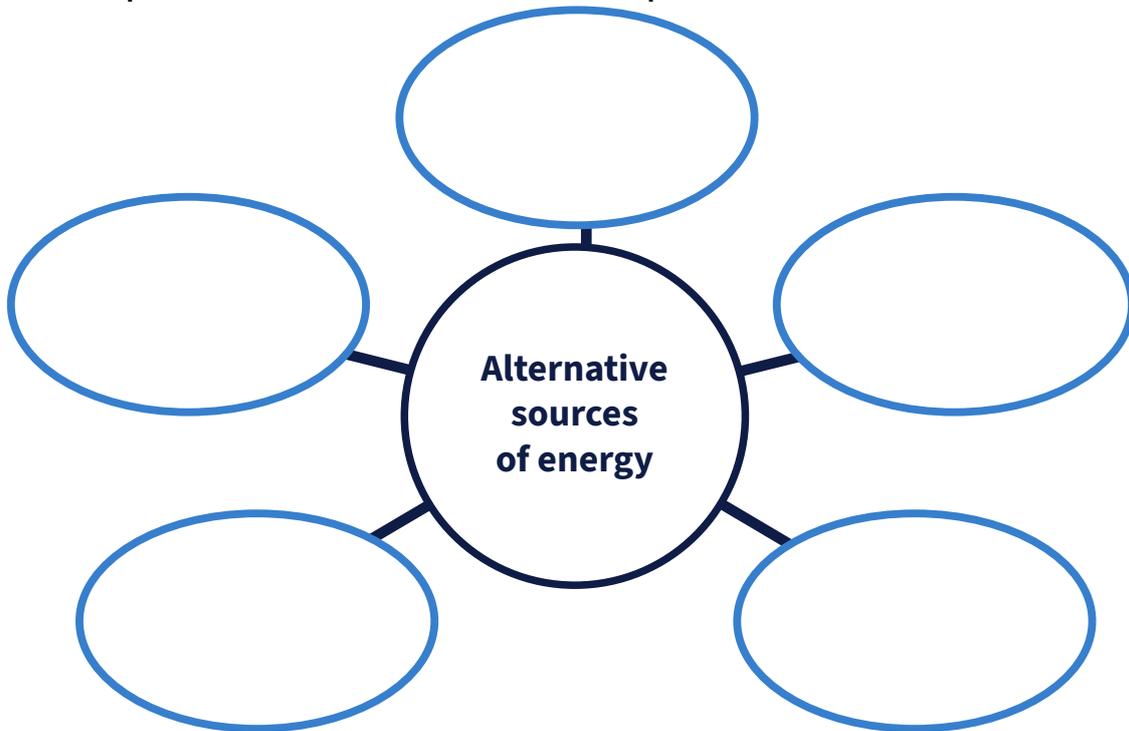


## How coconuts are starting to fuel parts of Papua New Guinea

### Level 2: Intermediate

#### 1 Warmer

a. Work with a partner to add information to the mind map.



#### 2 Key words

a. Match the words below with their definitions. Then, find and highlight them in the article to read them in context.

1. backing \_\_\_\_\_
2. cargo \_\_\_\_\_
3. estate \_\_\_\_\_
4. facility \_\_\_\_\_
5. feasible \_\_\_\_\_
6. flesh \_\_\_\_\_
7. hectares \_\_\_\_\_
8. lucrative \_\_\_\_\_
9. roughly \_\_\_\_\_
10. undeniable \_\_\_\_\_

- a. very profitable
- b. soft part of a fruit or vegetable, especially when it is eaten
- c. goods being transported from one place to another; freight
- d. extensive area of land in the country, usually owned by an individual, family or organisation and used to generate income
- e. approximately
- f. unit used to measure land, equivalent to 10,000 square metres
- g. place including buildings and equipment where an activity is carried out
- h. support, especially financial
- i. unquestionable, obviously true
- j. possible to do, likely to happen

## How coconuts are starting to fuel parts of Papua New Guinea

### Level 2: Intermediate

profitable

renewable

shift

sustainable

widely

6. something that can be used a lot because it is always available \_\_\_\_\_
7. in many places or by a lot of people \_\_\_\_\_
8. something that makes money \_\_\_\_\_
9. something that can be maintained \_\_\_\_\_
10. change \_\_\_\_\_

**b. Complete the sentences with words from the previous activity. You might have to change the form of the word.**

1. They own a very \_\_\_\_\_ business, which operates in three countries.
2. Do you know of any sources of \_\_\_\_\_ energy we can use instead of diesel?
3. I don't like this idea. Can you think of an \_\_\_\_\_?
4. She doesn't have enough money to start a business, so she needs to find a couple of \_\_\_\_\_.
5. Many countries are trying to \_\_\_\_\_ to cleaner energy sources.

## How coconuts are starting to fuel parts of Papua New Guinea

### Level 2: Intermediate

**Bethanie Harriman**  
10 May, 2024

- 1 On Karkar Island in Papua New Guinea, hundreds of coconut trees stand tall, stretching far into the distance.
- 2 Decades ago, the fruit was a lucrative export, but over the years, it has become less prized on international markets. Now, the small island is putting coconuts to another use.
- 3 The oil from copra – the white flesh from the coconut – is used to produce biodiesel, a renewable fuel from biological sources, such as vegetable oils or animal fats. On Karkar, that fuel is helping to power schools, hospitals and cargo ships.
- 4 It is made at the Kulili Plantation, a large estate with roughly 980 hectares filled with coconut trees and cocoa plants that spread across the island. Derek Middleton, the Managing Director at Kulili, says they are producing 600,000 litres of coconut-based biofuel each year.
- 5 The project began in 2007, when Kulili developed a small facility to produce coconut biodiesel. Over the years, it has proved successful, and the operation has been growing ever since. Middleton is now trying to secure backing to expand the project and increase production.
- 6 Other countries in the Pacific have developed similar projects and conducted research into using coconut biodiesel as an alternative to traditional fuels.
- 7 In many instances, coconut biodiesel has replaced diesel on Karkar, and the fuel is sold cheaply to the island's people.
- 8 Now, the country's leading science institute, PNG University of Technology (Unitech), is researching how coconut biodiesel could be used more widely as an alternative fuel.
- 9 Middleton says expanding the local industry would further reduce dependence on costly fuel imports, but securing backing to grow the operation has proved challenging.
- 10 Economist Maholopa Laveil says that in Papua New Guinea, provided the investments are profitable and sustainable, development partners may be needed, and “the positive social impact would be undeniable.”
- 11 The process of making biodiesel involves breaking down coconut oil by first shredding high-quality copra, which is pushed through machines to squeeze out the oil. It is then mixed with lye and alcohol and goes through chemical processes to create the biofuel, Unitech says. The university says that when used alone, biodiesel is a more environmentally friendly form of fuel.
- 12 Middleton says biodiesel replaces about 50,000 litres of fuel each month, but about 25,000 litres of traditional fuel are still imported.
- 13 Middleton says that with more funding, the project could produce enough fuel to supply the rest of Madang Province—home to about 500,000 people. Kulili has approached the Madang government about expanding the project and says there has been some interest. The Madang authorities didn't respond to requests for comment.
- 14 Laveil says developing biofuels could bring benefits to the region, including the potential to employ more people, provided there are avenues for unskilled employment and training.
- 15 He says that if more people were employed in the sector, the immediate benefit for Madang would be increased goods and services taxes.
- 16 Laveil says the Kulili project could be an example for the region more broadly, describing it as a “good example of the transition to green energy, a locally driven alternative, and hopefully a successful business model.”
- 16 He says achieving the volume and quality required for export could take years and significant investment, but with local government support, it should be feasible.

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First published in The Guardian, 10/05/2024

## How coconuts are starting to fuel parts of Papua New Guinea

### Level 2: Intermediate

#### 3 Comprehension check

a. Are these sentences True (T) or False (F) according to the article? Correct any that are false.

1. Coconuts have kept their value over time.
2. Coconut oil is already used as an energy source in Papua New Guinea.
3. The production of coconut biodiesel has recently become slower.
4. Similar initiatives are being implemented in other countries in the region.
5. Biodiesel is a less damaging alternative for the environment.
6. Producing enough biodiesel to export is not a real possibility.

#### 4 Key language

a. Use the words in the box to complete the collocations from the text.

benefits	export	friendly	fuel	impact
industry	investment	markets	production	ships

- |                        |                          |
|------------------------|--------------------------|
| 1. lucrative _____     | 6. local _____           |
| 2. international _____ | 7. social _____          |
| 3. renewable _____     | 8. environmentally _____ |
| 4. cargo _____         | 9. immediate _____       |
| 5. increase _____      | 10. significant _____    |

b. Choose three of the collocations above and write personalised sentences.

#### 5 Discussion

a. Discuss these statements.

- 'Developing biofuels could bring benefits to the region, including the potential to employ more people.'
- 'Getting volume and quality (of fuel) to levels at which it may be exported could take years and significant investment, but with local government support, it should be feasible.'
- 'Governments should spend more money finding new energy sources'.

## How coconuts are starting to fuel parts of Papua New Guinea

### Level 2: Intermediate

#### 6 In your own words

- a. In pairs or small groups, do some online research, gather information about other innovative renewable energy sources, and prepare a presentation about one of these initiatives and its benefits and challenges.
- b. Report your findings to the class.