SECTION 6: SUSTAINABLE FOOD PRODUCTION

6A: Synopsis

There is compelling evidence that modern methods of industrial agriculture have had an adverse impact on the natural environment, particularly on the arid and infertile soils of Australia. Continuation of present practice is unsustainable and is likely to undermine potential food production for future generations. The eight papers in this Section examine the extent of the problem and discuss ways in which food production can be made sustainable, both for Australia and globally.

Towards sustainable land management

John Williams describes how Australia's geological history has created a unique, very ancient, very flat continent that has accumulated enormous amounts of salts in the soils, regolith, lakes and groundwater. Unfortunately, our current farming based around annual crops and pastures does not work well in such a landscape. The challenge is to build an ecologically sustainable landscape consisting of a mosaic of commercial land uses that yield food and fibre, coupled with native ecosystems that provide a suite of ecosystem services which are valued and paid for by stakeholders and beneficiaries.

Organic farming

Organic farming is most easily described as farming with nature. Tim Marshall explains that this means, to the greatest extent possible, using only natural inputs (i.e. no synthetic chemicals and fertilisers) and also farming in a way that is compatible with, or even enhances, the biodiversity and self-renewing characteristics of the environment in which we farm. The main emphasis is on cultural and management control methods. This leads to the use of crop rotation and plant competition via strategies such as companion planting, inter-cropping and cover-cropping as the main tools for weed control.

Permaculture: designing for local food production

David Johnson describes Permaculture as a design system and conceptual framework for sustainability that is firmly based on ethical considerations and concern for human and planetary health. The importance of *local* food production is central to the environmental economics of Permaculture, ensuring food freshness, maximum nutritional value, minimal transport costs and stable local economies. This contrasts with chemical- and fossil fuel-based agribusiness which prospers because environmental costs are not included in the price of the final product.

Sustainable water management

The Murray Darling river system is not well adapted to modern methods of agriculture, irrigation of crops and pastures in this basin leading to widespread dryland salinity and water degradation. David Eastburn maintains that managing water resources for a sustainable future requires a change in perspective towards regarding 'environmental problems' as primarily sociocultural or 'people' problems. This will need a combination of scientific understanding, political will, social critique and social transformation.

The sustainable management of fisheries

Will Zacharin maintains that Australia leads the world in the management of fisheries. The implementation of limited entry policies in most jurisdictions, together with restricted access to our waters by foreign fishing fleets has provided a strong base from which to sustainably manage our living marine resources. All States and Territories are now embarking on the development and implementation of ESD plans for the management of commercial and recreational fisheries and for the increasing practice of aquaculture.

The Landcare-waste management nexus

There is a nexus between waste management and soil management, landfill and Landcare. Gerard Gillespie refers to the ACT Government's world first strategy of "No Waste by 2010". The creation of massive amounts of waste is a feature of industrial civilisation. An important principle of sustainability is to regard wastes as resources, to return all organic residues to the soil and to re-use or recycle other materials as far as possible. *"We can have pollution, desertification, contamination and waste or we can have employment, good food, clean air and health. The cost will be about the same".*

Can organic farming feed the world?

The late Donella Meadows believed it could, despite scepticism from agribusiness and biotechnology companies. Evidence from both industrialised and developing countries indicates that crop yields from established organic farms are similar to those produced by conventional methods, they are more drought-and pest-resistant and maintain more sustainable soil structure. There is already enough food to feed everyone, but it is wastefully produced and inequitably distributed. Survival of the growing population of the developing world will require locally and organically grown crops that will nourish the soil, rather than imports from more intensive (inorganically fertilised) agriculture.

The production and consumption of food – an Earth Charter perspective

Brendan Mackey describes how the Earth Charter presents a broad and integrative definition of sustainability which is grounded in a sense of universal responsibility. While it places a particular emphasis on the world's environmental challenges, the Charter's key message is that the issues of environmental protection, human rights, equitable human development and peace are interdependent phenomena that demand integrated solutions and are indivisible. One of the great challenges of sustainability is reconfiguring our food production systems to minimise their ecological footprint.