

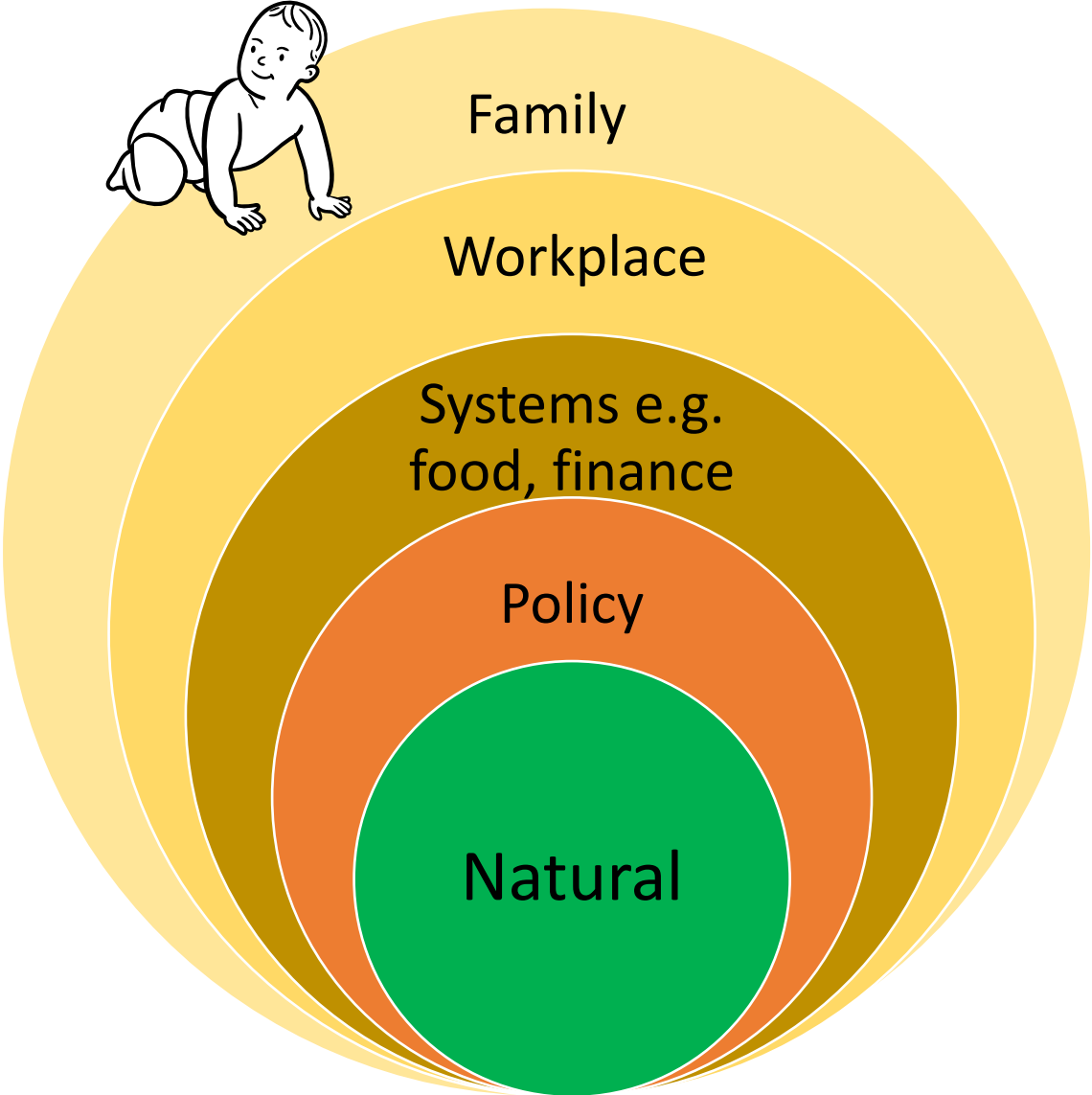
# Food crisis System failure

Global

Aotearoa

Our children

# An individual lives within a complex network of influences



The world is in balance?

Synergistic, complex system – conditions for life



# Choose a balance of healthy food every day



Eating a wide variety of nutritious food each day is important for good health.

## What should we be eating for health?

- FAO – dietary diversity
- 1. Grains, white roots and tubers, and plantains.
- 2. Pulses (beans, peas and lentils).
- 3. Nuts and seeds.
- 4. Dairy.
- 5. Meat, poultry and fish.
- 6. Eggs.
- 7. Dark green leafy vegetables.
- 8. Other vitamin A-rich fruits and vegetables.
- 9. Other vegetables.
- 10. Other fruits.



# Is New Zealand a food secure country?

- Do we produce enough “food” to feed 40 million people?
- What is meant by feed?
- Calories protein, fat, carbohydrate, alcohol, dietary fibre?
  - Micronutrients – vitamins, minerals, phytochemicals
  - Dietary fibre/bowel health
- Can be fresh, frozen, pickled, dried- food stores for lean times?

# New Zealand Land and Soils – Vegetable Production – Dietary Diversity

Domestic vegetable production needs to match the nutritional needs of the population *and* protect the valuable soils



New Zealand people have poor nutritional status

Nutrition would be improved if more diverse vegetables were accessible and consumed

Does NZ produce enough?

How much land and what type of land is needed?

Food systems approach

<https://doi.org/10.3390/earth2040047>

0.2% of land is used to grow vegetables

servings/day/NZperson

Produced 11.7

Exported 2.5

## Diversity groups

White roots ✓✓

Vitamin-A vegetables ✓

Legumes ✗

Dark-green-leafy ✗✗

Other vegetables ✓✓

Curran-Cournane F and Rush E



More legumes and dark-green-leafy vegetables are needed

Sustainable, regenerative horticulture is needed to produce enough vegetables and protect the land, soil and water



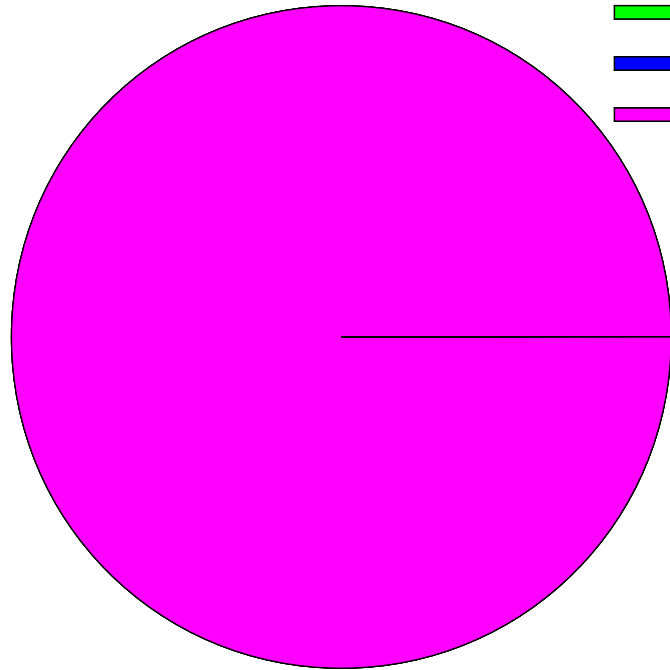
MDPI Earth 2021

How many people can we feed in a year with the recommended servings with our exported food?

- 39 million people dairy
- 11.5 million meat, seafood and other protein
- 2 million vegetables (mainly onions and potatoes)
- 10 million fruit (kiwifruit and apples)

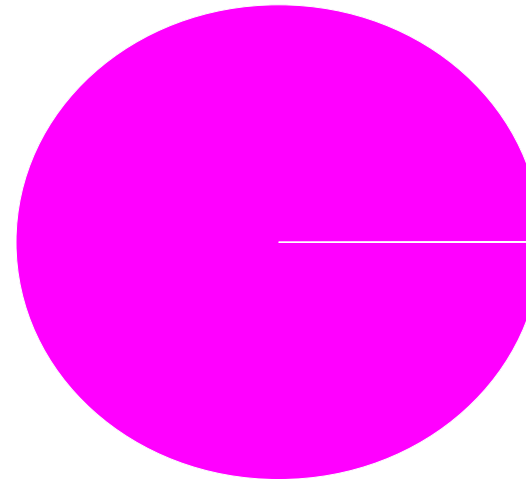
# Balance sheet- Exports, Imports, Within NZ

- protein
- fat
- carbohydrate
- fibre
- alcohol



Exports

energy for 20 million people



Imports

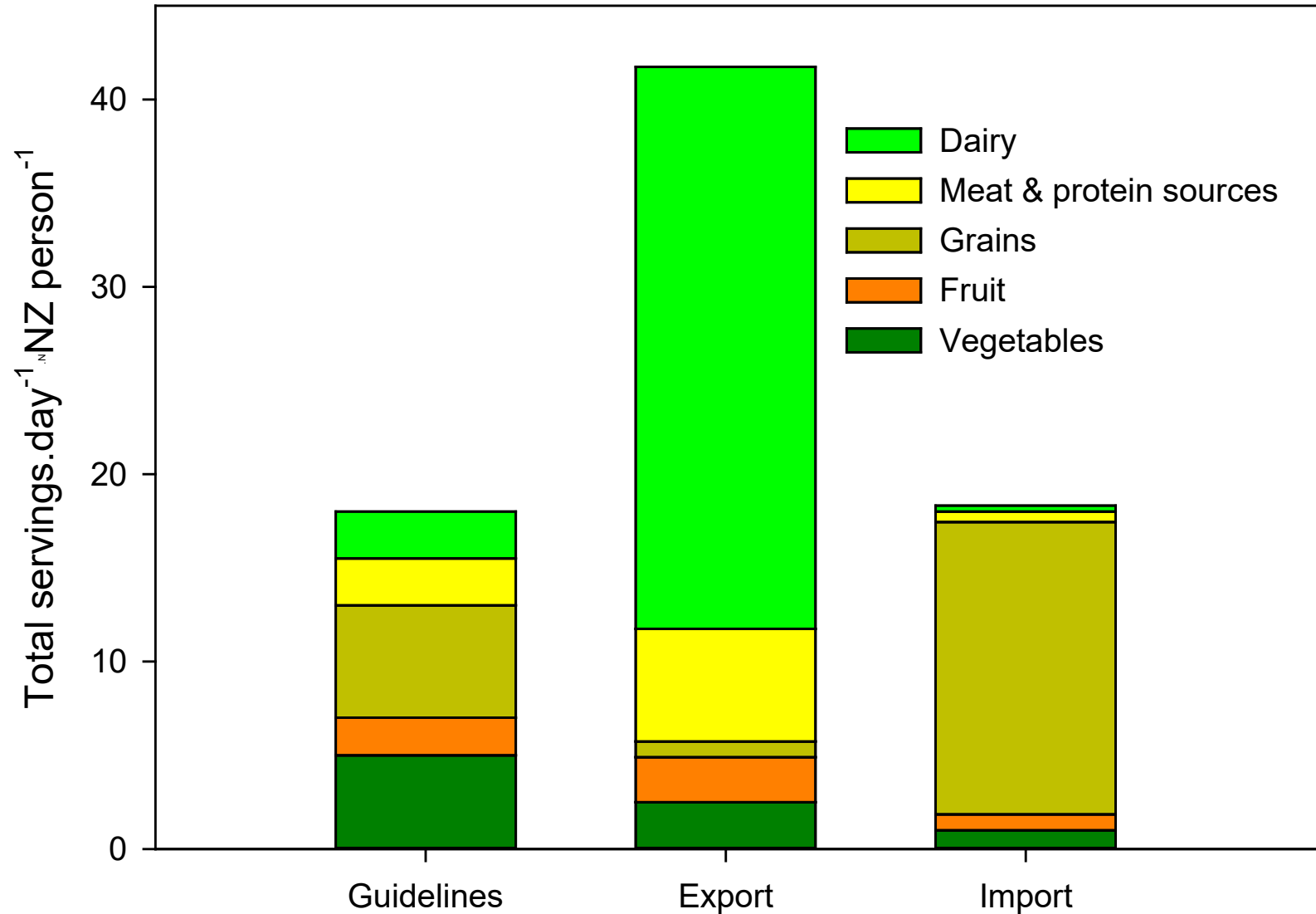
energy for 10 million people



5 million people

Produced and used within NZ, commercial, domestic, losses and waste





Does not include  
discretionary foods

Sugar  
Chocolate  
Alcohol  
Butter  
Biscuits

Profile of proportions of servings within food groups

# Import/Export each NZ person every day

## Discretionary and frequently consumed foods

Food	Import g.NZ person <sup>-1</sup> .day <sup>-1</sup>	Export g.NZ person <sup>-1</sup> .day <sup>-1</sup>
Sugar	300	5.2
Butter	0.75	280
Alcohol	0.4	14.7
Chocolate	17	
Rice	33	
Pasta	17	
Wheat	340	
Bananas	54 (half a banana/person)	
Water	21	64
Honey		5.2
Crackers and biscuits	8.6	

# Our children

Evidence from Aotearoa  
of effects of food insecurity  
during gestation

# Household food insecurity during gestation

- **1398 children of Pacific Island ethnicity born in Auckland, NZ in the year 2000 .**
- **35% girls and 29% boys born into food insecure households**
- **Birthweight 3.6±6kg**
- **Birthweight of boys in food insecure households was 124g heavier than boys in food secure households.**
- **Weight at age 14y ~80 kg**



# Nutrition during gestation determines structure and function for life

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## **Household food insecurity compared with food security during gestation at 14y**

### **If food insecure:**

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Boys less skeletal muscle on arms and legs, whole body fat more

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Boys were 3 times more likely to have at least one risk factor for metabolic disease

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Girls were 2 times more likely to be classified as obese

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## **And secondary school achievement 15-19y of age**

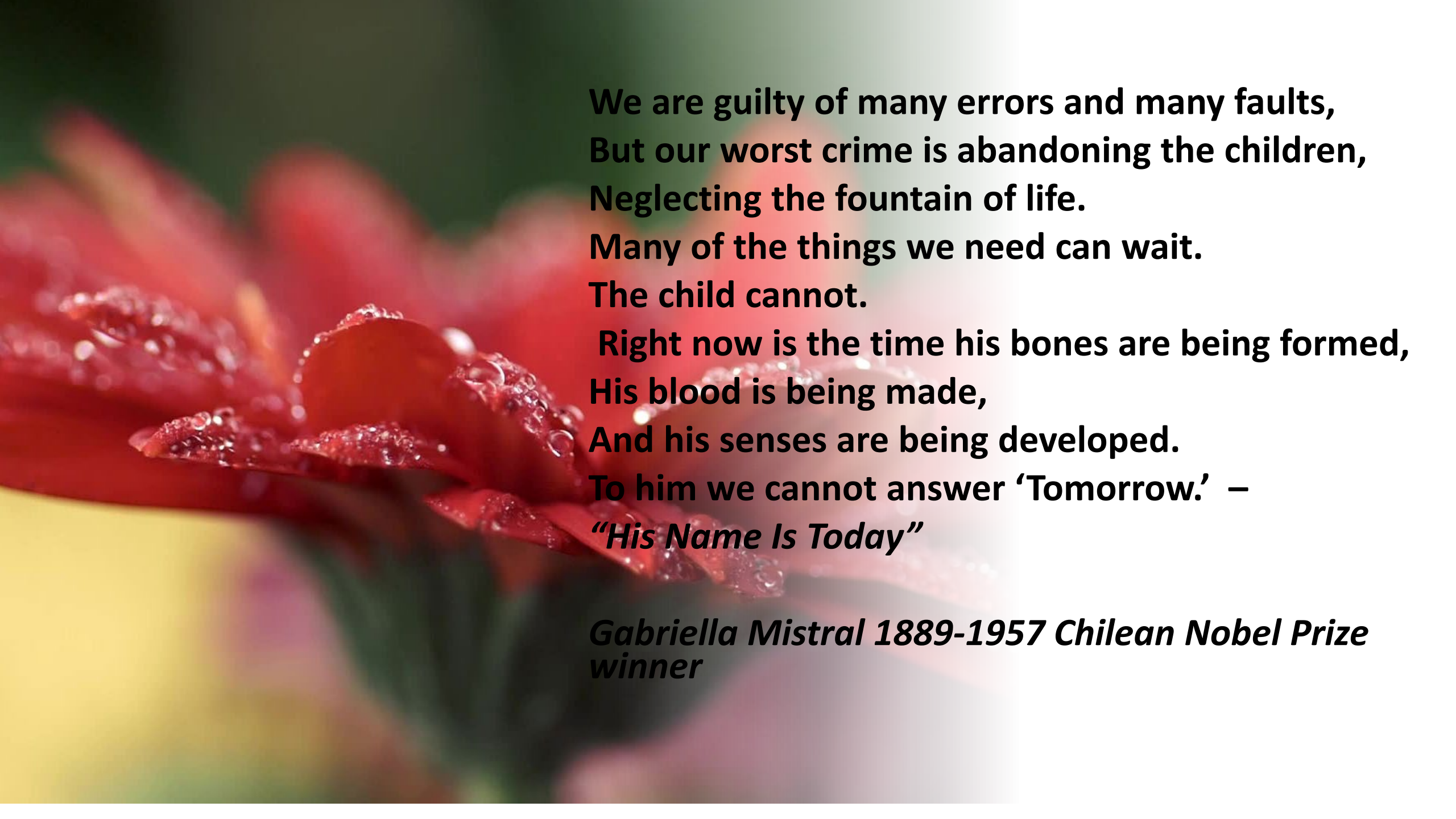
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Boys and girls were half as likely to achieve university entrance if food insecure during gestation

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3x published, peer reviewed articles





**We are guilty of many errors and many faults,  
But our worst crime is abandoning the children,  
Neglecting the fountain of life.**

**Many of the things we need can wait.**

**The child cannot.**

**Right now is the time his bones are being formed,  
His blood is being made,**

**And his senses are being developed.**

**To him we cannot answer 'Tomorrow.' –**

***"His Name Is Today"***

***Gabriella Mistral 1889-1957 Chilean Nobel Prize  
winner***



A brighter path  
for every child

CHiLD  
POVERTY  
ACTION  
GROUP