

Tab.1

Interventions to reduce consumption-based emissions from food.

INTERVENTION	DIETARY CHANGE (this option is characterised by three forms of intervention)	
2017 AVERAGE IN C40 CITIES	58 kg of meat per person per year	106 kg dairy per person per year
PROGRESSIVE TARGET	16 kg of meat per person per year	90 kg dairy per person per year (or derivative equivalent) ⁶
AMBITIOUS TARGET	0 meat consumption	0 dairy consumption
WHY AND HOW?	<p>Rationale</p> <p>Livestock farming for meat is highly carbon-intensive compared to most other types of agriculture. Globally, meat consumption has been increasing steadily over time. C40 cities now consume on average over 58kg of meat per person each year, with some as high as 127kg. This equates to more than three portions of meat a day.</p> <p>Alternatively, plant-based sources of protein are associated with lower levels of emissions and require a smaller amount of water and land to provide the same amount of protein.</p> <p>Reducing meat consumption, in particular red and processed meats, has also been linked to health benefits and lower mortality and disease risks (see Section 3).</p> <p>Recent research including a study by EAT-Lancet Commission has indicated that meat consumption amounting to 300g per week (equivalent to approximately 16 kg per year) is optimal, for health and planetary goals (Greenpeace, 2018; EAT-Lancet Commission, 2019).</p> <p>The per-person targets adopted in this study work for different types of meat and align with EAT-Lancet:</p> <ul style="list-style-type: none"> • Beef and lamb: 50g per week • Pork: 50g per week • Chicken and other poultry: 200g per week <p>Ambitious potential</p> <p>There are several reasons why it could be considered unrealistic to expect that everyone stop eating meat completely. However, health experts agree that a meat-free diet can be suitable for essentially anyone (British Dietetic Association, 2017). Therefore, as an ambitious target, zero meat consumption has been applied.</p>	<p>Rationale</p> <p>While meat products are known to be the most carbon-intensive of animal products generally, dairy production has considerable impacts on emissions and the environment.</p> <p>Cows demand the greatest amount of space, feed, and water of all common livestock animals, and they produce higher levels of greenhouse gases through enteric fermentation, which generates methane. Even as intensive rearing and selective breeding of cattle have increased yields, growth in demand for milk-based products has increased the impacts from dairy farming.</p> <p>A target to reduce dairy consumption to 90kg milk per person per year (equivalent to ~250g a day) is based on a sustainable diet as defined by EAT-Lancet (EAT Lancet Commission, 2019).</p> <p>Ambitious potential</p> <p>Dairy is not essential to a healthy human diet with suitable plant-based alternatives to calcium. Indeed, approximately 65% of the global population has a reduced ability to digest lactose after infancy (US National Library of Medicine, 2019). Therefore, as an ambitious target, zero dairy consumption has been applied.</p>

2,660 kcal per person per day
2,500 kcal per person per day
2,500 kcal per person per day
<p>Rationale</p> <p>Obesity and overweightness are growing problems in cities across the world. The global obesity epidemic is not limited to developed or wealthy countries, and often co-exists with undernutrition (World Health Organisation, 2003). While the required calorie intake at an individual level will vary based on factors such as physiology, activity levels, condition and lifestyle, the average recommended daily calorie intake at a population level is 2,500 kcal (EAT-Lancet Commission, 2019). However, calories can represent very different levels of nutrition depending on where they come from. While simple over-consumption of food is an issue in some places, there continues to be issues around food access and security, even in the wealthiest nations. For example, over 11% of households in the USA are estimated to have faced food insecurity during 2017 (United States Department of Agriculture, 2017). The shift towards a healthy diet involves eating better, more nutritious food, as well as keeping overall calorie intake within the recommended guidelines.</p> <p>The dietary change profile selected as a target for this study involves rebalancing existing consumption profiles towards an optimum intake across food groups, aligned with this calorie target.</p>

⁶This target includes dairy derivatives such as cheese in terms of raw-milk equivalent; for example it takes roughly ten times the amount of milk to make a specified quantity of cheese (Fox, Patrick, F, McSweeney, Paul, L.H.; Colgan, 2006), so this target could also be expressed as either 250g of milk or 25g of cheese.