Climate change, regardless of its cause, is an undeniable reality that has been accompanied by a rapidly increasing global human population.[1] In order to feed a projected 10 billion people in 2050, whilst improving the Earth’s environment, radical shifts will need to be made in our food systems.[2] Food systems have the potential to nurture human health and planetary health, but currently, they threaten both. The EAT-Lancet ‘Planetary Health Diet’ offers an opportunity to utilise food as a lever for improving the health of ourselves and our planet.

The ‘Why’
Globally, traditional diets have transitioned to a high-calorie and unhealthy Western-style dietary pattern.[2] What was previously high in quality plant-based foods has become a calorically dense diet, high in animal products and characterised by refined carbohydrates, added sugars, sodium, and unhealthy fats.[3] Just as there are negative health impacts of such dietary patterns, environmentally they also pose great risks. The current food production needed to support these dietary patterns are further driving climate change and pollution, exacerbating biodiversity loss and causing strain on water and land resources.[2] As such, there are a multitude of reasons why a systemic global food transformation is needed.

Health
From a health perspective, food is contributing to the double burden of malnutrition: over- and under-nutrition.[4] With increased shifts towards unhealthy diets, driven by rapid urbanisation and increasing incomes, there is a growing global epidemic of obesity and non-communicable disease.[2] Currently, 2.1 billion adults worldwide are overweight or obese,[5] and the global prevalence of diabetes, an example of a diet-related disease, has doubled over the past 30 years.[6, 7] Despite greater availability of food, there may still be inadequate access to nutritious foods.[2] Modern, urban high-calorie diets can be low in quality and, consequently undernutrition and micronutrient deficiencies persist alongside an increasing prevalence of diet-related chronic disease.[8] Globally, 820 million people remain undernourished,[9] and 2 billion people are micronutrient deficient.[10] As a result, unhealthy diets pose a greater risk to morbidity and mortality than unsafe sex, alcohol, tobacco, and drug use combined.[11] While overnutrition and obesity increase, and undernutrition and malnutrition persist, current global food systems are failing in their role of promoting and maintaining human health.[2]

Sustainability
Similar to the role of food in human health, modern dietary trends are degrading the environment despite the potential for food production to enhance environmental wellbeing.[2] Food production plays a critical role in planetary health as it is the leading driver of global environmental change for a variety of reasons.[2] Currently, agriculture occupies 40% of land worldwide,[12] and food production is responsible for up to 30% of global greenhouse-gas emissions,[13] and 70% of freshwater use.[14] Left unchecked, the diversion of water to agriculture can cause aquatic habitat loss, land erosion, and the salinisation of soil.[15] The conversion of natural ecosystems to croplands and pastures, is the largest factor causing species to be threatened with extinction;[16] and a majority of this is then used to grow crops that will eventually serve as animal feed.[15] The overuse and misuse of nitrogen and phosphorus in food production causes the eutrophication (excess algal growth), and the creation of dead zones in lakes and coastal zones.[17] It also causes chemical pollution of ecosystems that then lead to severe health consequences.[18] Marine systems are further threatened by overfishing[19] and the rapidly expanding aquaculture sector.[20] The interaction between the environment, food production, and health is complex and interdependent, but highlights an opportunity for impactful change.

Food security
With 820 million people undernourished globally,
food security is an existing issue.\cite{9} We are threatened with further food shortages as the global population increases to 10 billion people by 2050, and environmental systems are being pushed beyond safe boundaries to sustain large-scale food production.\cite{2} Food waste is a contributing factor, with an estimated one-third of food being lost or wasted. If food waste were a country, it would rank third after China and the US as the third largest producer of greenhouse gases in the world.\cite{21} Food systems that are resilient to shocks, would: produce low food waste, rely on sustainable food production, and provide food predominantly from primary (plant) rather than secondary (animal) sources.\cite{2} Topically, COVID-19 also has the potential to threaten global food security, meaning there is both opportunity and necessity to pursue changes outlined in the *Eat-Lancet* report now.\cite{18}

The ‘How’

An Overview of the Planetary Health Diet

The *Eat-Lancet* report presents a readily accessible solution to the current impacts of food on human and planetary health: a global shift towards the *Planetary Health Diet*.

The *Planetary Health Diet* is a healthy reference diet developed according to a comprehensive review of the nutrition literature.\cite{2} It places an emphasis on flexibility, with the intention of being adaptable to a broad range of cultural contexts. Its recommendations promote a low risk of major chronic disease and overall well-being through incorporating: protein sources primarily from plants, soy foods, legumes, nuts, fish, alternative sources of omega-3 several times per week; fat mostly from unsaturated plant sources; carbohydrates primarily from whole-grains; and at least 5 servings per day of a wide and diverse array of fruits and vegetables (not including potatoes). Additionally, it recommends limiting the consumption of saturated fat, refined grains, sugar and red meat, while avoiding the consumption of partly hydrogenated oils and processed red meat. The moderate consumption of animal products such as dairy, poultry and eggs are also an option.

Shifting to the *Planetary Health Diet* is one of three readily implementable food system changes that can be pursued to lessen the impact of food on the environment.\cite{2} The production of animal products has a higher impact on green-house gas emissions, land-use and biodiversity loss than the production of plants.\cite{2} This is primarily due to a two-step process of needing to grow large amounts of mono-crop to feed livestock.\cite{2} Placing a larger emphasis on plant-based proteins such as legumes, nuts, and soy simplifies this process as such crops can be grown and harvested for direct human consumption.\cite{2} Other important food system-changes are improved food production practices, and reduced food loss and waste.\cite{1} The individual consumer can contribute to such measures by buying local and sustainably produced food, and by taking steps to reduce household food waste.

Enacting the change

There are a few individual changes that individual consumers can make to align diets with the recommendations set out in the *Eat-Lancet* report.

The first is increasing and diversifying fruit and vegetable intake, so as to consume at least five servings per day. Some starting points for this, include: using fruit and vegetables as snacks; finding ways to incorporate fruit and vegetables into cooking and baking, for example, using mashed banana in muffins, sweet potato in brownies or making zucchini ‘noodles’; aiming to make meals as colourful as possible; and endeavouring to try a new, seasonal fruit or vegetable each week.

A second major change is reducing the consumption of animal products. The simplest approach to this is trialling some easy swaps, such as lentils instead of...
minced meat; chickpeas instead of chicken; tofu scramble instead of scrambled eggs; fortified almond and soy milks instead of cow’s milk; or blended cashew cream in place of cheese. A reduction of meat can involve including meat in most meals but in smaller quantities or consuming primarily vegetarian meals with a few meat-based meals throughout the week. Ultimately, meals should be planned around vegetables, legumes, wholegrains, nuts and seeds. Whilst exclusive vegans should ensure to take a B12 supplement and consider seeking the advice of a dietician, a ‘flexitarian’ approach does not require supplementation.

Other changes that can be made to lower the environmental footprint of our food consumption include shopping locally, eating seasonally, and reducing personal food waste. The following strategies can target food waste: shopping according to a weekly menu and buying ingredients in specific amounts, storing vegetables well and using them as early as possible to avoid spoilage; freezing excess food; composting food waste; and reconsidering uses for food that is usually thrown out – for example, vegetable scraps and skins can be used to make stock, old bread can be toasted to make breadcrumbs and croutons, old fruit can be blended into smoothies or used in baked goods.

Conclusion
The authors of the Eat-Lancet report describe food as being the “single strongest lever to optimize human health and environmental sustainability on Earth”. Shifting to the Planetary Health Diet, alongside transitioning to sustainable food production and reducing food loss and waste, is one readily accessible change that can be made on a global scale to improve the current impacts of food systems on human and planetary health. All this requires is a little time, energy, and creativity in the kitchen.

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Image

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