Discussion Starter
Action Track 1

30 November 2020

From the Terms of Reference: "Action Track 1 will aim to deliver zero hunger and improve levels of nutrition, enabling all people to be well nourished and healthy."

1. Introduction

The Sustainable Development Goal (SDG) era was intended to herald a decline in hunger. In fact, since the dawn of the SDG era, hunger has increased almost every year (SOFI 2020, Figure 1). Business as usual projections are for the number of hungry people to be greater in 2030 (841 million) than in 2005 (826 million). Inequalities in society and the food system make affordable and healthy diets inaccessible to the most vulnerable populations. This signals that a central human right, the right to food,[1] is being violated and that business cannot be 'as usual.' Something dramatic has to change.

Malnutrition in all its forms affects one in three people (Global Nutrition Report 2020). The world is not on course to meet any of the six global nutrition targets endorsed by the WHO Member States (Figure 2.1 of Global Nutrition Report 2020). Something dramatic has to change.

Adult obesity is rising in nearly every country, and while rates of childhood overweight/ obesity have levelled off in some countries, they continue to rise in others and are unacceptably high in many. SOFI 2020 projects that adult obesity rates will nearly double between 2012 and 2030; the prevalence of diet-related non-communicable diseases (NCDs) will likely rise in tandem. High fasting plasma glucose, high LDL cholesterol, dietary risks, high systolic blood pressure, and high body mass index–all diet related--comprise the vast majority of the fastest growing risk factors driving up disability-adjusted life years (DALYs), in all regions (Lancet 2020). Overweight and obesity are not limited to wealthier nations but exist in low- and middle-income countries as well. Something dramatic has to change.

While we lack reliable trend data on food safety, the World Bank projects that food safety in low- and middle-income countries is likely to worsen before it improves as food systems transition to more modern systems (World Bank 2018 The Safe Food Imperative). Something dramatic has to change.

Across all of these types of malnutrition and ill health related to food, the burden often falls disproportionately on those who are already most vulnerable: those in crisis and conflict areas, the poor, those in rural and remote areas, those in lower- and middle-income countries, minority and indigenous groups, and often children and women. Currently, about three billion people (and 74% of Africans) cannot afford healthy diets (SOFI 2020). This further exacerbates inequalities within an already unequal society. Something dramatic has to change. As detailed in the accompanying Action

[1] The World Food Summit of 1996 reaffirmed "the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger"; these were enshrined in 2004 within a set of FAO voluntary guidelines to support the progressive realization of the right to adequate food in the context of national food security.

Track 1 (AT1) Science Paper,[2] these trends represent gross violations of the right to food, as at the core of all these forms of malnutrition is inadequate food intake. Some people cannot get enough food and others not enough of the right kinds of food (rich in micronutrients, fibre, and high-quality proteins); many (oftentimes overlapping with the prior group) are eating too much of the wrong kinds of foods (those high in added salts, sugars, and saturated and trans fats). When people can access potentially nutritious food, the benefit of that nutritional value is offset if the food is unsafe: for overall health, unsafe food can do more harm than good.

The food choices people are faced with and the choices they make are profoundly determined by the food system[3] of which they are part. Food systems must change dramatically if we are to reverse the negative trends noted above and accelerate positive trends, instead. Food systems need to present people with affordable safe food, made accessible and desirable in healthy dietary choices, and make it easy for them to make these choices. Food systems need to do this while being mindful of the environmental, livelihood, equity, and resilience implications of these choices. They need to be grounded in a local reality and serving the needs of local citizens while also recognising the interactions that exist between countries and how, when supportive and non-distortionary policies are in place, those can be leveraged for the good of all through trade. We want a food system that generates co-benefits for society and nature across all of these dimensions.

This action track will develop game-changing and systemic solutions to make this happen. Our work will aim to (1) accelerate the reduction of hunger and inequality, (2) make nutritious foods more available and affordable, and (3) make food safer. In line with the focus of the discussions underpinning the negotiation of the Committee on World Food Security's Voluntary Guidelines on Food Systems for Nutrition and with the AT1 Science Paper, our work will address malnutrition in all its forms by ensuring access to healthy diets: the first strand of this work will address undernutrition (i.e., stunting and wasting), while the second will address undernutrition, micronutrient deficiencies, and overweight/obesity as well as diet-related NCDs (with a focus on their dietary causes). The third focuses on food safety as an integral part of food security[4] while recognising that unsafe food can also increase the risk of undernutrition and certain NCDs.

2. What outcomes are we trying to achieve?

Our ultimate goals for impact will be aligned with the relevant agreed upon, Member State-endorsed SDG 2 targets and WHO 2025 targets (see Box 1), with the understanding that the work of AT1 will be only one contributor towards achieving these goals. While these are the goals for ultimate impact of the work, actual monitoring of progress will be most effective if focused on more proximate output and outcome targets -- which will be specific to each action emerging from the Action Track and the context within which it will be implemented. Those detailed output- and outcome-level indicators and targets will thus be set at a later date. The subsections below summarise the targets for the ultimate impact of the work of AT1 (and other ATs). While these targets are set at a general population level, it will be particularly important to examine levels and trends for key subgroups with potentially higher vulnerability (e.g., lower-income populations,

[2] Hendriks, S, J-F Soussana, M Cole, A Kambugu, and D Ziberman. 2020. Ensuring access to safe and nutritious food for all through transformation of food systems. UN Food Systems Summit Action Track 1 Science Group Paper.

[3] Throughout the work of AT1, we will rely on the High Level Panel of Experts (HLPE 2017) definition of a food system: 'A *food system* gathers 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 outputs of these activities, including socio-economic and environmental outcomes.' We will use the HLPE food system framework as our guiding framework.

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.

[4] "Food security exists when all people, at all times, have physical, economic and social access to sufficient, **safe** and nutritious food to meet their dietary needs and food preferences for an active and healthy life" [emphasis added]. FAO, 1996. Rome Declaration on World Food Security and World Food Summit Plan of Action.

women, minority and indigenous populations, and those in conflict areas). The accompanying AT1 Science Group paper includes more details on food system indicators and current trends.

Box 1: Global Targets of Relevance to AT1 Impact

Most Relevant SDG Targets

- SDG Target 2.1: Safe and universal access to safe and nutritious food
- SDG Target 2.2: End all forms of malnutrition

(Numerous other SDG Targets are also relevant to the work of AT1, including SDG 1 and targets 2.3, 2.4, 3.4, and, less directly, some of those related to SDGs 5, 6, 8, 10, 14, and 15).

WHO Global Targets 2025

- 40% reduction in the number of children under 5 who are stunted
- 50% reduction of anaemia in women of reproductive age
- 30% reduction in low birth weight
- No increase in childhood overweight
- Increase in the rate of exclusive breastfeeding in the first 6 months up to at least 50%
- Reduce and maintain childhood wasting to less than 5%

AT1, Strand 1 - Reducing Hunger and Inequality: Our ultimate goal is a food system transformation that will accelerate progress from 690m hungry people (currently) to zero hunger by 2030 (SDG 2) while reducing inequality (SDG 10). Realistically, however, we need to look for food system transformations that will result in a significant improvement on the projection for a 'business as usual' approach: 840m hungry people in 2030. Also related to this strand of AT1 work is malnutrition in children under 5, for which the 2030 WHO/UNICEF targets for stunting, wasting, low birthweight, and exclusive breastfeeding are relevant (see Fig. 10, SOFI 2020, for trends). Reducing hunger will require increasing incomes throughout the food system and reducing poverty and inequalities by gender, age, race/ethnicity, employment status, geographical location, and other factors.

AT1, Strand 2 - Increased access to nutritious food: For this area of work, the 2030 WHO/UNICEF targets for stunting and overweight in children are also relevant, as are those for anaemia in women, and the WHO targets for adult obesity (a halt in the rise in prevalence by 2025) and reduction in NCDs (a reduction of 25% in mortality by 2025, alongside halting the rise in diabetes and decreased consumption of salt, WHO voluntary targets). While there is no set target for improving affordability of healthy diets, SOFI 2020 reported that 3 billion people (and 74% of Africans) cannot afford healthy diets; a dramatic reduction in this number by 2030 is clearly needed.

AT1, Strand 3 - Safe food: Havelaar et al (2015) estimated that foodborne diseases caused 600 million illnesses and 420,000 premature deaths in 2010.[5] Gibb et al. (2018), using a slightly different methodology, estimate an additional global burden of more than 1 million illnesses, over 56,000 deaths, and more than 9 million DALYs from heavy metal contamination of food.[6] There is no specific globally agreed-upon food safety target for 2030, but again a dramatic reduction is needed.

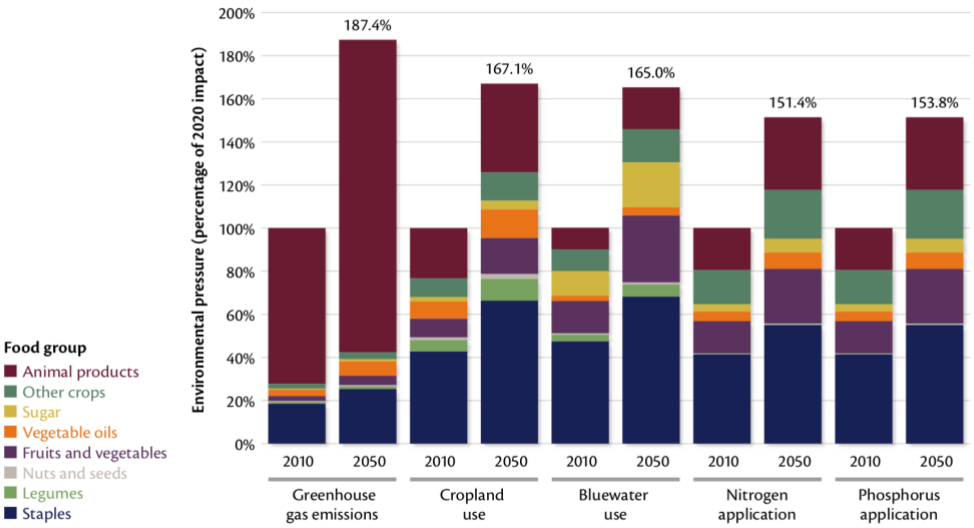
3. Key trade-offs and synergies

Progress towards these goals involves choices, and those choices will have consequences for the goals of Action Tracks 2-5 (as well as other SDGs). For example, Figure 1 shows the complexity of how production of different types of food result in differential effects on various dimensions of environmental impact.

[5] Havelaar, A., M. D. Kirk, P. R. Torgerson, H. J. Gibb, T. Hald, R. J. Lake, N. Praet, et al. 2015. "World Health Organization Global Estimates and Regional Comparisons of the Burden of Foodborne Disease in 2010." *PLOS Medicine* 12 (2).

[6] Gibb, H.J., et al. 2019. Estimates of the 2015 global and regional disease burden from four foodborne metals – arsenic, cadmium, lead and methylmercury. Environmental Research, 174, 188–194

Figure 1: Different food groups have different impacts on different environmental decisions.



https://www.glopan.org/wp-content/uploads/2020/09/Foresight-2.0_Future-Food-Systems_For-people-our-planet-and-prosperity.pdf

Figure 2 takes the case for animal-source foods (ASF) and expands the trade-offs beyond associations with the environment. This matrix is based on the authors' review of the science in this recent paper, drawn from the available literature (which comes mostly from high-income countries).[7] To leverage synergies and mitigate trade-offs, the food system community needs this kind of evidence for low-, middle-, and high-income countries for all types of food. This would be an excellent global public good produced by the Scientific Group to guide and link actions for all ATs. The AT1 Science Paper discusses in more detail the linkages between the food system and its role in improving nutrition and climate change, land use change, and natural resource degradation.

Figure 2: Potential contributions/associations of animal-source food consumption and production to/with different welfare outcomes

		Animal-Source Foods					
		Dairy	Eggs	Fish and Seafood	Meat		
					Unprocessed red	Processed red	White
Health outcomes	Iron-deficiency Anaemia	Neutral	Slightly reduces	Slightly reduces	Strongly reduces	??	Slightly reduces
	Micronutrient deficiencies	Reduces	Reduces	Reduces	Reduces	??	Reduces
	Stunting	Reduces	Reduces	Reduces	Reduces	??	Reduces
	Diabetes, cancer, heart disease	Likely reduces or neutral, but contested	Likely reduces or neutral, but contested	Reduces	Likely increases, but contested	Increases	Likely neutral
Environ-mental outcomes	GHG emissions	Moderate	Moderate	Moderate (with wide range)	High, but highly variant by setting/system	High, but highly variant by setting/system	Moderate
	Other environmental factors	Moderate to high	Moderate	?? (highly variant)	High, but highly variant by setting/system	High, but highly variant by setting/system	Moderate to high
Livelihoods	Poverty reduction, economic development	Important	Less important (production more industrialised)	Important but geographically concentrated	Important	??	Less important (production more industrialised)

[7] This matrix leaves out the important issue of animal welfare, which also involves gradients that may not align with those for nutrition or environmental impacts (e.g., caged poultry versus grass-fed beef).

The Action Track leads are eager to capitalise on the synergies across action tracks, where they exist -- and to understand and avoid or mitigate the trade-offs. To this end, the Action Tracks have begun mapping potential synergies and trade-offs between their action tracks. Table 1 (next page) shows the AT1 row in our developing matrix. Some examples of trade-offs to consider include how to keep food prices affordable while supporting growth in rural incomes and having prices that internalise true environmental costs (see the AT1 Science Group paper for more discussion of this), or how to increase productivity and embrace efficiency-increasing technologies without alienating the poorer, smaller-scale, and more excluded fishers, farmers, and livestock keepers. An example of a synergy lies in a One Health approach that can increase animal-source food production and consumption while reducing environmental impacts per unit, improving animal welfare, and safeguarding animal and human health (including mitigating risk of antimicrobial resistance and preventing zoonotic disease transmission). In a similarly synergistic manner, greater (sustainable) use of marine resources could improve nutrition (as fish and seafood are excellent sources of many nutrients) and could reduce impacts from less-sustainable terrestrial animal production.[8]

While there is considerable knowledge already developed on these issues within relevant UN organisations and academic institutions, trade-offs and synergies is an area where more aggregation of the science and evidence is badly needed from the Science Group.

[8] Costello, C., L. Cao, S. Gelcich et al. 2019. The Future of Food from the Sea. Washington, DC: World Resources Institute. Available online at www.oceanpanel.org/future-food-sea

Table 1: Examples of key Synergies (S) and Trade-offs (T) between AT1 and the other ATs

	AT2 (sustainable consumption and production)	AT3 (nature-positive production)	AT4 (livelihoods, equity, gender)	AT5 (resilience and vulnerability)
AT1 **(ensure access to safe nutritious food for all)**	S: If demand can be stimulated for safe nutritious food, it makes supply response easier & we can drive down consumer prices while maintaining wedge between input & output prices (because at bigger volumes farmers can negotiate lower input prices). Improvements throughout systems to improve safety can also be harnessed for loss reduction. Safer food could come through shorter supply chains with greater traceability (also good for sustainability). Sustainability may be a more potent motivator for dietary change than health. T: animal-source food (ASF) consumption needs to be increased for young children in low-income settings but this may risk increasing GHG emissions and other negative environmental impacts, which are high for certain ASF (see Fig. 2). Increasing standards/ enforcement for food safety could result in increased food loss. AT1 aims to increase production/ consumption of fresh, nutrient dense foods (e.g., fresh vegetables)—but these are also the most perishable and likely to be loss/wasted. Certain practices used to increase yields (e.g. increased use of fertiliser, irrigation) may have negative environmental ramifications.	S: Improved management of livestock and increased productivity will reduce GHG emissions and other environmental Impacts (at least per unit), improve animal welfare and make ASF more available and affordable; it could also improve food safety. Certain kinds of improved farming practices could both increase yields (reduce hunger) and increase efficiency of resource use and emissions. Greater (sustainable) use of marine resources would support improved nutrition and could reduce impacts from less-sustainable terrestrial animal production. T: Need high on farm and aquatic productivity to solve the farmer profit-consumer affordability paradox, but this must be pro-nature (e.g., not using too many fertilisers, pesticides, herbicides) and without more land use. Certain nutrient-dense foods may be more resource-intensive in their cultivation or have larger environmental footprints.	S: more access and control of food system resources for women will improve livelihoods, nutrition, hunger, and environmental outcomes. Higher incomes for food system workers will boost their ability to afford safe, nutritious foods; improvements in work quality along supply chains can have benefits for food safety. Better-nourished food system workers may be more productive and have higher quality of life. Entrepreneurship offers ways to make nutritious foods more desirable and accessible to consumers. T: larger farms and male, non-ethnic-minority farmers/fishers tend to have the best access to extension services, technology, and financing, so productivity improvements could increase inequality and drive smallholders out of business; shifting to different crops/products may also be easier for them, so they may benefit more from changing demand to more nutritious foods. Some technologies to increase productivity can lead to job loss, especially in currently labour-intensive industries. Higher wages along supply chain could be passed on to consumers in form of higher prices for food. Trade barriers may be enacted to protect local livelihoods but could make food more expensive or less accessible.	S: Social protection programmes that build environmental and disaster prevention assets increase resilience against hunger and other shocks. More resilient food systems help mitigate risk of hunger, particularly in high-vulnerability areas (e.g. conflict, arid/semi-arid lands). Zoonotic disease prevention (an aspect of pandemic prevention) and prevention of antimicrobial resistance and improved food safety can go hand in hand (One Health approaches). A food system that is more diverse at the macro level (i.e. less reliance on a handful of staple grains and main cultivars) is better for dietary diversity and resilience. T: Crop diversity can be good for biodiversity and risk-spreading, but non-specialisation could entail lower profits for smallholders and more expensive nutritious foods in urban markets (and may have a negative impact on productivity). Crops/livestock chosen for higher tolerance/resistance (e.g. to drought, disease) may have lower yields. Use of diverse traditional crops can benefit local ecological resilience but may end up serving only niche markets

4. What needs to be done?

We will be evidence driven when zeroing in on what needs to be done and how to do it by building on the knowledge developed by relevant UN organisations and processes (e.g., FAO, WHO, WFP, CFS, UNEP)[9] as well as those of research and academic organisations, such as the CGIAR. However, if we only stick to actions for which we have rigorous evidence, we will have only a limited set of recommendations to make. We will need to be imaginative and creative in both generating and refining new actions as well as determining how to facilitate the scaling of known solutions that have a strong track record but have not been implemented widely for various political, institutional, or capacity-related reasons. When proposing actions (existing or new), we need to show they are plausibly impactful and have a sound pathway to impact at scale (i.e., a theory of change), are feasible (have been successfully tried somewhere, or we can spell out what is needed for implementation), and have some evidence behind them (graded from theoretical plausibility to gold-star causality). In identifying actions, we will need to be mindful of the larger drivers of food systems, which are described in detail in the AT1 Science Group paper. We also need to pay attention to the impacts of potential actions on equity, particularly gender equity, and sustainability, to ensure the actions are supported by a solid, sustainable plan for financing, and to follow relevant guiding principles, such as those currently being developed within the Committee on World Food Security Voluntary Guidelines on Food Systems for Nutrition.

As all Action Tracks are moving towards the same goal, and as none of us has a monopoly on good ideas, we are willing to accept some overlap between the work of AT1 and other Action Tracks--particularly Action Track 2, on shifting to sustainable consumption patterns, which depends on making nutritious (and sustainable) foods more affordable and accessible. To avoid more substantive overlaps between the work of AT1 and AT2, we have mapped out clear spheres of focus between the two Action Tracks (referencing the domains of the HLPE food system framework: AT1 will focus on food supply chains and the availability, affordability, and food properties aspects of food environments, whereas AT2 will focus on the most relevant elements of food environments (i.e., vendor properties and food messaging) as well as consumer behaviour and food demand, alongside circularity across the food system.

AT1, Strand 1 - Reducing hunger, poverty, and inequality: The SOFI of 2017 makes it clear that it is the countries that are experiencing conflict on top of fragility where hunger is rising and rising the fastest. Regionally, all increases in the number of hungry people are projected to be in Africa. As noted in the AT1 Science Paper, conflict and fragility are key drivers of food insecurity--but hunger exists in non-fragile, non-conflict-affected regions, as well. We thus need solutions addressed to countries that are not fragile and without conflict and to those that are fragile and experiencing conflict. Transformation of food production (including agriculture, cultivation of marine resources, and the raising of terrestrial and marine animals) is likely to be the main action in the former set, and some combination of social protection and humanitarian programmes with links to food systems in the latter. We need disaggregated data to assess the impacts of inequalities in society and the food system on hunger and the situations of various potentially vulnerable groups, including women and girls, and how they could be better empowered by the food system. This will include taking into account gender roles and responsibilities, gendered access to and control over resources, and gender in decision-making processes. We also need a special focus on Africa: the percentage of hungry people, globally, who are in Africa has increased from 24% in 2004-2006 to 36% in 2017-19 (SOFI 2020).

[9] For example, the CFS recommendations on Social Protection for Food Security and Nutrition (2012), on Gender, Food Security and Nutrition (2011), on Sustainable Fisheries and Aquaculture for Food Security and Nutrition (2014), on the role of Livestock in sustainable agricultural development for food security and nutrition (2016).

Box 2: CERES 2030: Key Investments Recommended

1. Enable participation in farmers' organisations.
2. Invest in vocational programs for rural youth that offer integrated training in multiple skills.
3. Scale up social protection programs.
4. Investment in extension services, particularly for women, must accompany research and development (R&D) programs.
5. Agricultural [Food production] interventions to support sustainable practices must be economically viable for farmers [fishers].[10]
6. Support adoption of climate-resilient crops.
7. Increase research on water-scarce regions to scale up effective farm-level interventions to assist small-scale producers.
8. Improve the quantity and quality of livestock feed, especially for small and medium-scale commercial farms.
9. Reduce post-harvest losses by expanding the focus of interventions beyond the storage of cereals, to include more links in the value chain, and more food crops.
10. Invest in the infrastructure, regulations, services, and technical assistance needed to support SMEs in the value chain.

Three very recent large survey or modelling exercises will be very useful to this working group: (1) Ceres2030, a process led by Cornell University, IFPRI, and IISD (see Box 2); (2) a Cornell-*Nature Sustainability* Expert Panel Report on Socio-technical innovation bundles for agri-food system transformation, and (3) the Program of Accompanying Research for Agricultural Innovation (PARI) Report, "From potentials to reality: Transforming Africa's food production" (by Akademiya263 and zef Centre for Development Research, University of Bonn).[11] Additional options related to food system diversification, support to smallholder farmers, increasing productivity, and sustainable agricultural practices are explored in the AT1 Science Group paper.

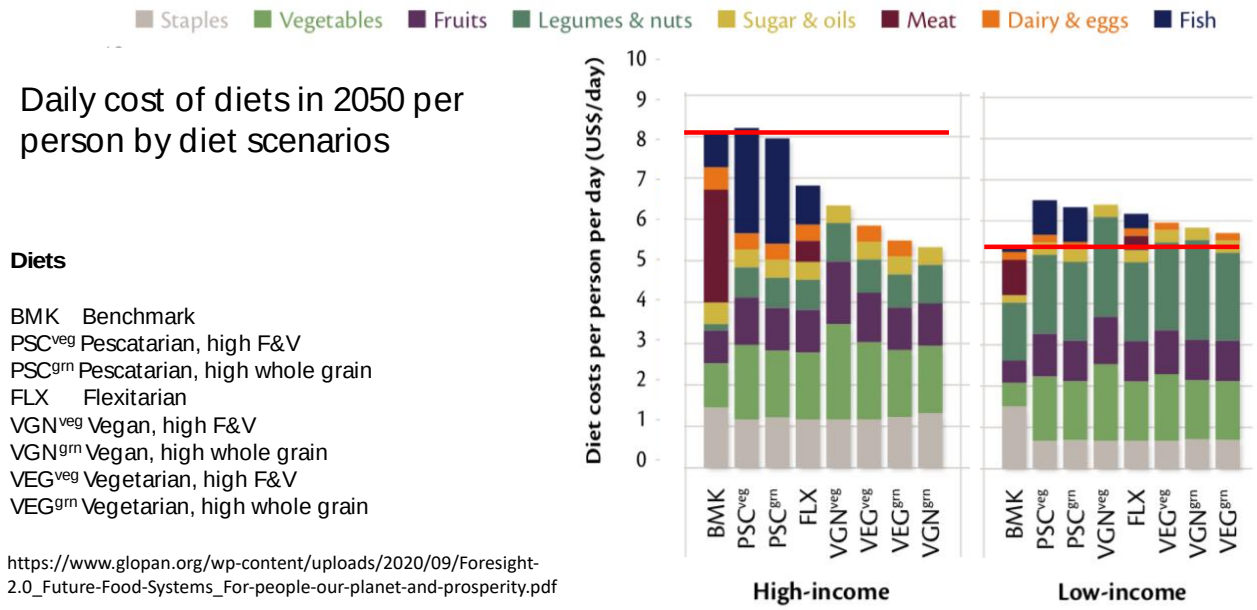
AT1, Strand 2 - Increased access to nutritious food: There are numerous existing bases of knowledge to guide the search for solutions to increase access to nutritious food. For example, the 'No Regrets' Policy work (being led by City London University, Johns Hopkins, and GAIN and soon to be published) will outline 40 actions that have been proposed by rigorous recent reports on food systems and diet quality and for which there is strong evidence and plausibility for impact. Many of these will be promising options for AT1 to consider for increasing access to nutritious foods. We will also look to the Summit's Science Group for projections and scenarios for actions that can reduce the number of people who cannot afford a healthy diet (e.g., reallocations of subsidies for food production; food production R&D reallocations; lowering taxes on nutritious foods; productivity increases in nutritious foods; pro-nutrition changes in trade rules and regimes).

Figure 4, next page, adapted from the recent Foresight 2.0 Report on Future Food Systems, provides a useful example. It shows that by incorporating health and environmental concerns into a fuller cost accounting of different diets, in 2050 healthier diets will continue to be more expensive in low-income settings (but not in high-income settings). These diets will be more expensive in 71 countries, comprising 4.1 billion people. This is not surprising given that 3 billion cannot afford a healthy diet at today's prices. A disproportional number of women and female-headed households are poor. Structural inequalities exacerbate access to affordable, health food. The big challenge for AT1 in this area will be to identify actions that will reduce the costs (including both actual and perceived costs) of healthier diets and nutritious foods in low-income settings and to increase consumer purchasing power (including incomes and transfers). Gender equity issues, particularly

[10] While Ceres2030 focused on terrestrial agriculture, we would argue for extending some recommendations to include food production through marine resources, as well.
[11] Reports 2 and 3 are not yet in the public domain.

involving decision-making power around food purchasing, will be equally important here. The AT1 Science Group paper discusses in more detail the types of healthy diets that our work is aiming to promote and incentivise and offers additional examples of approaches that can be used to do that.

Figure 4: In 2050, under fuller cost accounting, healthier diets are projected to be more expensive for the poorest countries



AT1, Strand 3 - Safe food: In order to improve food safety, a significant challenge will be to change the way policymakers and consumers think about food safety—this will need to be translated into and reinforced by action to improve food safety. The principles below will guide our search for game changing solutions to improve food safety.

- From wet markets to farmers' markets: focus on where vulnerable people buy food by implementing relevant, appropriate food safety interventions that can reach lower-income consumers while not excluding lower-income producers and vendors
- From fear-based to evidence-based: shift from hazard thinking to risk thinking, which focuses not on avoiding all hazards but rather understanding their relative risk to cause harm and prioritising and acting based on that
- From 'bribe and punish' to an enabling regulatory ecosystem that provides the right incentives and support for actors to adopt improved practices within a given context
- From 'consumer takes what is given' to consumer-driven food safety, where consumers are educated, motivated, and empowered to demand safer food.

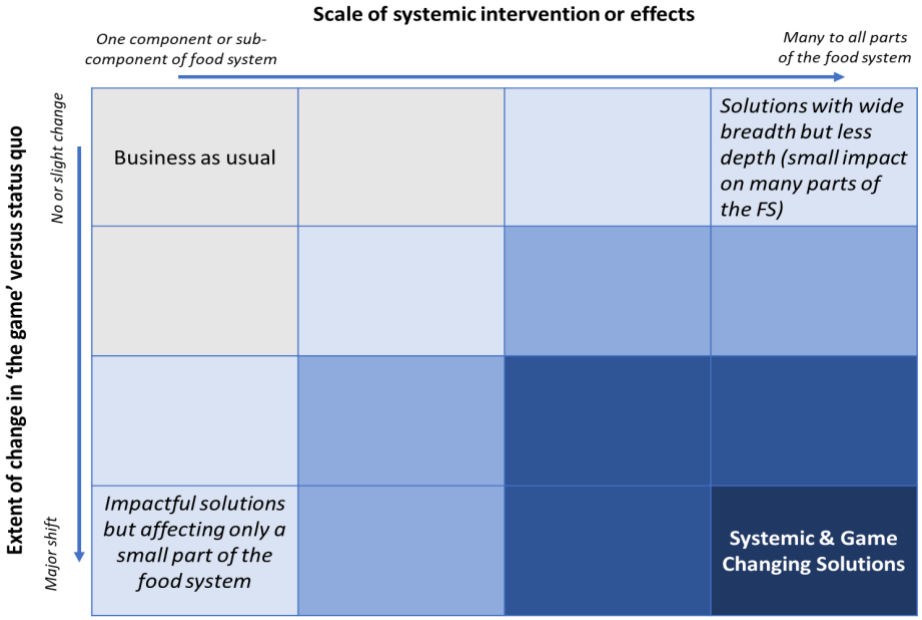
Where feasible and relevant, such work should be done in line with existing standards and processes, such as the Codex Alimentarius standards. As for strands 1 and 2, it will be essential to consider gender equity issues -- particularly the roles and responsibilities and access to resources of women and men involved with keeping food safe throughout the food system.

Overview of domains in which we look for game changers

The role of each action track will be to identify 'game-changing and systemic solutions' that can help to advance the action tracks' goals via food systems. The prevailing assumption of AT 1 is that 'game changers' can change the rules of the game or they can change the way we operate within the current rules of the game. The former alter the settings of the food system to allow impactful, new

actions to be generated and scaled; the latter optimise food and nutrition outcomes within current settings. We seek a good balance between the two categories. All actions should be designed to have systemic effects: either targeting multiple parts of the food system or having ramifications that resonate throughout the food system (e.g., by shifting the incentives for other food system actors). Our current conception of how a systemic game changing solution compares to 'business as usual' and to smaller-scale of lower-impact solutions is outlined in Figure 5.

Figure 5: Initial thinking about systemic and game changing solutions



Examples of the levers to which we will look for such solutions are outlined in Table 2.

Table 2: Levers for systemic and game changing solutions

Looking for game changing solutions to achieve…	By (1) fundamentally changing settings or by (2) optimising within current settings				
	Enabling Policy and Regulatory Ecosystem	**Investment incentives**	**Innovation incentives**	**Civil society pressure**	**Consumer pressure (AT2)**
Reducing hunger, poverty, and inequality	• investment in agric./fisheries • Extension • Livelihood promotion • Social Protection • Fair pricing across the whole food system	• Agri-food investment facilities • Support for mechanisation and digitisation	Fund research and development of nutritious foods	• Campaigns around the right to food, decent wages (AT4)	Demand for cheaper nutrient-dense foods; Fair trade
Nutritious Food Access	• Public Procurement • Fiscal incentives • Public R&D • Public Campaigns	• Stock Exchanges • N3F facilities • ESG	• Pitch competitions	• Campaign for Affordable Good Food	
Food Safety	• Standards • Testing • Enforcement		• Food Safety labs	• Food safety campaigns	• Consumer demand for provenance

There are many types of solutions. They could include those focused on new technology and implemented through private-sector innovation; they could also include those that build on traditional knowledge and practices, such as those of indigenous groups; they can be those that leverage the positive impacts of free trade and international cooperation to better share and exchange resources globally; and they could be those within the public or civil society sectors that take tried-and-true but yet unscaled interventions and find ways to bring them to scale. The AT1 Science Group paper offers examples of different types of solutions, particularly with regards to technologies and data. Regardless, all solutions will need to be designed and implemented in a way that is people-focused, prioritising the rights and needs of the farmers, fishers, livestock keepers, and small business owners throughout the food system--as well as those of consumers and other users of natural resources. In so doing, they will need to integrate equity concerns, particularly those related to gender equity and women's empowerment, which are central to food systems transformation. The Summit has assembled cross-cutting levers and communities of practice in the areas of gender, finance, and innovation; these will also be critical to identify and stress-test identified solutions. Table 3 gives some initial examples of relevance for AT1 (non-exhaustive).

Table 3: Examples of Key Cross-Cutting Level Issues (non-exhaustive)

	Gender	**Finance**	**Innovation**
Reduction of hunger, poverty and inequality	Access to health services, extension, finance, ICT, land, cooperatives, and markets; decision-making power within households; women's access to food in conflict-ridden environments	Where will the extra $33bn a year needed to sustainably end hunger (Ceres2030) come from and how to build a case for investing it?	Socio-technical innovations to improve agricultural and marine productivity —what is holding them back and how to adapt to arid, conflict, and other low-resource settings
Nutritious Food Access	Women's access to income women's inclusion in food system governance; women's priorities factored into food system decisions; women-led SMEs' access to finance; gender-sensitive design of behaviour change efforts	How to get more impact investing finance to SMEs producing safe nutritious foods The role of social safety net / social protection programmes	How to make nutritious foods more desirable (i.e., increase *perceived* affordability How to incentivise more youth and women to enter and stay in the nutritious foods value chain
Food Safety	Women as key decision makers about food purchase & preparation; women as sellers of food, esp. in low-resource, informal settings; women's voice in food system governance and regulation	Is there a willingness to pay for strong food safety certification? If not, where does the money come from, or are there other non-monetary incentives?	improved food safety risk monitoring Improved diagnostics for foodborne pathogens Blockchain and other technologies for traceability

The importance of context

All game-changing actions will need to be grounded at the local (country, sub-national, or even municipal) level. This is where the hard work of design and implementation will happen and where impact and trade-offs are experienced. Context can include geographic factors (e.g., rural/urban, coastal/land-locked, small-island nations) as well as those related to income, conflict/non-conflict areas, or population groups (e.g., indigenous peoples). It can also be defined by food system typology, such as those developed for the Food Systems Dashboard, building on HLPE (2017).
AT1 is interested in engaging with Member States to co-develop solutions that will be relevant and impactful within their contexts. Table 4 lists the 26 member states that have expressed an interest in engaging with AT1, to date.

Table 4: Member States Expressing Interest in engaging with AT1, to date

Africa & ME	Asia	LAC	Europe	North America	Oceania & Pacific
Algeria Egypt Ethiopia (tbc) Kenya (tbc) Mozambique (tbc) Nigeria Tanzania (tbc) UAE	Bangladesh China India Indonesia Pakistan (tbc) Philippines	Chile Colombia Guatemala	EC Finland Germany Ireland Netherlands Norway Poland	Canada Mexico	

What does success look like?

The Initial thinking from AT1 on what success would look like is that, between the five ATs, 20-25 Game Changing Actions (GCs) (perhaps more, if feasible) would be identified. We would then work intensively through multi-country teams with countries to develop plans for potentially transformed food systems via country-specific combinations of the country-adapted actions. Ideally, we would like to see a core set of countries where all ATs converge. Table 5 attempts to summarise this vision.

As a potential example, the Summit could culminate in the announcement of at least 20-25 Game Changing Actions, operationalised, for adaptation by others alongside operationalised plans for country food system transformation, for emulation and improvement by others. Key stakeholders could then build commitments around these plans. Other countries would be inspired by the GCs, how they are put together within a system framework, and how they are jointly operationalised, leading to further adoption. Moreover, the principles derived from the operationalised plans for country food system transformation, building on existing principles and guidelines from elsewhere, would be shared to support future transformations.

Table 5: Example of how systemic and game changing solutions come together at the country level

	Game Changing Solutions emerging from				
Country	**AT1**	**AT2**	**AT3**	**AT4**	**AT5**
Country 1's Food system is transformed by Game Changers (GC) 1-4	GC1	GC1	GC1		
		GC2		GC2	GC2
	GC3		GC3	GC3	
				GC4	GC4
Country 2's Food system is transformed by Game Changers 1, 5, 6	GC1	GC1	GC1		
			GC5	GC5	
		GC6			GC6
Country 3's Food system is transformed by Game Changers 2, 3, 6, 7		GC2		GC2	GC2
	GC3		GC3	GC3	
		GC6			GC6
	GC7				GC7

Working in an inclusive and transparent manner with the diverse members of the AT1 Leadership Team, interested Member States and UN organisations, the leaders and members of the other Action Tracks, the Summit Secretariat team, the broader civil society, private, and public sectors, and the general public, we look forward to making this vision for success a reality.

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