BCFN Contribution to HLPE V.0 Draft Report

The BCFN Foundation

Who We Are

The Barilla Center for Food and Nutrition Foundation (BCFN) is a private non-profit apolitical institution established in 2014 as the natural evolution of a previous think tank within the Barilla Group initiated in 2009. The multidisciplinary research team includes professionals from different fields such as economy, nutrition, agriculture, psychology, geography and environmental sciences. The Advisory Board guarantees for the Foundation's activities, and is composed of scientists and internationally renowned experts.

What We Do

The BCFN Foundation analyzes and formulates proposals to address urgent issues related to the food system and the state of global nutrition. Its activities are aimed at establishing an open dialogue and fostering wellbeing on a worldwide scale, publishing valuable and open-access scientific content to help everybody make conscious choices every day about food and nutrition, health and sustainability. In particular, two recent outcomes may be particularly relevant for the contribution to the HPLE Draft v.0 FSN Report.

1. **The Double Pyramid** model brings together evidences that foods which nutritionists recommend consuming more frequently are those with lower environmental impact. The model has been transformed into a line of research, with annual update of data from international nutritional guidelines, the environmental impact of food production and consumption, and the economic impact to assess the affordability of sustainable diets.

2. **The Food Sustainability Index (FSI)** is a collaborative project developed by the Economist Intelligence Unit with the BCFN and was released on December 1st 2016, at the 7th international forum on food and nutrition, with a good media coverage. The FSI aims to investigate the extent to which food sustainability is realised in 25 countries from different regions of the world, with a special focus on three key areas:

    - Promoting sustainable agricultural practices (Sustainable Agriculture);
    - Ensuring healthy nutrition and lifestyles (Nutrition Challenges);

- Reducing food waste and losses (Food Loss and Waste).

The BCFN Foundation has collected years of experience in raising awareness and promoting continuous dialogue within economic, social, environmental and scientific spheres of the global food system. For this reason, it is eager to give a meaningful contribution to the HPLE Report and play a role in of the process of transition towards sustainable production and consumption patterns.

How We Work

Since 2009, the BCFN has periodically published studies, papers, and informative magazines about what is going on in the scientific world and the civil solutions that are emerging in the various areas. It has promoted an annual International Forum, supported research programs and launched initiatives such as the Milan Protocol and the Youth Manifesto. Its mission is based on two cornerstones: education and dissemination.

The BCFN International Forum on Food & Nutrition is an annual event organised with the aim to analyse and discuss global food-related matters. The plenary sessions and the workshops invite participants to reflect on urgent issues such as climate change, agricultural productivity, water management, food waste, dietary habits, urbanization, and population growth. The days of the Forum are free and open to the public. About 2,000 participants attended the last edition, and 17,000 connected via streaming across the globe. Since 2012, with the BCFN Young Earth Solutions contest, the International Forum dedicates a space for young researchers from across the world, where they have the opportunity to share and publicize their research projects, and become part of the Alumni network. The network today counts more than 80 members from five continents. During the 2016 edition of the International Forum taking place on December 1st, the newly released updated version of Double Pyramid report as well as the Food Sustainability Report Project were presented.

The Milan Protocol is a policy paper on Food, Nutrition and Sustainability that inspired the Milan Charter, a proposed global agreement to guarantee healthy, safe and sufficient food for everyone, sought by the Italian government as a legacy of Milan Expo 2015 and submitted to Ban Ki-Moon, the Secretary-General of the United Nations. The Milan Protocol encourages commitment by the governments of the countries that participated at the "Feeding the Planet, Energy for Life" of the World EXPO 2015 in Milan, the private sector as well as the civil society,

and generates awareness in generations of future leaders on the three paradoxes of our food system. These paradoxes are:

1. FOOD WASTE: Every year, one third of the global food production is wasted, which corresponds to four times the amount needed to feed the people suffering from undernutrition worldwide.

2. SUSTAINABLE AGRICULTURE: A large portion of crop and food production is funnelled into animal feed or biofuels despite widespread hunger and undernutrition.

3. HUNGER AND OBESITY: Today, for every person suffering from undernutrition, two are overweight or obese.

The Youth Manifesto is a call for new politics to finally bring to an end the above-mentioned paradoxes ruling food production and consumption. The document was developed by the BCFN Alumni and inputs forth a series of commitments for seven societal groups: policymakers, farmers, media, the activist and NGO community, researchers, educators and the food industry. The Youth Manifesto has opened a channel for dialogue with the European institutions when it was presented to different members of the European Parliament in Brussels. This event brought the delegation of BCFN Alumni and their message straight to the heart of political debate to discuss which goals are either happening, planned, or could be imagined.

The BCFN research team, is a multidisciplinary group, that works together to share findings, scientific data and best practices to achieve the Sustainable Development Goals related to food, and help create a world where food is produced and consumed in a sustainable way for the benefit of present and future generations. Contribution to the international scientific research and dialogue on agro-food systems takes into account three fundamental aspects: younger generations, education, and interaction between different stakeholders.

https://www.barillacfn.com/en/forum/

https://www.barillacfn.com/en/dissemination/milan_protocol/

https://www.barillacfn.com/en/dissemination/youth_manifesto/

1) The Double Pyramid

The Double Pyramid is one of the key works of BCFN, which brings together the nutritional aspects with the environmental impacts of food. As can be seen in Figure 1, on the left hand side there is the *food pyramid*, with information concerning the nutritional recommendations of different food categories, while on the right hand the pyramid has the tip facing downwards and it contains information on the environmental impact of the aforementioned food categories. This *environmental pyramid* shows the ecological footprint of those foods, according to the results of empirical studies found in scientific literature. The environmental impact of each food is calculated by taking the average value of the data collected and, for foods which are usually eaten cooked, the impact of the cooking process has also been added. The Double Pyramid is not set in stone: it changes over time according to progress and new findings from research in the sector of environmental sustainability linked to nutrition and food production. The 2016 edition is based on over 1,300 pieces of data from 410 different sources. The addition of new scientific data over the last few years has not had a substantial structural impact on the Double Pyramid, thus confirming the validity of the initial data, rather, it has enabled a wider statistical coverage and provided increasingly precise numerical values. Consequently, these new scientific findings once again highlight the importance of the Mediterranean diet for people's health and the protection of the planet.

Moreover, each edition of the Double Pyramid has given greater visibility to certain aspects which are deemed to be especially significant. In the last edition a number of hot topics have been presented. Firstly, the correlation between nutrition and life expectancy is examined, identifying the "blue zones" – geographical areas with the longest life expectancies in the world - thanks in part to people's diet, as well as molecular biology and the length of telomeres, the parts of chromosomes which determine how long cells live for.

Furthermore, the impact of agriculture on climate change is also tackled (including the measures taken by various countries to deal with the issue) and the rising importance of food in the political and socio-cultural debate, with particular focus on cities where over half of the world's population now lives. In addition, to highlight once again the significance of individual food choices on the well-being of the planet, a number of different menus are presented (including a vegan option), demonstrating how each person can make a difference to the environment by choosing what they put on their plate. Finally, this edition also looks at the cost of sustainable diets with the help of the economic pyramid, and with abundant research showing that it is

possible to follow nutritional recommendations without spending more. The 2016 BCFN Double Pyramid report and technical document as well as a scientific article published in Frontiers in Nutrition (Ruini et al. 2015) are enclosed onto this application.

For further information: https://www.barillacfn.com/en/publications/double-pyramid-2016-a-more-sustainable-future-depends-on-us/

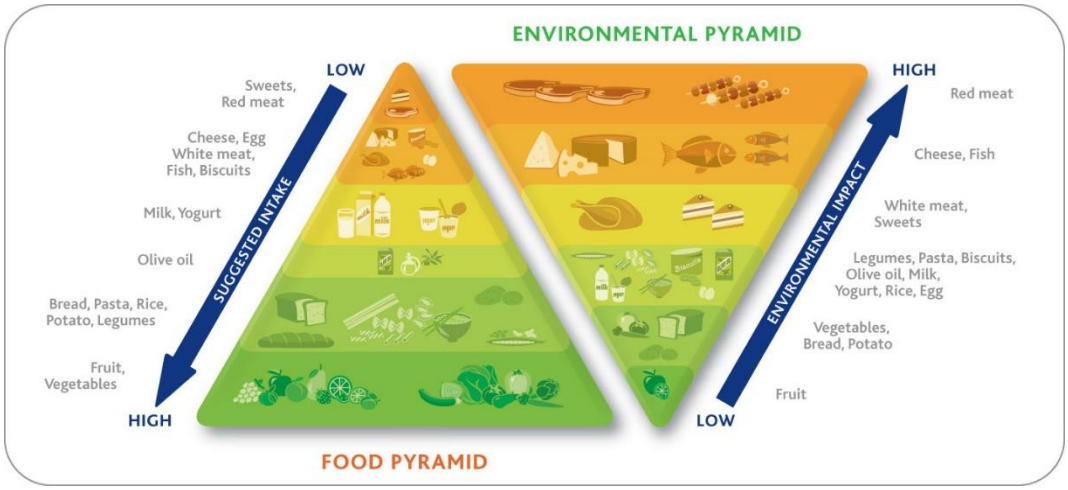

Figure 1: the Double Pyramid developed by BCFN

2) The Food Sustainability Index

The Food Sustainability Index (FSI) was committed by the BCFN Foundation and carried out by The Economist Intelligence Unit (EIU) – the research arm of The Economist Group. It is the only index of its kind and it provides an analysis of the overall sustainability of the food systems around the world. The assessment has been conducted in 25 countries: the Group of 20 (G20) largest economies, which account for 85% of global GDP and two thirds of the global population, plus five nations from regions otherwise unrepresented (Nigeria, Ethiopia, Colombia, the UAE and Israel). The FSI aims at investigating the extent to which food sustainability is realised in such countries by analysing their performance and progress in three main challenges (hereby referred to as the 3 pillars), with which the global food system is currently confronted: promoting sustainable agricultural practices (Sustainable Agriculture); ensuring healthy nutrition and lifestyles (Nutrition Challenges); reducing food waste and losses (Food Loss and Waste) (Figure 2). This ranking system is based on 58 indicators, both qualitative and quantitative, that measure the sustainability of food systems across the three aforementioned pillars (food loss and waste;

sustainable agriculture; and nutritional challenges). The index has three key performance indicators— environmental, societal and economic – across 8 areas. The scores for the three main pillars are calculated from the weighted mean of underlying indicators and are scaled from 0 to 100, where 100 equals most sustainable. The overall score for the FSI (also on a scale of 0 to 100) is calculated from a weighted average of the category scores. Data sources include publicly available database (e.g. FAO, World Bank etc.), information collected from grey literature, interviews as well as EIU estimates and data. Data selection has been based on the most recent data available for the 25 countries under investigation.

The overall results have shown **France, Japan and Canada** as the **3 top performers** (figure 3). France (67.53 out of 100) leads the FSI. Its result is largely supported by its holistic policy response to food waste and the high nutrition levels enjoyed by its population (the country is ranked 1st both in Food loss and waste and Nutritional Challenges pillars). Instead, Japan (66.66), the second, tops the Asia group for nutrition and sustainable agriculture. Japan has the second strongest nutrition score, and ranks third for sustainable agriculture. Finally, Canada (64.86) has shown high scores for the quality of agricultural subsidies, diversification of the agricultural system and agricultural productivity.

On the opposite side, the **3 bottom performers** were **Egypt** (48.85), **Saudi Arabia** (47.43) and **India** (43.17). All these countries have severe problems in dealing with water scarcity (Saudi Arabia and India) and unsustainable use of water resources (Egypt). Moreover, India has the highest prevalence of under and malnourishment, whereas Saudi Arabia is the worst performing countries in food loss and waste.

In conclusion, the outputs of the project include the release of a Workbook containing the full set of indicators and data sources and a White Paper which analyses the findings and includes interviews with experts from organisations including the World Health Organisation, the FAO and the International Food Policy Research Institute, as well as private sector interviews. Both are downloadable from the Digital Hub from December 1st 2016. In the frame of the Index research project, a **pilot City Monitor** was also commenced to understand more about the dynamics of urban food systems of 16 cities (based on geographic representation), through data and policy assessments.

For further information: https://www.barillacfn.com/it/pubblicazioni/fixing-food-towards-a-more-sustainable-food-system/

Figure 2. FSI summary table

Pillars	Sustainable Agriculture	Nutrition challenges	Food loss and waste
Areas of analysis	❖ Water ❖ Land ❖ Air (GHG emissions)	❖ Life quality ❖ Life expectancy ❖ Dietary patterns	❖ Loss ❖ End-user waste
KPIs	30 KPIs	19 KPIs	6 KPIs
Weight in the Index	40%	40%	20%
Top performers	Germany, Canada, Japan	France, Japan, South Korea	France, Australia, South Africa
Bottom performers	Egypt, UAE, India	South Africa, Nigeria, India	UAE, Indonesia, Saudi Arabia

Figure 3. FSI rankings

OVERALL

RANK	COUNTRY	SCORE
1	France	67.53
2	Japan	66.66
3	Canada	64.86
4	Germany	64.67
5	United Kingdom	63.87
6	Italy	63.67
7	South Korea	62.82
8	Australia	62.36
9	Israel	60.03
10	Colombia	60.02
11	United States of America	58.86
12	Ethiopia	58.66
13	China	57.50
14	Argentina	55.22
15	Mexico	54.90
16	South Africa	54.67
17	Nigeria	54.25
18	Russia	53.74
19	Turkey	52.96
20	Brazil	51.86
21	Indonesia	50.77
22	United Arab Emirates	49.29
23	Egypt	48.85
24	Saudi Arabia	47.43
25	India	43.17

A. Food loss and waste

RANK	COUNTRY	SCORE
1	France	80.25
2	Australia	76.30
3	South Africa	75.70
4	Ethiopia	74.19
5	Canada	72.57
6	United States of America	71.97
7	Japan	71.64
8	United Kingdom	71.56
9	Italy	69.96
10	Nigeria	66.75
11	Germany	66.19
12	China	55.15
13	South Korea	54.85
14	Israel	54.17
15	Mexico	53.05
16	Colombia	50.81
17	Argentina	50.21
18	Egypt	45.46
19	India	44.76
20	Turkey	43.68
21	Russia	38.71
22	Brazil	32.94
23	United Arab Emirates	32.55
24	Indonesia	32.53
25	Saudi Arabia	27.56

B. Sustainable agriculture

RANK	COUNTRY	SCORE
1	Germany	65.50
2	Canada	62.35
3	Japan	60.56
4	Australia	60.40
5	Russia	60.16
6	South Korea	60.02
7	Italy	59.81
8	United Kingdom	59.04
9	Colombia	59.01
10	Mexico	57.40
11	France	56.67
12	Brazil	56.15
13	Israel	56.02
14	Turkey	55.18
15	Argentina	55.00
16	Indonesia	53.87
17	China	51.97
18	Ethiopia	50.96
19	United States of America	50.73
20	Nigeria	49.34
21	Saudi Arabia	45.83
22	South Africa	45.60
23	Egypt	44.83
24	United Arab Emirates	41.39
25	India	40.51

C. Nutritional challenges

RANK	COUNTRY	SCORE
1	France	72.05
2	Japan	70.27
3	South Korea	69.60
4	Israel	66.98
5	Colombia	65.64
6	United Arab Emirates	65.55
7	United Kingdom	64.86
8	Italy	64.37
9	China	64.19
10	Canada	63.52
11	Germany	63.06
12	United States of America	60.44
13	Saudi Arabia	58.96
14	Ethiopia	58.60
15	Argentina	57.95
16	Australia	57.34
17	Brazil	57.03
18	Indonesia	56.79
19	Turkey	55.39
20	Russia	54.84
21	Egypt	54.57
22	Mexico	53.33
23	South Africa	53.22
24	Nigeria	52.91
25	India	45.04

For questions or comments, please contact:

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