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Territories and Health:

Feeding the city for health & wellbeing

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What do we mean by 'health' and 'wellbeing'?

'Health': a state of being encompassing physical, mental and emotional health, and not merely the absence of disease or infirmity. Good health is an ultimate goal of human life.

'Wellbeing': the dynamic process of living a healthy and fulfilling lifestyle, which the state of health can either enhance or diminish.

(after WHO, 2006)

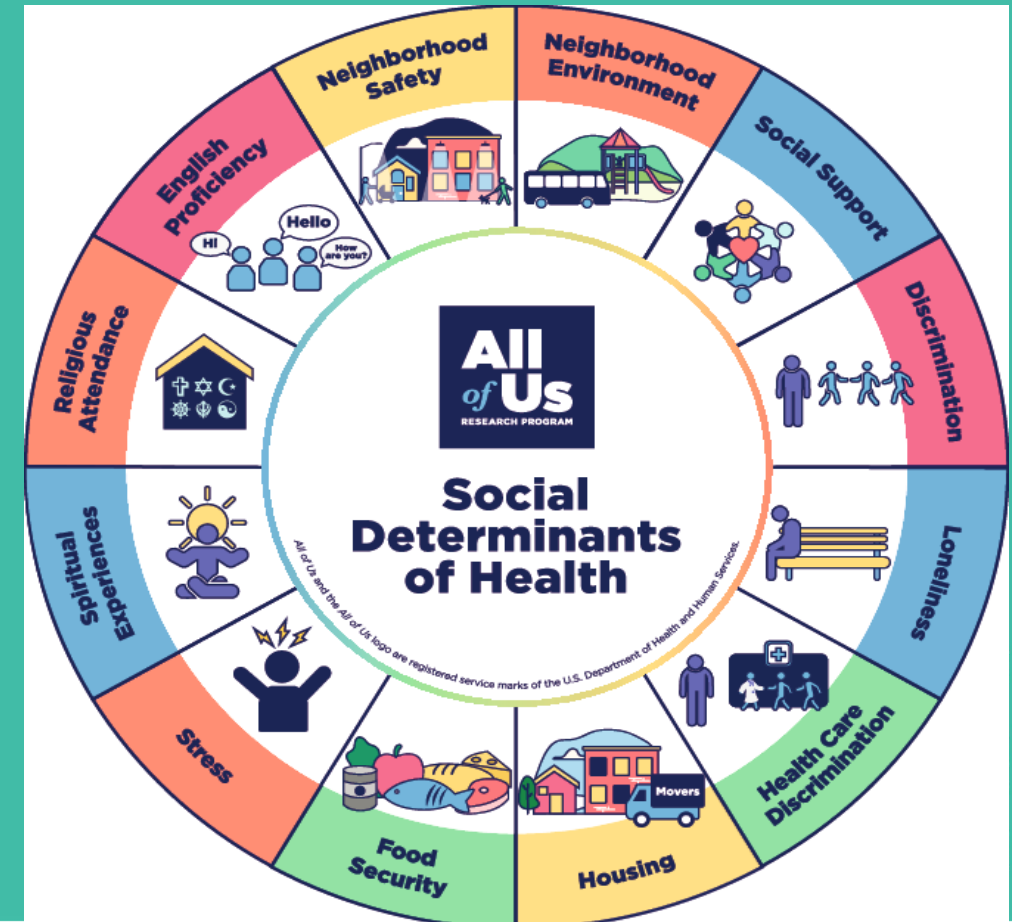


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Role of food & nutrition in health and wellbeing

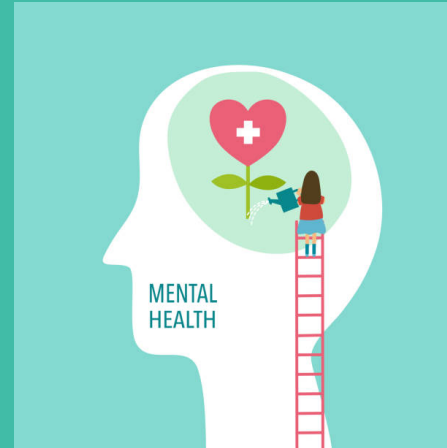


Maslow's hierarchy of needs



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How does food & nutrition impact health and wellbeing?



Direct impacts:

- weight
- coordination
- chronic illness risks
- stamina
- immunity
- development
- concentration
- fertility
- focus & recall
- homeostasis

Indirect impacts:

- depression
- anxiety
- stress
- socialisation
- self-esteem
- inclusion
- employment & educational attainment



Food security and Nutrition security

Food security: *having sufficient food to live an active healthy life*

Nutrition security: *having consistent access to food which is affordable & available, and promotes wellbeing and prevents or alleviates disease (USDA, 1990s)*

It is possible to be food secure, but also be nutrition insecure at the same time



Current global levels of food insecurity

- ❖ 29.3% of global population experience food insecurity, with highest levels in developing countries, esp. Africa (FAO, “*State of Food Security 2022*”)
- ❖ not just an issue for developing economies:
 - 12.5% of households in USA (USDA, 2021)
 - 15.5% of households in UK (YouGov/Food Foundation, 2021)
 - 7% of households in EU (Eurostat, 2021)
 - EAPN Poverty Watch Report 2022 for Portugal: “*increased evidence post-pandemic of food insecurity, and inability to eat healthy balanced diets*” (ie. nutrition insecurity)

current food inflation (EU av. 18.1%) means levels of food insecurity + nutrition insecurity are likely to rise in 2023



Current global levels of nutrition insecurity

- ❖ ??? it isn't monitored universally, and is harder to identify & measure
- ❖ some measures eg. US '*Healthy Eating Index*' (2005-2015), which surveyed US eating habits against recommended dietary guidelines. US average score in 2015 was 58 out of 100
- ❖ lots of research evidence of impact of nutrition insecurity, eg. (eg. Abosy et al, 2022)

Nutrition insecurity is a direct cause of increased risk of:-

- severe health outcomes & chronic diseases eg. diabetes, cardiovascular disease, asthma, hypertension, chronic obstructive pulmonary disease (COPD) and kidney disease
- obesity & associated health problems eg. diabetes, CV disease, etc.
- contracting infectious diseases eg. Hepatitis C, HIV, etc
- mental health issues eg. stress, depression, anxiety, compulsive behaviours

City leaders & policymakers need to better understand occurrence nutrition insecurity in their city, and its impacts on health & wellbeing



Who is at risk of nutrition insecurity in cities?

- ❖ low income areas - *especially important in current context of high fuel costs & inflation, which reduce ability to prepare and/or cook fresh food or use healthier cooking methods*
- ❖ groups with lower educational attainment, and/or reduced knowledge of nutrition & healthy food preparation
- ❖ unstable parental history eg. absence of one or both, incarceration, etc
- ❖ those facing housing instability and/or living in poor quality housing
- ❖ groups with pre-existing mental health issues, or are socially-isolated
- ❖ areas with limited provision of affordable fresh food outlets, or with low car ownership + poor public transport access to such outlets



Nutrition insecurity is not just about solid foods

Dehydration

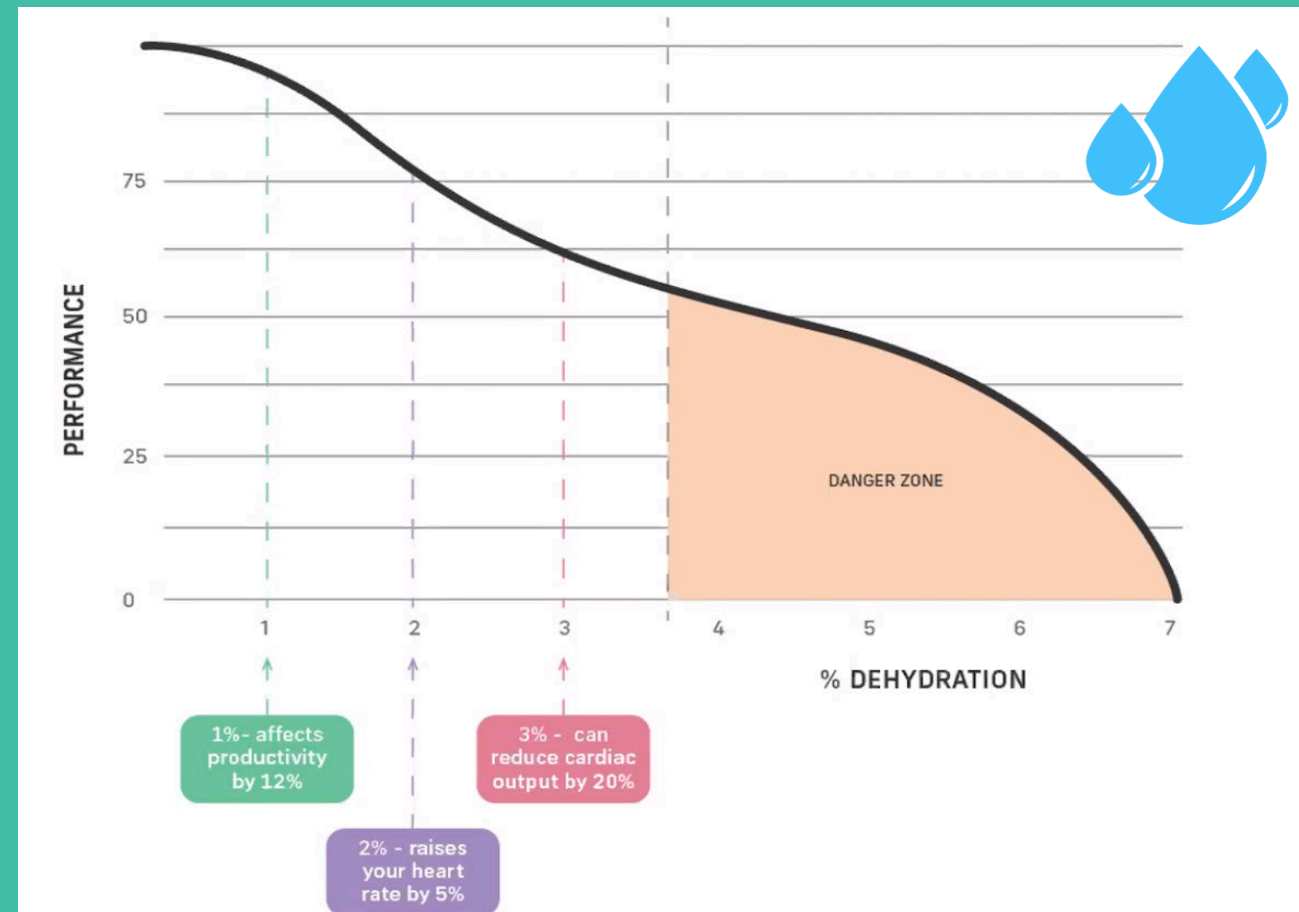
- reduces optimal functioning of the brain
- being hydrated protects tissues, joints & spinal cord
- *1% dehydration reduces productivity by 12%*
- *2% dehydration raises heart rate by 5% and can impair performance in tasks that require attention, psychomotor and immediate memory skills*
- *3% dehydration reduces cardiac output by 20%*
- *10% dehydration causes risk of death*

Demographic risks: elevated in:-

Elderly, due to lack of thirst sensation and changes in the water & sodium balance that naturally occur as people age.

Children <2 years old due to greater body surface area to mass

Hotter climates or heatwaves



What is the cost of poor food & nutrition security?

USA (Center For American Progress/Feeding America, 2019)

- related illness costs = US \$130.5bn
- lost value due to poorer educational outcomes and lower lifetime earnings = US \$19.2bn
- lost opportunity investment in contributions to food aid & welfare charities = US \$17.8bn

Europe (WHO / European Observatory for Health, 2017)

- costs to the state in France, Germany, Italy, Spain & UK combine of Type 2 diabetes due poor diet & inactive lifestyles = €883m
- up to 7% of national health budgets in EU states spent on diseases linked to obesity each year (FAO, 2019)
- 70–80% of EU health care budgets (€700bn annually) spent treating chronic diseases due to poor diet & lifestyle

source: WHO / European Observatory for Health, 2017

Country	Estimated annual economic costs of unhealthy diets (per capita*)	Definition of unhealthy diets	Perspective of cost estimation	Population base	Source
Australia	€1.4 billion (€63)	Low levels of dairy consumption	Direct health care costs, not specified	General population	Doidge et al. (2012)
China	€4.5 billion (€3.5)	Diet high in saturated and trans-fat, low in fruit, vegetables and whole grains plus heavy alcohol drinking	Direct health care costs, not specified	General population	Popkin et al. (2006)
United Kingdom	€8.5 billion (€143)	Not defined	Direct health care costs, not specified	General population	Rayner & Scarborough (2005)
	€9.5 billion (€156)	Not defined	Direct health care costs, not specified	General population	Scarborough et al. (2011)

Note: * per capita costs calculated using United Nations population data (United Nations, 2015).

An aerial photograph showing a dense urban area with numerous high-rise apartment buildings in the background. In the foreground, there are large, green agricultural fields, likely rice paddies, with some water channels. The sky is clear and blue.

Global urbanisation: impact on food & farming

- ❖ declining ratio of food producers to consumers, not yet offset by intensification
- ❖ high levels of food insecurity in urban areas, esp. in developing world
- ❖ globalisation of food supply chains has increased in many parts of the world - ***BUT***

COVID-19, military conflict, climate change events etc, have highlighted structural weaknesses and susceptibility to systemic shocks.

SDG2 'Zero Hunger by 2030': progress to 2019 has been undone, and global measures are now worse than in 2015

- ❖ increased popular interest in environmental impact of food chains, sustainability, biodiversity, provenance of food, food miles, etc ('localisation')

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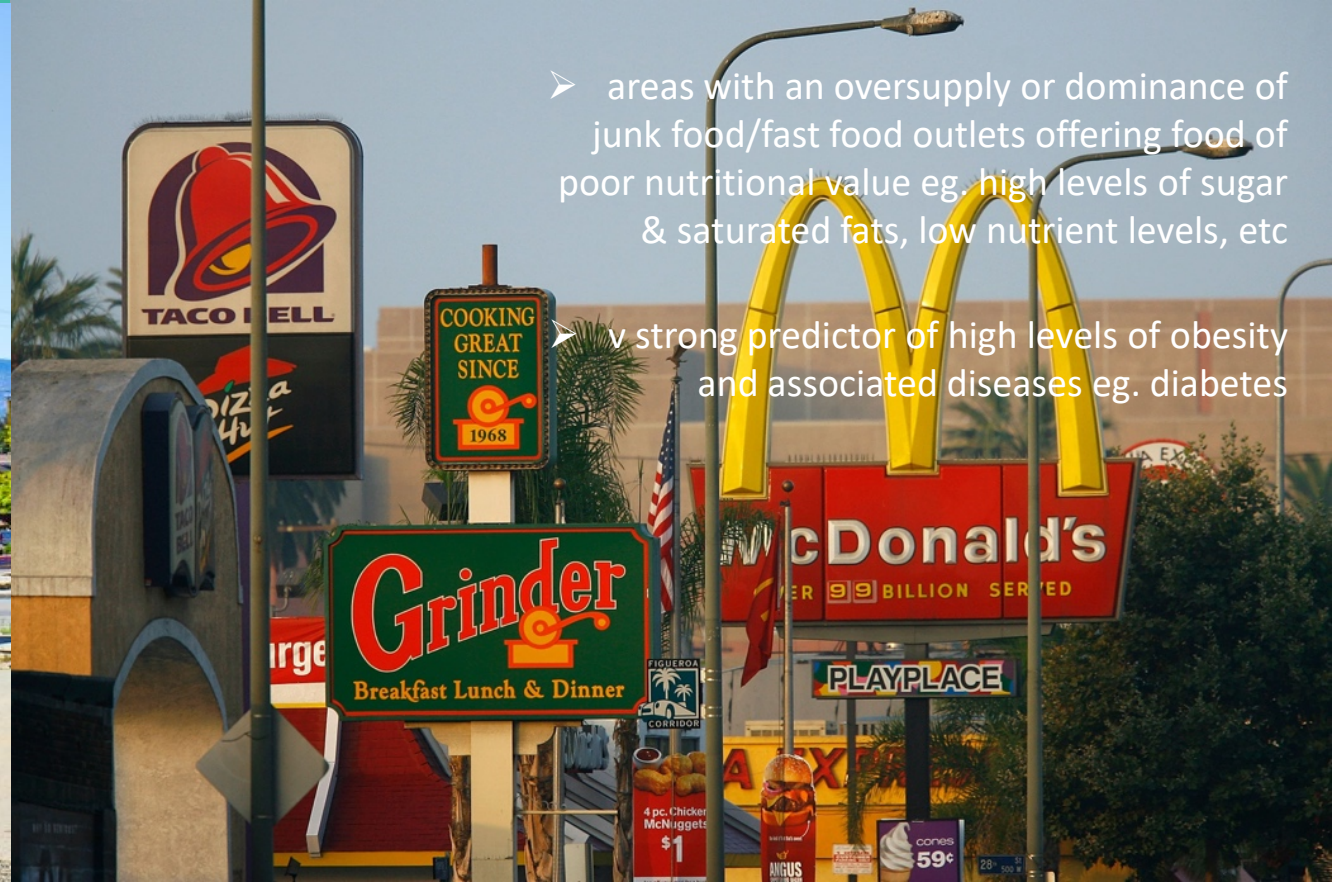
Food availability challenges in cities today

Food Deserts

- urban areas that lack sufficient facilities to buy healthy or fresh food, or rural areas with limited accessibility to do same
- particular impacts neighbourhoods with
 - high levels of poverty
 - high levels of ethnic minority residents

Food Swamps

- areas with an oversupply or dominance of junk food/fast food outlets offering food of poor nutritional value eg. high levels of sugar & saturated fats, low nutrient levels, etc
- strong predictor of high levels of obesity and associated diseases eg. diabetes



What is the role of urban food systems in promoting health & wellbeing in cities?



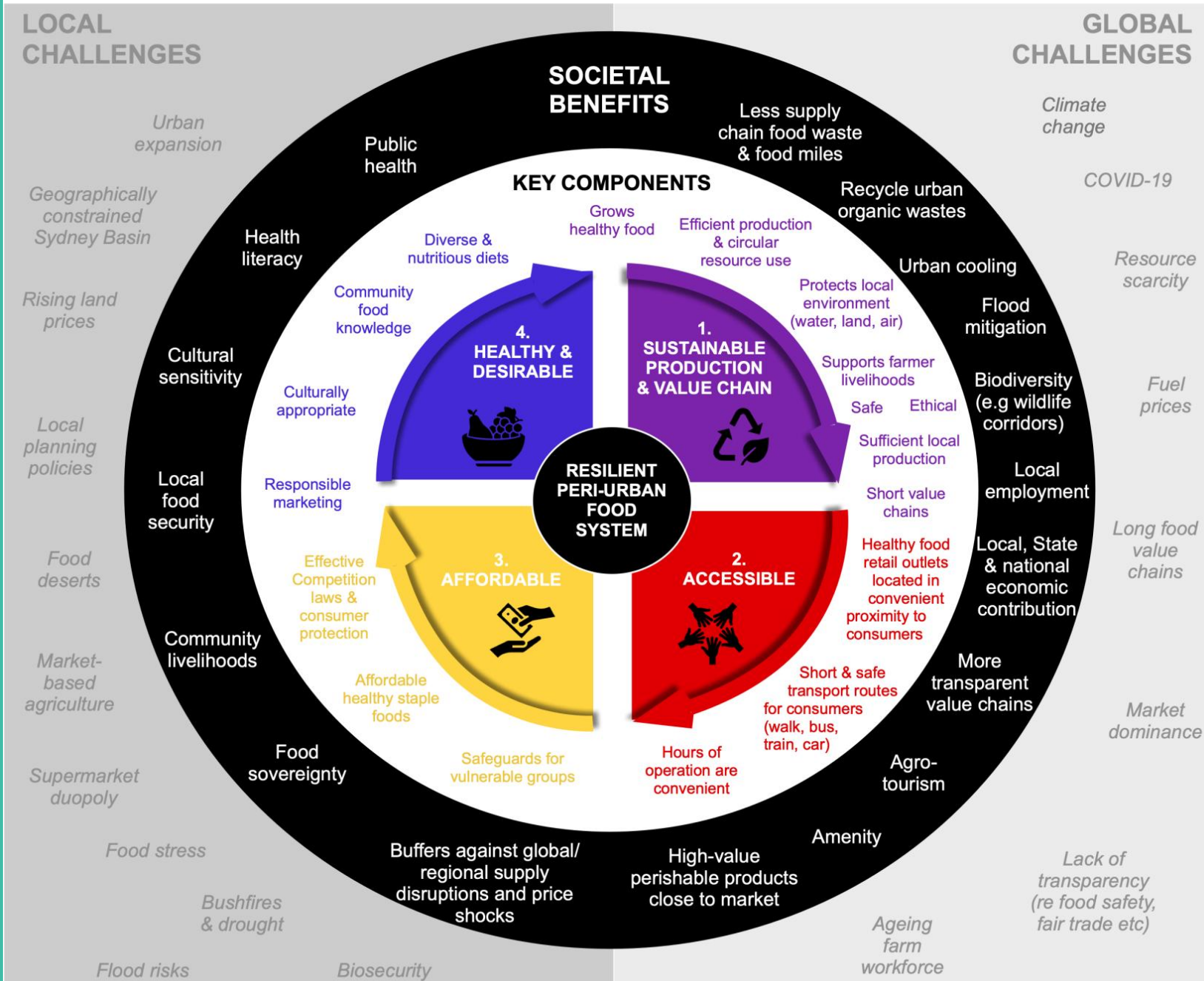
The ideal urban food system: characteristics

- can accommodate natural system stresses (eg. floods, drought) and is resilient to sudden shocks eg. COVID-19, supply chain ruptures, etc.
- is affordable and equally accessible to all geographies and all socio-demographic groups
- promotes diverse & healthy nutritional intake
- encourages minimisation of food waste and promotes circular economies
 - 30% of global human food produced is lost or wasted; food waste alone generates 8%-10% of global greenhouse gas emissions, more than every individual country except USA and China (FAO, 2022)
- minimises environmental impact eg. in production, food miles, supports & increases biodiversity, etc
- increases awareness & skills in food preparation & cooking; cultivation; provenance; ethics; local culture
- enables social inclusion, community engagement & bonding, and reverses existing social inequalities
- facilitates high levels of food biosecurity
- provides year-round local economic development and employment opportunities



A model urban food system

Australian Institute for Sustainable Futures, 2022

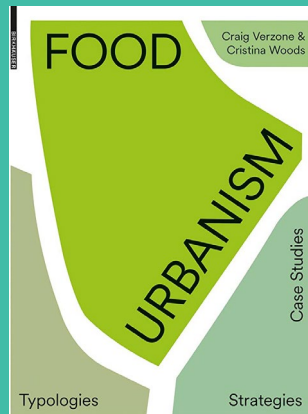


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Use of existing toolkits and best practice

eg. **“Food Urbanism”**

Craig Verzone & Cristina Woods (2021)



1 of 5 projects chosen by Swiss National Science Foundation to “research & evidence innovative ways to achieve urban development, redevelopment and planning in Switzerland” over a 10-year timeframe



Collage views illustrating provocative juxtapositions

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A typology-based classification system to create a toolkit to guide urban food production

nature of sites rooftops, streets, parks, balconies, collective housing, water-edges, industrial/former industrial sites

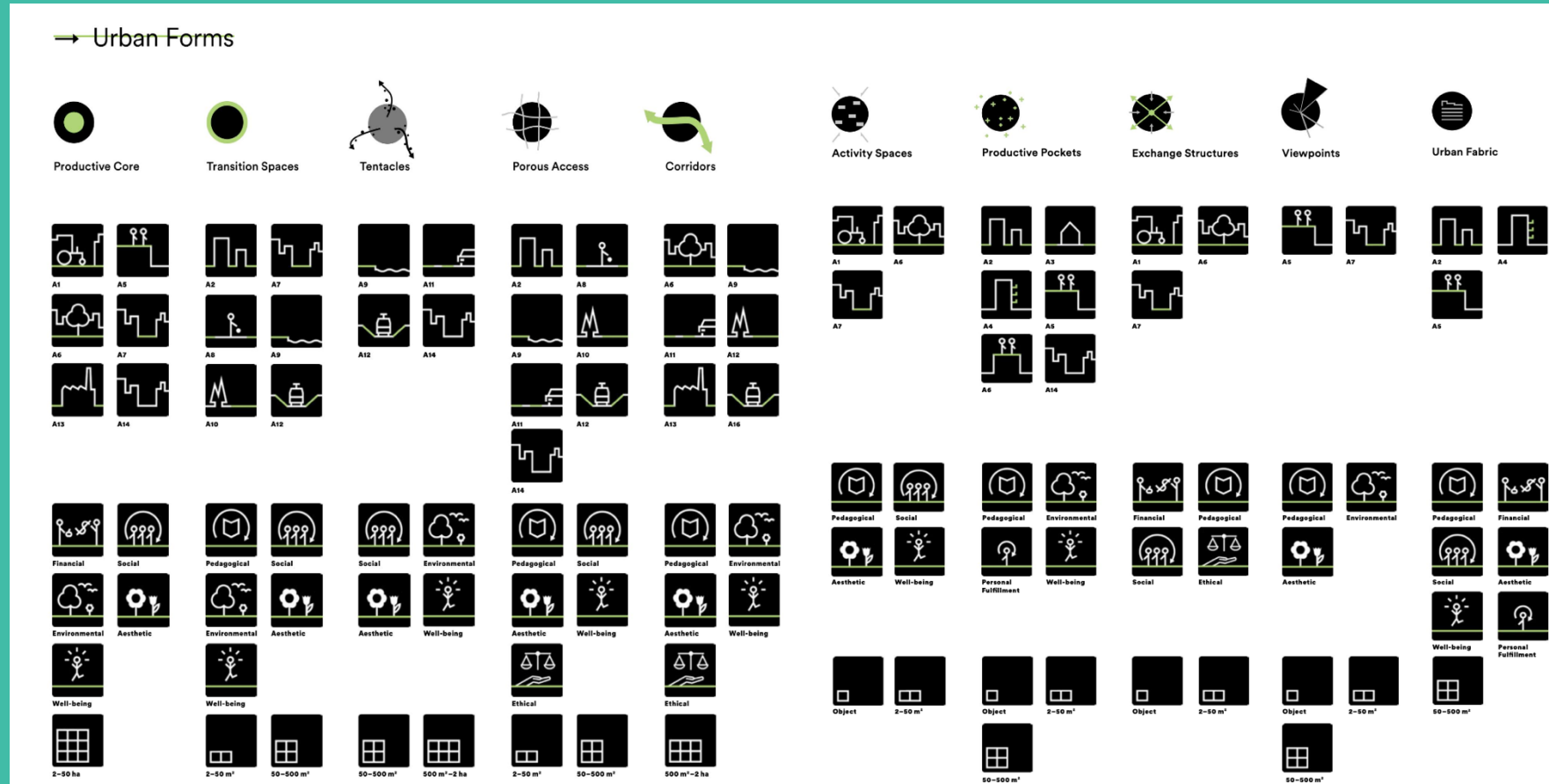
type of grower households, children, retirees, guerilla gardeners, community activists

scale of food production by size

nature of production individual (eg. individual: container, balcony, garden, allotment), collective or professional

motivations financial, wellbeing, self-sufficiency, environmental, social, pedagogical, etc

urban forms transition space, landmark, corridor, productive pocket, viewpoint, etc



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“Food Urbanism” case study: Parc Agro-Urbain, Bernex, Geneva

Europe’s first designated urban agriculture park

- ❖ 114ha site on W peri-urban edge of Geneva
- ❖ identified as a new sustainable neighbourhood for 16,000 people
- ❖ 8ha multi-functional park combines leisure, agricultural & sport uses, with a public square, play areas, seating & shaded areas
- ❖ diversity of agricultural uses, including orchards, grazing, small-scale cultivation, community allotments, a small urban farm (huerta), etc
- ❖ construction started mid-2019, due to open 2023



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Parc Agro-Urbain, Bernex, Geneva

- ❖ a place of exchange & reconciliation between urban and rural activities
- ❖ seasonality a key landscape strategy to encourage interactivity
- ❖ 1st element built was tramway link to the city
- ❖ strong community engagement support eg. produce grown onsite can be sold at the shop in the onsite urban farm



Treelines will act as a natural barrier between the park and the adjacent busy road



Use existing research evidence

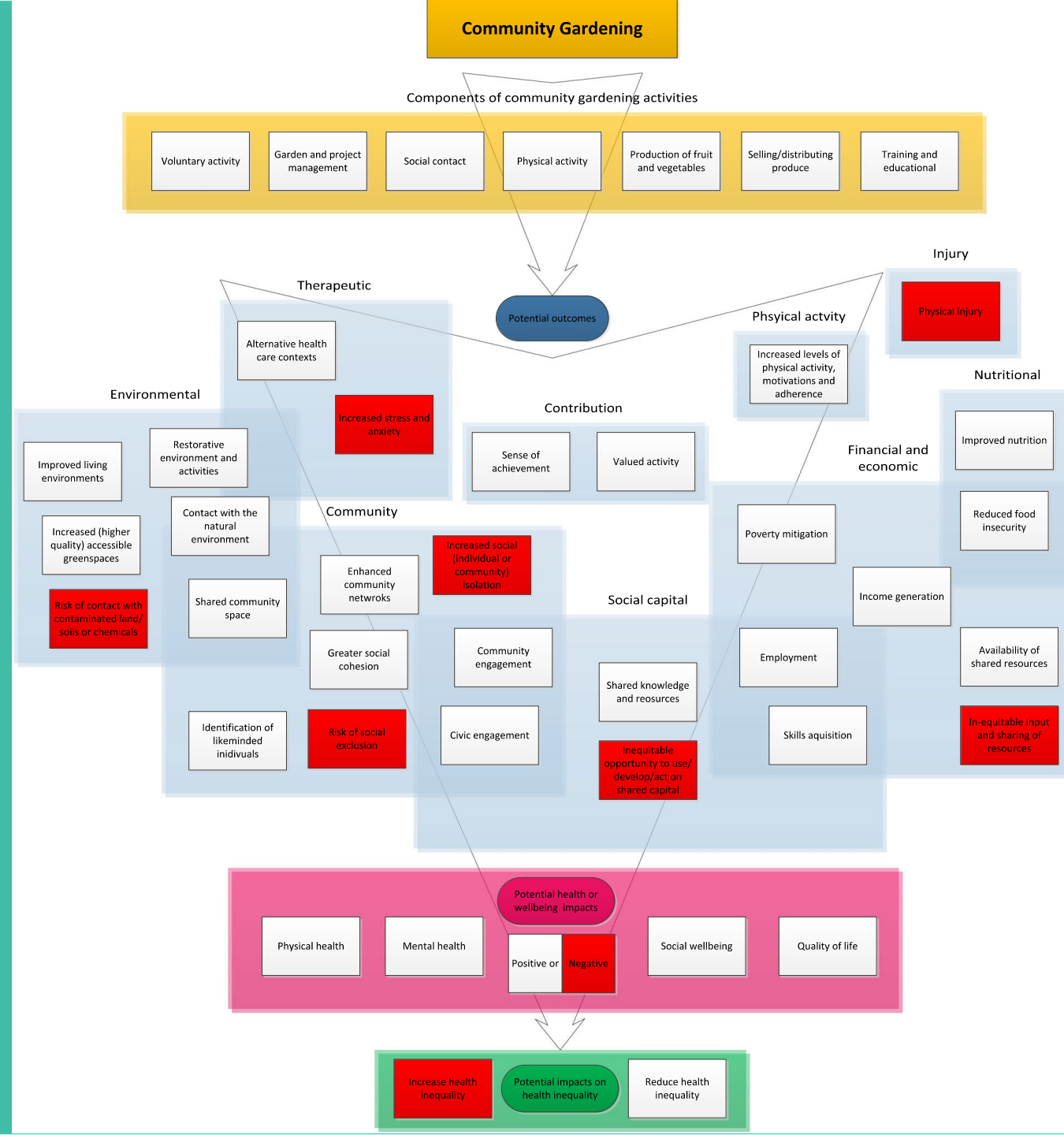
“What are the health and well-being impacts of community gardening for adults and children?”, Lovell et al (2014)

Direct impacts

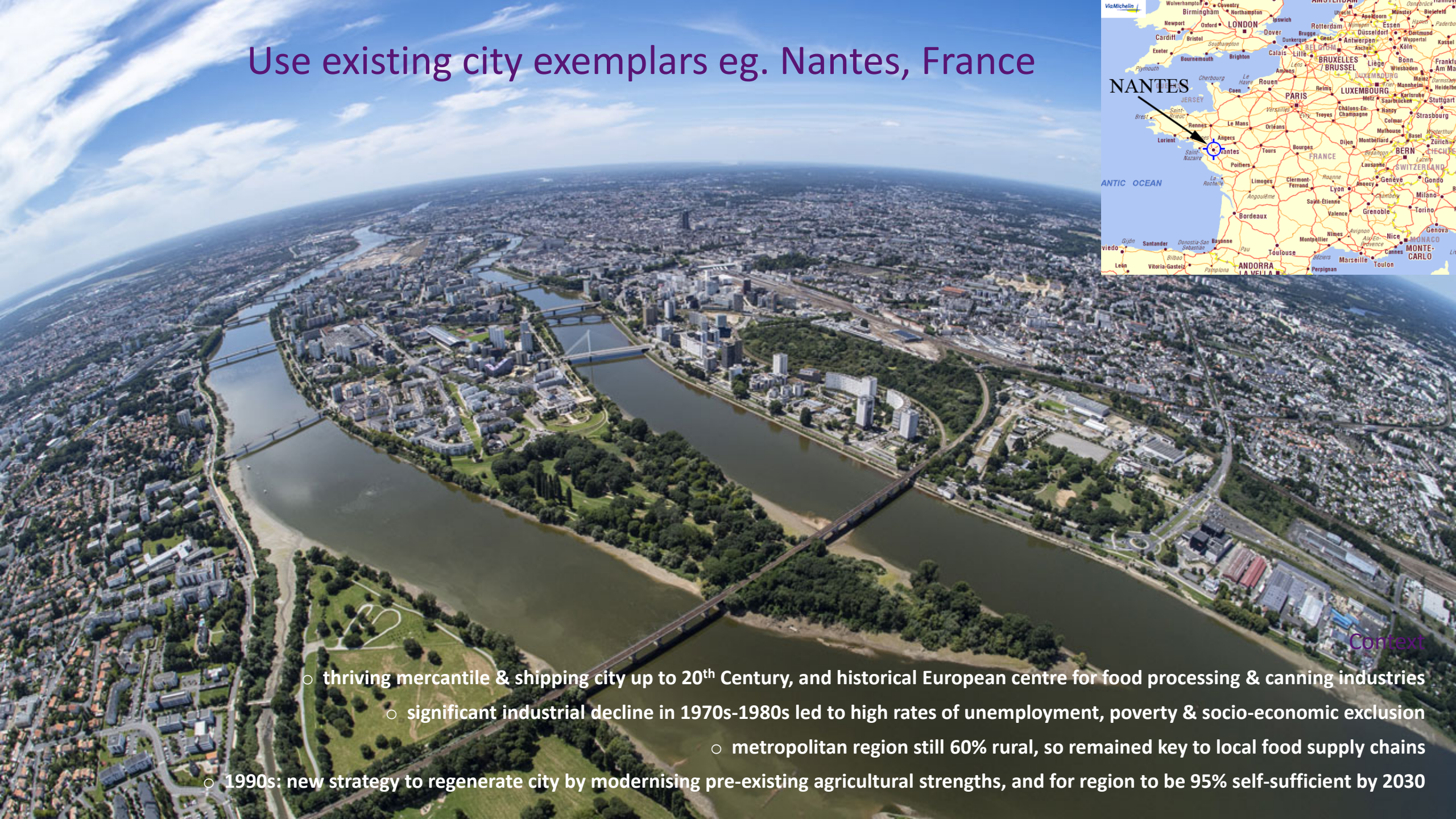
- ↑ individual nutritional status
- ↑ fresh fruit & vegetables intake
- ↑ awareness & knowledge of healthy eating
- ↑ physical activity
- ↓ food insecurity
- ↓ poverty

Indirect impacts

- ↑ mental health
- ↑ sense of achievement, community value & belonging
- ↑ social inclusion and community participation
- ↓ stress



Use existing city exemplars eg. Nantes, France



Context

- thriving mercantile & shipping city up to 20th Century, and historical European centre for food processing & canning industries
 - significant industrial decline in 1970s-1980s led to high rates of unemployment, poverty & socio-economic exclusion
 - metropolitan region still 60% rural, so remained key to local food supply chains
- 1990s: new strategy to regenerate city by modernising pre-existing agricultural strengths, and for region to be 95% self-sufficient by 2030

Nantes, France

Actions

- significant investment in R&D in agri-tech eg. food biosecurity, new processing & preservation techniques
- neighbourhood-level urban acupuncture: residential allotments, peri-urban huertas, pop-up gardens, educational initiatives, communal food recycling & composting - esp. focus of turning previous 'wastelands' into food-producing land
- integrated communal planting/landscaping strategy to increase biodiversity & climate change resilience
- strengthening of food chain sustainability and local resilience eg. investment in professional agricultural training & skills

Outcomes to date

- 451ha of wasteland now food-producing; 30 existing peri-urban farms supported/created; 18% increase in organic farming land
- Nantes Agropolia agri-food cluster created 2,300 jobs up to 2021; increased av. wages and reduced seasonality of employment
- ranked best city in France for social cohesion and 1st or 2nd French Quality of Life city rankings since 2014
- 85% of households believe that the way they eat influences their state of health
- new 180ha agri-eco urban extension (Doulon-Gohards): 2500 new homes, 3 urban farms with min.15ha organic-only , 6 agri-parks
- new BSc in Urban Agriculture at Nantes Université





Le potager du Cantine, Ile de Nantes



Les Jardins des Fonderies industrial re-use



retrofit residential container gardening



new residential allotments



urban mini-farm, Quai de la Loire

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Les Jardins des Plants children's 'edu-play' area, Nantes Museum Quarter



Summary

- poor food & nutrition cost billions in additional state / private health costs, reduced productivity & educational attainment and lost opportunity costs
- recent system shocks (COVID-19, Ukraine war) demonstrate how secure healthy urban food systems are essential to create sustainable resilient cities
- cities need to identify & intervene in nutrition insecurity as well as food insecurity
- there is substantial existing research evidence, toolkits, case studies, exemplar cities, etc, to analyse & develop bespoke intervention frameworks in neighbourhoods, cities, etc.
- success requires a long-term commitment to a multi-dimensional strategy which addresses all aspects of the urban food system, in particular community ‘behavioural nudges’ and economic interventions



Obrigada!

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