 12 March 2019).

European Commission (2016) *Feed Additives*, *Food Safety - European Commission*. Available at: https://ec.europa.eu/food/safety/animal-feed/feed-additives_en (Accessed: 14 November 2020).

European Commission (2020) *Quality labels*, *European Commission - European Commission*. Available at: https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels_en (Accessed: 10 December 2020).

FAO (1959) *Report of the Conference of FAO: Tenth Session - Food Processing and Preservation*. Available at: http://www.fao.org/3/x5573E/x5573e0e.htm (Accessed: 20 October 2020).

FAO (ed.) (1980) *Assessment and collection of data on post-harvest foodgrain losses*. Rome: Food and Agriculture Organization of the United Nations (FAO economic and social development paper, 13).

FAO (1996) *AGRO-ECOLOGICAL ZONING Guidelines*. Available at: http://www.fao.org/3/w2962e/w2962e-03.htm (Accessed: 16 October 2020).

FAO (1998) 'Background Paper 1: Agricultural Biodiversity'. Available at: http://www.fao.org/mfcal/pdf/bp_1_agb.pdf (Accessed: 16 October 2020).

FAO (2001) *Farming Systems and Poverty: Improving farmer's livelihoods in a changing world*. Available at: http://www.fao.org/3/Y1860E/y1860e03.htm#P138_12816 (Accessed: 19 October 2020).

FAO (2003) 'The informal food sector. Municipal support policies for operators: A briefing guide for mayors city executives and urban planners in developing countries and countries in transition - "Food in Cities" Collection, No. 4'. Available at: http://www.fao.org/3/a-y4312e.pdf (Accessed: 20 October 2020).

FAO (ed.) (2005) *Voluntary guidelines to support the progressive realization of the right to adequate food in the context of national food security, adopted by the 127th Session of the FAO Council, November 2004*. Rome: Food and Agriculture Organization of the United Nations.

FAO (2016) *Compendium of indicators for nutrition-sensitive agriculture.* Food and Agriculture Organization of the United Nations.

FAO (2017) 'Productivity and Efficiency Measurement in Agriculture Literature. Review and Gaps Analysis'. Available at: http://www.fao.org/3/ca6428en/ca6428en.pdf (Accessed: 14 November 2020).

FAO (2018) 'Scaling Up Agroecology Initiative: Transforming Food and Agricultural Systems in Support of the SDGs. A Proposal Prepared for the International Symposium on Agroecology 3-5 April 2018'. Food and Agriculture Organization of the United Nations. Available at: http://www.fao.org/3/I9049EN/i9049en.pdf (Accessed: 21 October 2020).

FAO *et al.* (2019) 'The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns.', in. Rome: FAO.

FAO (2020a) *Food Insecurity Experience Scale | Voices of the Hungry | Food and Agriculture Organization of the United Nations*. Available at: http://www.fao.org/in-action/voices-of-the-hungry/fies/en/ (Accessed: 20 October 2020).

FAO (2020b) *Resilience : FAO in Emergencies*. Available at: http://www.fao.org/emergencies/how-we-work/resilience/en/ (Accessed: 11 December 2020).

FAO (2020c) *Transforming food systems for affordable healthy diets*. Available at: http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1298217/.

FAO (2021a) *Definitions for the Purposes of the Codex Alimentarius*. Available at: http://www.fao.org/3/y2200e/y2200e07.htm (Accessed: 4 May 2021).

FAO (2021b) *FAO Strategy for Private Sector Engagement, 2021-2025*. Rome, Italy: FAO. doi: 10.4060/cb3352en.

FAO (2021c) *Soil fertility | Global Soil Partnership | Food and Agriculture Organization of the United Nations*. Available at: http://www.fao.org/global-soil-partnership/areas-of-work/soil-fertility/en/ (Accessed: 5 May 2021).

FAO *et al.* (2021) *The State of Food Security and Nutrition in the World 2020 | FAO | Food and Agriculture Organization of the United Nations*. Rome, p. 320. doi: 10.4060/CA9692EN.

FAO and FHI 360 (2016) 'Minimum Dietary Diversity for Women: A Guide for Measurement'. FAO. Available at: http://www.fao.org/3/a-i5486e.pdf (Accessed: 27 April 2016).

FAO and WHO (2003) *Assuring Food Safety and Quality: Guidelines for Strengthening National Food Control Systems - 3. IMPORTANT FOOD ISSUES*. Available at: http://www.fao.org/3/y8705e/y8705e03.htm#bm03 (Accessed: 20 October 2020).

FAO and WHO (2019a) *Sustainable healthy diets: guiding principles.* Rome. Available at: http://www.fao.org/3/ca6640en/ca6640en.pdf (Accessed: 15 October 2020).

FAO and WHO (2019b) *Sustainable healthy diets: guiding principles.* Available at: http://www.fao.org/3/ca6640en/ca6640en.pdf (Accessed: 5 May 2021).

FAO/WHO GIFT (2020) *Food groups and sub-groups*, *FAO/WHO GIFT | Food and Agriculture Organization of the United Nations*. Available at: http://www.fao.org/gift-individual-food-consumption/methodology/food-groups-and-sub-groups/en/ (Accessed: 14 November 2020).

Floros, J. D. *et al.* (2010) 'Feeding the World Today and Tomorrow: The Importance of Food Science and Technology', *Comprehensive Reviews in Food Science and Food Safety*, 9(5), pp. 572–599. doi: https://doi.org/10.1111/j.1541-4337.2010.00127.x.

Food Safety Authority of Ireland (2017) *Best Before and Use By Dates | Shelf life | FAQs | The Food Safety Authority of Ireland*. Available at: https://www.fsai.ie/faq/shelf_life/best_before_and_use_by.html (Accessed: 5 May 2021).

Food Standards Agency UK (2020) *Labelling guidance*, *Food Standards Agency*. Available at: http://www.wrap.org.uk/sites/files/wrap/Food_labelling_guidance.pdf (Accessed: 11 December 2020).

Ghoshal, G. (2018) 'Chapter 2 - Emerging Food Processing Technologies', in Grumezescu, A. M. and Holban, A. M. (eds) *Food Processing for Increased Quality and Consumption*. Academic Press (Handbook of Food Bioengineering), pp. 29–65. doi: 10.1016/B978-0-12-811447-6.00002-3.

Giboreau, A. *et al.* (2007) 'Defining sensory descriptors: Towards writing guidelines based on terminology', *Food Quality and Preference*, 18(2), pp. 265–274. doi: 10.1016/j.foodqual.2005.12.003.

Gibson, R. S. (2005) *Principles of nutritional assessment*. 2nd ed. New York: Oxford University Press.

Giusti, A. M., Bignetti, E. and Cannella, C. (2008) 'Exploring New Frontiers in Total Food Quality Definition and Assessment: From Chemical to Neurochemical Properties', *Food and Bioprocess Technology*, 1(2), pp. 130–142. doi: 10.1007/s11947-007-0043-9.

GIZ (2019) ‘Social and Behaviour Chnage: Insights and Practices’. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Government of Western Australia (2014) *Cross-contamination with pesticide seed and structural treatments*, *Agriculture and Food*. Available at: https://www.agric.wa.gov.au/grains/cross-contamination-pesticide-seed-and-structural-treatments (Accessed: 4 May 2021).

Grassmann, D. (2019) *Hygienic Zoning in Food Manufacturing Factories*, *Food Safety Magazine*. Available at: https://www.foodsafetymagazine.com/magazine-archive1/octobernovember-2019/hygienic-zoning-in-food-manufacturing-factories/ (Accessed: 10 December 2020).

Grolleaud, M. (no date) ‘POST-HARVEST LOSSES: DISCOVERING THE FULL STORY: Overview of the Phenomenon of Losses During the Post-harvest System - CHAPTER 2 - POST-HARVEST SYSTEM AND FOOD LOSSES’. FAO. Available at: http://www.fao.org/3/ac301e/AC301e03.htm (Accessed: 20 October 2020).

Grunert, K. G. (2005) ‘Food quality and safety: consumer perception and demand’, *European Review of Agricultural Economics*, 32(3), pp. 369–391. doi: 10.1093/eurrag/jbi011.

Gustavsson, J., Cederberg, C. and Sonesson, U. (2011) *Global food losses and food waste: extent, causes and prevention ; study conducted for the International Congress Save Food! at Interpack 2011, [16 - 17 May], Düsseldorf, Germany*. Rome: Food and Agriculture Organization of the United Nations.

Harper, J. (2015) ‘KEY WORDS in Food Technology’. Available at: http://penyrheol-comp.net/technology/wp-content/uploads/sites/2/2014/06/KEY_WORDS_in_Food_Technology-2015.ppt (Accessed: 11 December 2020).

Harris, D. R. and Fuller, D. Q. (2014) ‘Agriculture: Definition and Overview’, in Smith, C. (ed.) *Encyclopedia of Global Archaeology*. New York, NY: Springer New York, pp. 104–113. doi: 10.1007/978-1-4419-0465-2_64.

Harvard Health Publishing (2019) *The larger role of micronutrients*, *Harvard Health*. Available at: https://www.health.harvard.edu/staying-healthy/the-larger-role-of-micronutrients (Accessed: 5 May 2021).

Health Policy Project (2014) ‘Capacity Development Resource Guide: Multisectoral Coordination’, in. Washington, DC: Futures Group, Health Policy Project. Available at: https://www.healthpolicyproject.com/pubs/272_MultisectoralCoordinationResourceGuide.pdf (Accessed: 20 October 2020).

Heide, M. and Olsen, S. O. (2018) ‘The use of food quality and prestige-based benefits for consumer segmentation’, *British Food Journal*, 120(10), pp. 2349–2363. doi: 10.1108/BFJ-09-2017-0489.

Herrero, M. *et al.* (2017) 'Farming and the geography of nutrient production for human use: a transdisciplinary analysis', *The Lancet. Planetary Health*, 1(1), pp. e33–e42. doi: 10.1016/S2542-5196(17)30007-4.

HLPE (2014) *Food losses and waste in the context of sustainable food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security,*. Rome, Italy. Available at: http://www.fao.org/3/i3901e/i3901e.pdf (Accessed: 5 May 2021).

HLPE (2017) *Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Rome.

Hochschule Fulda (2020) *Food Technology*. Available at: https://www.hs-fulda.de/en/studies/departments/food-technology/studying/study-programmes/food-technology (Accessed: 14 November 2020).

Hoffmann, I., Schneider, K. and Leitzmann, C. (eds) (2011) *Ernährungsökologie: komplexen Herausforderungen integrativ begegnen*. München: Oekom-Verl.

Hogan, E., Kelly, A. L. and Sun, D.-W. (2005) 'High Pressure Processing of Foods: An Overview', in Sun, D.-W. (ed.) *Emerging Technologies for Food Processing*. London: Academic Press, pp. 3–32. doi: 10.1016/B978-012676757-5/50003-7.

IFPRI, Deutsche Welthungerhilfe e.V. and Concern Worldwide (2014) *2014 Global Hunger Index The Challenge of Hidden Hunger*. 0 edn. Washington, DC: International Food Policy Research Institute. doi: 10.2499/9780896299580.

INDDEX (2020) *Food affordability index*. Available at: https://inddex.nutrition.tufts.edu/data4diets/indicator/food-affordability-index (Accessed: 14 November 2020).

InforMEA (2020) *plant variety*. Available at: https://www.informea.org/en/terms/plant-variety (Accessed: 15 November 2020).

Ingram, J. (2020) 'Nutrition security is more than food security', *Nature Food*, 1(1), pp. 2–2. doi: 10.1038/s43016-019-0002-4.

International Labour Organization (ILO) (2020) *Thematic Area 18. Productivity (Decent work for sustainable development (DW4SD) Resource Platform)*. Available at: https://www.ilo.org/global/topics/dw4sd/themes/productivity/lang--en/index.htm (Accessed: 15 November 2020).

Irwin, M. T. *et al.* (2014) 'Nutritional correlates of the "lean season": Effects of seasonality and frugivory on the nutritional ecology of diademed sifakas', *American Journal of Physical Anthropology*, 153(1), pp. 78–91. doi: 10.1002/ajpa.22412.

Joint FAO/WHO Expert Consultation, WHO Food Safety Programme, and FAO (2000) 'Safety aspects of genetically modified foods of plant origin : report of a Joint FAO/WHO Expert Consultation on Foods Derived from Biotechnology, WHO headquarters, Geneva, Switzerland, 29 May to 2 June 2000', (WHO/SDE/PHE/FOS/00.6). Available at: https://apps.who.int/iris/handle/10665/66575.

Jomaa, L. H., Hwalla, N. C. and Zidek, J. M. (2016) 'Development of a standardized measure to assess food quality: a proof of concept', *Nutrition Journal*, 15(1), p. 96. doi: 10.1186/s12937-016-0215-4.

Kaplinsky, R. and Morris, M. (2001) 'A Handbook for Value Chain Research', 113.

Kennedy, G. *et al.* (2004) 'Globalization of food systems in developing countries: impact on food security and nutrition', *FAO food and nutrition paper*, 83, pp. 1–300.

Kennedy, G., Ballard, T. and Dop, M.-C. (2010) *Guidelines for measuring household and individual dietary diversity*. Rome: FAO.

Kilcast, D. and Subramaniam, P. (eds) (2000) *The stability and shelf life of food*. Boca Raton : Cambridge, England: CRC Press ; Woodhead Pub (Woodhead Publishing in food science and technology).

Lee, A. *et al.* (2013) 'Monitoring the price and affordability of foods and diets globally: Monitoring food prices', *Obesity Reviews*, 14, pp. 82–95. doi: 10.1111/obr.12078.

Leitzmann, C. (1993) 'Food Quality—Definition and a Holistic View', in Sommer, H., Petersen, B., and v. Wittke, P. (eds) *Safeguarding Food Quality*. Berlin, Heidelberg: Springer Berlin Heidelberg, pp. 3–15. doi: 10.1007/978-3-642-78025-7_2.

Leitzmann, C. and Keller, M. (2020) *Vegetarische und vegane Ernährung*. 4th edn. Stuttgart: Ulmer. Available at: https://www-utb-studi-e-book-de.ezproxy.uni-giessen.de/Viewer2.0/pdfviewer/index/viewer?isbn=9783838550237&access=39b77e93c12bab575df80096646e8b43&code=bb14cab067b5048ed0d6a8c3d3ce9c00&q=&lang=de&key=&page=&label=A&prodId=2611&hash=e3ca2adcf4b158f13eaa8fa7f10f5048&token=e3ca2adcf4b158f13eaa8fa7f10f5048&timestamp=bb14cab067b5048ed0d6a8c3d3ce9c00 (Accessed: 14 November 2020).

Lipinski, B. *et al.* (2013) '"Reducing Food Loss and Waste." Working Paper, Installment 2 of Creating a Sustainable Food Future', in. Washington, DC: World Ressources Institute. Available at: http://pdf.wri.org/reducing_food_loss_and_waste.pdf (Accessed: 20 October 2020).

Malhotra, A. and Schuler, S. R. (2005) 'Women's empowerment as a variable in international development'. American Psychological Association. doi: 10.1037/e597202012-004.

Mango, N. *et al.* (2018) 'The role of crop diversification in improving household food security in central Malawi', *Agriculture & Food Security*, 7(1), p. 7. doi: 10.1186/s40066-018-0160-x.

Marschner, H. and Marschner, P. (eds) (2012) *Marschner's mineral nutrition of higher plants*. 3rd ed. London ; Waltham, MA: Elsevier/Academic Press.

Marshall, A. J. and Wrangham, R. W. (2007) 'Evolutionary Consequences of Fallback Foods', *International Journal of Primatology*, 28(6), pp. 1219–1235. doi: 10.1007/s10764-007-9218-5.

McInerney, T. F. (2014) 'Experience involving technology transfer, capacity building, and information exchange for the International Treaty on Plant Genetic Resources for Agriculture', *Food and Agriculture Organization of the United Nations*.

Meiselman, H. L. and Cardello, A. V. (2003) 'FOOD ACCEPTABILITY | Affective Methods', in Caballero, B. (ed.) *Encyclopedia of Food Sciences and Nutrition (Second Edition)*. Oxford: Academic Press, pp. 2569–2576. doi: 10.1016/B0-12-227055-X/00496-X.

Melotto, M. *et al.* (2020) 'Breeding Crops for Enhanced Food Safety', *Frontiers in Plant Science*, 11. doi: 10.3389/fpls.2020.00428.

Meng, E. C. H. *et al.* (2000) 'Definition and Measurement of Crop Diversity for Economic Analysis', in Smale, Melinda (ed.) *Farmers Gene Banks and Crop Breeding: Economic Analyses of Diversity in Wheat Maize and Rice*. Dordrecht: Springer Netherlands, pp. 19–32. doi: 10.1007/978-94-009-0011-0_2.

Merriam Webster Dictionary (2020) *Definition of AGRICULTURE*. Available at: https://www.merriam-webster.com/dictionary/agriculture (Accessed: 15 October 2020).

Merriam-Webster Online Dictionary (2021) *Definition of CROP*. Available at: https://www.merriam-webster.com/dictionary/crop (Accessed: 4 May 2021).

Meuwissen, M. P. M. *et al.* (2019) 'A framework to assess the resilience of farming systems', *Agricultural Systems*, 176, p. 102656. doi: 10.1016/j.agsy.2019.102656.

Michel Serres Institute (2012) *Agricultural productivity, resources, and related terms - Michel Serres Institute for Resources and Public Goods*. Available at: http://institutmichelserres.ens-lyon.fr/spip.php?article39 (Accessed: 21 October 2020).

Monteiro, C. A. *et al.* (2010) 'A new classification of foods based on the extent and purpose of their processing', *Cadernos De Saude Publica*, 26(11), pp. 2039–2049. doi: 10.1590/s0102-311x2010001100005.

Monteiro, C. A. *et al.* (2016) 'NOVA. The star shines bright.', *World Nutrition*, 7(1–3), pp. 28–38.

Motarjemi, Y. and Lelieveld, H. (eds) (2014) *Food safety management: a practical guide for the food industry*. Amsterdam: AP, Academic Press/Elsevier.

Murray-Tortarolo, G. *et al.* (2017) 'The decreasing range between dry- and wet- season precipitation over land and its effect on vegetation primary productivity', *PLOS ONE*, 12(12), p. e0190304. doi: 10.1371/journal.pone.0190304.

National Geographic Society (2011) *Ecosystem*, *National Geographic Society*. Available at: http://www.nationalgeographic.org/encyclopedia/ecosystem/ (Accessed: 15 November 2020).

National Wildlife Federation (2020) *Ecosystem Services*, *National Wildlife Federation*. Available at: https://www.nwf.org/Home/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services (Accessed: 15 November 2020).

Neufeld, L. M., Hendriks, S. and Hugas, M. (2021) 'Healthy Diet - a defiinition for the United Nations Food Systems Summit 2021'. United Nations Food Systems Summit 2021 Scientific Group. Available at: https://sc-fss2021.org/wp-content/uploads/2021/04/Healthy_Diet.pdf (Accessed: 27 August 2021).

Neven, D. (2014) *Developing sustainable food value chains: guiding principles*. Rome: FAO.

NGO/CSO Forum for Food Sovereignty (2007) 'Declaration of Nyéléni'. Nyéléni Village, Sélingué, Mali. Available at: https://nyeleni.org/IMG/pdf/DeclNyeleni-en.pdf (Accessed: 4 March 2021).

Okhomina, D. (2010) 'Entrepreneurial orientation and psychological traits: the moderating influence of supportive environment', *Journal of Behavioral Studies in Busines*.

Omann, I. *et al.* (2020) 'Assessing opportunities for scaling out, up and deep of win-win solutions for a sustainable world', *Climatic Change*, 160(4), pp. 753–767. doi: 10.1007/s10584-019-02503-9.

de Onis, M. (2007) 'Development of a WHO growth reference for school-aged children and adolescents', *Bulletin of the World Health Organization*, 85(09), pp. 660–667. doi: 10.2471/BLT.07.043497.

Onwezen, M. C. *et al.* (2012) 'A cross-national consumer segmentation based on food benefits: The link with consumption situations and food perceptions', *Food Quality and Preference*, 24(2), pp. 276–286. doi: 10.1016/j.foodqual.2011.11.002.

Ornelas-Soto, N., Barbosa-García, O. and Lopez-de-Alba, P. L. (2011) 'Procedures of Food Quality Control: Analysis Methods, Sampling and Sample Pretreatment', *Quality Control of Herbal Medicines and Related Areas*. doi: 10.5772/23206.

O'Sullivan, K. (2012) 'Locavoracious: What are the impacts and feasibility of satisfying food demand with local production?', *Geoverse*, May, p. 22.

Padulosi, S. *et al.* (2011) 'Underutilized Species and Climate Change: Current Status and Outlook', in Yadav, S. S. et al. (eds) *Crop Adaptation to Climate Change*. Oxford, UK: Wiley-Blackwell, pp. 507–521. doi: 10.1002/9780470960929.ch35.

Padulosi, S., Thompson, J. and Rudebjer, P. (2013) 'Fighting poverty, hunger and malnutrition with neglegted and underutilized species (NUS): needs, challenges and the way forward.', in. Rome: Bioversity International. Available at: https://www.bioversityinternational.org/fileadmin/_migrated/uploads/tx_news/Fighting_poverty__hunger_and_malnutrition_with_neglected_and_underutilized_species__NUS__1671_03.pdf (Accessed: 20 October 2020).

Pantaleoni, E. (2012) 'Chapter One - Applying GIS and Spatial Analysis to Studies of Health in Children with Disabilities', in Hodapp, R. M. (ed.) *International Review of Research in Developmental Disabilities*. Academic Press (International Review of Research in Developmental Disabilities), pp. 1–29. doi: 10.1016/B978-0-12-394284-5.00001-2.

Parfitt, J., Barthel, M. and Macnaughton, S. (2010) 'Food waste within food supply chains: quantification and potential for change to 2050', *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365(1554), pp. 3065–3081. doi: 10.1098/rstb.2010.0126.

Parsons, K. and Hawkes, C. (2019) *Connecting food systems for co-benefits: How can food systems combine diet-related health with environmental and economic policy goals?* Copenhagen (Denmark): European Observatory on Health Systems and Policies (European Observatory Policy Briefs). Available at: http://www.ncbi.nlm.nih.gov/books/NBK545695/ (Accessed: 14 November 2020).

Peel, M. C., Finlayson, B. L. and McMahon, T. A. (2007) 'Updated world map of the Köppen-Geiger climate classification', *Hydrology and EarthSystem Sciences*, 11, pp. 1633–1644.

Phiri, G., Mumba, P. and Mangwera, A. (2006) 'The quality of cooking oil used in informal food processing in Malawi: a preliminary study', *International Journal of Consumer Studies*, 30(6), pp. 527–532. doi: 10.1111/j.1470-6431.2006.00513.x.

Picard, C. (2020) *Here's How to Meal Prep Like a Pro*, *Good Housekeeping*. Available at: https://www.goodhousekeeping.com/food-recipes/a28377603/how-to-meal-prep/ (Accessed: 10 December 2020).

Pidwirny, M. and Scott, J. (2020) *Glossary of Terms: System*, *physical geopgraphy.net*. Available at: http://www.physicalgeography.net/physgeoglos/s.html (Accessed: 15 November 2020).

Potter, N. N. and Hotchkiss, J. H. (1995) 'Introduction: Food Science as a Discipline', in Potter, N. N. and Hotchkiss, J. H. (eds) *Food Science: Fifth Edition*. Boston, MA: Springer US (Food Science Text Series), pp. 1–12. doi: 10.1007/978-1-4615-4985-7_1.

Price, B. and Cotter, J. (2014) 'The GM Contamination Register: a review of recorded contamination incidents associated with genetically modified organisms (GMOs), 1997–2013', *International Journal of Food Contamination*, 1(1), p. 5. doi: 10.1186/s40550-014-0005-8.

Randolph, S. *et al.* (2007) *Monitoring the Realization of the Right to Food: Adaptation and Validation of the U.S. Department of Agriculture Food Insecurity Module to Rural Senegal*, *Economic Rights Working Papers*. 6. University of Connecticut, Human Rights Institute. Available at: https://ideas.repec.org/p/uct/ecriwp/6.html (Accessed: 19 October 2020).

Rideout, K., Mah, C. L. and Minaker, L. (2015) 'Food Environments: An Introduction for Public Health Practice'. National Collaboration Centre for Environmental Health.

SABMiller and WWF-UK (2009) *Water Footprinting: Identifying & addressing water risks in the value chain*. Goldalming, UK, p. 17. Available at: https://www.wwf.eu/?171861/Water-Footprinting (Accessed: 15 November 2020).

Sacande, M., Parfondry, M., and Food and Agriculture Organization of the United Nations (2018) *Non-timber forest products: from restoration to income generation*. Rome: Food and Agriculture Organization of the United Nations.

Sánchez-Villegas, A. and Sánchez-Tainta, A. (2018) *The prevention of cardiovascular disease through the Mediterranean diet*.

Savy, M. *et al.* (2005) 'Use of variety/diversity scores for diet quality measurement: relation with nutritional status of women in a rural area in Burkina Faso', *European Journal of Clinical Nutrition*, 59(5), pp. 703–716. doi: 10.1038/sj.ejcn.1602135.

Schneider, K. and Hoffmann, I. (2011a) 'Nutrition ecology--a concept for systemic nutrition research and integrative problem solving', *Ecology of Food and Nutrition*, 50(1), pp. 1–17. doi: 10.1080/03670244.2010.524101.

Schneider, K. and Hoffmann, I. (2011b) 'Potentials of qualitative modeling of complex health issues', *American Journal of Health Behavior*, 35(5), pp. 557–567. doi: 10.5993/ajhb.35.5.5.

Schönfeldt, H. C. and Pretorius, B. (2018) 'Agriculture and Food Systems for Improved Nutrition', in Barling, D. and Fanzo, J. (eds) *Advances in food security and sustainability*. first. London: Elsevier/Academic Press, pp. 53–68.

Sekhon, M., Cartwright, M. and Francis, J. J. (2017) 'Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework', *BMC Health Services Research*, 17(1), p. 88. doi: 10.1186/s12913-017-2031-8.

Sibhatu, K. T., Krishna, V. V. and Qaim, M. (2015) 'Production diversity and dietary diversity in smallholder farm households', *Proceedings of the National Academy of Sciences*, 112(34), pp. 10657–10662. doi: 10.1073/pnas.1510982112.

Smith, N. W. (2016) 'Food Policy', in *Reference Module in Food Science*. Elsevier, p. B9780081005965033000. doi: 10.1016/B978-0-08-100596-5.03428-4.

Snelson, M. and Coughlan, M. (2020) *Explainer: what are E numbers and should you avoid them in your diet?*, *The Conversation*. Available at: http://theconversation.com/explainer-what-are-e-numbers-and-should-you-avoid-them-in-your-diet-43908 (Accessed: 10 December 2020).

Terning Seeds (2018) 'Preventing Cross Contamination During Planting and Harvest', *Terning Seeds*, 3 May. Available at: https://www.terningseeds.com/preventing-cross-contamination-during-planting-and-harvest/ (Accessed: 15 November 2020).

The Vegan Society (2020) *Definition of veganism*, *The Vegan Society*. Available at: https://www.vegansociety.com/go-vegan/definition-veganism (Accessed: 14 November 2020).

Trijsburg, L. *et al.* (2019) 'Diet quality indices for research in low- and middle-income countries: a systematic review', *Nutrition Reviews*, 77(8), pp. 515–540. doi: 10.1093/nutrit/nuz017.

Trowell, H. (1972) 'Crude fibre, dietary fibre and atherosclerosis', *Atherosclerosis*, 16(1), pp. 138–140.

Tufts University and INDEXProject (2021) *Minimum dietary diversity (MDD)*, *International Dietary Data Expansion Project | INDDEX Project*. Available at: https://inddex.nutrition.tufts.edu/ (Accessed: 4 May 2021).

Uauy, R. (2007) 'Understanding public health nutrition', *The Lancet*, 370(9584), pp. 309–310. doi: 10.1016/S0140-6736(07)61145-3.

United Nations (1992) *Convention on biological diversity*. New York. Available at: https://treaties.un.org/doc/Treaties/1992/06/19920605%2008-44%20PM/Ch_XXVII_08p.pdf (Accessed: 16 October 2020).

USDA (2020) *Understanding Food Quality Labels | Agricultural Marketing Service*. Available at: https://www.ams.usda.gov/publications/content/understanding-food-quality-labels (Accessed: 10 December 2020).

water footprint network (2020) *What is a water footprint?* Available at: /en/water-footprint/what-is-water-footprint/ (Accessed: 15 November 2020).

Weaver, C. M. *et al.* (2014) 'Processed foods: contributions to nutrition', *The American Journal of Clinical Nutrition*, 99(6), pp. 1525–1542. doi: 10.3945/ajcn.114.089284.

Wertenbroch, K. and Skiera, B. (2002) 'Measuring Consumers' Willingness to Pay at the Point of Purchase', *Journal of Marketing Research*, 39(2), pp. 228–241. doi: 10.1509/jmkr.39.2.228.19086.

Westerman, B. D. (1941) 'What Is Adequate Nutrition?', *The American Journal of Nursing*, 41(9), pp. 1014–1019. doi: 10.2307/3414692.

WHO (1991) *WHO | Sundsvall Statement on Supportive Environments for Health*, *WHO*. World Health Organization. Available at: https://www.who.int/healthpromotion/conferences/previous/sundsvall/en/index1.html (Accessed: 15 November 2020).

WHO (ed.) (2000) *Obesity: preventing and managing the global epidemic: report of a WHO consultation*. Geneva: World Health Organization (WHO technical report series, 894).

WHO (2008) *Indicators for assessing infant and young child feeding practices Part I: definition*. Geneva, p. 26. Available at: http://www.who.int/maternal_child_adolescent/documents/9789241596664/en/ (Accessed: 13 May 2016).

WHO *et al.* (2010) 'Indicators for assessing infant and young child feeding practices. Part 2: measurements'. Available at: http://www.unicef.org/nutrition/files/IYCF_Indicators_part_II_measurement.pdf.

WHO (2012) *Policy - National Nutrition Strategy 2012-2021 | Global database on the Implementation of Nutrition Action (GINA)*, *Policy - National Nutrition Strategy 2012-2021*. Available at: https://extranet.who.int/nutrition/gina/en/node/8387 (Accessed: 11 November 2020).

WHO (2014) *WHO and FAO announce Second International Conference on Nutrition (ICN2)*, *WHO*. World Health Organization. Available at: https://www.who.int/nutrition/topics/WHO_FAO_ICN2_videos_hiddenhunger/en/ (Accessed: 5 May 2021).

WHO (2017) 'The double burden of malnutrition: Policy Brief'. Available at: https://apps.who.int/iris/bitstream/handle/10665/255413/WHO-NMH-NHD-17.3-eng.pdf?ua=1 (Accessed: 16 October 2020).

WHO (2018) 'Healthy diet'. Available at: https://www.who.int/publications/m/item/healthy-diet-factsheet394 (Accessed: 15 November 2020).

WHO (2020a) *Food additives*. Available at: https://www.who.int/news-room/fact-sheets/detail/food-additives (Accessed: 14 November 2020).

WHO (2020b) *Healthy diet*. Available at: https://www.who.int/news-room/fact-sheets/detail/healthy-diet (Accessed: 20 October 2020).

WHO (2020c) *Obesity*. Available at: https://www.who.int/westernpacific/health-topics/obesity (Accessed: 21 October 2020).

WHO (2020d) *Population sodium reduction strategies*, *WHO*. World Health Organization. Available at: http://www.who.int/dietphysicalactivity/reducingsalt/en/ (Accessed: 11 December 2020).

WHO (2020e) *WHO | Micronutrients*, *WHO*. World Health Organization. Available at: http://www.who.int/nutrition/topics/micronutrients/en/ (Accessed: 20 October 2020).

WHO expert consultation (2004) 'Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies', *The Lancet*, 363(9403), pp. 157–163. doi: 10.1016/S0140-6736(03)15268-3.

Winter, C. K. and Jara, E. A. (2015) 'Pesticide food safety standards as companions to tolerances and maximum residue limits', *Journal of Integrative Agriculture*, 14(11), pp. 2358–2364. doi: 10.1016/S2095-3119(15)61117-0.

Wirt, A. and Collins, C. E. (2009) 'Diet quality – what is it and does it matter?', *Public Health Nutrition*, 12(12), pp. 2473–2492. doi: 10.1017/S136898000900531X.

World Commission on Environment and Development (1987) *Report of the World Commission on Environment and Development: Our Common Future*. United Nations.

WRAP, Food Standards Agency UK and Department for Environment Food and Rural Affairs (2019) 'Labelling guidance - best practice of food date labelling and storage advice'. Available at: https://wrap.org.uk/sites/default/files/2020-07/WRAP-Food-labelling-guidance.pdf (Accessed: 4 May 2021).