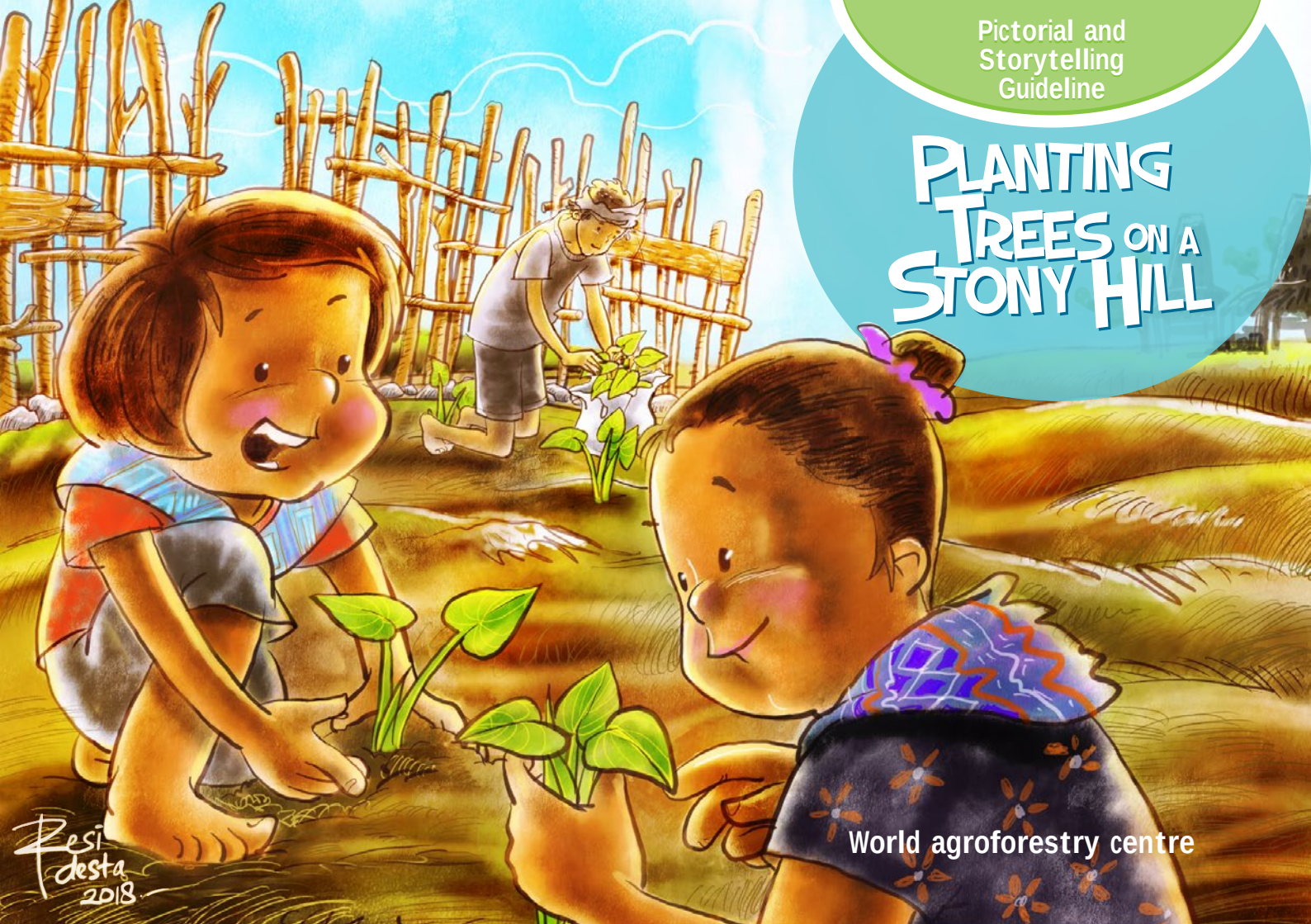

Pictorial and
Storytelling
Guideline
PLANTING
TREES ON A
STONY HILL
World agroforestry centre
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Pictorial and
Storytelling Guideline

PLANTING TREES ON A STONY HILL

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WORLD AGROFORESTRY CENTRE

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About IRED program
The Indonesian Rural Economic Development (IRED) project is a collaboration between Wahana Visi Indonesia (WVI), the World Agroforestry Center (ICRAF), and Lutheran World Relief (LWR) in the Haharu sub-district, which aims to overcome the prolonged dry season and improve the livelihoods of local communities through recovery forest and landscape.

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Foreword

This storytelling picture book is a simple tool to convey messages from research to many audiences. The content of the book was drawn from a process of documenting local knowledge and from a series of farmers-to-farmers training sessions conducted as part of the IRED project in Haharu Sub-District, Sumba Timur District, Nusa Tenggara Timur Province, Indonesia.

The book is intended to increase people's reading interest, taking into consideration that communities in Indonesia often prefer to listen or talk instead of read. This book can be useful not only as a partial guide for agricultural extension workers and leading farmers but also as reading material in junior schools. Moreover, it may provide insight to the wider community who are interested in supporting development programs, which are still very much needed to improve people's livelihoods.

The book illustrates the potential to develop natural resource management models that are suitable for local conditions. The Haharu area is unique owing to the dominance of savannah and stony land. Therefore, documentation of local knowledge was necessary to understand the situation and the best practices that can be replicate in other areas.

Acknowledgements

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This the story of three friends: Hiwa, Kunda and Rince. They are walking across a hot and dry savana on their way home from school. It was a very tough trip they did almost every day to and from school.

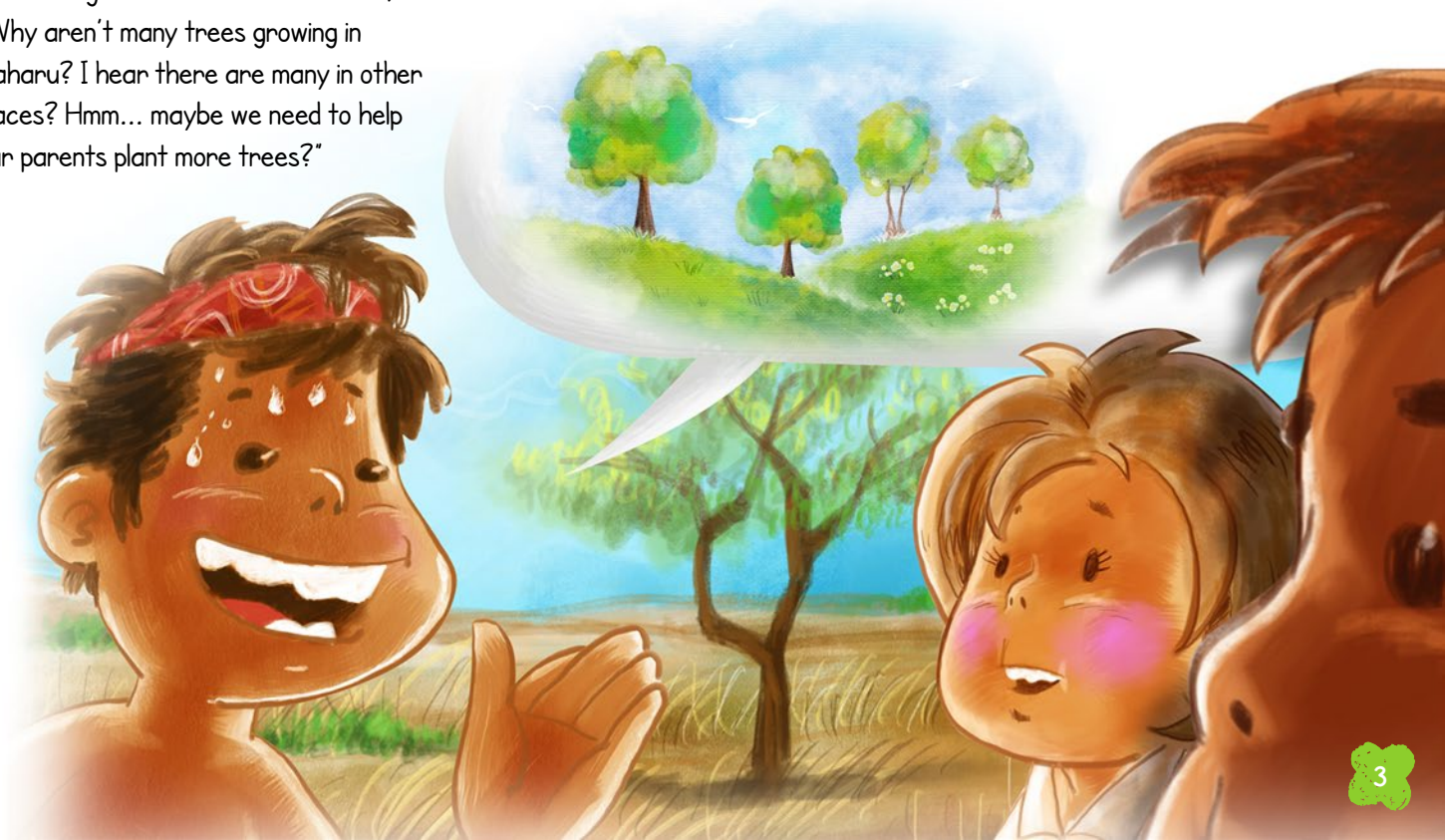


A sudden thought comes into Hiwa's mind and he says, "Friends, if we had more trees and bushes here, it would make our journey shady and cooler."

Rince and Kunda agree.

"But do you have any idea how we can grow more trees here?" Rince wondered.

Hiwa thought for a moment then said, "Why aren't many trees growing in Haharu? I hear there are many in other places? Hmm... maybe we need to help our parents plant more trees?"



When he arrived home, Hiwa asked his grandfather, "Grandpa, why is the weather in our village very hot and dry and there are only a few trees? I think if we had more trees the weather would be cooler."

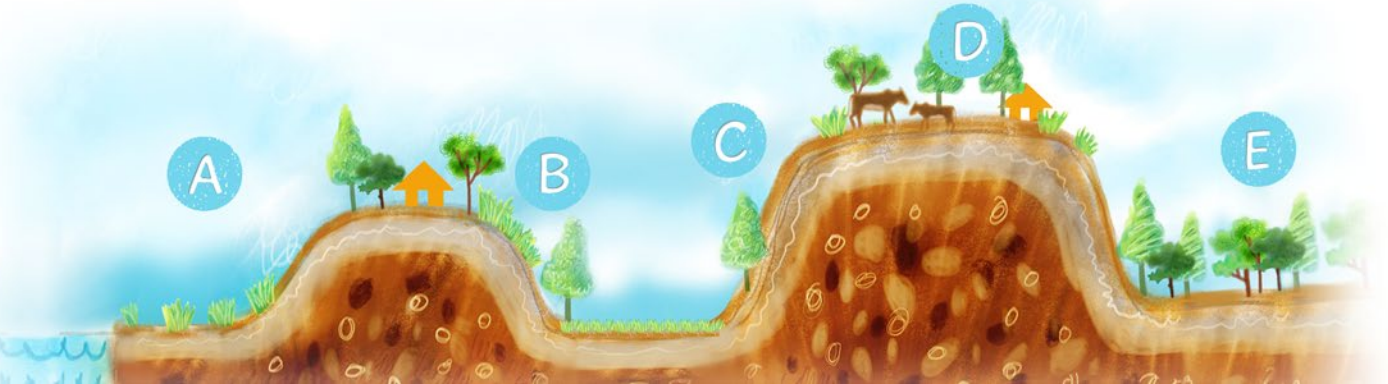




Wiping away his sweat, Grandfather Lohi explained that, "Haharu land is stony, only a few trees can grow on it. Rain only falls for three months a year. So, we can only plant crops for three months. Also, water sources are very limited so people planting crops depend on the rain."

"The land of Haharu is very hilly and every area has a different physical condition," continued Grandfather Lohi. Here is a descripton of the different types of land and how they are used and a picture showing the hills, valleys and land types.

Land use	A. 'Mondu' (watershed)	B. 'Maradda' (savanna)	C. 'Woka lola' (farm land in valleys)	D. 'Woka' (farm land)	D. Forest area
Trees and crops	Wetland rice, maize, sweet potato, tomato, chilli, bitter squash, pumpkin, fruit trees	'Kehi'/Indian ash tree, Grass (*Pennisetum* spp).	Dryland rice, maize, sweet potato, sorghum	Maize, cashew nut, peanut , pigeon pea, coconut	'Kehi'/Indian ash tree, Teakwood
Soil type	Black soil, Sandy soil, Mixed soil	Humus soil, Sandy soil	Black soil, Grey soil	Red soil, Black soil, White soil	Fertile black soil
Stone character	Limestone, white stone	Limestone	Limestone, white stone	White stone	Limestone
Water source	A nearby river	From between limestones	Small spring Rainwater container	Rainwater container Wells (a few)	Small spring Rainwater container
Planting time	By the end of the wet season (to avoid floods)	-	During the wet season (depending on rainfall)	During the wet season but can be planted throughout the year	-





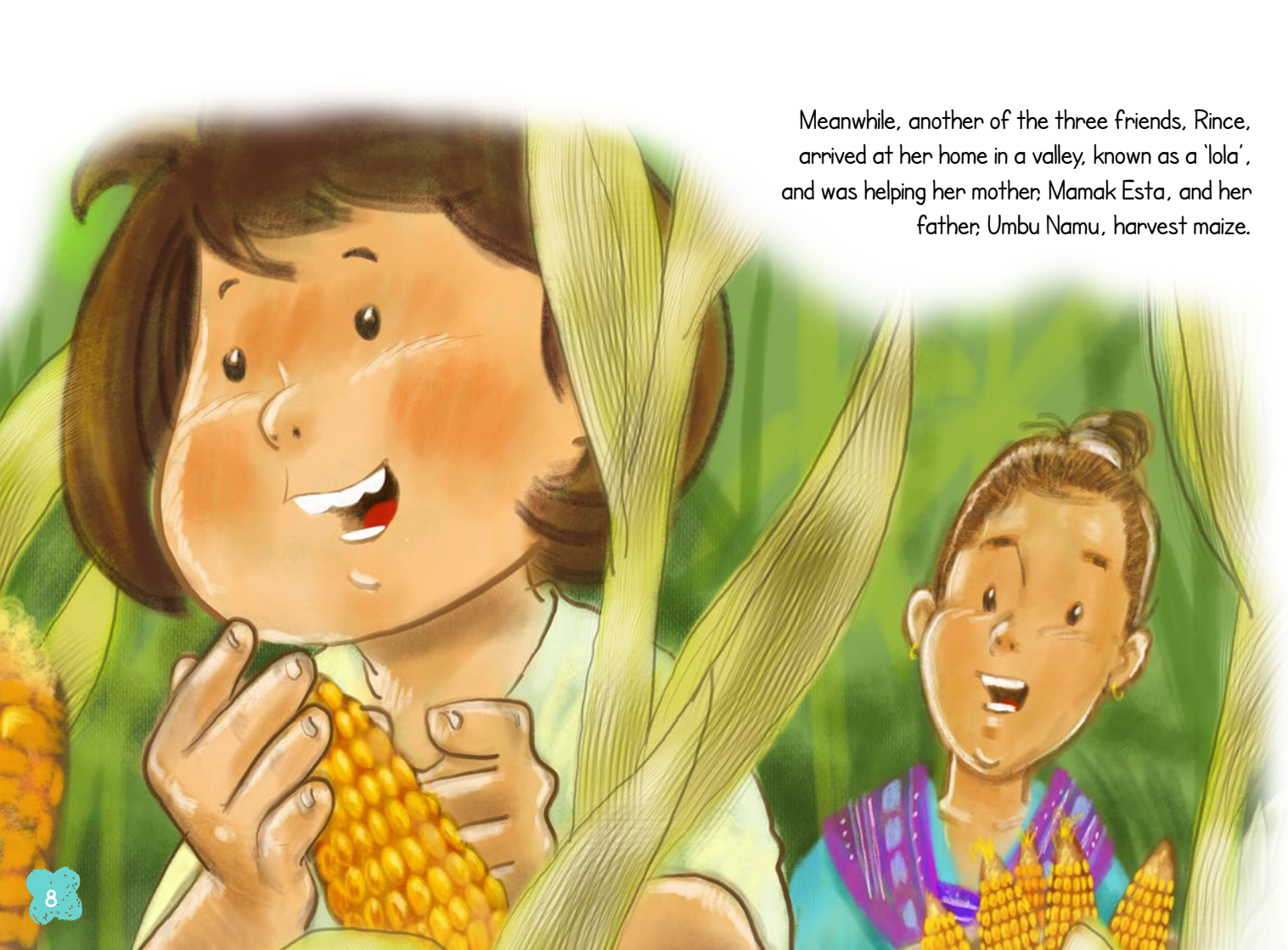
Grandfather Lohi explained to Hiwa that there were some areas with few or no stones, such as in the valleys and some other areas in-between the savanna.

"We could plant more trees there," he said.

There was also something else that could be done, that is, caring for the trees that grew wild in the savannas. If they were cared for, they would grow bigger and wouldn't easily burn when there was a fire.

Hiwa smiled and felt very happy hearing his grandfather's words. While he listened, he imagined how different the savanna would be with more shade.

Meanwhile, another of the three friends, Rince, arrived at her home in a valley, known as a 'lola', and was helping her mother, Mamak Esta, and her father, Umbu Namu, harvest maize.

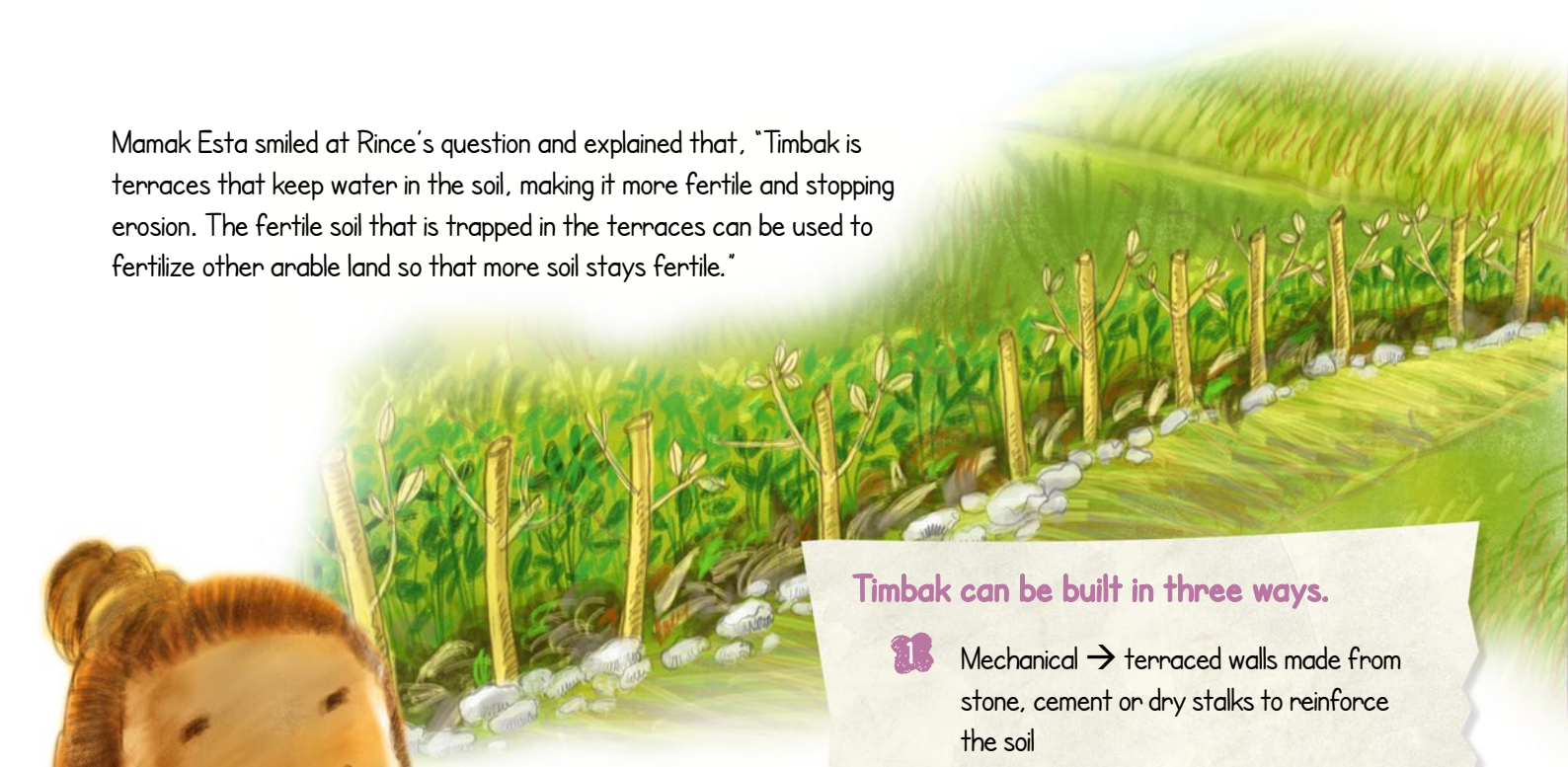




Mamak Esta was happy that Rince wanted to help.
Rince was holding a stalk of maize.
"Rince, don't throw away that stalk," said Mamak Esta. "Later it can be used in the 'timbak'."
Full of curiousity, Rince asked,
"What is 'timbak', Mak?"

Mamak Esta smiled at Rince's question and explained that, "Timbak is terraces that keep water in the soil, making it more fertile and stopping erosion. The fertile soil that is trapped in the terraces can be used to fertilize other arable land so that more soil stays fertile."





Timbak can be built in three ways.

1. Mechanical → terraced walls made from stone, cement or dry stalks to reinforce the soil
2. Vegetative → terraces that use trees and other plants for reinforcement
3. Mechanical - Vegetative → the terraced soil is reinforced with stone or cement and some planted trees



"If we cultivate our land in a good way that maintains environment functions we can get good yields," explained Mamak Esta. "We all have to increase our knowledge about this."

Umbu Namu added that, "The Haharu community has many different kinds of crop varieties that are very suited to the soil and rainfall. Some people plant sorghum and others plant maize."

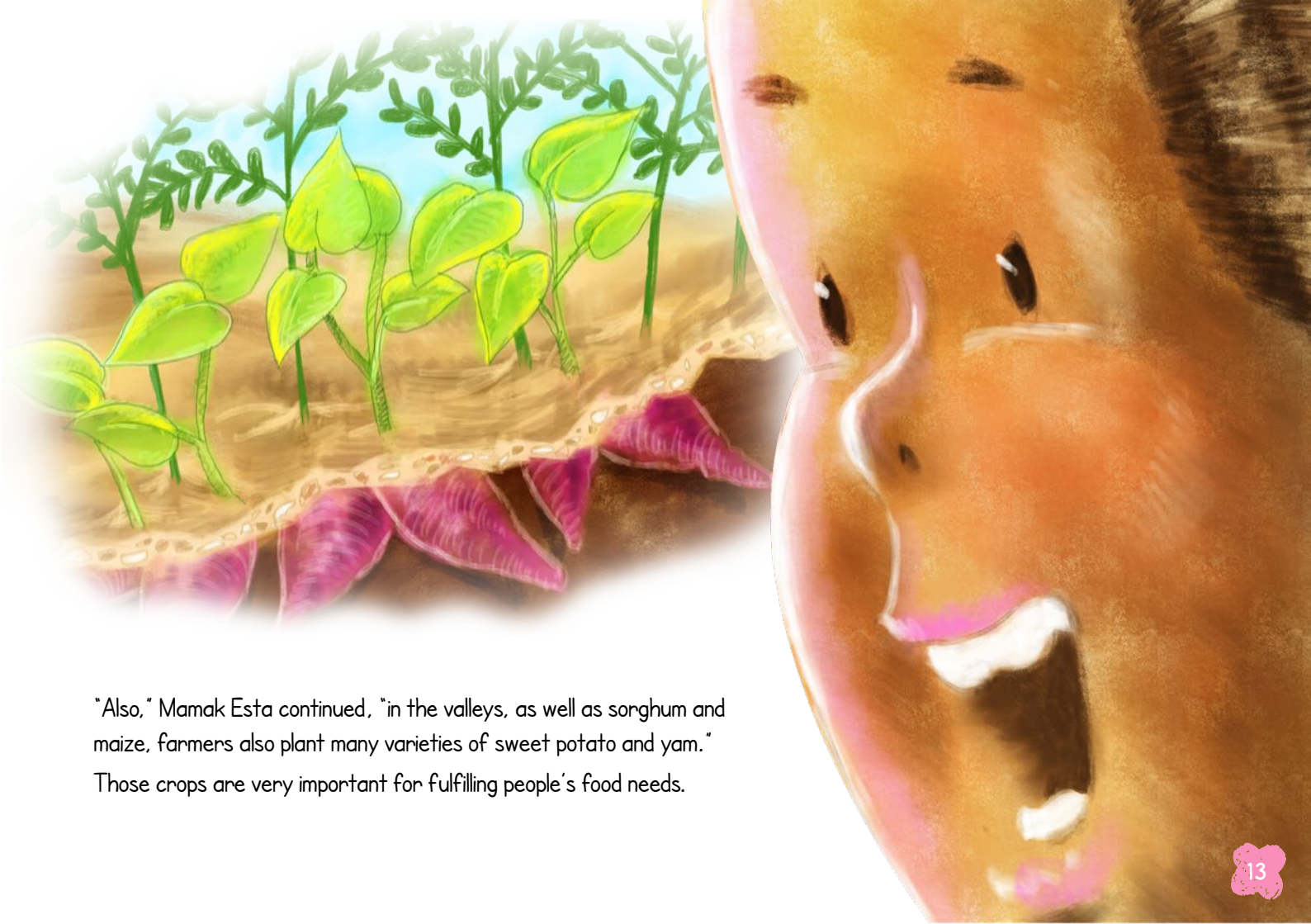
Rince frowned and asked, "Why do we need to plant different types of sorghum or maize in one planting season?".

Umbu Namu replied, "If one crop fails not all the sorghum or maize will fail. Different crop varieties have different resistance to pests and diseases and varying suitability with different soil conditions."

Here is an example of a seasonal calendar, which help farmers decide when and where to plant their crops.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
Land preparation											•		
Rainy Season	•	•	•									•	
Lola (land in the valley)													
2 planting time												•	Plant in the first planting time
Corn	•	•											Plant in the second planting time
Sorghum and waxy corn			•	•	•	•						•	Plant in the first and second planting time
Peanut	•	•	•	•	•								
1 planting time												•	Plant together, corn in the first week, sorghum a week later
Corn	•	•											
Sorghum	•	•	•										Plant in between corn and sorghum
Sweet Potato	•	•		•	•								
Palindi (Upland land)												•	
Corn	•	•											
Sweet Potato			•	•									
Cassava			•	•									
Mondu or land in riverbank													
Corn	•	•	•			•	•	•		•	•	•	



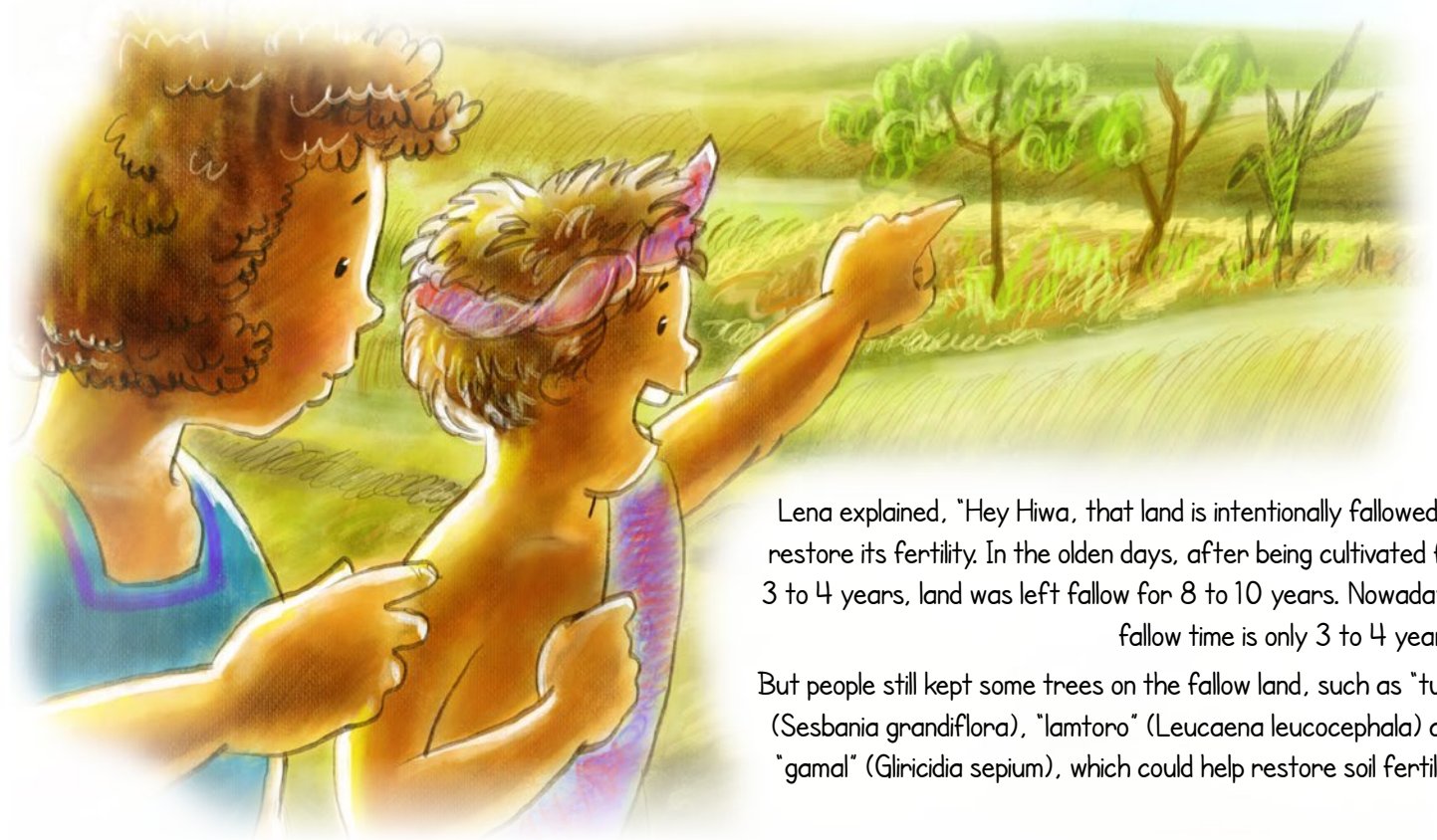
"Also," Mamak Esta continued, "in the valleys, as well as sorghum and maize, farmers also plant many varieties of sweet potato and yam." Those crops are very important for fulfilling people's food needs.



When they have limited land, farmers cultivate the sweet potato vine on "turi" or other trees. The trees are good for shade and their leaves are very useful as fertilizer. This is what we call "agroforestry", where there are trees and crops with complementary functions.

Rince began to understand how people cultivated their land using environmentally friendly approaches.

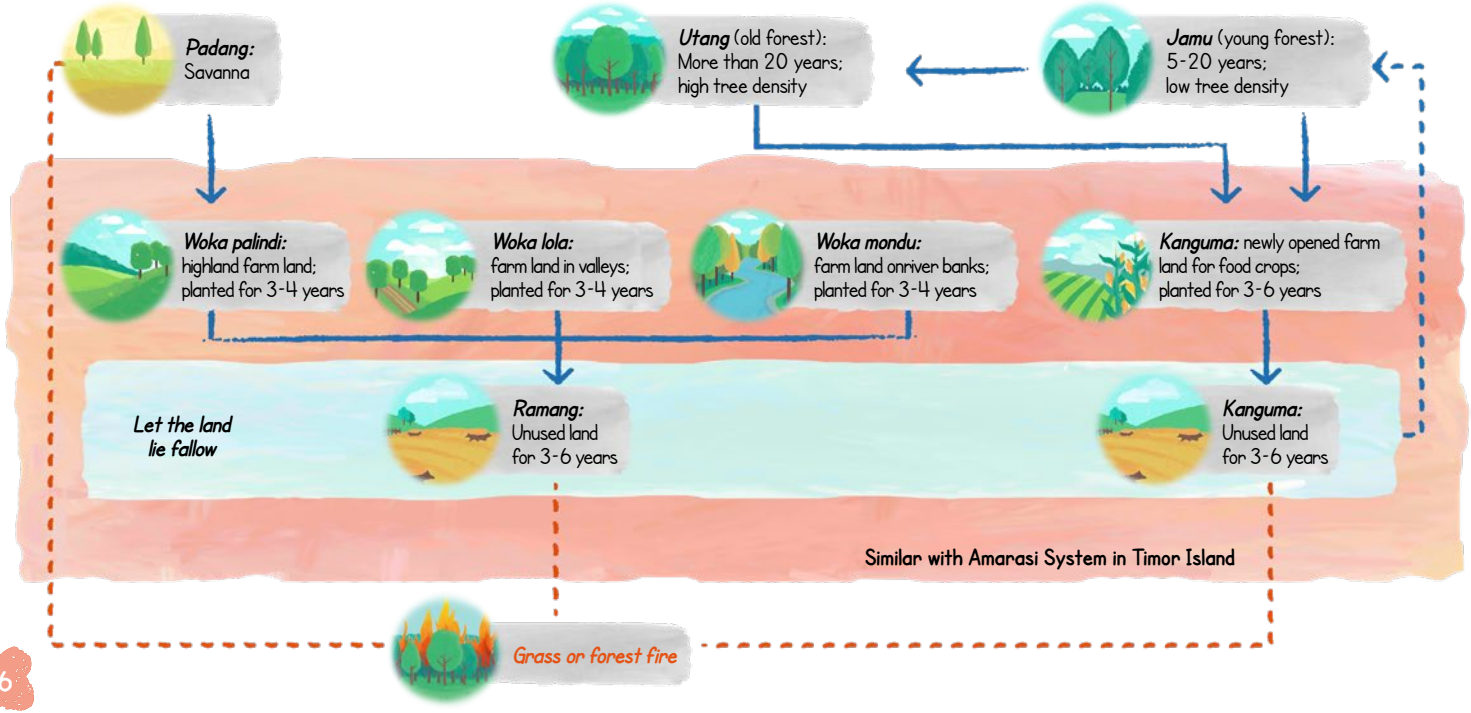
One day, Hiwa and his sister, Lena, were walking through the savanna to the land where peanuts grew. They were going to help the Head of the Village harvest the peanuts. As they walked along, Hiwa noticed that on a piece of uncultivated land trees were growing wild among others that had been planted.



Lena explained, "Hey Hiwa, that land is intentionally fallowed to restore its fertility. In the olden days, after being cultivated for 3 to 4 years, land was left fallow for 8 to 10 years. Nowadays, fallow time is only 3 to 4 years"

But people still kept some trees on the fallow land, such as "turi" (Sesbania grandiflora), "lamtoro" (Leucaena leucocephala) and "gamal" (Gliricidia sepium), which could help restore soil fertility.

The fallow cycle as explained by Lena is the name for cleared, forested land that had been cultivated for some time and then left unproductive. In inactive periods, "pioneer" vegetation grows into scrub or young forest. The longer it is inactive the older the age of the scrub or forest. Below is the fallow cycle as perceived by the Haharu people.



After they arrived at the Village Head's house, Hiwa and Lena along with Rince and other villagers worked together to harvest the peanuts.

The children noticed that both men and women worked together to harvest the peanuts. They helped each other and undertook complementary tasks. Both men and women had significant roles in cultivating the land and both should get the same benefits. They had the same opportunity to be trained, to join in activities that improved their capacity and skills in cultivation.



After harvesting, the Village Head encouraged everyone to become smart farmers, learning more and more about farming. Both men and women had the same rights to knowledge and skills from training and agricultural extension programs. The cooperation of men and women in training and putting into practice what they learned will give the best results in managing and protecting their land.



The Village Head explained that farmers didn't have to work alone, that there were agricultural extensionists who could help them to overcome their problems. As well, there were other local government agencies, farmers' groups, non-governmental organizations, businesses and other experts who could help them manage and protect their land better.



"When I grow up and become a smart farmer," said Hiwa, "I must share my knowledge and skills with others. That way, many farmers will gain more knowledge and skills, improve their land and plant more trees!

"I am an Haharu farmer! I understand Haharu conditions! I share knowledge and apply it on my own land!"



This is the land that we want. The savanna has more trees. In order to get that, farmers need knowledge and good skills for cultivating the land, producing good planting material, maintaining wild trees, and replacing wrong practices. The savanna will become more green.



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