



POU and Miri

learn about climate change
and growing food crops

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Iteni Island



Miri lives here



Big forest

the mangroves

Itenitown

Ta's Plantation

Uncle Leli's garden

Mr Tomu's taro patch

Luisa's stall

Follow Pou's journey

Pou lives here





learn about climate change and growing food crops

Hello boys and girls!

Climate change will have an impact on our seasons and environment. Our cool season may turn out to be hot instead. Or we may have a very dry period in the rainy season.

This affects how our crops, fruits and vegetables grow and mature. Some plants, for example, only produce flowers for fruiting under cool conditions. So if it is hot throughout the year, these plants will not bear flowers and fruit.

It is important to be aware and prepare for these changes so that we don't go short of food. We hope you will be able to pick up some ideas from this book.

Happy reading!



Pou and Miri, a fruit bat, have been best friends since they were very young and have had lots of adventures together.

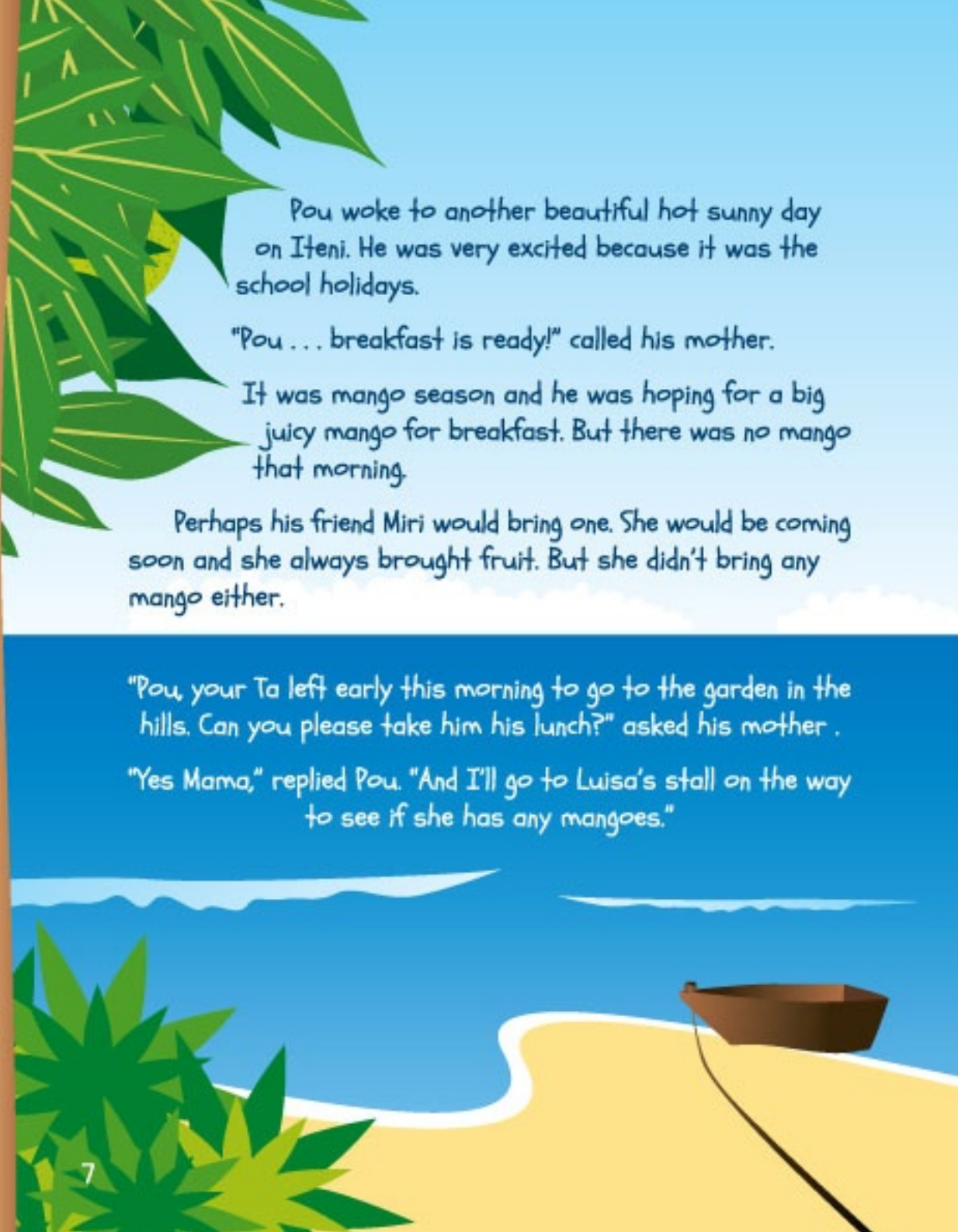
They live on the tropical island of Iteni, in the Pacific Ocean.

Plants and crops grow very well on their beautiful island . . .
but seasons seem to be changing.

Will you help us find out what we can do about it?







Pou woke to another beautiful hot sunny day on Iteni. He was very excited because it was the school holidays.

"Pou . . . breakfast is ready!" called his mother.

It was mango season and he was hoping for a big juicy mango for breakfast. But there was no mango that morning.

Perhaps his friend Miri would bring one. She would be coming soon and she always brought fruit. But she didn't bring any mango either.

"Pou, your Ta left early this morning to go to the garden in the hills. Can you please take him his lunch?" asked his mother .

"Yes Mama," replied Pou. "And I'll go to Luisa's stall on the way to see if she has any mangoes."



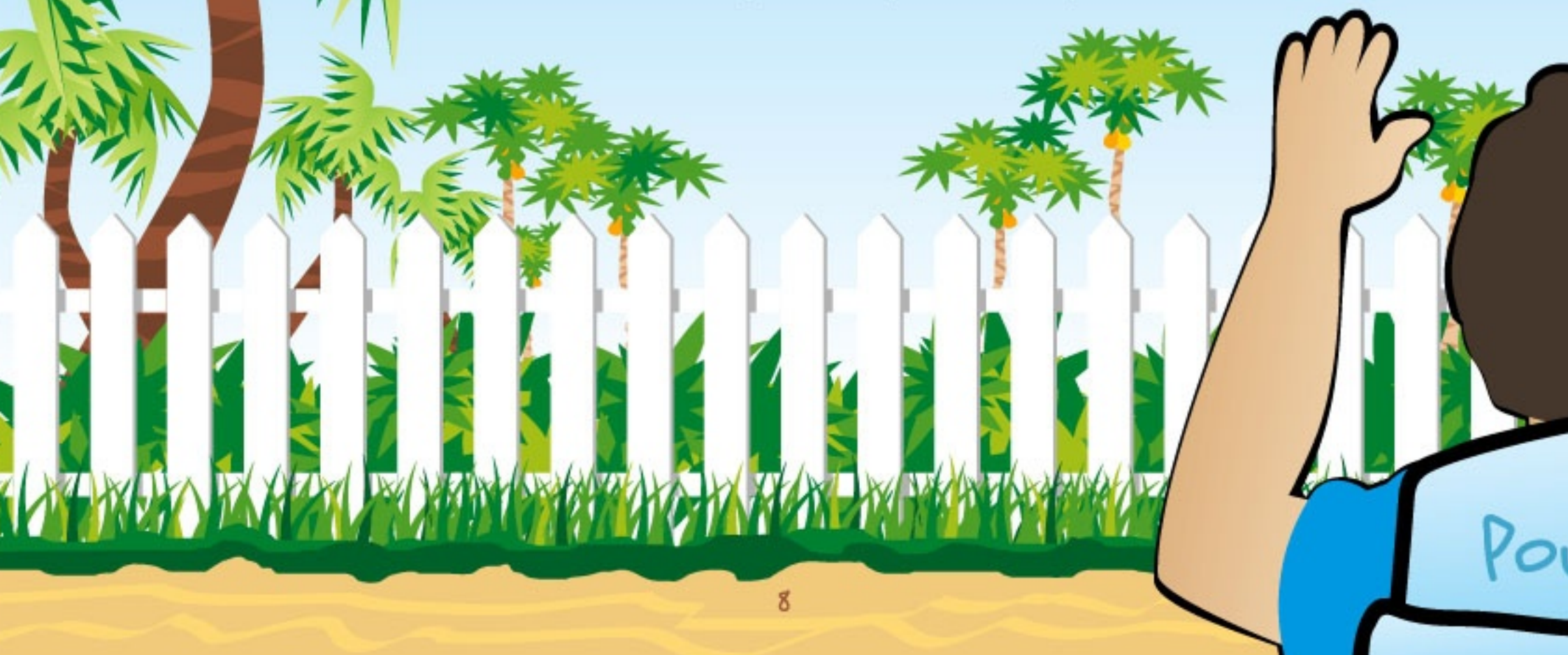
Luisa helps her mother sell fruit and vegetables freshly picked from their garden.

But that day she had no mangoes.

"Oh! Have you sold all the mangoes already?" asked a disappointed Pou. Luisa told him that there were very few mangoes on the trees this year.

"Why is that?" asked Pou.

"It's because we had some heavy rain a few months ago," said Luisa's mother from the window. "The heavy rain broke most of the flowers on our mango trees. And if there are no flowers, then there will be no fruit. That's why we have very little fruit this year."





Banana
Pawpaw
Cabbage
Taro
Pele
Cassava
Orange
Lemon
Tomato

FRESH FRUIT and VEG



Climate affects mango seasons

Mango trees produce flowers during the cool months and as the weather gets warmer, mangoes start fruiting from the flowers. The fruit matures and ripens fast.

But if our cool season becomes shorter, some mango trees may not be able to produce flowers so there may not be many mangoes for us to enjoy.





If we get heavy rain when the mango trees are flowering, the rain can break the delicate mango flowers and we will not get any fruit.

For most islands in the Pacific, the cool season is around May to August and this is when mango flowers start coming out. From September to February, the weather starts getting warm and we usually have delicious mangoes around Christmas time.

But if our warm season changes and starts early in July, fruiting will start early and we will get mangoes in August and September.

So the changing seasons affect how our different crops grow and produce fruit. With climate change, our fruit trees may not produce fruit when we expect it. But if we grow different types of fruit that have different fruiting seasons, we will always have something to enjoy.






"Come and see my garden,"
said Luisa. She took Pou and
Miri to her garden. "Look!
Grandfather and I planted
all these
fruits and crops."

"Can you eat the
orange flowers?"
asked Pou.

"No silly . . .
they are
marigolds. They
keep insects
away from the
vegetables."



"Do you want to come with us?" asked Pou. "We're taking my Ta his lunch."

Luisa's mother said she could go with Pou. "Enjoy yourselves," she called, as they set off.

Can you name all the fruit and vegetables in the garden?

Plants for coping with climate change

Climate change may bring warmer and wetter weather. These are the conditions that some harmful pests and insects enjoy.

Luckily, some plants produce smells that repel these insects and pests. Onions, garlic, basil, coriander, lemon grass and marigolds help keep insects and pests away.

If we grow insect-repelling plants, we don't need to buy pesticides that can contain harmful chemicals.

On their way to Ta's plantation, Pou, Miri and Luisa had to cross a stream.
The stream was brown and very muddy.

On the other side of the stream was a taro patch on a steep slope and they
saw that most of it had fallen into the stream.





"Oh, what a waste," said Luisa. "See how muddy and dirty the river is. I hope the prawns and fish are okay."

"This garden belongs to Mr Tomu who sells taro in the market.
I'm sorry he's lost a lot of his taro," said Pou.

While walking along beside the stream, they came to a wonderful garden. There were many different crops growing among the trees.

"Hey, this is Uncle Leli's garden," said Pou.

"Wow!" said Luisa. "Look how different it is from Mr Tomu's garden."

"Hello, there!" someone called out. It was Uncle Leli, looking very hot and sweaty. He was busy planting some young banana trees, but he stopped what he was doing and walked towards them.

"Hello children. What are you doing here?" he asked.

"We're on our way to take Ta some lunch. He's also working in his garden," said Pou.

"Well, you kids look thirsty and so am I. Why don't I cut open some green coconuts so we can all have some sweet coconut water," said Uncle Leli.

"Oh yes, please!" said Pou and Luisa.

"And how about some fresh ripe pawpaw as well," Uncle Leli added.

"Yay!" shouted Miri. Pawpaw was one of her favourite foods.

They settled under the shade of a raintree with their green coconuts and pawpaw freshly picked from the garden.

They talked about how Mr Tomu's taro had been washed away.

"How do you keep your crops from being washed away, Uncle Leli?" asked Pou.

"Look over there," said Uncle Leli pointing to some taro and pineapples growing on a gentle slope.

"Most of my garden is on the side of a hill so when I plant my crops I also need to protect the soil."

"How do you do that?" asked Miri.



"By leaving most of the trees that are already there. Because if you chop down a lot trees, the soil will wash away very quickly, taking all your crops with it," said Uncle Leli. "The roots of trees help hold the soil in place."

"How do you know all this, Uncle Leli?" Pou asked.

"I learnt this from my father and my grandfather," said Uncle Leli, "and now I am teaching you as well."

"Just like the way my grandpa is teaching me," said Luisa proudly.

"I get it," said Pou. "We need to grow plants and trees together to help protect the soil."

"Yes, and trees give us a nice shade to sit under when the sun's hot," said Luisa.

"And we bats have nice places to hang out in," said Miri.

"And birds need trees to make their nests," said Pou.





Agroforestry for coping with climate change

Agroforestry is a farming system where trees and crops grow together. You can also keep animals under the trees; they enjoy the shade and enrich the soil. And because there are lots of plants and trees, your agroforestry farm is home to many different types of birds and animals.

In the Pacific region, farmers who practise agroforestry grow crops (e.g. leafy vegetables, taro, cassava, pineapples) with fruit trees (e.g. bananas, oranges, pawpaw) and tree crops (e.g. breadfruit and coconut trees). This provides them with different kinds of food throughout the year.

Planting crops and trees together keeps the soil healthy and prevents it from being washed away into the sea or rivers, where it muddies the water and destroys the homes of the fish and other creatures that live there.

An agroforestry farm has fewer pests and diseases than a farm with only one crop. If only one crop is planted, the insects feeding on this crop spread very fast. But if there are many different crops and trees planted together, it is more difficult for the pests to find the crop they want to feed off.

We can also get firewood and other wood products from an agroforestry farm so we don't need to cut down our forests unnecessarily.

"What's that plant?" asked Pou, pointing to the grass growing in rows.

"It's called vetiver grass," said Luisa.

"That's right," said Uncle Leli and he showed Pou the grass. "It has long, thick roots that stop the soil from washing away during heavy rain."

"If Mr Tomu had planted vetiver grass on the slopes," said Pou, "he would have saved some of his crops from being washed away with the soil."




Pou, Miri and Luisa said goodbye to Uncle Leli and continued their journey.

They climbed a hill and saw Ta working in his garden below. They raced down towards him.

"We brought your lunch, Ta," said Pou, trying to catch his breath.

"Thank you, Pou. Thank you, Luisa. Hello, Miri," said Ta. "I'm ready for a break."





"Grandfather must have taught you and Uncle Leli the same thing," Pou said, looking at Ta's garden. "He also grows different types of crops together."

"Growing different crops means that we will always have something to eat," said Ta. "If strong winds damage our cassava, there are sweet potatoes. If the taro gets eaten by insects, I know that we will have bananas."

"And if our yams get damaged from the long dry season, we can have breadfruit," chipped in Luisa.

"That's right," said Ta laughing. "Let's eat now. I've picked a juicy watermelon and sweet pineapple to go with our lunch."

"My favourite!" Miri squealed with delight. Pou laughed. "All fruit is your favourite."

What a perfect way to start the holidays, Pou thought to himself, even though I had no mango for breakfast.

Pou's tips for growing crops to cope with climate change



1. Practice agroforestry. This means growing your crops and vegetables with different kinds of trees. The trees will protect your crops from strong winds and the hot sun and also keep the soil healthy.



2. Plant strong-smelling vegetables like onion, garlic and coriander, and strong-smelling flowers and plants like marigold, basil, lemon grass and island musk (*uhi* in Tongan, *uci* in Fijian and *usi* in Samoan) to help protect your crops against pests and harmful insects. These strong-smelling vegetables and plants make your meals tasty and keep your garden smelling nice. Some are even medicinal!



3. Plant different types of vegetables and food crops in your garden. This will give you a variety of delicious meals to keep you healthy and you will always have something to eat. If one crop or vegetable is destroyed there are others for you to eat.



4. When planting on slopes, try to remove as little vegetation as possible. The trees and plants growing on the slopes help prevent soil from washing away and contaminating our rivers and reefs. Soil that washes away into our rivers and reefs destroys the homes of fish and other creatures living there.



5. Plant vetiver grass in places where soil can easily be washed away. These places include slopes, coastal areas exposed to strong waves, river banks, and open ditches and drains. The long roots of vetiver grass help keep the soil in place.



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