

WORLD VISION RESOURCES

Food and Human Wellbeing Years 9 & 10: Australian Curriculum

Source of information and video <http://www.worldvision.com.au/resources/SchoolResources/IndonesianResource.aspx?id=e6251963-cd63-4dd9-a0a1-f3845bb44726>

This article addresses the Year 9 unit **Biomes and food security** and the Year 10 unit **Global geographies of human wellbeing**. It explores the challenges of food security, including land and water degradation, soils, competing land uses and climate change. These resources look at two very different Indonesian islands, Bali and Sumba.

Overview:

- Tale of two islands
- Bali – rice and forests
- Sumba – corn and savanna grassland
- Food security strategies
- Reflections and thinking hats

Source: http://www.worldvision.com.au/Libraries/SchoolResources/7018_Indo_Stories_Chapter_2.pdf

Complete the following activities

1. Questions on DVD http://www.worldvision.com.au/Libraries/School_Resources/DVD_activity_food.pdf
2. Complete climate graphs – http://www.worldvision.com.au/Libraries/School_Resources/Sumba_and_Bali_-_climate_graphs_p_12-13.pdf
3. Complete Venn diagram to show similarities and differences between Bali and Sumba – http://www.worldvision.com.au/Libraries/School_Resources/Sumba_and_Bali_%E2%80%93similarities_and_differences_p_14-15.pdf
4. Draw a web map showing food insecurity for people living in Sumba – http://www.worldvision.com.au/Libraries/School_Resources/Sumba_%E2%80%93savanna_grassland_p_15.pdf

A tale of two islands

Bali and Sumba are two of the 17,000 islands that make up Indonesia. While Bali is one of the wealthiest islands in Indonesia and a popular tourist destination, Sumba is one of the poorest and more remote islands. While there is great inequality between poor and rich nations, there is also great inequality within nations – including Australia and Indonesia.

Indicators	Bali	Sumba
Population	3,800,000	454,000
Population density (per square kilometre)	470	41
Life expectancy (years)	70.6	61.9
Children underweight for their age (%)	18	37
Living on less than \$1.25 per day (%)	4	32

With its ample mix of fertile soil, heat and rainfall, Bali's principal biome is tropical forest. However, it is a densely populated island and the natural forest has been logged to provide agriculture and settlement for its people. Rice and tourism are the two major industries and sources of employment and income in Bali.

However, with increased income from the tourism and building industries, more and more Balinese farmers are tempted to sell their rice fields. Employment in tourism is also becoming more popular with young Balinese.

With its poor soil and drier conditions, Sumba is largely savanna grassland. The majority of its people are subsistence farmers living in isolated villages only reached by dirt road. Many villages have no electricity, telephones or transport apart from horses. Also, the traditional social system separates people into powerful priests and kings (marambas) and slaves (sis). The marambas own land, run businesses and hold government positions, while the sis are not free to own land or large livestock.

Like many islands of Indonesia, Bali and Sumba have been heavily deforested and biodiversity has been reduced. This loss of trees and biodiversity impacts soil fertility, erosion, temperatures, rainfall and food production. Food security is an important issue on both islands.

Map of Bali

Map of Sumba

Rice fields of Bali

Savanna grasslands of Sumba

Climate charts

Sumba – Waingapu 9° 39' S 120° 45' E 10 metres above sea level

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Precipitation (mm)	311	36	53	202	54	2	41	1	94	127	100	228	
Temperature	31	32	32	32	32	31	31	31	33	33	33	32	
	24	24	23	23	22	22	20	20	21	23	24	24	

Bali – Denpasar 8° 39' S 115° 13' E 41 metres above sea level

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Precipitation (mm)	348	287	203	94	76	71	51	23	41	91	154	292	
Temperature	30	30	31	31	30	29	28	28	29	30	31	30	
	26	26	26	26	26	25	24	24	24	25	26	26	

For you to do

1. Look at the maps of Sumba and Bali and complete the case studies at the bottom of p.12
2. Calculate the annual total rainfall and precipitation for Waingapu (Sumba) and Denpasar (Bali)
3. Graph the precipitation and temperature data for Waingapu and Denpasar on the climate graphs at www.worldvision.com.au/schoolresources
4. What is the evidence for 'equity' between Bali and Sumba? Suggest ways to improve the 'equity' between these two Indonesian islands
5. Suggest ways that the state might assist the well-being of people in Sumba and Bali. What are possible environmental and economic factors that affect the 'well-being'?

Bali – rice and forests

Bali is one of the wealthiest islands of Indonesia and a favourite tourist destination for Australians. It has a population of 3.8 million and tourism and rice production are the major sources of income and employment. It is the most densely populated island in Indonesia with 670 people per square kilometre (km²). It has volcanic, fertile soil and high rainfall that is most suitable for agriculture. Indonesia is the third largest rice producer in the world.

Teraced rice paddy fields are a common sight across Bali. Approximately 85 percent of total rice area in Indonesia is irrigated and rice is grown year-round, with some farmers being able to cultivate three crops within a year (12-month period).

Since the 13th century Balinese rice farmers have used a unique water management strategy. All peasants whose fields are fed by the same water course belong to a subak or irrigation cooperative. The farmers meet together to make decisions about the construction, maintenance and distribution of their water system. This strategy is essential to effective rice cultivation on Bali where water flows through valleys and across terraces on its journey from mountains to the sea. It is a strategy that reflects a Hindu philosophy where temples and rituals seek to promote a harmonious relationship between the people and their environment. This is an important traditional perspective for the challenge of supporting a dense population on a rugged volcanic island.

Bali has about 1,200 subak cooperatives and in 2012, UNESCO recognised subak as a World Heritage site.

However, rice production on Bali is threatened by the steady growth of tourism and increasing urbanisation. The loss of working in the building or tourist industry combined with high land prices, tempt more and more farmers to sell their rice fields. Young Balinese are moving away from rice cultivation and productive arable land is lost as tourist developments are built. Tourism also demands more of the water supply and this is a risk factor for the future of Bali rice production.

Sumba – corn and savanna grassland

Sumba is one of the poorest islands in Indonesia. It has a population of 656,000 and a population density of 61 per km². Most live as subsistence farmers in poor rural areas without electricity or sanitation.

It is hot with low rainfall. The dry season lasts nine months and drought is a constant threat. To make matters worse, an eastwarding of grassland and deforestation means that only 6-10 percent of the island is now covered in forest. Like parts of northern Australia, it is savanna grassland. The soil suffers from erosion, and during the short rainy season, topsoil is washed away and the ground left to a hard crust.

The shallow, infertile soil and heavy dependence on rain-fed agriculture make agriculture difficult. There is a over dependence on corn and cassava as the main crops and forests have also been a threat.



Starvation is a threat by the village in transferring the dry season. This picture is the food from rain and other sources.

Food storage is a common and food security is a challenge. The main children become malnourished and drop out of school to help their parents on the farm. Thirty-seven percent of children are underweight for their age and this also causes illness and fear for the future.

The people do not move because they believe the land belongs to their ancestors and they have a responsibility to live there and care for it. There is a traditional belief that male development and change is a challenge in Sumba.



Village in Sumba, Indonesia, and how access to water is important. Cooking is done over a fire. Can you see the women collecting water in the house?

For you to do

1. What are the food security strategies for Bali? What are the food security strategies for the people of Sumba?
2. Look at the maps to make a map of Sumba and Bali. Use the map to identify the food security strategies in Sumba and Bali. worldvision.com.au/technoresources to find the maps and different resources.
3. Read the text on p.13-15. Identify the different food security strategies in Sumba and Bali. worldvision.com.au/technoresources

Food security strategies

Over the years, the communities on Sumba have explored a range of strategies to address their food security. In 1998, the El Niño weather pattern led to serious malnutrition and hunger. In response, World Vision and AusAID conducted a "food for work" program. Families were provided with corn and rice in exchange for working on community development projects.

Over the next 10 years, World Vision provided agriculture training, and seeds and tools to improve food production. This led to some success but with ongoing lack of rain and poor soil quality, work is now focusing on more long-term natural resource management.

For sustainable food security, the communities are now looking to plant for the future and use natural resources wisely and effectively. Communities now talk about "forests for our children".

Community leader Fano with cassava, which is good with both and malnutrition. From the cassava leaves are pressed and pressed food that is high in both protein and vitamins. Other crops planted among the trees include pineapples, soy and green beans.

The communities are now using agroforestry to help absorb water, improve soil fertility and increase both their food security and their income. It is a risk management strategy in the face of climate change. This involves planting both trees and food crops together to create a more diverse, profitable, healthy and sustainable land-use system. Some of the trees and malnutrition trees planted can be harvested after seven years to ensure an income for children to attend school. Others can be harvested after 10 years and more again after 25 years.

Another important strategy to address the problem of deforestation and burning is growing and managing the regrowth of existing trees. Using local tools such as machetes and knives, farmers grow branches from existing tree stumps. The cut-off branches are used for firewood and one central stem on the plot is left to grow straight up. The plant puts its remaining energy into this solitary trunk which enables the plant to grow more rapidly. The regrowth of vegetation strategy can be seen on the AISC satellite program. Reforestation project adds hope to local areas (4 months 15 sec). Viewable at: www.aicr.net.au/files/Reforestation%2009%204542254.htm

World Vision Indonesia works with community members in 44 villages on Sumba to plant rice and preserve trees. More than 1,000 hectares have been reforested to plant more than 30,000 trees across 30 hectares of land.



Community members worked hard to harvest from the land and build more income. Communities have produced income by using local tools to plant and keep the forest, and grow rice regrowth. This is important to protect the forest and crops from fire or cattle. Community members are now back with their forest and agroforestry practices in the distance.



After ten years, the reforestation project shows trees of healthy and malnutrition trees. These valuable trees are planted to create a better market and income to ensure that children are able to attend school. For example, some of the trees will be harvested after seven years and will be used to produce income of \$100. As the trees grow larger, a new set of harvest after 10 years will produce an income of \$400 per hectare and these harvested after 25 years are expected to produce an income of \$1,000.



Income from the timber grown is used in a local bank account. World Vision can only be made for education or food purposes. This sign shows the cooperation of local organisations in the project (from left to right) the local Sumba Reforestation, World Vision Indonesia, Bank NIT, a local Child Protection Agency.

Sign translation: "Great parents are money for their children." Mrs. Agustina Karihi is a farmer from Pribadi Village. "As we are meeting our everyday needs, with every harvest of rice, corn and vegetables, I always get some money made for the children's living expenses."



Another community strategy on the island is to plant the production and sale of local food and medicine. Farmers' women have now joined together to supplement their family income, so in times of drought and food scarcity, they will be able to buy food. Established in 2010, the group are the 2012 Food Security and Sustainable Food Bank. The meaning is a product from local agriculture which is then sold with large profits and benefits for future.

For you to do

1. Read p.14-15 and identify why food security is an important issue for people on Sumba. Create a map showing the strategies to improve food security on Sumba.
2. What is meant by the terms 'agroforestry' and 'reforestation'? How do they help address the food of the people on Sumba?
3. Why is it important to plant trees for the future?

Reflection and action

I was surprised to find out...	
The most interesting thing I learnt was...	
I would like to know more about...	
I don't understand...	
One thing I would like to do now is...	

Edward de Bono's thinking hats

Use de Bono's six thinking hats to explore Australia's engagement with Asia: Indonesia. This includes the DVD chapter and written resources.



White hat: What are some of the facts you learnt as a result of looking at this topic?



Red hat: How do you feel as a result of looking at this topic? Hopeful, angry, depressed, thankful, disappointed, something else?



Black hat: What were some of the negative aspects to this topic?



Yellow hat: What are some of the positive, encouraging or hopeful aspects of this topic?



Green hat: What are some ideas or possible actions that could address an issue in this topic?



Blue hat: What is the "big picture idea" behind this topic? What have you learnt about Australia's engagement with Indonesia?