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## **SUSTAINABLE AGRICULTURE: AN EDUCATIONAL AND ENVIRONMENTAL IMPERATIVE**

### **INTRODUCTION**

*'The battle to feed all of humanity is over. In the 1970's the world will undergo famines; hundreds of millions of people are going to starve to death in spite of any crash programs embarked upon now'*

Paul Erlich, 1968



## INTRODUCTION



*'No technical solution  
can save us from  
the misery of  
overpopulation'*

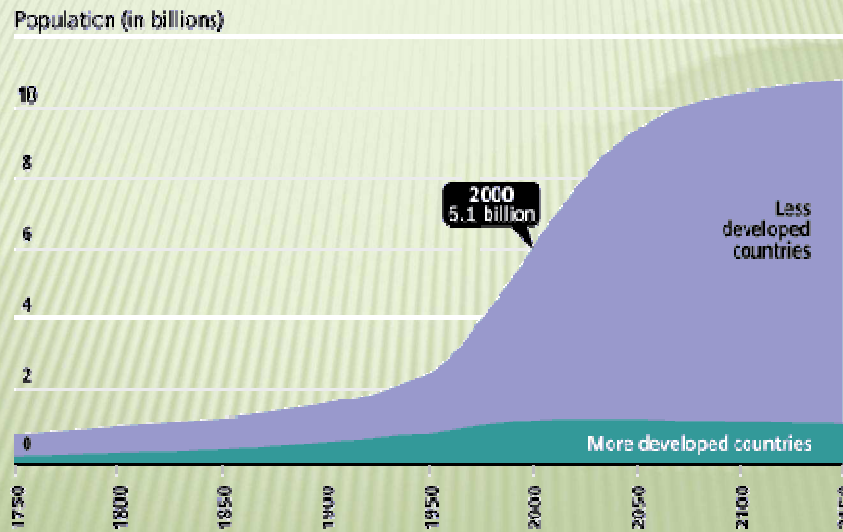
Garrett Hardin (1995)

## 'HOUSTON ... WE HAVE A PROBLEM'



Small,  
isn't it?

## PROJECTED WORLD POPULATION GROWTH



In this projection, the size of each country is represented by the size of its population in 2050

**THE WORLD IS GOING TO LOOK DIFFERENT IN THE FUTURE**

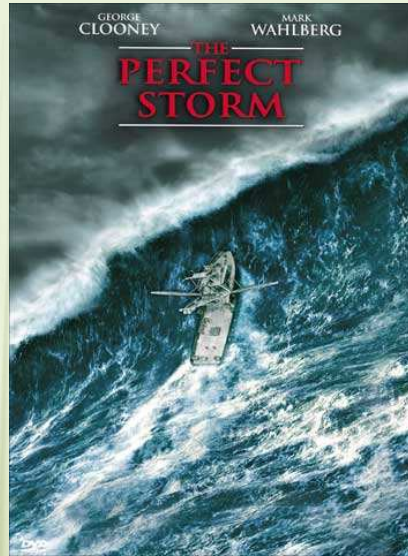
**More** people, needing **more** food and fibre.....

To be produced on **less** arable land, using **less** water, **fewer** nutrients and **less** fossil fuel.....

In a **more** erratic and warmer climate...

A 'perfect storm' of shortages

## **OUR CHALLENGE**



## **AUSTRALIA'S CURRENT CONTRIBUTION TO WORLD FOOD AND FIBRE NEEDS....**

- × Australia's total beef exports (over 65% of total beef production) in 2004-05 valued at approximately A\$4.9 billion
- × Australian dairy exports (50% of production) are valued at over A\$2 billion annually and represent 16% of world dairy product exports
- × Australia exports around A\$1.65 billion of seafood per year
- × Total Australian grain exports are worth over A\$5 billion annually, including A\$4 billion worth of wheat (14% of the world's export demand)
- × Australia is the world's largest supplier of wool, producing 42 percent of the world's greasy wool in 2004-05 (worth A\$2.8 billion)
- × Australia exported A\$771 million worth of cotton in 2004-05.

(Source DAFF)

## LAND DEGRADATION IN AUSTRALIA

1. Erosion – 1.2 billion tonnes topsoil per year
2. Loss of organic matter - (<1% in most soils)
3. Soil structure decline → runoff, instead of infiltration
4. Loss of fertility
5. Acidification – 12-24 million ha highly acidic
6. Salinity – 5.6 million ha affected by salinity

## Q1. HOW DID WE GET INTO THIS MESS?



*‘a land of  
droughts  
and flooding  
rains’.*

Dorothea McKellar

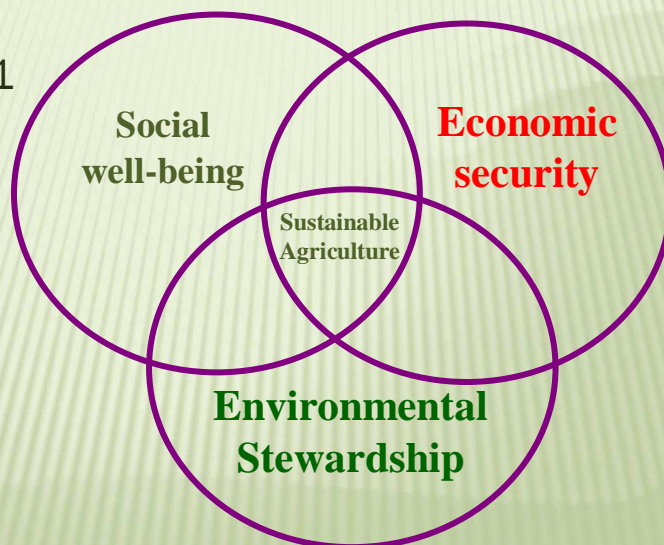
## Q1. HOW DID WE GET INTO THIS MESS?

*Australia's ancient soils are generally shallow, infertile and fragile*



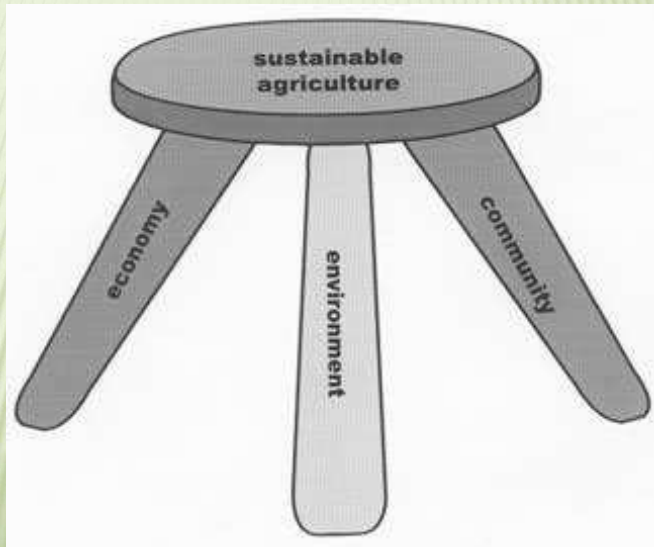
## Q2. WHAT IS SUSTAINABLE AGRICULTURE?

× Model 1



## Q2. WHAT IS SUSTAINABLE AGRICULTURE?

- × Model 2



## Q3. WHAT IS THE SOLUTION?

- × Raise organic matter levels and biological activity in the soil  
eg. ley farming and green manure crops  
eg. encourage dung beetles, worms, etc.



### Q3. WHAT IS THE SOLUTION?



- × Minimum (or zero) tillage

### Q3. WHAT IS THE SOLUTION?

- × Controlled traffic farming



### Q3. WHAT IS THE SOLUTION?

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- × Contour cultivation and associated earthworks

### Q3. WHAT IS THE SOLUTION?

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- × Fertilizers and other soil ameliorants

### Q3. WHAT IS THE SOLUTION?

- × Tree planting



### Q4. WHAT CAN WE, AS AGRICULTURAL AND ENVIRONMENTAL EDUCATORS, DO?

- × Tell the whole story
- × Encourage and inspire
- × Promote Sustainable Agriculture
- × Model sustainable practices

