

# Food Supply Scenarios: Impact on Availability of a Nutritious Diet

## Context: Project Scope

This project will consider Victoria's current foodshed – both our own food production and the food that is brought into the state for local consumption - and consider the implications of changes in physical conditions for the secure and sustainable provision of nutritionally adequate food supplies to Victoria's communities. It will use an empirical method and a CSIRO complex physical accounting system to consider some possible pathways and their implications for:

- Availability of a nutritious diet for all Victorians; and
- Impact on Victoria's environment and use of critical resources from the provision of secure and healthy food.

This exploration is clearly an immensely complex task and within the 12-month project scope, our intent is more specifically to:

- Demonstrate the use of a stocks and flows framework model (CSIRO) to explore questions related to availability of a nutritious diet for all Victorians
- Find and include data sets in the model (build capability) and identify gaps

We are aiming to develop and analyse a number of 'what-if' or 'exploratory' scenarios – plausible, internally consistent storylines containing different dynamics of change, responses and pathways. The scenarios are not predictive – they are not intended to 'get the right answer' or foresee the future. But they can be used to explore the relationships and interactions of different dynamics, including identifying unexpected (or currently unobserved) system interactions that could potentially impact on sustainable and secure food availability. The scenarios will be used to 'test' the model, to identify potentially significant issues that could affect the sustainability of food supply, to identify data gaps and define further more detailed research projects.

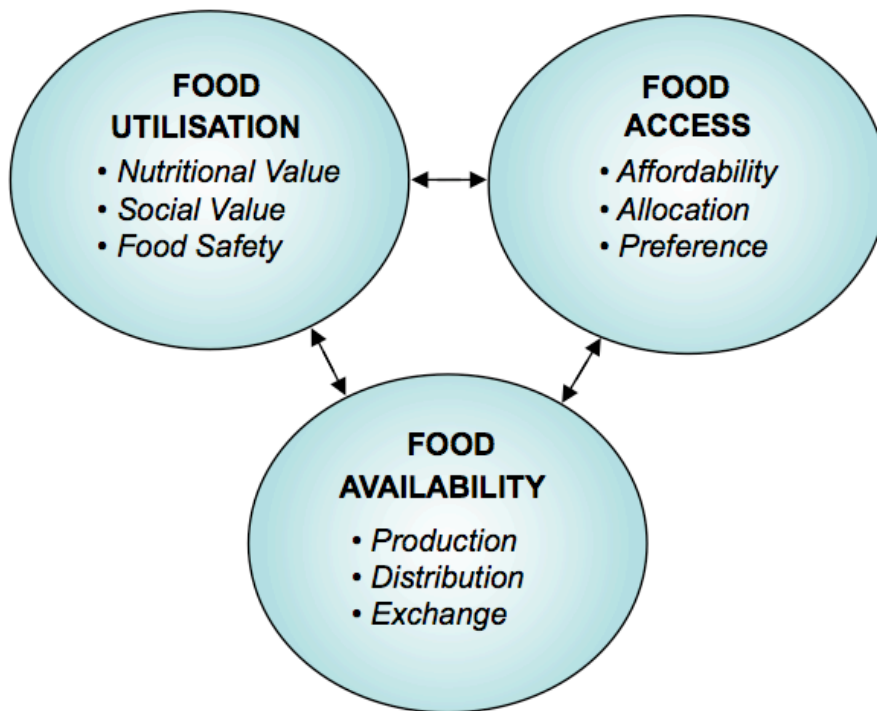
The scenarios will be developed in consultation with stakeholders and will be designed to test key questions and dynamic interactions that could become a critical focus for further research and policy responses (see Part 2: Workshop Scope).

## A focus on food availability

The UN FAO definition of food security encompasses four components. This project will focus primarily on availability: "sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid)".

For the purposes of this project, availability will include both production (that the food exists) and the physical components of ensuring that food is available to consumers ie. processing and packaging, distribution and storage – including the 'last mile' of how people actually get their food. This we refer to as '*food provision*'. This understanding of availability is reflected in Figure 1.

Figure 1: Food Availability as a component of Food Security<sup>1</sup>



In meeting the nutrition objectives of this research project, the phrase ‘sufficient quantities of food of appropriate quality’ is interpreted as meaning that for all Victorians there will be *available* the recommended number, amount and variety of serves specified in the Core Food Groups. In addition, dietary profiles need to be consistent with the Dietary Guidelines for Australians. Core foods are fruits, vegetables, breads and cereals, milk, cheese, yoghurt and equivalents and meat, poultry, fish, legumes and equivalents. Non-core foods are those foods that do not contribute significant amounts of nutrients to the diet and/or are inconsistent with dietary guideline messages, e.g. soft drinks – they are not regarded as essential for food availability considerations. The reference food availability will be referred to as the *Ideal Food per Person per Day* (IFPD).

Food availability (for each of the food groups) in Victoria is a function of:

- Food provision in Victoria for Victorian consumption;
- Victorian surplus food – exported to Australia and rest of world; and
- Victorian food deficit – how much is needed from rest of Australia and from rest of world

In addition to availability, the UN FAO’s definition of food security includes three other critical elements: access, utilisation and stability.

- **Access** by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet is not included in the scope of this project. Nor will the project attempt to quantify changing food prices that affect access. Similarly, demand for and access to a nutritious diet is a complex interaction of cost, behaviour, marketing, social norms, structural access, income etc. While it is affected by the relative cost of nutritious foods, and therefore will be affected by price

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<sup>1</sup> Interactions between food security outcomes, taken from Ingram, J.S.I (2008), Food System Concepts, in ESF/COST Forward Look on European Food Systems in a Changing World, ESF-COST Final Report

changes related to environmental costs or scarcity, the factors affecting demand for and consumption of a nutritious diet are not included in the scope of this project.

- However, by starting to build a physical account for food provision within a range of scenarios, the results could underpin analysis of price implications or vulnerabilities at a later stage (which could form the basis of further research). For example, estimates of greenhouse emissions in provision of IFPD in different scenarios could underpin analysis of vulnerability to different carbon price levels.
- **Utilisation** of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being is not included in this project.
- **Stability** – in which a population, household or individual has access to adequate food at all times – will be considered as a component of availability. Stability has received more attention in recent years, even in developed countries, as governments have become alerted to the possibility of sudden disruptions to the food supply system (eg. pandemics affecting people’s ability to get to food and the UK truck strike bringing supply to supermarkets to an abrupt halt) and the need to have response plans in place. Ensuring longer-term stability however, also requires attention to the dynamics that progressively undermine existing systems, potentially limit timely restoration of pre-existing services, and could require more significant structural change.

## **Part 2: Workshop Scope (23<sup>rd</sup> November)**

***Workshop 1 (23<sup>rd</sup> November) is NOT intended to arrive at a set of scenarios or defined scenario outlines. It WILL generate information and thinking that will inform an iterative scenario development process by the project team.***

The overarching aim of the Workshop is to generate material that informs the development of the exploratory scenarios. The key question for the workshop is:

**“What dynamics, or combinations of dynamics, could affect secure and sustainable provision of the IFPD for the Victorian community?”**

Ideally, sufficient food for a nutritious diet should be securely available regardless of population growth, changing land uses, water availability and climate and so on. The range of dynamics affecting this secure availability is massive and complex.

Processes within the workshop will be designed to:

- Increase our understanding of the dynamics that could affect availability of IFPD in Victoria;
- Increase our understanding of the potential scale (extremes) of different dynamics;
- Explore unexpected and potentially significant interactions between dynamics;
- Identify any existing research / knowledge or data sets that can inform or be integrated into the stocks and flows framework model; and
- Identify dynamics of change or storylines that the group consider to be important for further exploration for scenarios for the Victorian context.

### **Pre-Workshop Task**

Please think about and send us your list of ‘top ten’ dynamics that will affect food availability in Victoria – try and identify specific issues rather than issue areas eg. not just ‘water’.

Please send your list to [klarsen@unimelb.edu.au](mailto:klarsen@unimelb.edu.au) by **COB Wednesday 18<sup>th</sup> November**