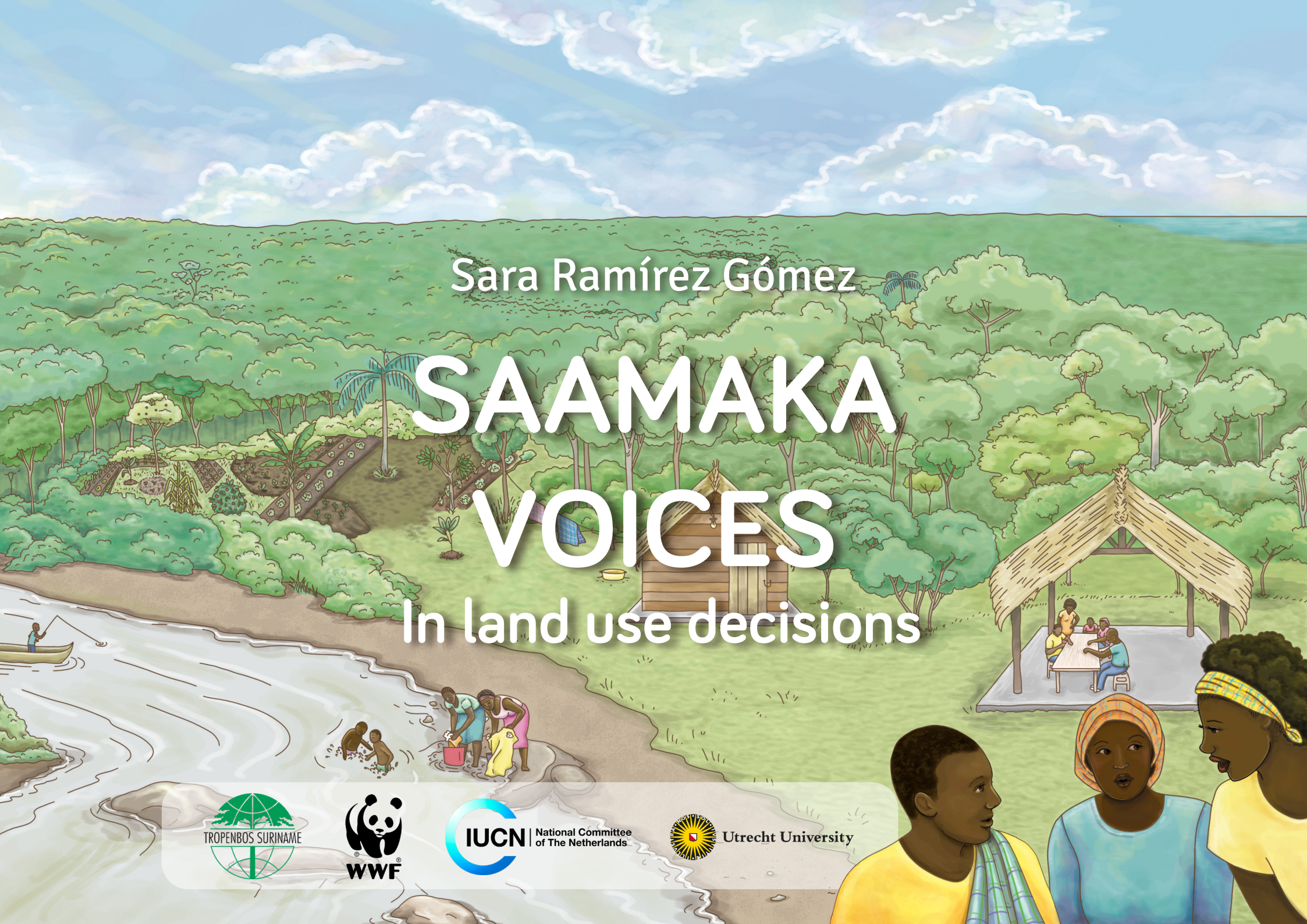
Sara Ramírez Gómez
SAAMAKA VOICES
In land use decisions
TROPENBOS SURINAME
WWF
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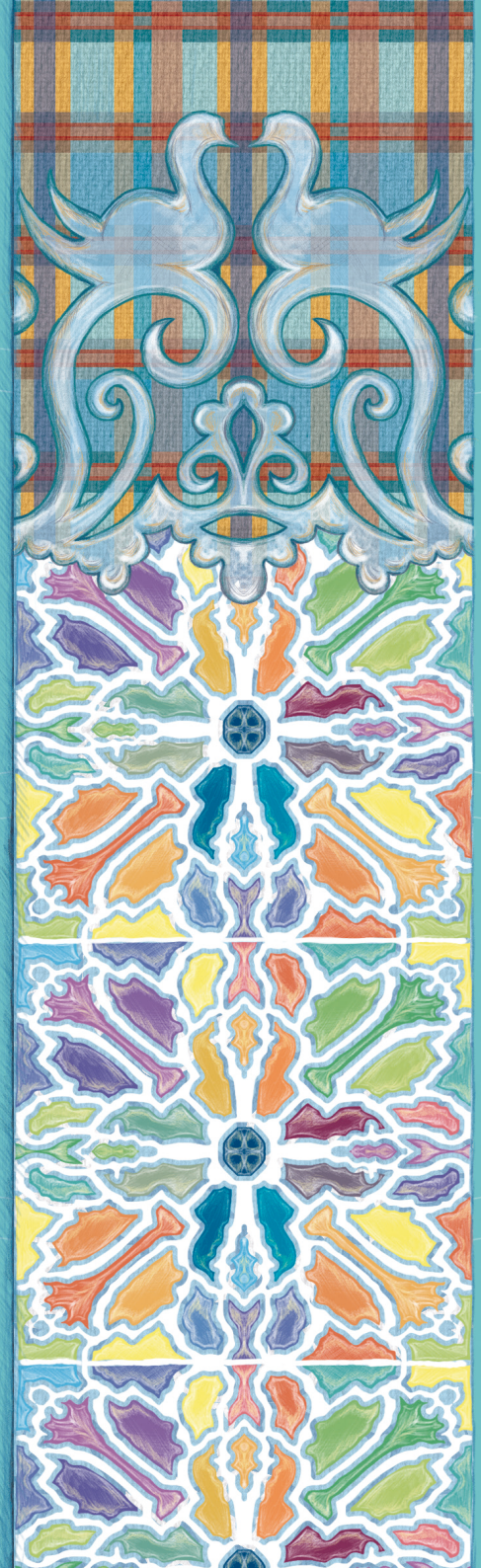
National Committee of The Netherlands
Utrecht University



Sara Ramírez Gómez

SAAMAKA VOICES

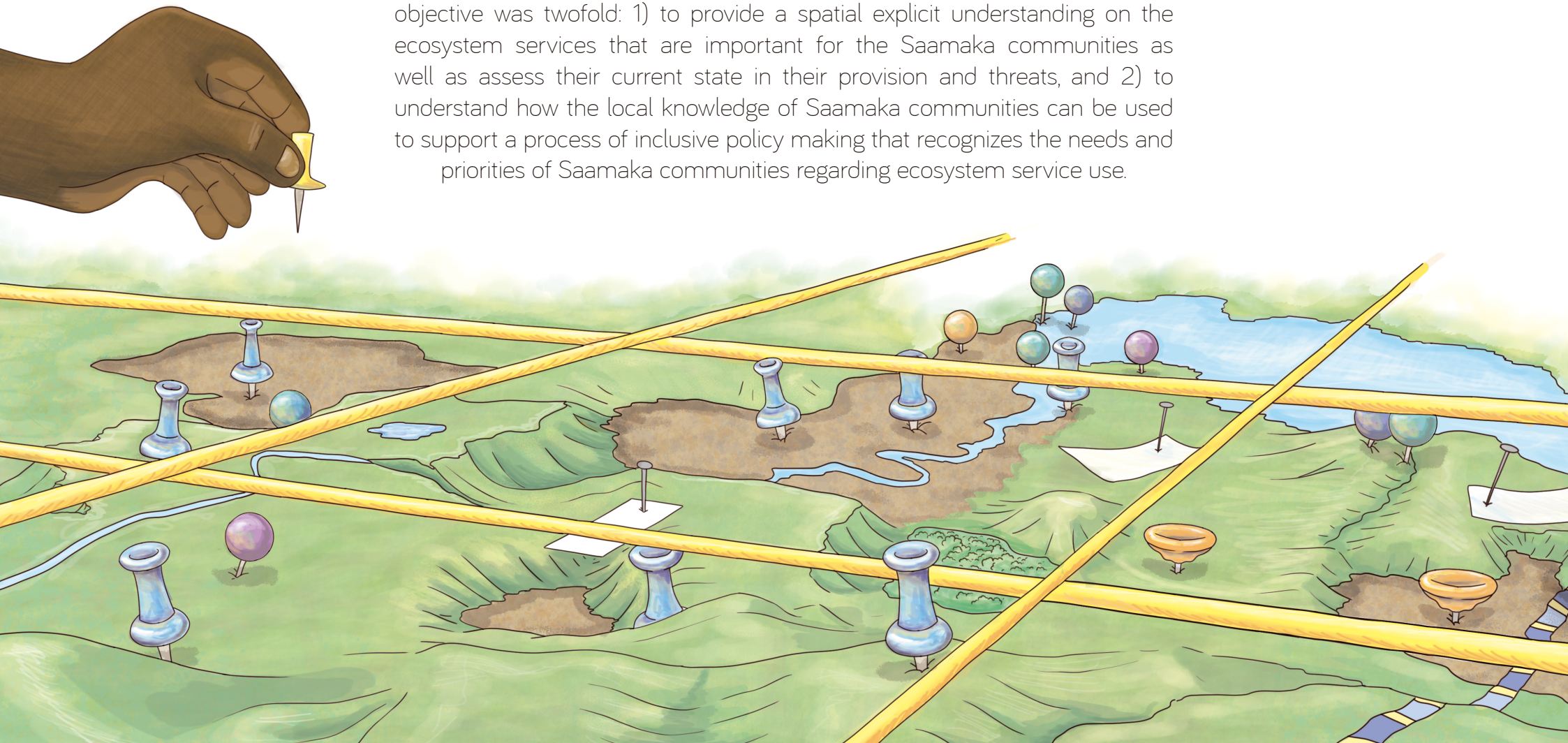
In land use decisions

With contributions from Debora Linga,
Rudi van Kanten, Lisa Best and Pita Verweij

TROPENBOS SURINAME
WWF
IUCN | National Committee of The Netherlands
Utrecht University

SAAMAKA VOICES IN LAND USE DECISIONS

This document is the result of a participatory research carried out, between 2013 and 2016, by Tropenbos Suriname and the Saamaka communities living in the Upper Suriname River region. It is embedded in a joint project with the Association of Saamaka Authorities (VSG) and WWF. The project objective was twofold: 1) to provide a spatial explicit understanding on the ecosystem services that are important for the Saamaka communities as well as assess their current state in their provision and threats, and 2) to understand how the local knowledge of Saamaka communities can be used to support a process of inclusive policy making that recognizes the needs and priorities of Saamaka communities regarding ecosystem service use.



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FOREWORD

By 2020, Suriname was the most forested country in the world with 93% forest cover. We are a High Forest cover, Low Deforestation (HFLD) country. Historically, there has been little pressure on the forest due to Suriname's low population density, and because 80% of the population lives in the coastal plain. Our country is developing, which means that economic activities will also increase in the interior. For example: gravel, logging, and gold mining.

Tropenbos Suriname has been active since 2003 and we have anticipated the construction of new roads within our program. This actually happened with the asphalting of the road to Afobaka and Atjoni (2009) and the construction of a road to Pusugrunu (2016). A road network has several advantages, such as better accessibility and faster contact in case of an emergency, for example, for transporting sick people. Disadvantages can arise when local people and nature are hindered by economic activities, which are carried out without adequate laws and regulations.

To choose a working area, discussions were held in 2013 with the Association of Saamaka Authorities (VSG), because the Upper Suriname River area can be qualified as an important productive landscape. Good management of this area can serve as an example for the rest of the country. The Suriname River is one of the most important rivers in the country and also the river along which most activities take place. A dramatic intervention was the construction of the Afobaka reservoir in 1964. This had consequences for both nature and the Saamaka population, whereby 6,000 people had to transmigrate. This poorly planned transmigration has had a major impact on the Saamaka and has been experienced as traumatic up to now. However, we must continue and the time ahead can be put to good use if there is proper planning.

The study that took place in the Upper Suriname River area from 2013 to 2016 aimed to provide insight into how the land use in the area is and how ecosystems are handled. The Saamaka people

are central in this approach. The study area included the villages of Pikin Paada through Botopasi. The study and the participatory three-dimensional map of 25 villages and their resulting habitats give the Saamaka a tool to maintain the area they inhabit and to better plan its development. The government and all other stakeholders involved also have the opportunity to gain more insights into the area, so that they can all contribute to the sustainable development of this productive landscape. Insights and lessons obtained from this area can serve as an example for other productive landscapes in our country. It can help maintain our status as an HFLD country and also achieve a sustainable development with an important place for the local population.

Sara Ramírez Gómez was the driving force in the early years of our work in Upper Suriname. Her work has resulted in a PhD study and the results of this are shown in this booklet. Other contributors are the Tropenbos Suriname staff, the VSG, the traditional authorities and the local population, other partners and various domestic and foreign donors.

Rudi van Kanten

Director Tropenbos Suriname

ACKNOWLEDGEMENTS

First, we thank all the Saamaka communities living in the 24 villages from Pikin Paada until Botopasi, for the time, openness and willingness to share their knowledge and concerns with us. Also, for all the warmth and hospitality they had with us during the fieldwork. It has been a real pleasure to work with them. We also acknowledge the crucial collaboration of the Association of Saamaka Authorities (VSG) along all the fieldwork stages in these chapters. The author is grateful with Dr. Pita Verweij of University Utrecht for her supervision, positive feedback and practical insights, which were crucial for the quality of the content of this work.

This study was part of a project designed and implemented by Tropenbos Suriname (Project 13103 LUP) within the Productive Landscapes Program. Financial support was received by WWF Guianas (Grant K-82), the Technical Centre for Agriculture and Rural Cooperation (CTA) (Grant agreement 2014-343) and the UNDP-GEF-Small Grant Programs (Project SUR/SGP/OP5/Y4/CORE/BD/15/47). We thank CTA for the financial support and technical assistance and we are grateful to Utrecht University for hosting this research and providing the technical support needed to develop it. We are grateful to Mr. Ivan Karnadi (Tropenbos Suriname) for managing the challenging logistics, and we thank the other members of the Tropenbos Suriname team.

GENERAL INTRODUCTION

The last tropical primary forest of the world

The last primary forests of the world are extended across South America, Congo Basin and Southeast of Asia. These regions are very important for the preservation of all the plants and animals that live in there. These last areas of primary forest are also important because they help produce rainwater, oxygen; clean the air and keep the earth cool (fresh).

Where are these regions located and which communities live there?

Figure 1: Indigenous and tribal communities in tropical forest regions

At least 250 million of indigenous and tribal communities live in primary forest regions and they depend on the provision of fruits, nuts, fish, game, oils, resins, fibers, thatch, timber, medicinal plants, building materials, clean water, clean air, as well as sense of belonging, spirituality and religion that these regions provide.

The forest management practices of indigenous and tribal communities are known to contribute to the conservation of these important regions.

Therefore, a significant part of the conservation of primary tropical forest regions depends on the land use practices of indigenous and tribal communities' worldwide.

Challenges that indigenous and tribal communities face to conserve of tropical forest regions

External pressures:

- Displacement of local communities by infrastructure projects (e.g. dam building, large agriculture projects).
- Road building: At least 25 million kilometers of new roads are expected in 2050 in tropical forest regions [1].
- Incidence of poachers, loggers and illegal gold mining following road developments.
- Growing globalization and raising standards of living is greatly increasing the needs of tribal and indigenous communities for cash income while their opportunities to earn it are rare.

1. Laurance et al., 2014. A global strategy for road building. Nature 513, 229–232.

Poverty:

The lack of access to quality health, education, drinking water, livelihood technology and employment opportunities pushes local communities to give priority to short-term -cash- needs over long term forest conservation.

Access to social services and ecosystem-based employment opportunities can have a greater forest management impact than those aimed at forest conservation alone.

What needs to happen?

It is important to guarantee that local communities improve livelihoods, increase access to education, health services, technology, electricity and income generation opportunities based on a standing forest. This could have great impact in tropical forest conservation worldwide.

Data scarcity

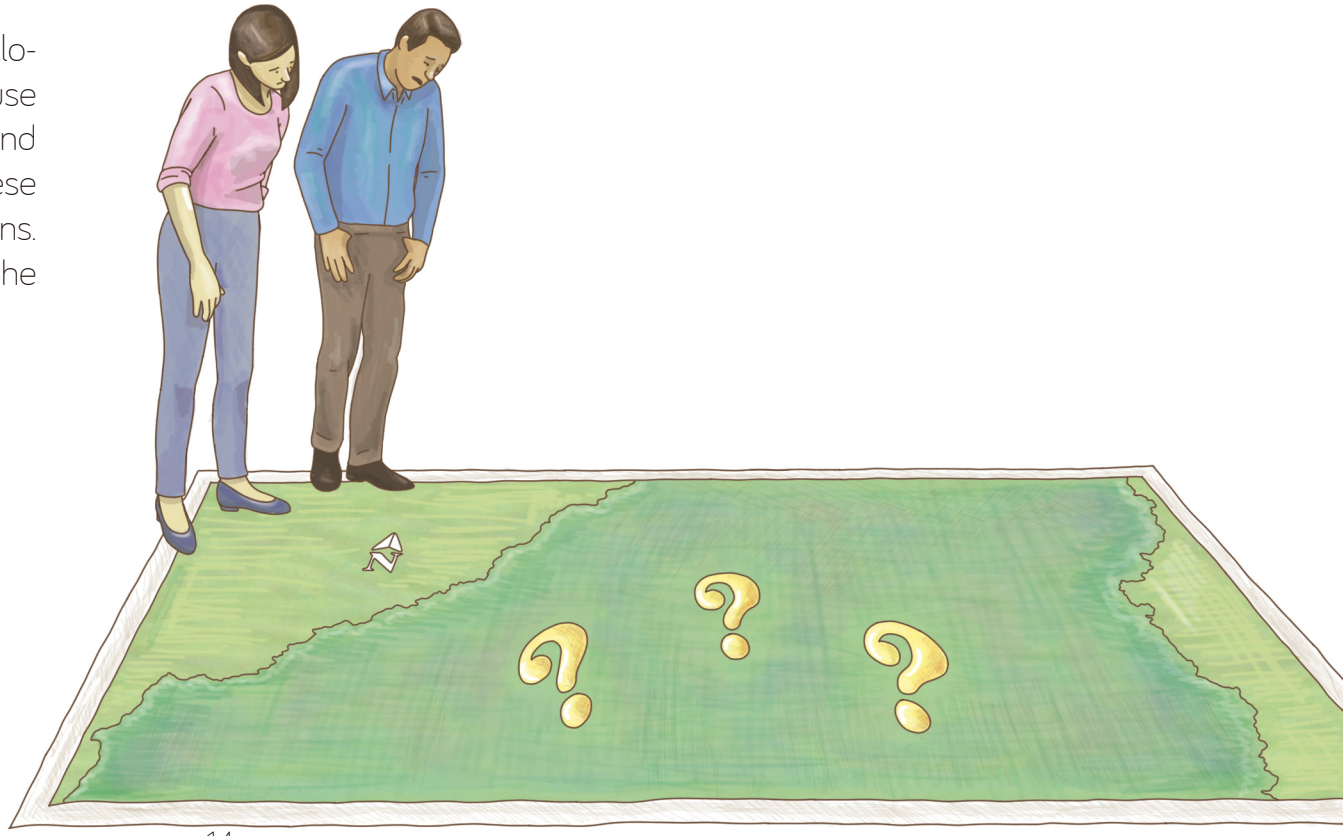
Policy makers often only know primary forest regions through satellite pictures. However, these pictures do not show the problems that local communities living in these forests have.

Policy makers and outsiders do not have the knowledge about the local needs and priorities, aspirations and expectations of local communities. That is the reason why local needs are not well included in policy plans and actions.

The lack of maps showing the areas that local communities use is a problem because without this knowledge, policy makers and outsiders will not be able to consider these important areas in policy plans and actions. If something is not on a map, it creates the illusion that it does not exist.

What needs to happen?

Local indigenous and tribal communities need to engage in a peer to peer collaboration with researchers so they can produce relevant knowledge together, that is useful for a policy decision making process that considers local needs.



Lack of participation in decision-making

Many important policy decisions do not include the values, needs, priorities and new aspirations of local communities (top-down decision making).

For example, the map of projected expansion of dams[2] shows large overlap with territories where indigenous and tribal communities live.

This is a problem because without considering the values, needs and priorities of local communities, land use plans can cause local community displacement or damage to their lands.

What needs to happen?

It is urgent to strengthen the participation and influence of indigenous and tribal communities in the decision-making that affects their territories in tropical forests while enabling the opportunity to raise their voice, so that their priorities, values and aspirations are considered in these decisions.

2. Díaz et al., 2019. Global Assessment Report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

Lack of land rights:

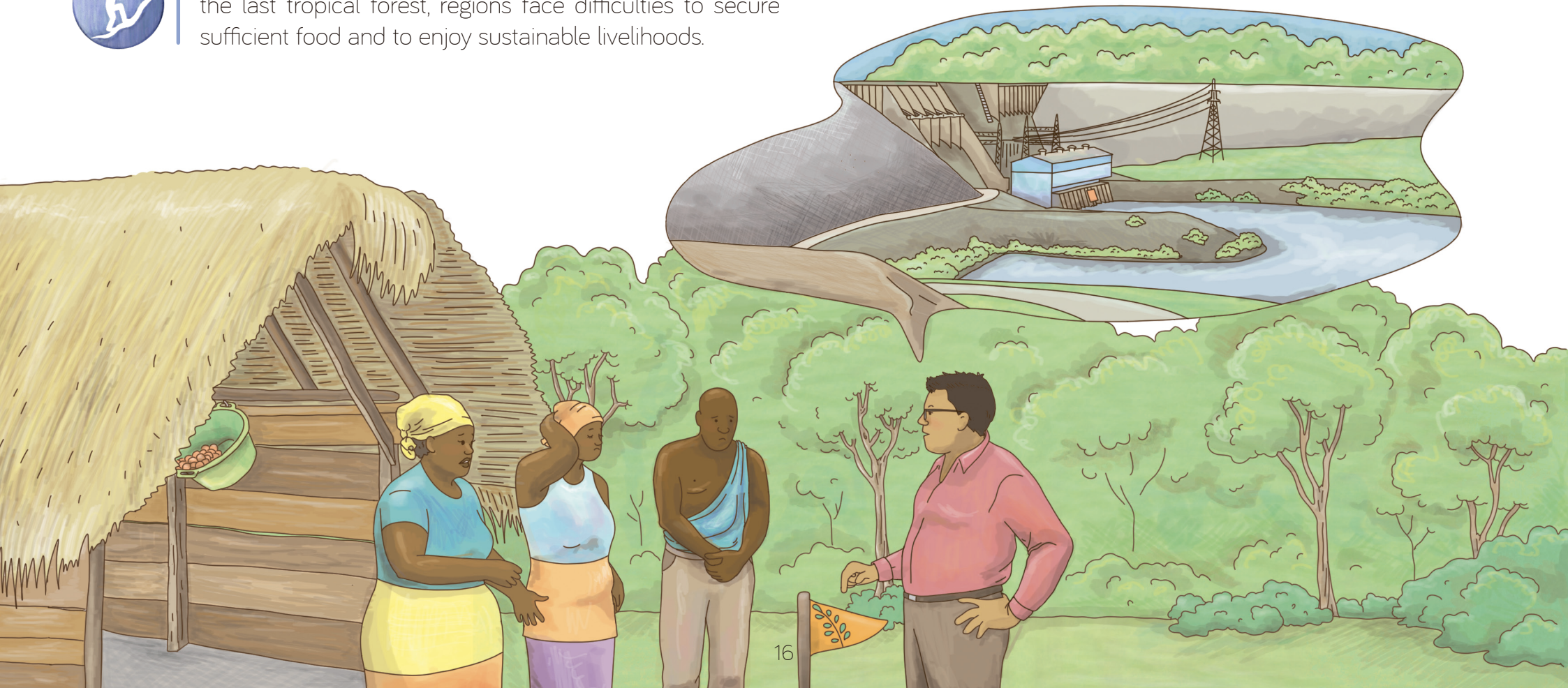
Indigenous and tribal communities that do not have their **land** rights recognized face the risk that their rights to land will be threatened by land use economic activities.

Communities that do not have their land rights recognized face the risk of forced displacement.

Without security **of tenure** local communities in living in the last tropical forest, regions face difficulties to secure sufficient food and to enjoy sustainable livelihoods.

What needs to happen?

It is urgent that local communities in intact tropical forest regions self-organize and advocate, with the support of civil society organizations, to acquire legal recognition of their right to the land.



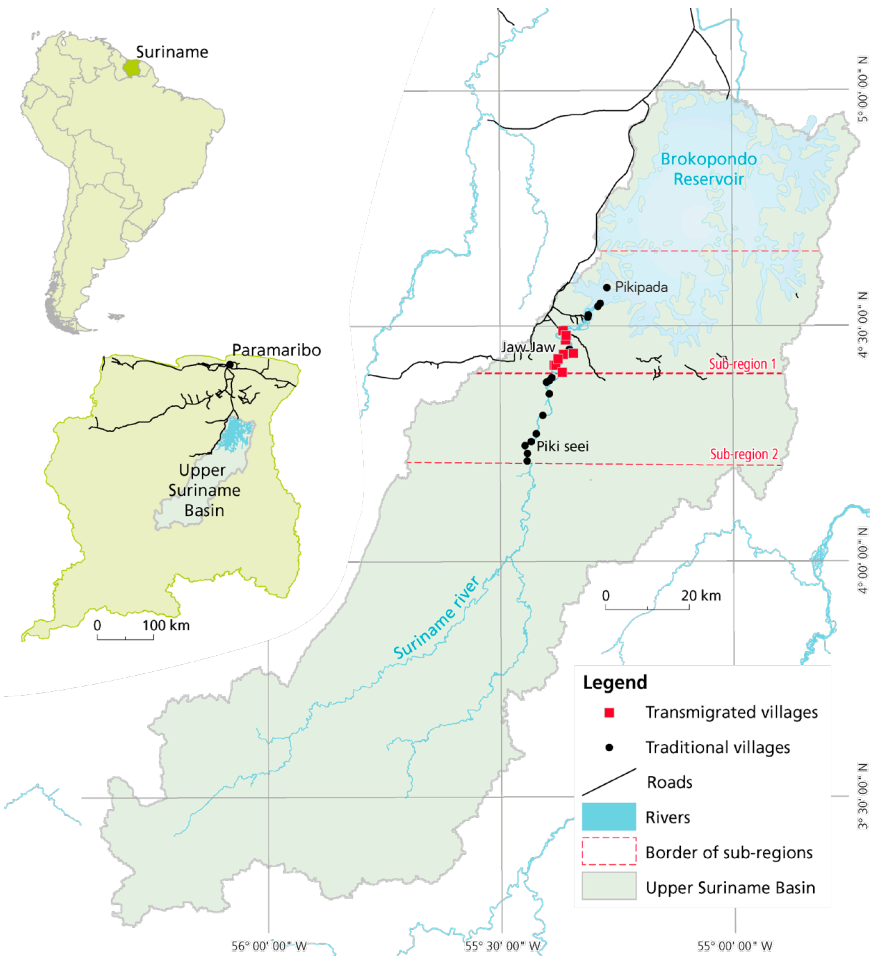
THE TROPICAL FOREST
IN THE UPPER SURINAME RIVER REGION

Suriname is a nation located in the north of South America. It has approximately 575.990 inhabitants, half of which live in the city capital, Paramaribo. Suriname is very important worldwide because it has 93% of its territory under tropical primary forest. The Saamaka communities live and take care of a tropical primary forest area equivalent to 9.888 km^2 in the Upper Suriname river region (the Saamaka territory below the Brokopondo dam). This is situated 315 km south of Paramaribo. In the area there are only approximately 93 km of road extent (see figure 2). In this forest region, the Saamaka communities practice traditional agriculture, fishing, hunting and harvesting timber and non-timber forest products. Many are involved in tourism and construction work. Through the forest management practices and culture, the Saamaka communities have traditionally aimed to safeguard the forest.

The geographical focus on this book

The focus on this book is on the Saamaka territory from the village of Pikipada to the village of Botopasi. To facilitate the study, these villages were divided in two sub-regions: **sub-region 1** from Pikipada to Lespansi 2. **Sub-region 2** from Gunsi to Botopasi. In this part of the territory, there is 2.253 km^2 of primary forest managed and used by local Saamaka communities.

Figure 2: Location of the Upper Suriname River Region



The Saamaka communities in the Upper Suriname River Region

The local communities in the Upper Suriname Region are afro-Surinamese people belonging to the Saamaka tribe who has lived in the rainforest in the area for more than 300 years.

They comprise a total of 18.502 people according to the latest census (Algemeen Bureau voor de Statistiek in Suriname, 2017) who live in 62 villages along the Upper Suriname River.

Their forest management has been traditionally based on customary laws that distribute forestlands over 12 clans: Awana, Abaisa, Bakapau, Biitu, Dombi, Fandaaki, Langu, Matjau, Nasi, Nyafai, Paputu and Watambii. The individuals belonging to a particular clan enjoy forest occupation and use rights.

The formal socio-political structure of the Saamaka tribe includes a Granman (tribal chief) and village chiefs *(Kapiteins)* who are assisted by several assistant chiefs and elderly people.

None of the communities in the entire watershed hold legally recognized land rights, hence, all land is formally owned by the state.

Since the construction and paving of the Atjoni road in 2010, Saamaka communities have been increasingly involved in economic activities such as trade in non-timber forests products, craft making, boat transport, ecotourism, logging and gold mining.

EXTERNAL STAKEHOLDERS AND ECOSYSTEM SERVICES:
KEY TERMS IN THIS BOOK

In this book, external stakeholders and ecosystem services are often mentioned. The definition of these words are provided below.

External stakeholders: Outsiders

External stakeholders are defined as a person, group of persons or organizations from outside the Saamaka territory but who have an interest or concern in the management of the area. They will be referred in this book as outsiders.

Who are some of the outsiders in the Saamaka terrritory?

The government: Especially the Ministerie van Ruimtelijke Ordening, Grond - en Bosbeheer, Ministerie van Natuurlijke Hulpbronnen, Ministerie van Regionale Ontwikkeling. (Ministry of Physical Planning, Land and Forest Management, Ministry of Natural Resources, Ministry of Regional Development).

Civil Society Organizations (CSO): Non-forest organizations that work together with the Saamaka communities in the management and conservation of their forest in a way that is distinct from both government and business.

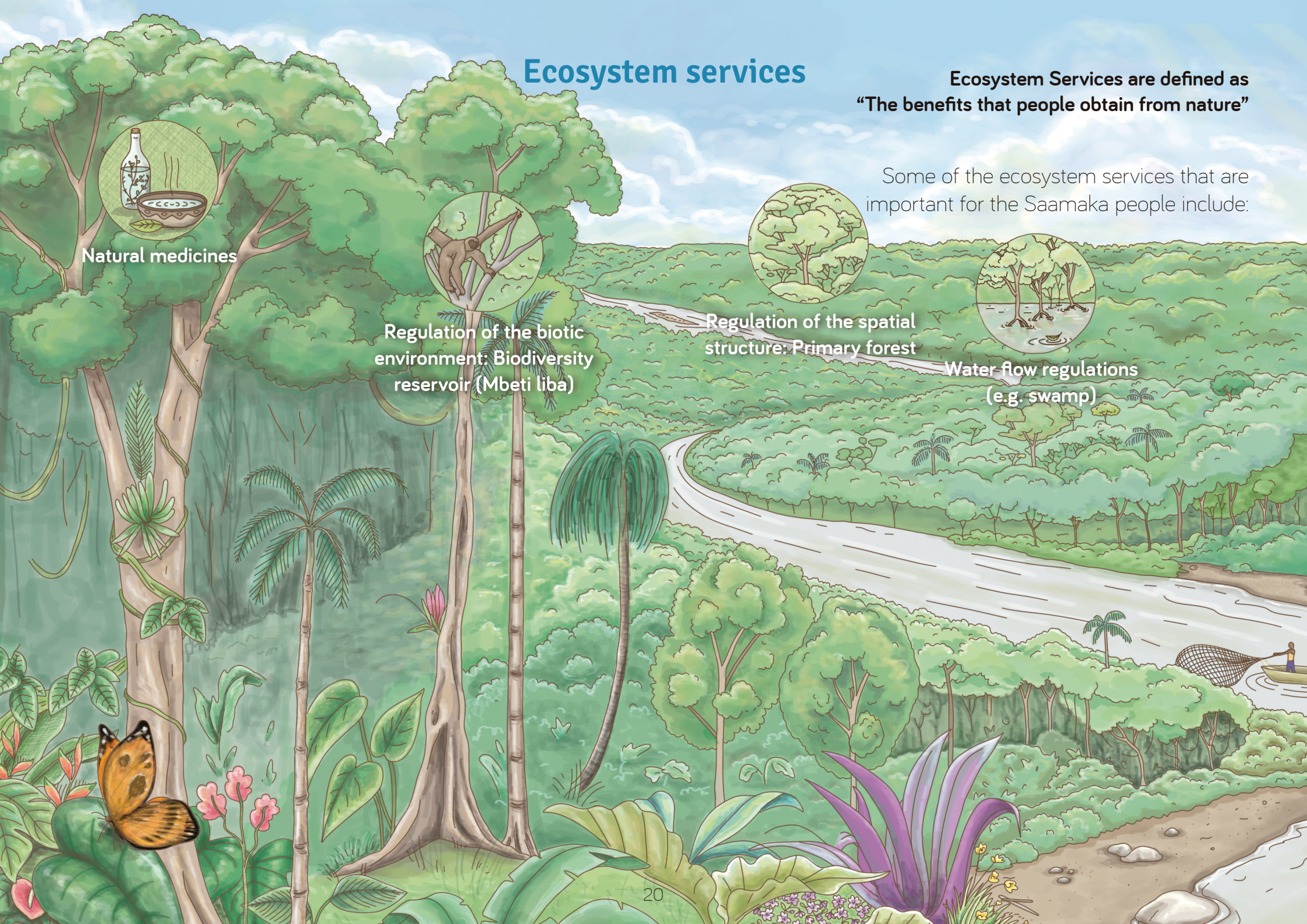
Businesses: Individuals, group of people or companies that have an economic interest in the forest, for example, logging companies.

Academia: Mainly national and international universities that undertake research in the Saamaka territory.

Ecosystem services

Ecosystem Services are defined as "The benefits that people obtain from nature"

Some of the ecosystem services that are important for the Saamaka people include:




Materials (e.g timber)
Energy (e.g. firewood)
Cultural and Social: Self-fulfilment (Ritual areas in the forest)
Cultural and Social: Forest medicines
Nutrition: (fish, fruits, oils, crops, bush meat)
Place for daily activities (e.g. Lampesi)
Cultural and Social: Enjoyment (swimming in the rapids-kule wata)
Cultural and Social: Social fulfillment (football field)

ASSESSMENT OF ECOSYSTEM SERVICES IN THE SAAMAKA TERRITORY

Where are the ecosystem services located?

Maps are visual tools that can be understood by everyone no matter the language or education level. Therefore, maps of the Saamaka territory are an important way for the Saamaka communities to communicate the value that the territory has for them. For example, a map showing where important ecosystem services for the Saamaka people are located, is a crucial first step to ask outsiders recognize these and consider them in land use decision making. If the locations of important ecosystem services to the Saamaka communties are not mapped, is as if these ecosystem services do not exist for outsiders.

The process to map ecosystem services

Between 2014 and 2015, about 267 Saamaka community members from the village of Pikipada to Botobasi, started a collaboration with Tropenbos Suriname to produce maps through a participatory 3D mapping process as shown in the pictures below. A 3D map is different from a paper maps because the hills and the riversheds are shown like in reality. To map ecosystem services, seven steps were taken:

Map legend making: In this step the things that need to be mapped according to the Saamaka community participants are defined.

Six community workshops were implemented with a total participation of 110 participants.

saamakaTongo	Nederlands	Saamaka Tongo	Nederlands
BALi GOÖN	Voetbalveld	PASI	Loopad
KALANG WATA	Waterleiding	WAGI PASI	Autoweg
GOÖNBASU WATA	Waterbron	kiiki di ta koti	Seizoenskreek
GEE bi	Begraafplaats	kiiki di NA TA koti	Permanente kreek
FAJA WOSU	Generator huis	GAAN kiiki	Kreek groot genoeg voor boten
Siko	School	Piki kiiki	Kreek te klein voor boten
Bondaskamija	Kostgrondje kamp	LiO	Rivier
Poli	Polikliniek	GAAN DANG	Grote stroomversnelling
SEMBE (10)	Inwoners (10)	Piki DANG	Kleine stroomversnelling
SEMBE (100)	Inwoners (100)	MEER	Meer
SEMBE (500)	Inwoners (500)	Gowtu baakoe	Goudmijngebied
keiki	Kerk	VIA VIA	
TOERIST KAMPU	Toeristenkamp	MÄSIÄ MÄSIÄ	
mbetie oeliba	Fauna waarneem plek	PAW MATU	Primair bos
Hondi kampu	Jagers kamp	KAPëE MATU	Secundair bos
LAMPESI	Aanleg-, was- en visplaats	KAPëE	Verlaten kostgrondje
WOOKO KAMIA	Plaats voor geld verdienen vorst	SANDU BANGI	Zandbank
Opalani goön	Vliegveld		
Woko Gowtu KAMIA	Goudzoekerskamp		
Reng u KAMIA	Plaatsnaam		

Making the blank model: In this step the 3D model is built.

This was done in two sections, one in Jaw Jaw (September 2014) and one in Pikin Slee (september 2015).

About 50 children from the area helped in this process.

Mapping ecosystem services on the blank model: Once the 3D blank model is completed, the mapping of the legend features, identified in step 1, begins.

Six community workshops were implemented with a total participation of 105 community members.

4

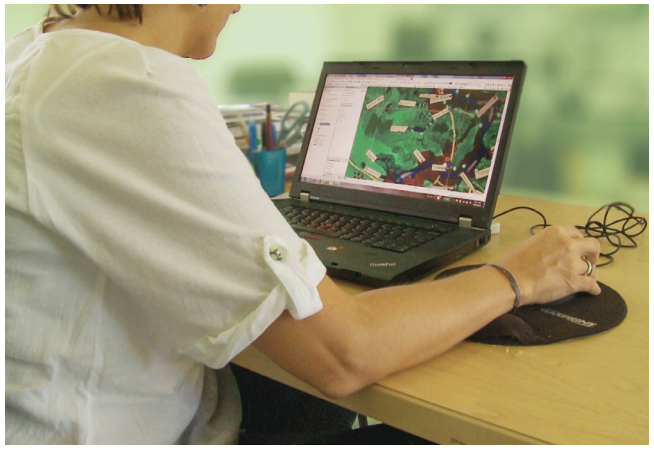
Finishing the 3D model: After everyone participating has provided input, the 3D map is completed.

Final 3D model Sub-region 1 from Pikipada to Lespansi II.

Final 3D model Sub-region 2 from Gunsi to Botopasi.

5 The information on the 3D model was entered in a computer and processed with a computer program especial for maps.

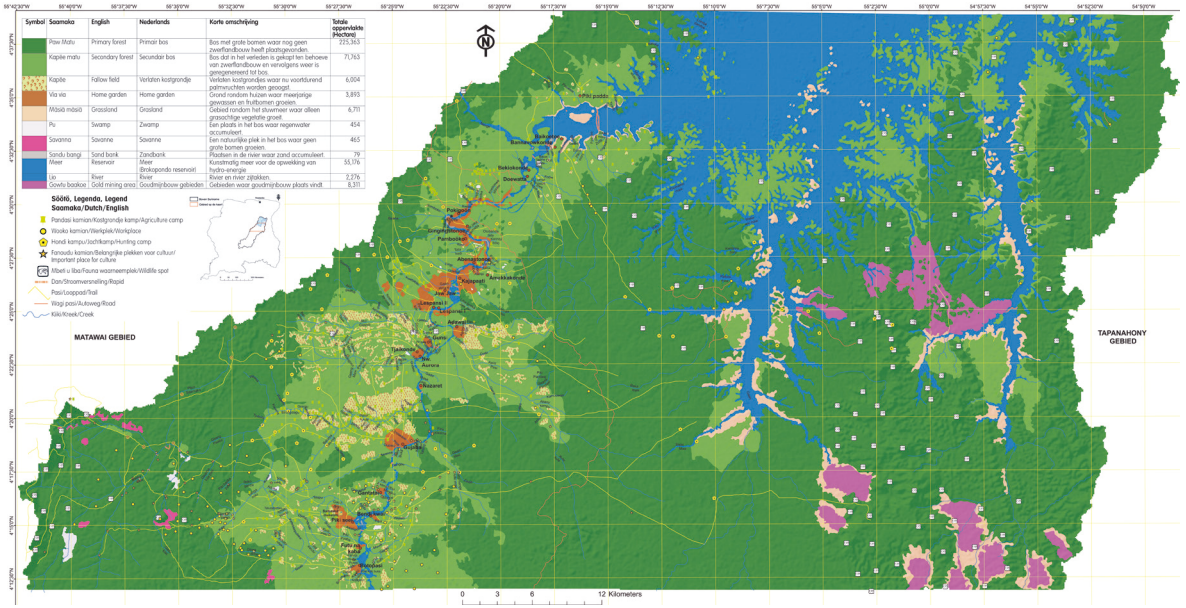
a. Pictures are taken from the 3D map



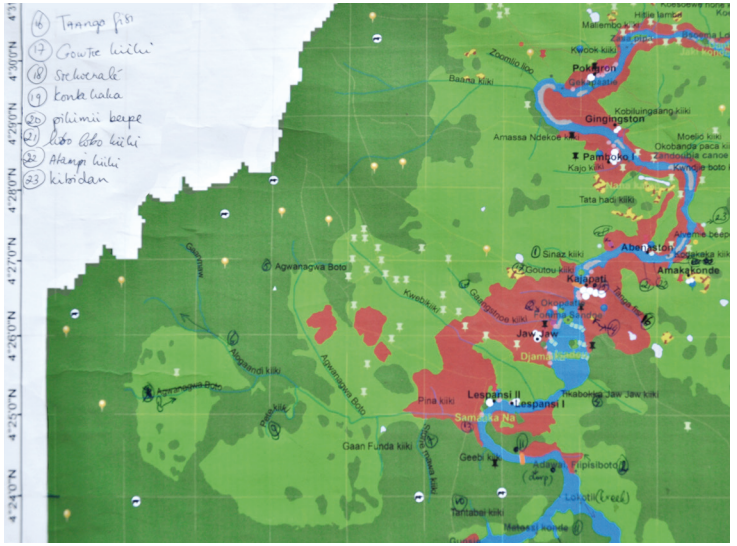
b. Pictures are entered into a computer program

c. All the information from the 3D model is traced in the computer

6 After processing the 3D map in the computer, a paper map is produced which looks like this:



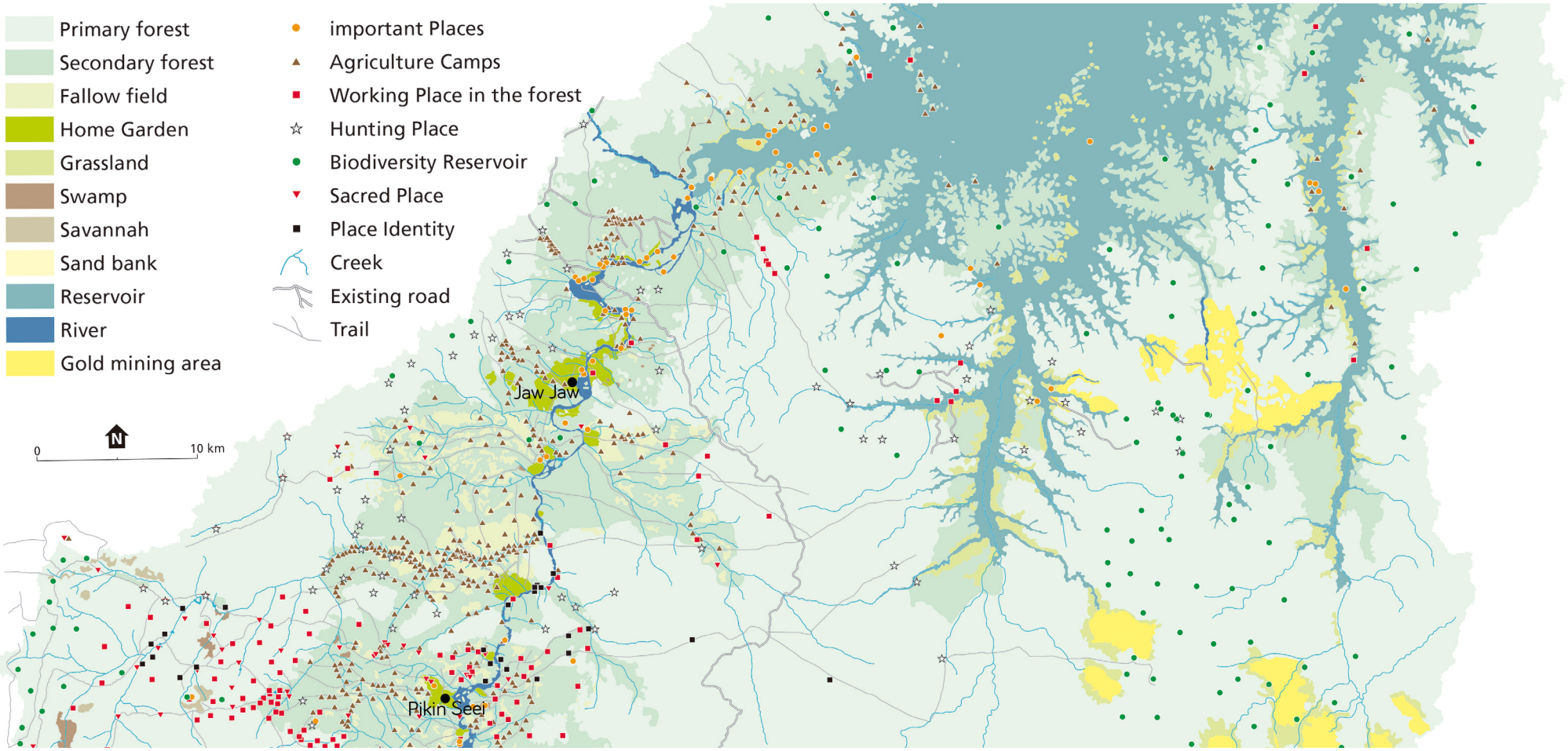
The paper map produced in step 6 is validated with the communities to make sure all the information they have provided is correct.



The result of the mapping process

After the paper map was approved by the Saamaka communities that participated in the process, the map was further improved so that all the things mapped will be visible. The final map that shows how the Saamaka communities use the space is shown below (Figure 3):

Figure 3: Location of some of the ecosystem services in the Saamaka territory



Land cover types identified on the map

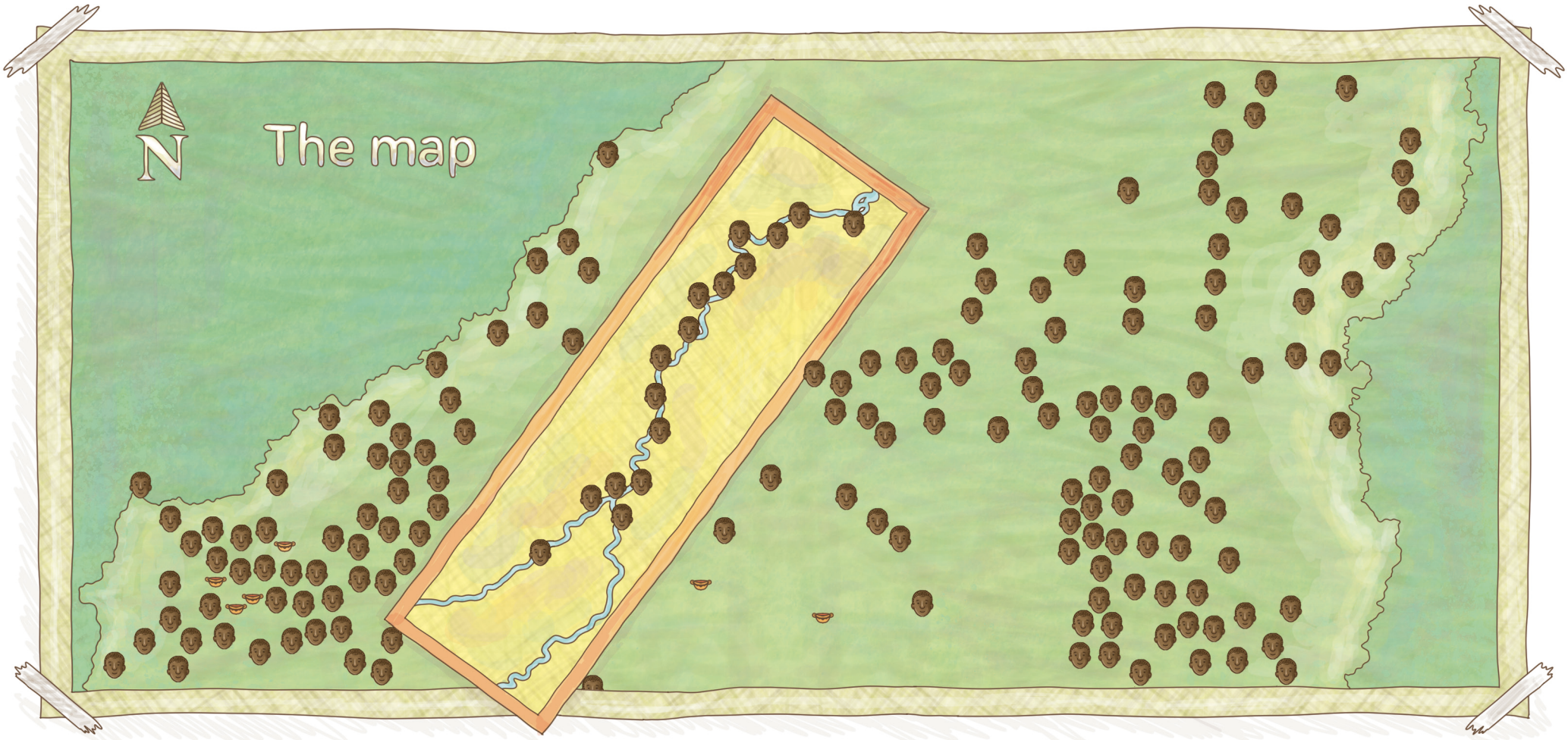
From the map shown above (figure 3), the land cover information could be obtained. The table shows the amount of hectares that each land cover type has. The information on the table shows that the Saamaka territory studied in this book is largely covered by primary forest.

Table 1: Type of land cover mapped in the Saamaka territory

Local name	English name	Brief description	Total area (ha)*
Paw Matu	Primary forest	Forest with big trees where there has not been shifting cultivation.	225.363
Kapëe matu	Secondary forest	Forest that was cleared for shifting cultivation in the past and that has regenerated into forest.	71.763
Kapëe	Fallow field	Abandoned shifting cultivation sites were palm fruits are continuously harvested.	6.004
Mäsiä mäsiä	Grassland	Area around the lake where only grassy vegetation grows.	6.711
Via via	Home garden	Area around houses with some perennial crops and fruit trees.	3.893
Pu	Swamp	A place in the forest that collects rainfall water.	454
Savanna	Savannah	A natural place in the forest with no big trees.	465
Sandu bangi	Sand bank	Places in the river where sand is accumulated.	79
Meer	Lake (Brokopondo reservoir)	Artificial lake for hydropower generation.	55.176
Lio	River	River and river arms.	2.276
Gowtu baakoe	Gold mining areas	Areas where gold mining activities take place.	8.311

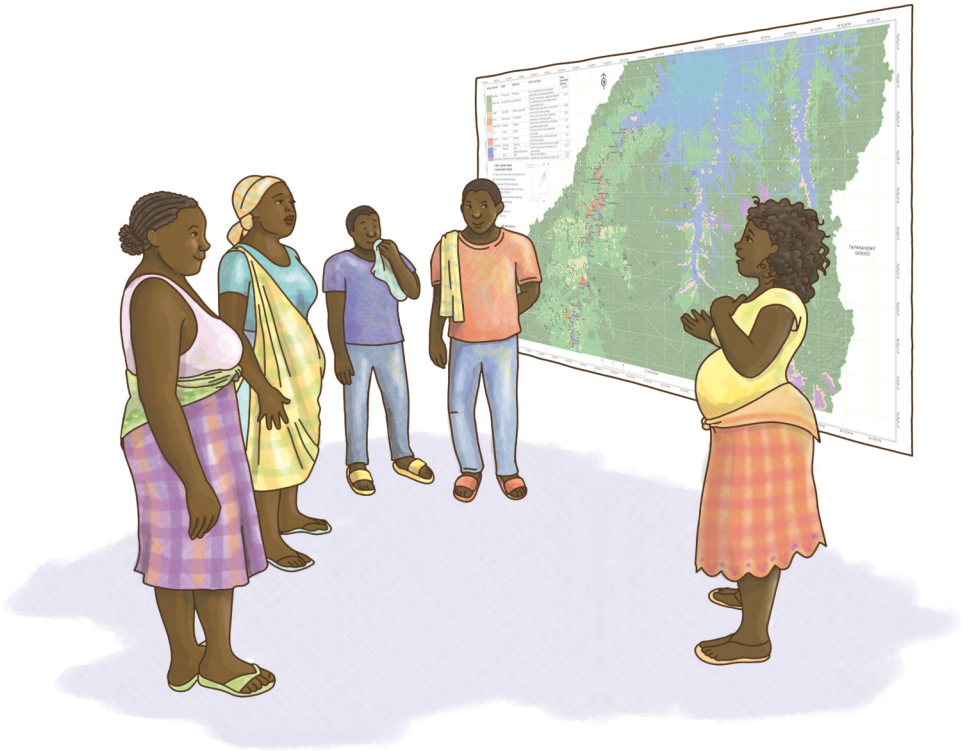
Importance of this map product

Having this map is important because it shows how Saamaka communities use their territory. Map 3 shows that the Saamaka communities use the territory extensively. They also make use of the area extending beyond the margin of the river. This changes the way outsiders have conventionally seen Saamaka communities: like mere villages along the Suriname river (see image below).



This map is important because it facilitates the visualization and understanding of the impact of land use activities on the forest and ecosystem services on which the Saamaka people depend on. For example, some community members mentioned:

"When they were going to extend the road to Pusugrunu there was a consultation meeting with us and we all said yes because since we did not have a good map we did not know exactly what and where would be the consequences of that road. But now we have this map and now we can take more informed decisions because we can see and show directly the consequence that the road will have on our land". (Capitain Adjako Kajapati)



"We think this information is useful to foresee the impact and manage land conflicts that may derive from the land use policies of the government (e.g. dams, roads, logging and mining concessions) on the Saamaka territory. As such we think this map is a useful tool for the effective implementation of Free Prior Informed Consent..." (Policy makers in Paramaribo when they were asked about the utility of the map)

This map is an important tool for the transfer of traditional ecological and cultural knowledge to younger generations:

"This is the time to do something on our own, change our minds and do things ourselves. Let us not allow that something like the Brokopondo dam happens to us again, we lost a lot then because our ancestors did not leave anything written about important places. We need to be better prepared when change arrives and the way to be prepared is to have information of the areas that are important to us, so let us use this map as legacy to the future generations so they can know and understand things better". (Head captain Pikin Slee)

Challenges in in the use of this map by the Saamaka communities and by outsiders

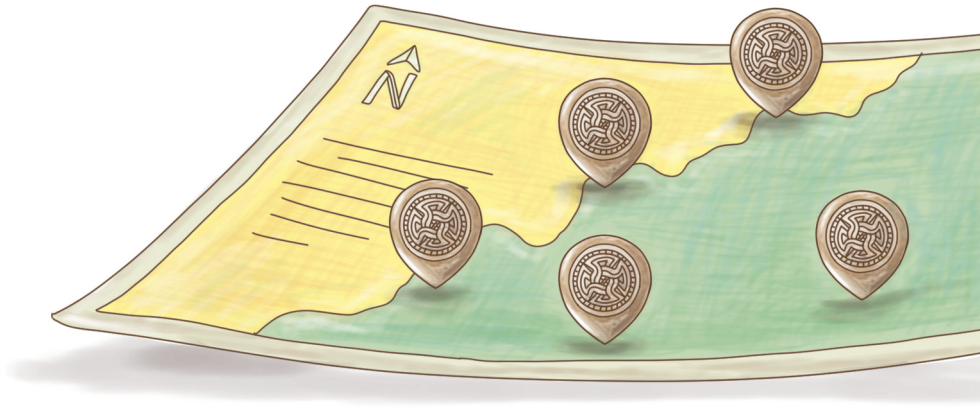
This product can be useful but there are challenges that prevent Saamaka communities to use it by themselves:

Challenge 1: Members of the Saamaka communities, who participated in the process, did not get the skills needed to manage and use the maps on their own, without assistance. Therefore, the Saamaka communities are not the final owners of the information but they have to rely on outsiders when they want to use the information.

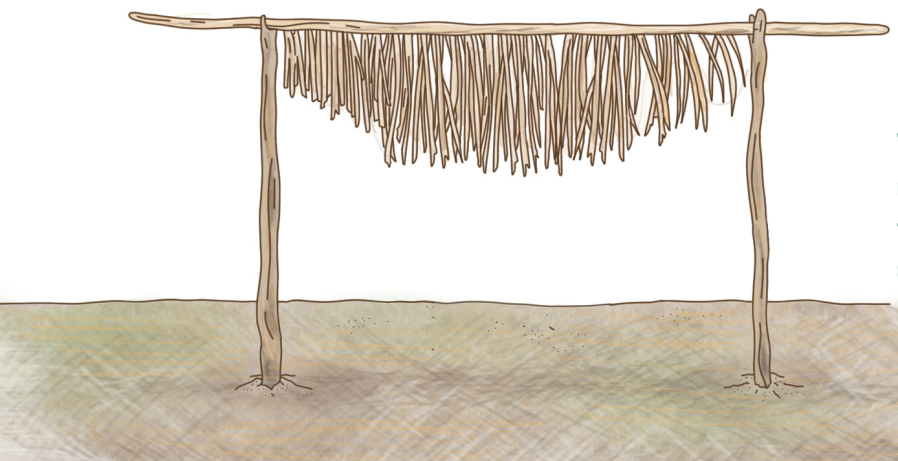
It is very important the Saamaka communities get the skills needed and are the final owners of the data and knowledge.

What the Saamaka communities can do about it:

in a next process, Saamaka communities should ask the organization with whom they are collaborating to allocate sufficient time and budget to train members of the communities whereby they can build up their skills to manage the information, monitor its use and acquire the confidence to become interactive users of their own information.



Challenge 2: Sometimes, when the map does not show actual use, in a particular part of the forest, outsiders tend to assume that that piece of forest is not important for the local communities. This is a problem because many of these areas are for the Saamaka communities a sort of "forest reserves" for the future. Sometimes these areas are also sacred places which the communities do not want to pinpoint to avoid misuse, however, these are fundamental to their culture and wellbeing. Situations like this increase their distrust and opposition towards outsiders and make worse the disempowerment that already exist in the community.



What the communities can do about it:

While formal tenure rights remain unrecognized, it is important that the Saamaka communities ask that in future participatory mapping projects there is a follow-up stage in which the communities can jointly divide their territory into zones. For example, a zone of active use and a zone of future use. Such zoning can make sure that all areas that are important for Saamaka communities, are known by outsiders.

Challenge 3: The map and the process to make the map have brought up important learning about the Saamaka territory and this knowledge could be very useful for the Saamaka communities to talk about internal issues, important in their dialogue with the government and other outsiders, it could be used for educational purposes at schools and for tourist information purposes. However, until today, the paper map and the 3D map generated in the process reported in this book are not used. **Why?** There are mainly two reasons:

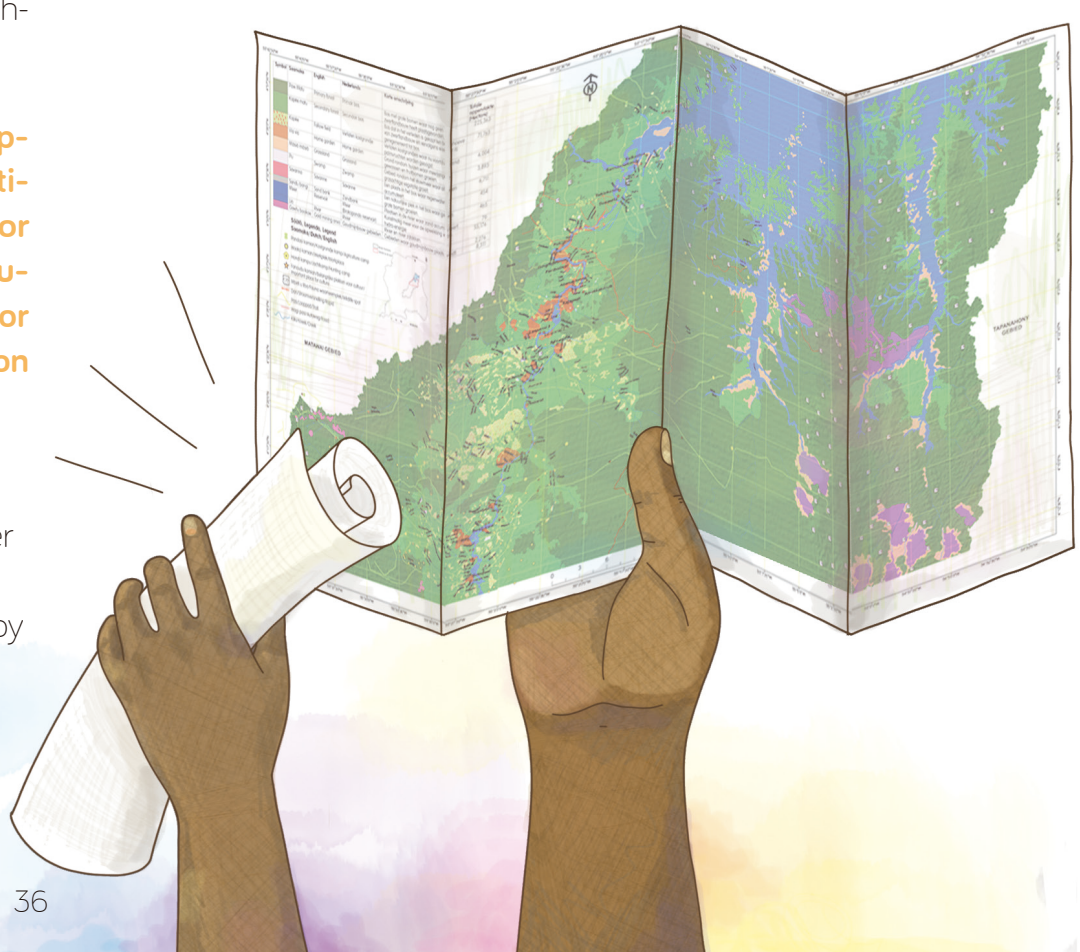
1 **One** reason is that local communities still do not know exactly the power of maps to communicate among each other and with the outside world.

It is important at the beginning and during the mapping process to sensitize local community participants about the many possibilities of maps for internal community processes and in their communication with outsiders. This is an important task for the organization responsible for the implementation of the project.

2 The **second** reason why the maps do not get to be used by local communities and outsiders is the lack of a leader or an internal champion who can prevent that the map and the 3D model are forgotten by the communities or by outsiders. A leader or a champion who can promote the use of the maps.

What the communities can do about it:

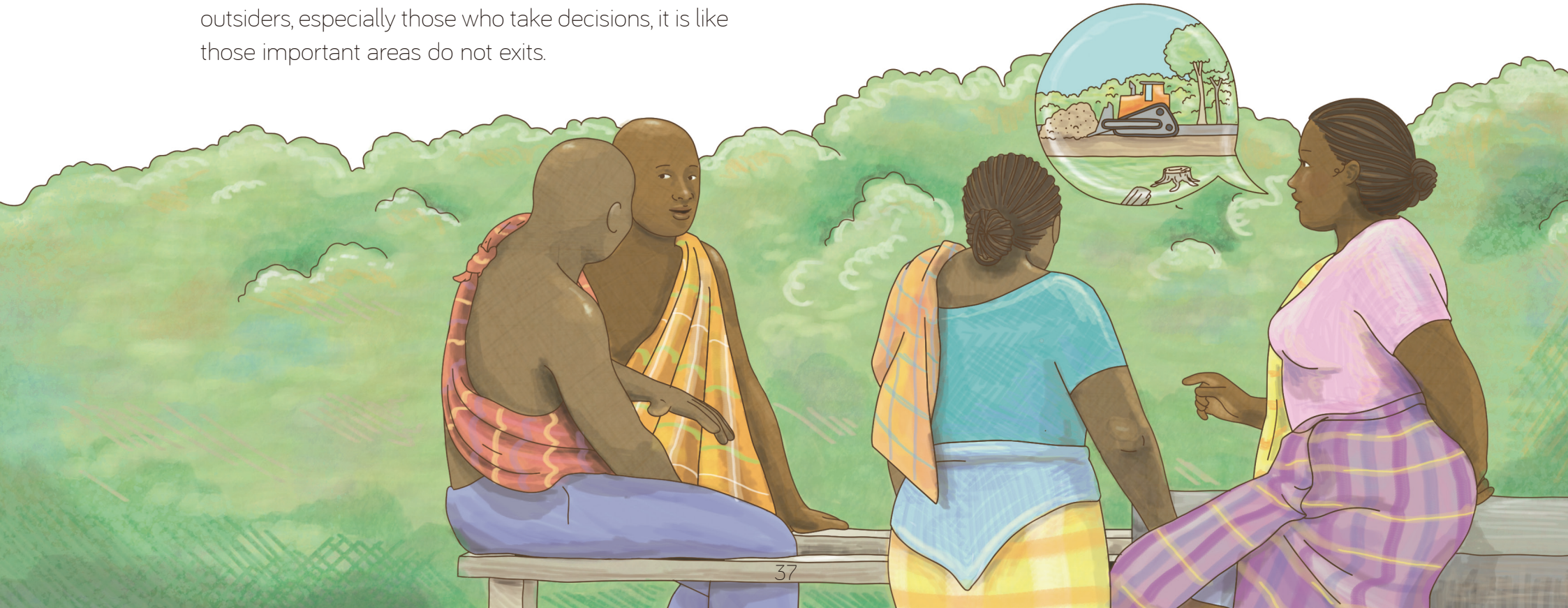
In next participatory mapping processes, it is important that the communities select one or a group of enthusiastic champions from their communities who can represent the communities and insistently defend the need to use these maps and knowledge in relevant decision making at the district and national level. Again, it is important to ask the organization with whom the Saamaka communities collaborate, to allocate time and budget to strengthen the leadership capacity of selected leaders and champions.



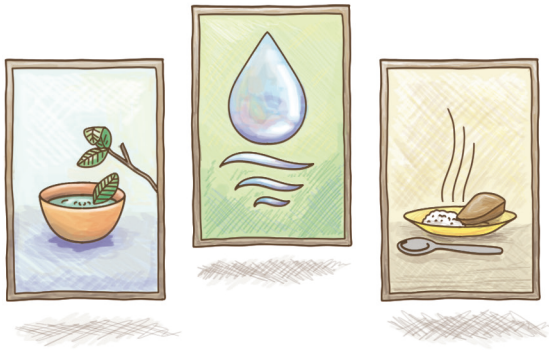
Challenge 4: Often, when a road infrastructure development will take place or the construction of a dam or the planning of logging or mining concessions, the areas that are important for the Saamaka communities are not included in the Environmental Impact Assessment (EIAs) of these projects or in the consultation process that the government does with the communities. As a result, these important areas are neglected and lost (like what happened with the Brokopondo lake). Therefore, it is important that the information produced in these maps is included in any environmental impact assessments and as a layer in any consultation process. If this knowledge of the Saamaka communities is not made available to outsiders, especially those who take decisions, it is like those important areas do not exits.

What can the Saamaka communities do about it:

It is important that the Saamaka communities demand that any consultation process or environmental impact study in their territories use this information, which is familiar to the communities because in that way, the communities can understand what will happen to them if a certain development take place and they will also be able to take informed decisions.



The most important ecosystem services for the Saamaka communities



The process: How were the most important ecosystem services selected?

All ecosystem services are important but sometimes it is necessary to assign a value to them. Assigning a value to ecosystem services is especially important in the communication with outsiders, with the western world. For example, if an organization would have a bit of money to invest in the conservation or rehabilitation of certain ecosystem services, then the organization would focus efforts on the ecosystem services that are more important for the communities. Therefore, in this work many members of the Saamaka communities were asked to show those ecosystem services that were important to them through the following steps:

1 **Each ecosystem service identified during the map legend process was drawn on cards.**

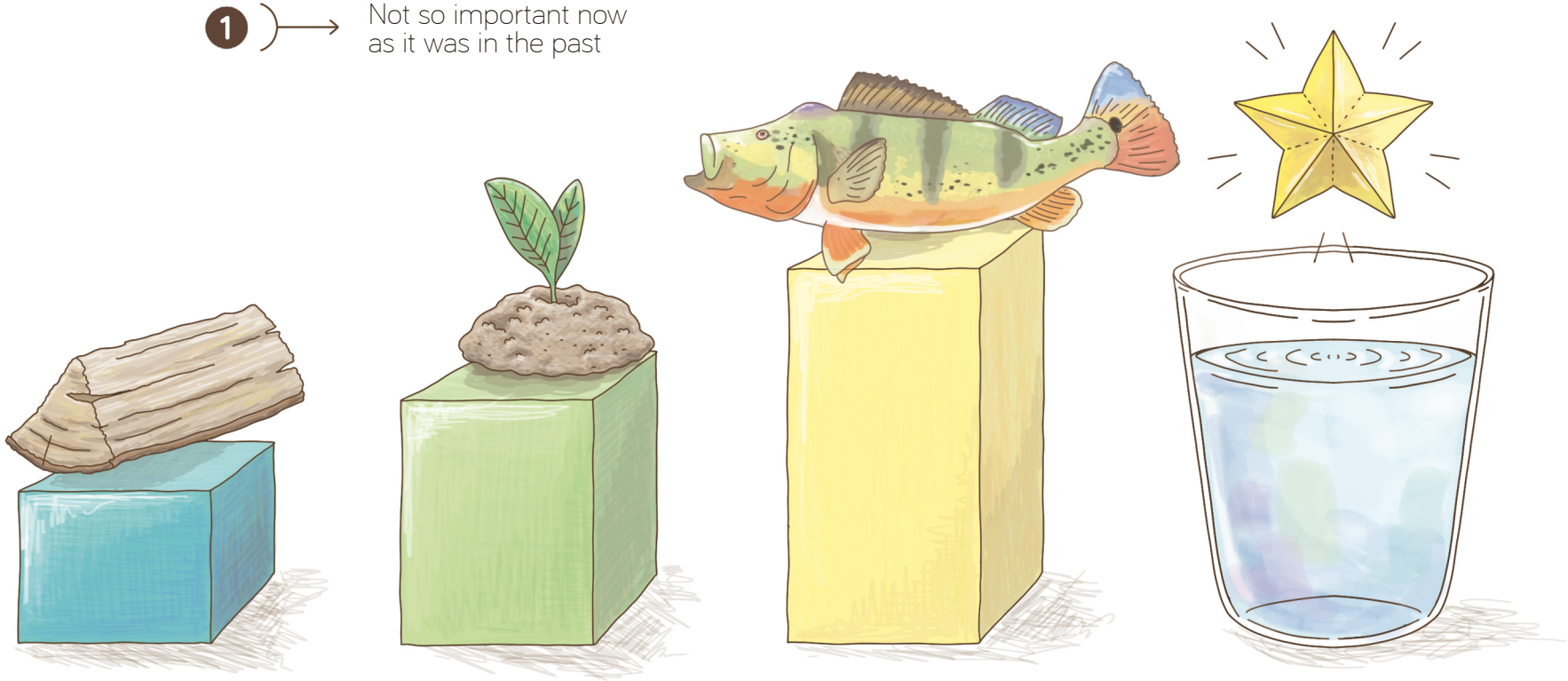
2 **Then the community participants were asked to put on top of each drawing an amount of seeds.**

3 The meaning of the number of seeds in each card.

Number of seeds	Importance
1 2 3 4 5 6 7 8 9 10	Extremely important
1 2 3 4 5	Very important
1 2	Important
1	Not so important now as it was in the past

Saamaka community members participating in this process could not prioritize all ecosystem services using numbers because the participants agreed that some ecosystem services were essential. Essential means that they are necessary, people cannot live without those ecosystem services, thus they cannot be replaced. The symbols to show those essential ecosystem services are:

- Essential, cannot be replaced
- Essential for spiritual reasons
- Important for the social life



The result of the prioritization process:

The table below shows the list of the ecosystem services and the importance it was given by the participants:

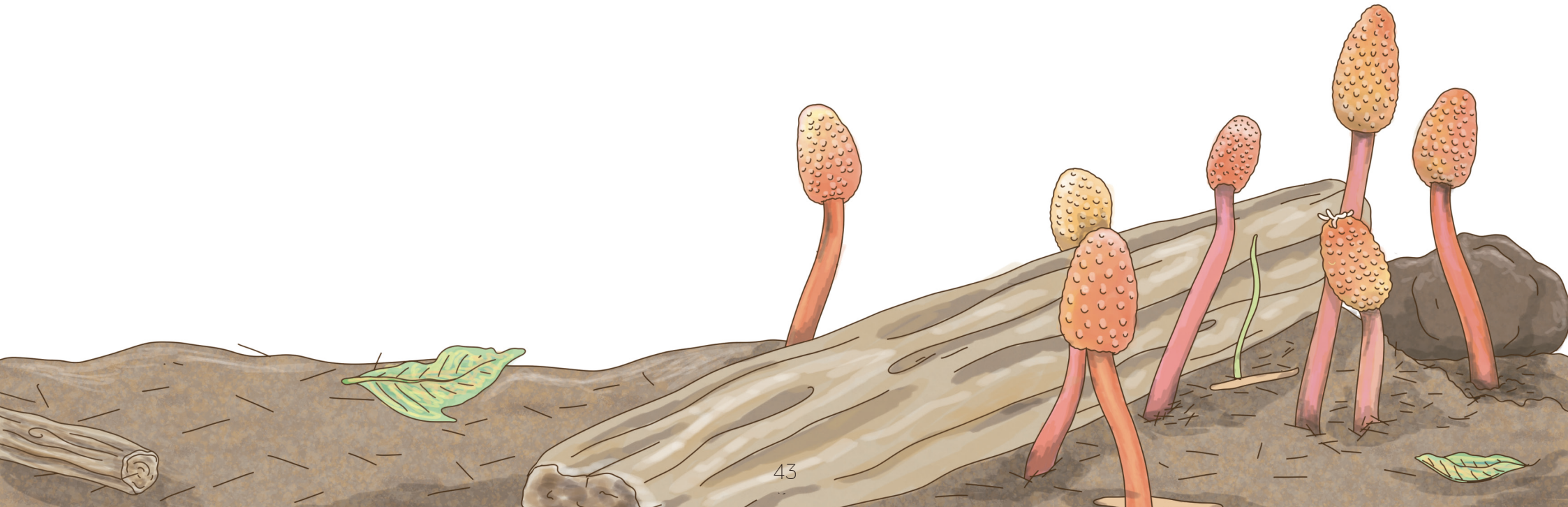
Table 2: Important ecosystem services in the Saamaka territory. S1 (sub-region 1 from Pikipada to Lespansi II). S2 (sub-region 2 from Gunsi to Botopasi)

No.	Landscape features	Local name	Description (based on local narratives)	Importance of ecosystem services per sub-region	
P Nutrition				S1 (From Pikipada to Lespansi II)	S2 (From Gunsi to Botopasi)
1	Crops	Njang njang goön	Crops under shifting cultivation both in primary and secondary forest	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
2	Wild meat	Matu gwamba	Animals hunted in the forest for food and for income generation	1 2 3	1 2 3
3	Palm oils	Fatu (u boï sondi)	Oils extracted from palm fruits and used for cooking and other uses such as ceremonies/ rituals	1 2 3	1 2 3
4	Fish	Fisi	Fish found in rivers, creeks and swamps and used for sub-sistence and income generation	1 2 3 4 5	1 2 3 4 5
5	Wild fruits	Matu fuuta	Fruits found in the forests	1 2 3	1 2 3
6	Spices	Uwii / son di boï	Herbs and spices used for cooking	1 2 3	1 2 3
7	Drinking water	Wata u bebe	Drinking water sources from creeks and rivers	★	★

No.	Landscape features	Local name	Description (based on local narratives)	Importance of ecosystem services per sub-region	
P Material				S1 (From Pikipada to Lespansi II)	S2 (From Gunsi to Botopasi)
8	Timber	Paw u wööko	For construction of houses, boats and kitchen utensils, crafts and for income generation purposes	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5
9	Thatching materials	Tasi	Woven palm leaves used for roofing	1	1 2 3
10	Binding materials	Tatai mbei wosu	Liana used as a binding material in the construction of houses	1	1
11	Fibers	Uwïï u mbei sondi	Gourds, reeds, wild cotton and palm leaves used for making clothes, rope, hand crafts, kitchen utensils and elements for rituals	1	1 2 3
12	Quarry	Tjatja/Sandu	Sand and gravel for the construction of houses and for income generation purposes	1 2 3	1 2 3
13	Soil	Doti	Type of soil used in construction of houses	1	1 2 3
14	Resins	Paw kandea	Type of resins from certain tree used to light fires	1	1
P Energy					
15	Firewood	Faja udu	Firewood for cooking	1 2 3	1 2 3
P Daily activities					
16	Place to live: Village	Konde	Village	●	●
17	Place to move: Trails	Pasi	Includes walking trails between villages, hunting trails and trail to the river	●	●
18	Place to move: Roads	Wagi pasi	Roads where cars can drive	●	●
19	Place to move: tractor ways	Koni pasi	Trails were a tractor can go	●	●
20	Place to move: Rivers	Lio	Main transport hub in the area	●	●

No.	Landscape features	Local name	Description (based on local narratives)	Importance of ecosystem services per sub-region	
R Water flow regulation				S1 (From Pikipada to Lespansi II)	S2 (From Gunsi to Botopasi)
21	Swamps	Pu	Areas in the primary forest were water accumulates	★	★
R Regulation of the biotic environment					
22	Biodiversity reservoirs	Mbeti liba	Areas in the primary forest that are important for wildlife and for the protection of other resources	★	★
R Regulation of the spatial structure					
23	Primary forest	Paw matu	Large tracts of connected primary forests providing connectivity and a reservoir of resources for future generations	★	★
C&S Health					
24	Forest medicines	Desi uwii	Medicinal products obtained deep in the primary forests	1 2 3	1 2 3
C&S Enjoyment					
25	Religious areas	Gaan dang and kule wata	Area for ritual performance inside the village	☆	☆
26	Wasi moii or tjangaa	Toerist kampu	Area for ritual performance in the forest	1 2 3 4 5	1 2 3 4 5
Self-fulfillment					
27	Religious areas	Faka pau	Area for ritual performance inside the village	☆	☆
28	Religious areas	Wasi moii or tjangaa	Area for ritual performance in the forest	☆	☆
C&S Social fulfillment					
29	Washing area	Lampesi	Special place in the river bank or creek, or large stones in the river where women gather to wash dishes, to bathe and to fish	●	●

No.	Landscape features	Local name	Description (based on local narratives)	Importance of ecosystem services per sub-region	
C&S Social fulfillment				S1 (From Pikipada to Lespansi II)	S2 (From Gunsi to Botopasi)
30	Football field	Bali goön	Place in the village where men gather to play football while other people gather around the field for amusement.	●	●
31	Church	Keeki	Place in the village to worship according to a Christian religion	●	●
32	Cemetery	Geebi	Burial area around the village for community members	●	●
33	Sacred place	Taku kamian	Place that preserves ancestral memory	●	●
34	Place identity	Fanoudu kamian	Special places in the forests that are essential to preserve Saamaka culture and traditions	☆	☆
35	Feeling of attach-ment.	Goön doti	Literally translate as “earth” but it describes a feeling of belonging to the land	☆	☆
36	Important place	Neng u Kamian	River islands, river stones, camps, rapids, and other places that are important for various reasons	●	●



What this table shows:

- The table shows how ecosystem services are valued in sub-region 1 (from Pikipada to Lespansi II) and in sub-region 2 (from Gunsi to Botopasi).
- The main difference between sub-regions is the value assigned to timber. In sub-region 1 (from Pikipada to Lespansi II) timber is extremely important and in sub-region 2 (from Gunsi to Botopasi) timber is just important.
- Another difference is thatching materials, binding materials, fiber and soil. In sub-region 1 (from Pikipada to Lespansi II) these ecosystem services are not as important as they used to be in the past. In sub-region 2 (from Gunsi to Botopasi) these are still important.
- The table also shows the ecosystem services that cannot be valued in numbers because these are simply essential, cannot be replaced.

How this information is useful

This knowledge is useful because it shows outsiders what is important and especially what is essential for the Saamaka communities. For example, outsiders might not think that a stone in the river or a swamp in the forest represents essential elements for the wellbeing of the Saamaka communities. Thus, this knowledge tells insights on the Saamaka communities' way of life and it can change the way outsiders see them and interact with them.

The availability of ecosystem services has changed, it is not same as it used to be in the past

Availability of ecosystem services

Regularly during meetings, the Saamaka community participants indicated that the amount of ecosystem services has changed. It is not the same as it used to be in the past, some of them have become overexploited and finding them in nature is more and more difficult. For example, there is this situation for fish and wild meat, they are now difficult to find, the communities have to travel long distances to find them, as they are very scant nearby the villages. The main reasons for their decline are related to the unsustainable practice of fishing and hunting. Table 3 below, shows the change in the availability of some of the most important ecosystem services.

Use of ecosystem services

It is also happening that the use that the communities make of ecosystem services is not the same as it used to be in the past. For example, community members told that they are using less palm oils for cooking because it is easier to buy them in store. They also indicated that many Saamakas are using less traditional medicines because community members are relying more on western medicines and also because the traditional knowledge about medicine making is getting lost as the elderly pass away. Table 3 below also shows some differences in the use of crops and fish ecosystem services.

Table 3: Changes in the use and availabilit of ecosystem services. S1 (sub-region 1 from Pikipada to Lespansi II). S2 (sub-region 2 from Gunsi to Botopasi)

Ecosystem service	Trend				Reasons of change	
	Use		Availability		Use	Availability
	S1	S2	S1	S2		
Crops	+	++	▼	▼	S1: lack of interest and out migration of young and capable people leaving aged persons who are less and less able to open up new crop areas	Decreasing soil fertility due to shorter fallow periods
Wild meat	+	+	▼▼	▼▼	Smaller mammals and birds that are found easier are commonly the source of protein. Larger animals are hunted with greater effort for ceremonies and occasionally for income	Large mammals have declined due to high hunting pressure, also, noise from tractors, chain saws and other disturbances by human presence
Palm oils	+	+	▲▲	▲▲	S1: Used more and more for ceremonies and rituals only S2: Used on a daily base for cosmetic purposes and for income generation but wide use for cooking is decreasing, people buy in the store due to amount of work	No change, it is still abundant throughout fields in fallow
Fish	+	++	▼▼	▼▼	On a subsistence basis, people are depending more on smaller fish with less nutritional value. Obtaining larger fish currently demands larger distances, more costs, time and effort	Decline of fish with high economic and nutritional value due to unsustainable fishing practices
Timber	++	++	▼▼	▼	No change. It is still widely demanded	S1: Stocks reduced due to high pressure from commercial logging S2: Increased pressure for the construction of boats and houses
Forest medicines	+	+	▼	—	No change. It is still widely demanded	S1: Stocks reduced due to high pressure from commercial logging

The symbols in the table mean:

Availability

▲▲ *The ecosystem service is still abundant*

▼▼ *The ecosystem service is in severe decline*

▼ *The ecosystem service is in moderate decline*

— *No change has occurred in the availability of ecosystem services*

Use

++ *The ecosystem service is highly used*

\+ *The ecosystem service is not used now as it used to be used in the past*

What this table shows:

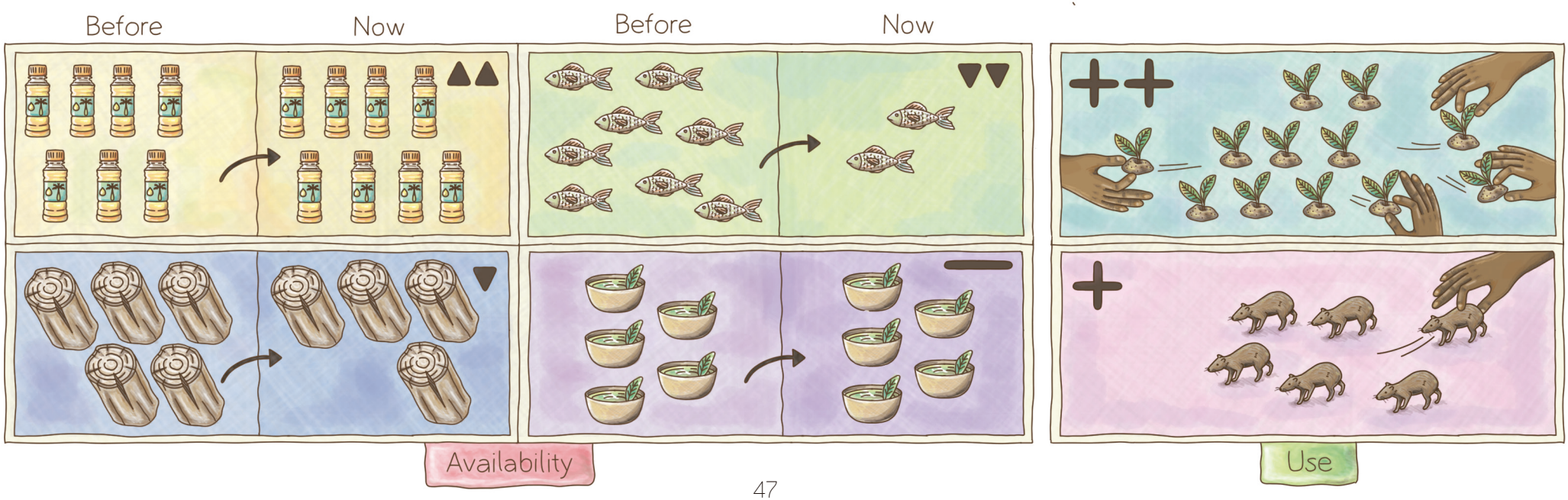
Change in use

The table shows that in sub-region 1 (between Pikipada and Lespansi II) the use of crops and fish ecosystem services is less now than it used to be in the past (+).

The table shows that in sub-region 2 (between Gunsi and Botopasi), the use of crops and fish ecosystem services are still high (+ +).

The table shows that in the entire area (from Pikipada to Botopasi), wild meat, palm oils and forest medicines are less used now than it used to be in the past (+).

The table shows that in the entire area (from Pikipada to Botopasi), timber ecosystem services are still highly used (+ +).



Main reasons for decline in the use

The decrease in the use of crop ecosystem services in sub-region 1 (between Pikipada and Lespansi II) is associated with the move of young adults to Paramaribo, leaving aged persons who are less and less able to open up new crop areas.

The decrease in the use of fish in sub-region 1 (between Pikipada and Lespansi II) may be associated with the decline in the availability of fish nearby the villages. People need to travel longer distance, which costs time, money and more effort.

The decrease in the use of wild meat is associated with a larger investment in cost, time and more effort to hunt.

The decrease in the use of forest medicines is associated with the loss of traditional knowledge and to a larger reliance on western medicines.

The decrease in the use of palm oils for cooking is associated with a preference for oils that are sold in the shop.

Change in availability

The table shows the availability of ecosystem services in each sub-region (sub-region 1 between Pikipada and Lespansi II and sub-region 2 between Gunsi and Botopasi).

It shows that crop ecosystem services have a moderate decline (▼) in the entire area between Pikipada and Botopasi.

It shows that wild meat and fish have had a severe decline (▼▼) in their availability in the entire area between Pikipada and Botopasi.

It shows that the availability of timber has had a severe decline (▼▼) in sub-region 1 (from Pikipada to Botopasi).

The table shows that palm oils and forest medicines are still abundant in the entire area entire area between Pikipada and Botopasi.

Main reasons for decline in the availability

The severe decline in timber is related to commercial logging activities.

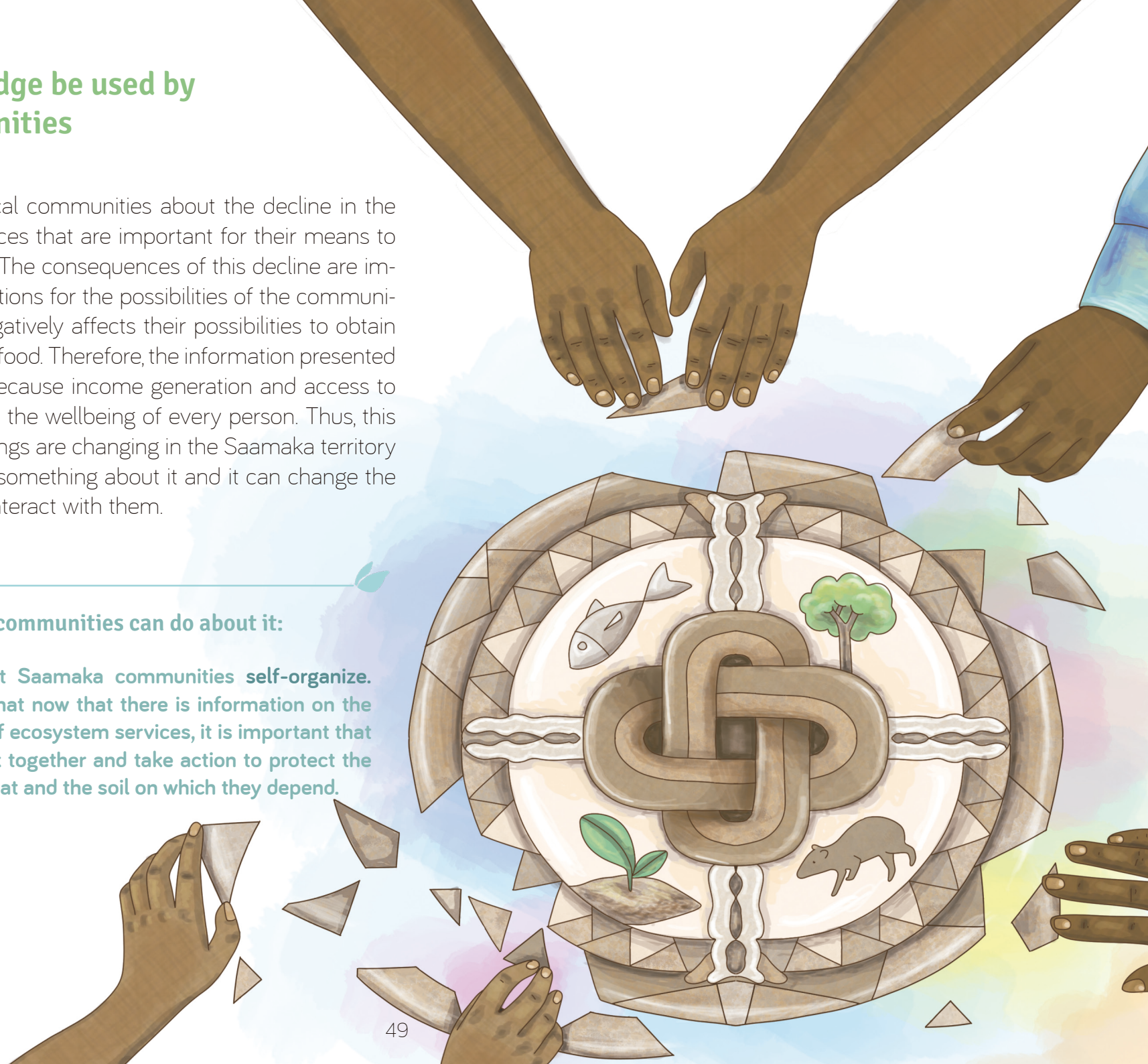
The severe decline in fish and wild meat is related to the use of unsustainable practices that have led to overexploitation of these ecosystem services.

How can this knowledge be used by the Saamaka communities

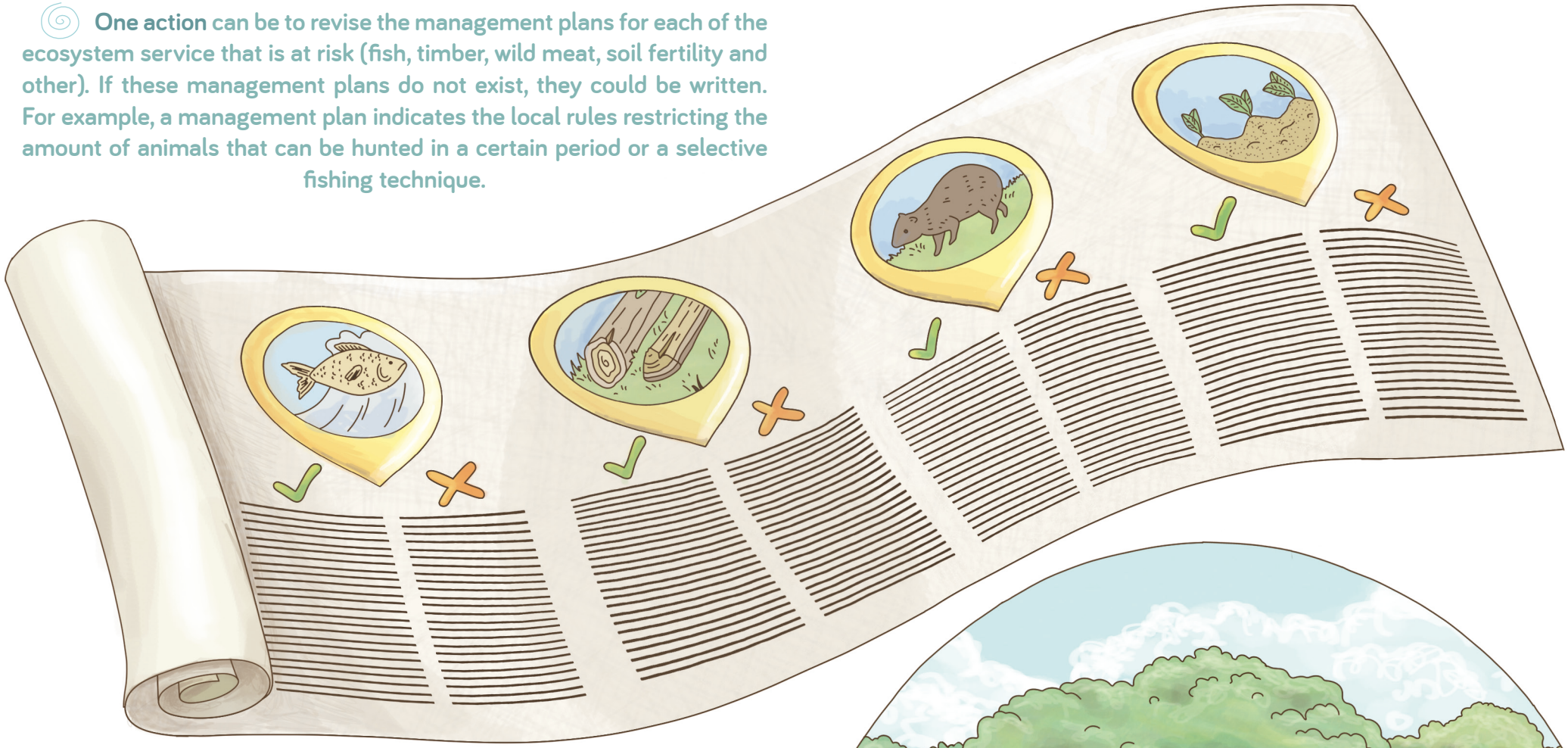
This knowledge warns the local communities about the decline in the availability of ecosystem services that are important for their means to secure their necessities in life. The consequences of this decline are important because it has implications for the possibilities of the communities to earn income and it negatively affects their possibilities to obtain sufficient quantity of nutritious food. Therefore, the information presented in this table is very relevant because income generation and access to nutritious food are essential to the wellbeing of every person. Thus, this information is showing that things are changing in the Saamaka territory and that it is necessary to do something about it and it can change the way outsiders see them and interact with them.

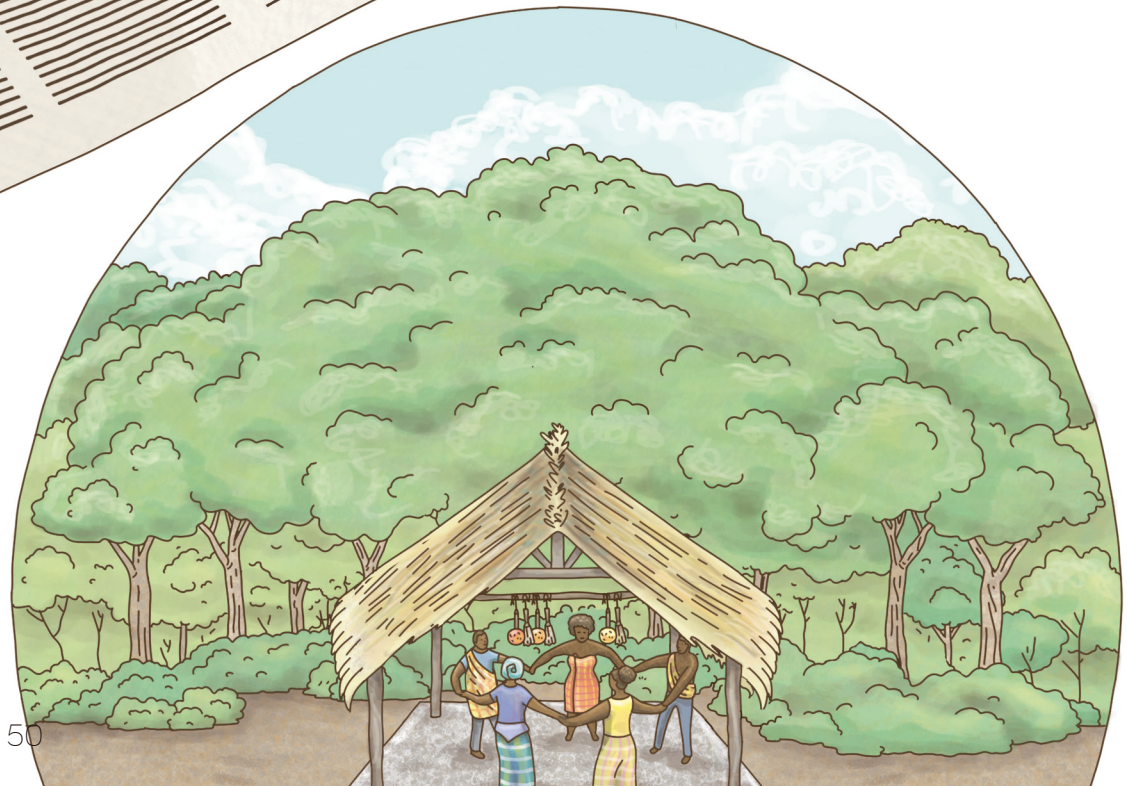
What Saamaka communities can do about it:

It is important that Saamaka communities **self-organize. Self-organization** means that now that there is information on the change in the availability of ecosystem services, it is important that community members work together and take action to protect the forest, the fish, the wild meat and the soil on which they depend.



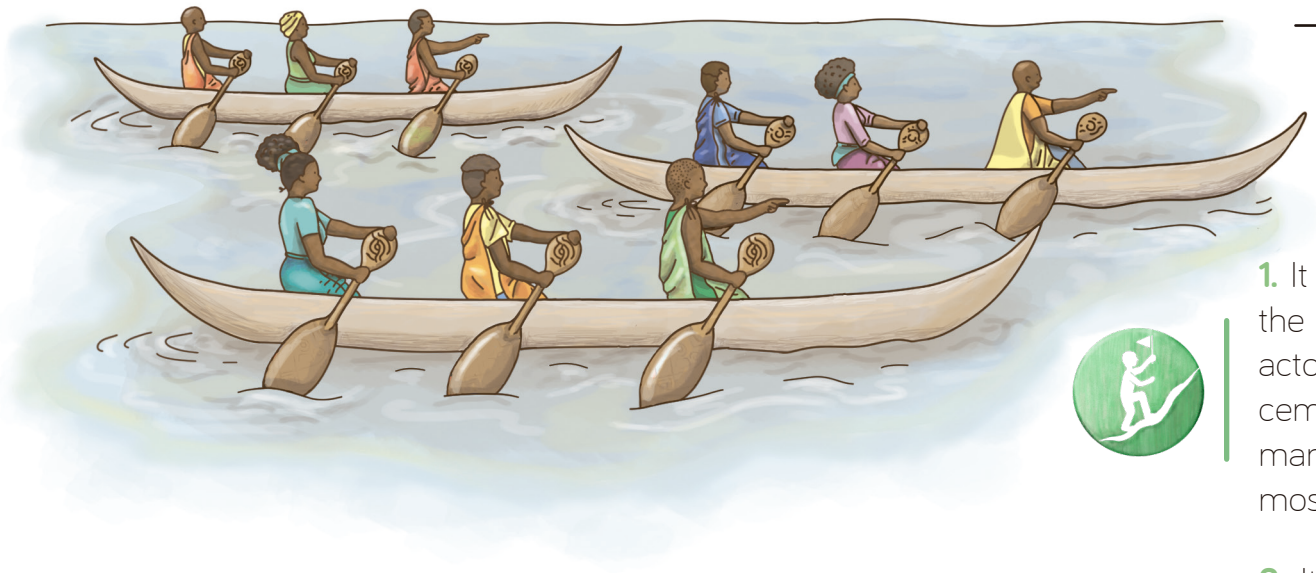
One action can be to revise the management plans for each of the ecosystem service that is at risk (fish, timber, wild meat, soil fertility and other). If these management plans do not exist, they could be written. For example, a management plan indicates the local rules restricting the amount of animals that can be hunted in a certain period or a selective fishing technique.





Another critical action to take is to invest in long-term forest and river preservation so that the natural base that provides food and income continues to exist. For example, one way to do that is through the protection and strict management of sacred places in the primary forest, which can be managed under especial customary rules.

Challenges



To work towards these actions, it is important to deal with two main challenges:

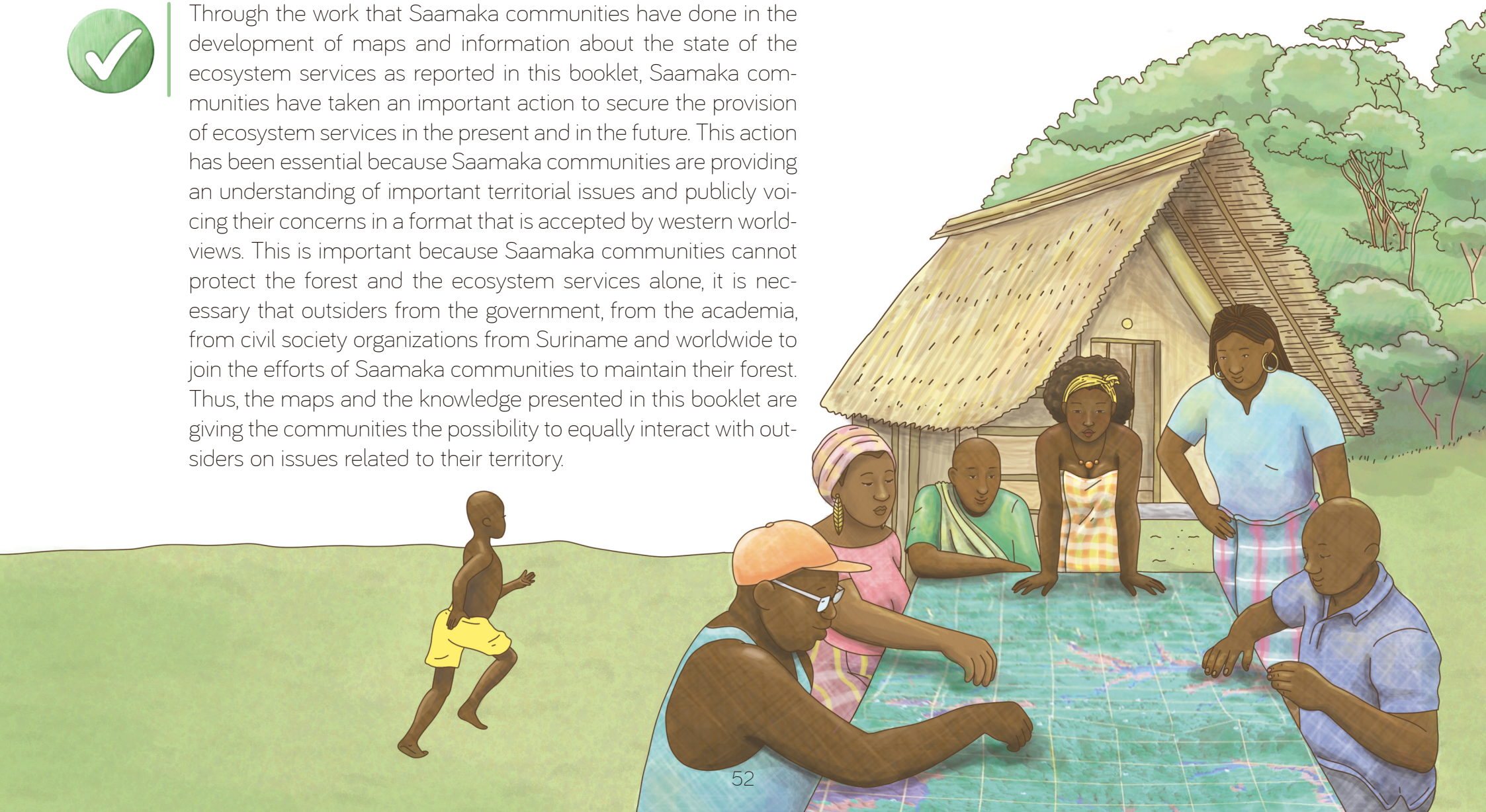
1. It is necessary to have visionaries and champions from the community who can build trust between different actors and organize them toward a common goal or vision, cement community cohesion, and prevent ecosystem mismanagement. Thus strengthening leadership should be the most important action to take.

2. It is crucial to strengthen the social institutions, namely, village committees, local community associations, community based organizations among others so that Saamaka communities have a strong institutional base to work collectively towards common goals. For this, the support of civil society organization is needed.

However, we should not delegate the responsibility of the conservation of forest and its ecosystem services to the Saamaka communities alone. Support should be given to them by outsiders so that their capacity to work collectively towards a goal is strengthened and they are better equipped to deal with a world in rapid transformation.

What Saamaka communities actually do to secure the provision of ecosystem services

Through the work that Saamaka communities have done in the development of maps and information about the state of the ecosystem services as reported in this booklet, Saamaka communities have taken an important action to secure the provision of ecosystem services in the present and in the future. This action has been essential because Saamaka communities are providing an understanding of important territorial issues and publicly voicing their concerns in a format that is accepted by western worldviews. This is important because Saamaka communities cannot protect the forest and the ecosystem services alone, it is necessary that outsiders from the government, from the academia, from civil society organizations from Suriname and worldwide to join the efforts of Saamaka communities to maintain their forest. Thus, the maps and the knowledge presented in this booklet are giving the communities the possibility to equally interact with outsiders on issues related to their territory.



Through many traditional practices, Saamaka communities are helping conserve the forest and the provision of important ecosystem services. For example, some places like the mbeti liba may act as forest reserves that are intended to sustain the provision of ecosystem services in the future.

IMPORTANT SOCIO-ENVIRONMENTAL ISSUES IN THE SAAMAKA TERRITORY

Intensity in the use of ecosystem services

When many members of the Saamaka community use a certain area a lot, it means that that area is used intensively. For example, many members of the community go to fish frequently in the *Taanga fisi* creek or in the *Langa mau* creek. Thus, those creeks are used intensively. In western words, the locations where ecosystem services are used a lot by many people are called areas with intense use.

The process to identify areas where ecosystem services are used intensively in the Saamaka territory

To identify areas where ecosystem services are used intensively in the Saamaka territory, people from Tropenbos Suriname asked the following questions to 492 persons from the Saamaka community, 238 in sub-region 1 (from Pikipada to Lespansi II) and 254 in sub-region 2 (from Gunsi to Botopasi):

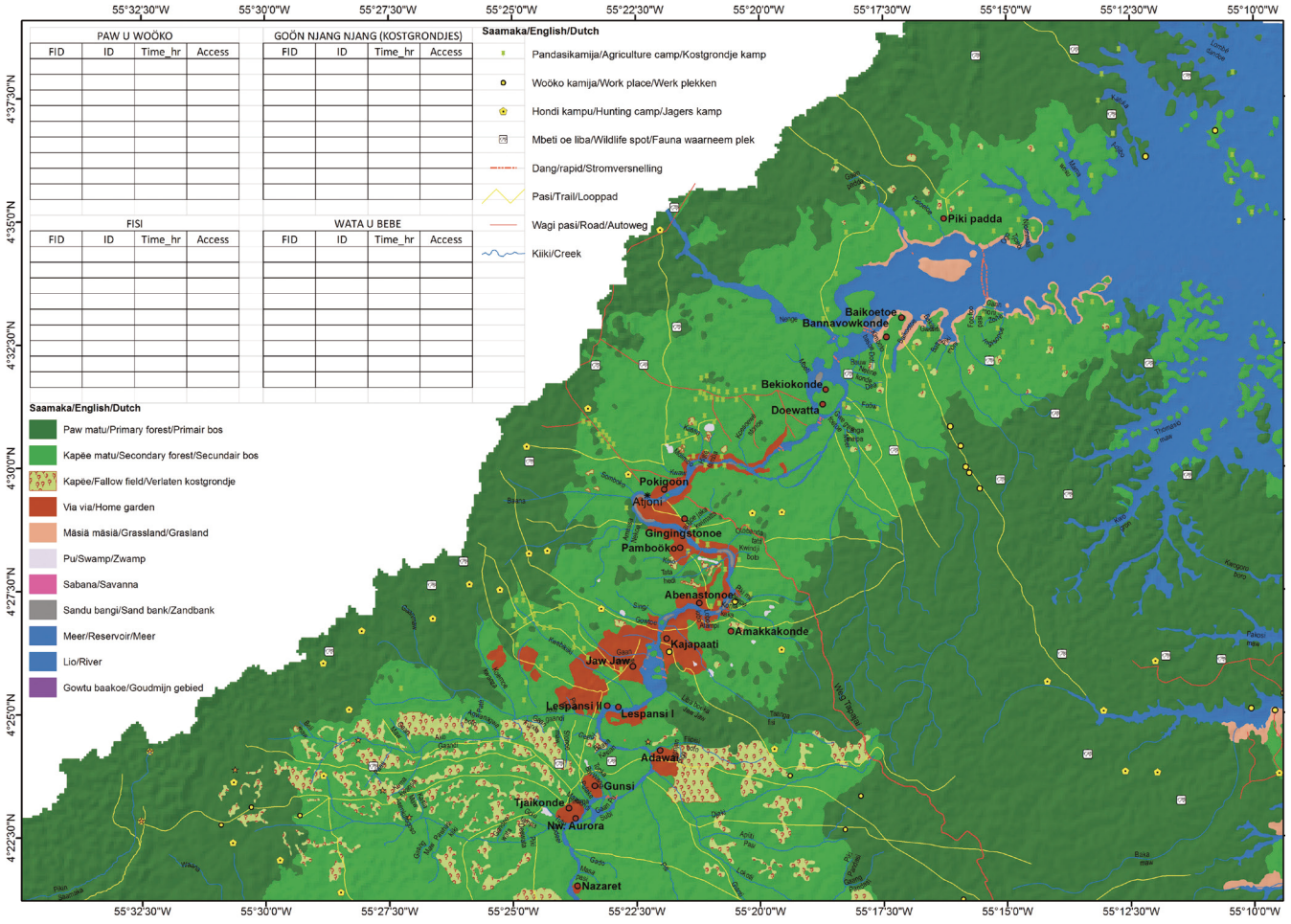
- Could you please show the map the three main locations where you go fishing?
- Could you please show the map the three main locations where you harvest timber?
- Could you please show the map the three main locations where you plant crops?

The persons from the Saamaka community who responded to these questions were also asked to show on the map, the locations where they did go fishing, harvesting timber and planting crops in the past (for example in 1995).

The map that the persons from Tropenbos Suriname were using, was made by Saamaka communities during a process described on page 25.

Figure 4: Pictures during interviews

Figure 5: Map of the Saamaka territory used by the pesons from Tropenbos during interviews



The result: where and why the use of ecosystem services has intensified

Change in the intensity of use of ecosystem services

The results of the interviews are summarized in table 4.

What this table shows:

- The use of fish and crops intensified more in sub-region 2 (from Gunsi to Botopasi) from 1995 to 2015.
- The use of timber increased more in sub-region 1 (from Pikipada to Lespansi II) from 1995 to 2015.

Table 4: Change in the intensity of use of ecosystem services in the Saamaka territory

Ecosystem services	Sub-region 1 (From Pikipada to Lespansi II)		Sub-region 2 (From Gunsi to Botopasi)	
	1995	2015	1995	2015
Fish				
Timber				
Crop				

Why the use of these ecosystem services has intensified, why are people using these ecosystem services more?

The increase in the use of timber in sub-region 1 (from Pikipada to Lespansi II) in the last 20 years can be related to the pavement of the Atjoni road and the construction of other roads, including the road to Pusugrunu. The building of the road has created commercial opportunity for timber resources.

The increase in the use of fish and crop in sub-region 2 (from Gunsi to Botopasi) in the last 20 years can be related to an increase in inhabitants, for example community members from other villages upstream, coming to settle in sub-region 2. Thus, more people, more resources are being used.

How is this information useful?

This information shows the ecosystem services that have more pressure due to intense (a lot of) use. In Sub-region 1 (from Pikipada to Lespansi II) is timber. In sub-region 2 (from Gunsi to Botopasi) are fish and crops.

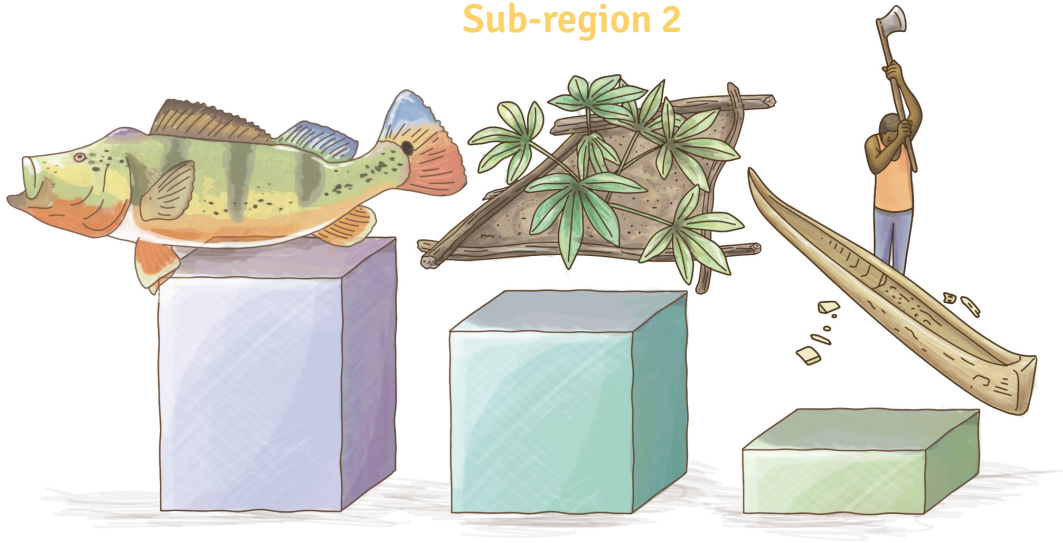
This information tells the Saamaka communities that there is a risk that these ecosystem services are being overexploited.

What Saamaka communities can do about it:

It is important to have management plans for these important resources to make sure that these will not be overexploited. If these are already over-exploited, then it is important to look for a restoration of these ecosystem services.

Sub-region 1

Sub-region 2



Where are ecosystem services more intensively used

The maps in figure 6 show the places in 1995 and 2015 where ecosystem services have been used more intensively (are areas that are used a lot by many people). The following can be seen on the maps:

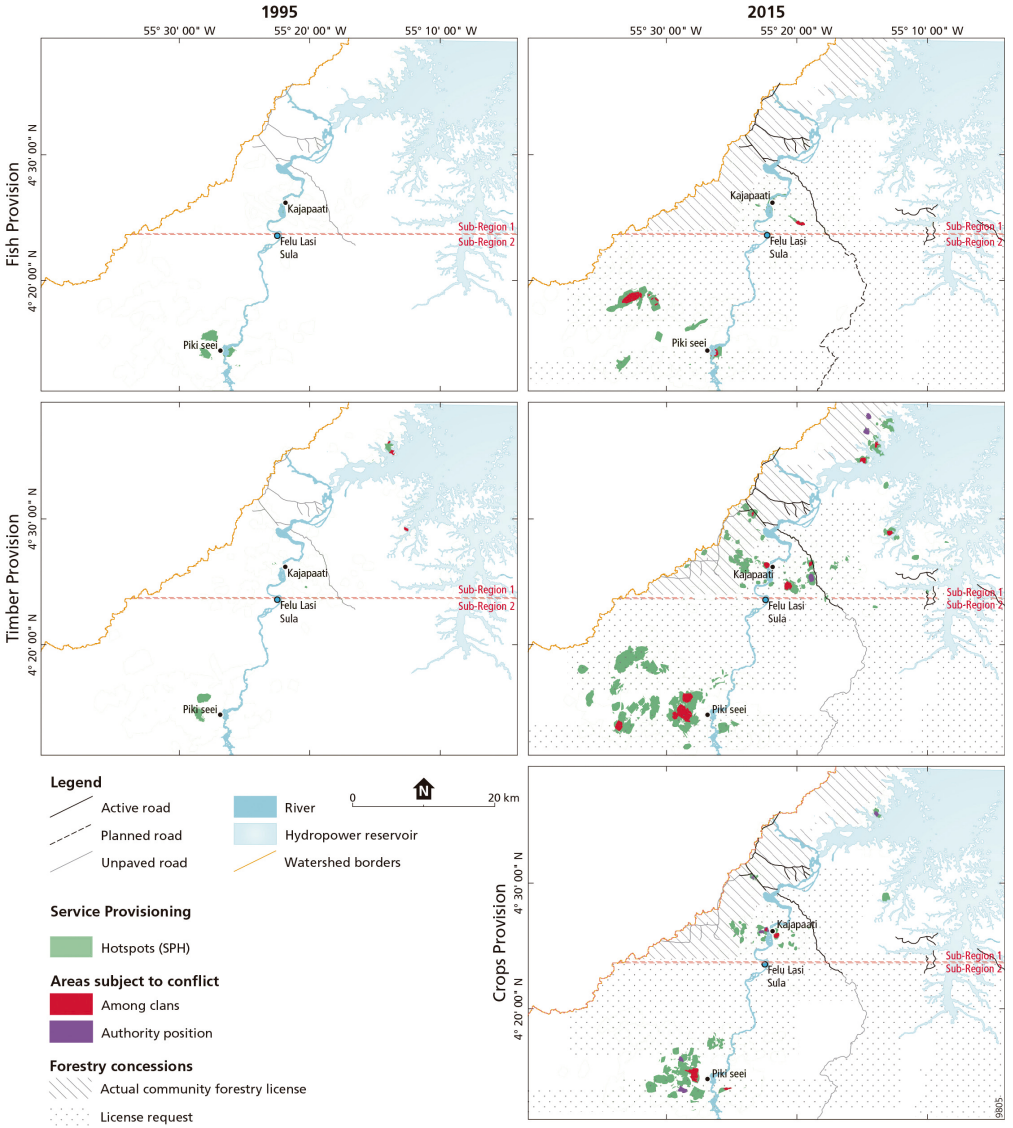
Areas in dark green

- The areas in dark green are the areas that are used a lot by many people.
- The dark green areas in 1995 corresponding to **fish** show that in **1995** fish ecosystem services were used more intense close to the villages.
- The dark green areas in 2015 corresponding to **fish** show that in **2015** fish ecosystem services were used more intense far away from the villages.
- The dark green areas in 1995 corresponding to **timber** show that in **1995** timber ecosystem services were used more intense close to the villages.
- The dark green areas in 2015 corresponding to **timber** show that in **2015** timber ecosystem services were used more intense far away from the villages.
- The dark green areas corresponding to **crops** are bigger and more numerous in Sub-region 2 (from Gunsi to Botopasi) and smaller and less numerous in sub-region 1 (from Pikipada to Lespansi II).

Areas in red and purple

Red and purple areas on the maps show areas where there is more pressure from use; therefore these areas might be at greater risk of overexploitation.

Figure 6: Places where ecosystem services (fish, timber and crops) are used more intensively



Land use developments

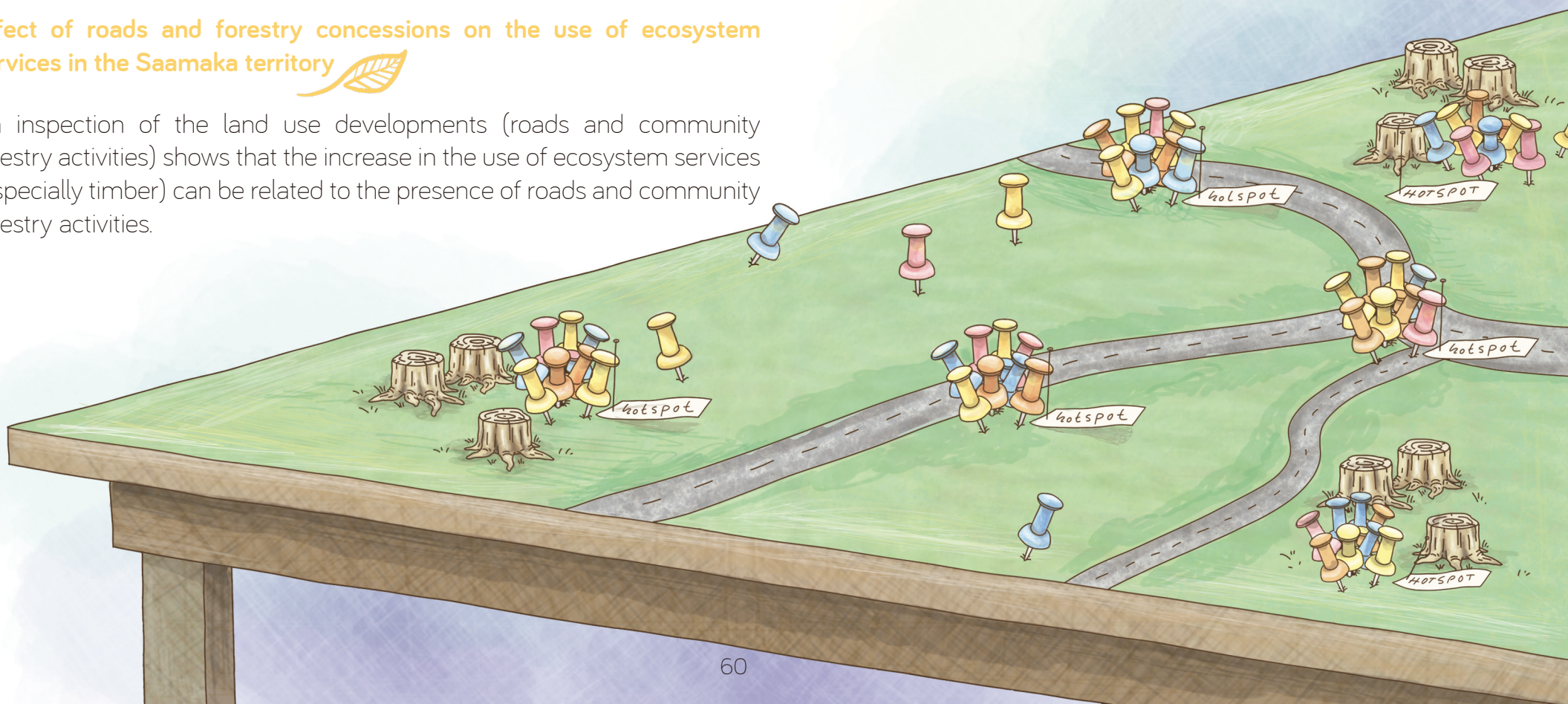
The maps in 1995 show that in this year there **were no** roads, nor community forestry concessions.

The maps of 2015 show that in this year there **were already** roads and one community forestry concession granted in sub-region 1 (from Pikipada to Lespansi II).

The maps of 2015 show that in this year the **entire territory has been asked for permission for community forestry activities**.

Effect of roads and forestry concessions on the use of ecosystem services in the Saamaka territory

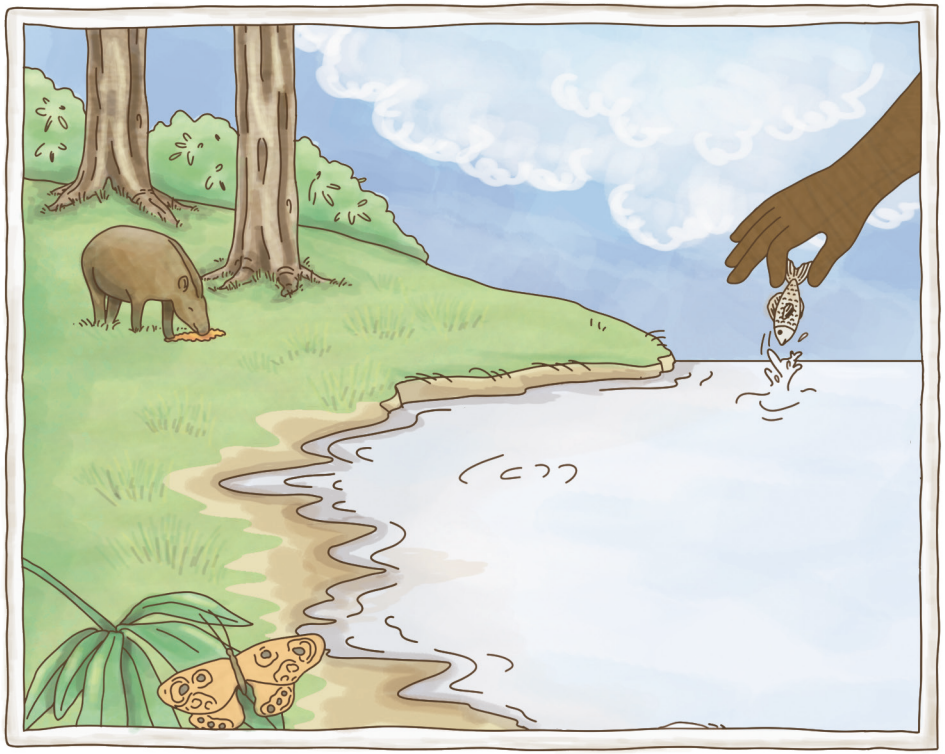
An inspection of the land use developments (roads and community forestry activities) shows that the increase in the use of ecosystem services (especially timber) can be related to the presence of roads and community forestry activities.



How is this knowledge useful?

First, this knowledge is useful because it lets Saamaka people see how intensively they are using their territory and, if the intensification in the use of important ecosystem services continues (if those dark green areas continue to be used a lot and become red), it is possible that fish, timber and crops will be overexploited in those locations.

Overexploitation of ecosystem services can be especially a risk in sub-region 2 due to higher population pressure.



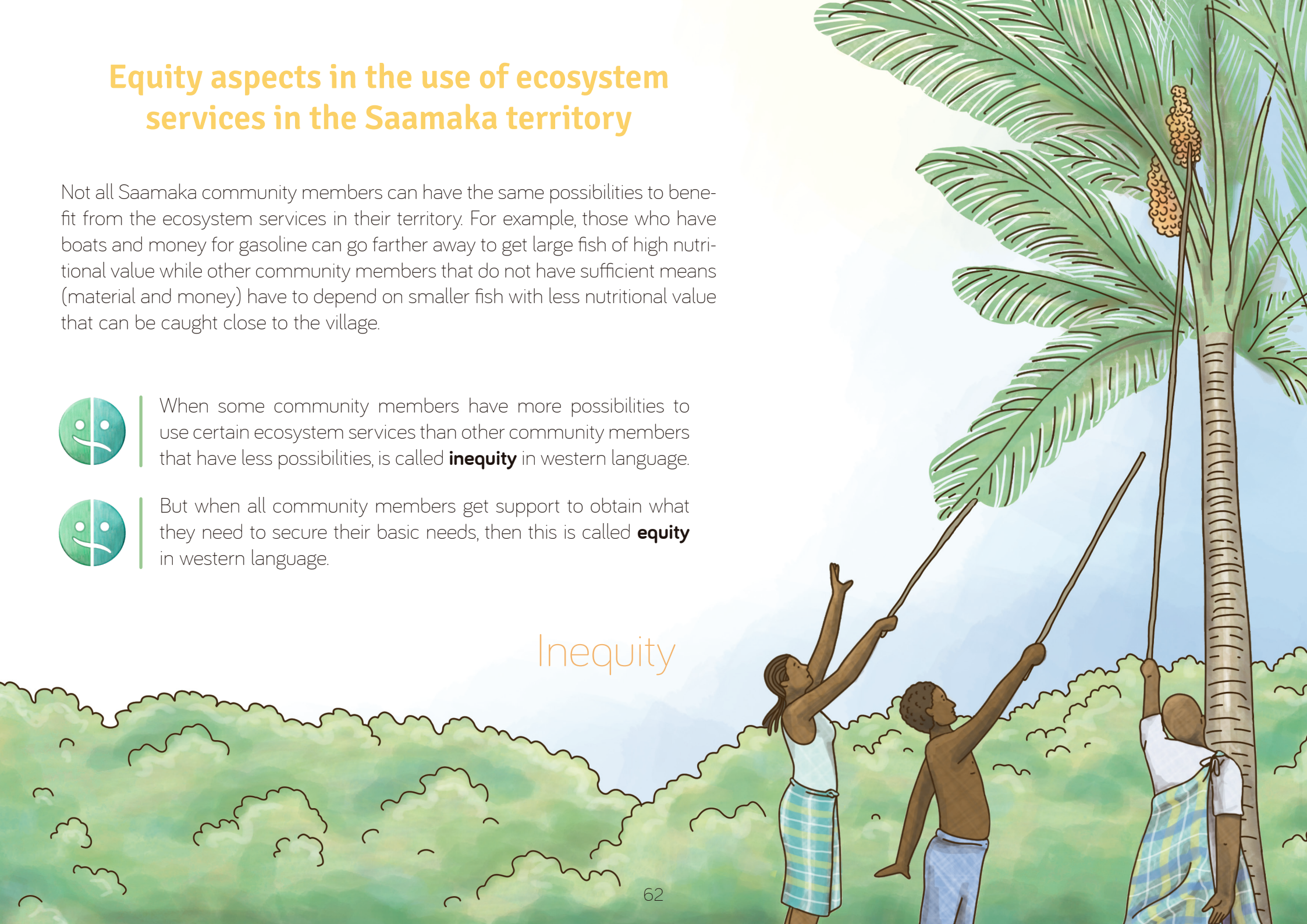
Equity aspects in the use of ecosystem services in the Saamaka territory

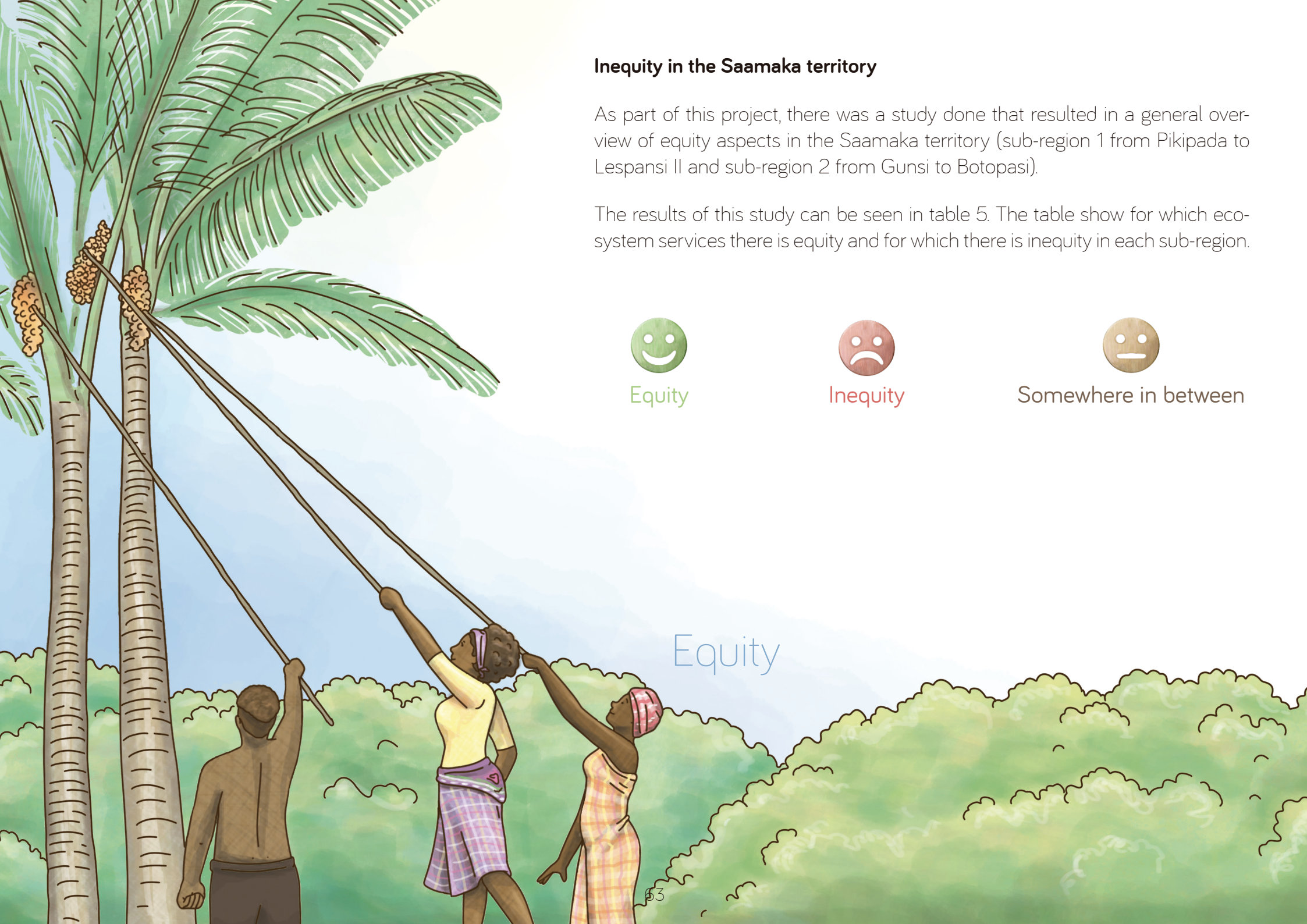
Not all Saamaka community members can have the same possibilities to benefit from the ecosystem services in their territory. For example, those who have boats and money for gasoline can go farther away to get large fish of high nutritional value while other community members that do not have sufficient means (material and money) have to depend on smaller fish with less nutritional value that can be caught close to the village.

When some community members have more possibilities to use certain ecosystem services than other community members that have less possibilities, is called **inequity** in western language.

But when all community members get support to obtain what they need to secure their basic needs, then this is called **equity** in western language.

Inequity





Inequity in the Saamaka territory

As part of this project, there was a study done that resulted in a general overview of equity aspects in the Saamaka territory (sub-region 1 from Pikipada to Lespansi II and sub-region 2 from Gunsi to Botopasi).

The results of this study can be seen in table 5. The table show for which ecosystem services there is equity and for which there is inequity in each sub-region.

Equity

Inequity

Somewhere in between

Table 5: Access and use of ecosystem services in the Saamaka territory

User category	Number of people asked	Ecosystem service	Equity[3]	
			1995	2015
Sub-region 1 (from Pikipada to Lespansi II)	238	Fish provision	☹	☹
		Timber provision	☺	☹
		Crop provision	-	😐
Sub-region 2 (from Gunsi to Botopasi)	254	Fish provision	☹	☹
		Timber provision	😐	😐
		Crop provisioning	-	☹

3. Based on the Gini coefficient. For details of this calculations and results see https://books.ipskampprinting.nl/thesis/534893-Ramirez/ chapter 4.

Based on the responses of the people who were asked, this is what the table shows:

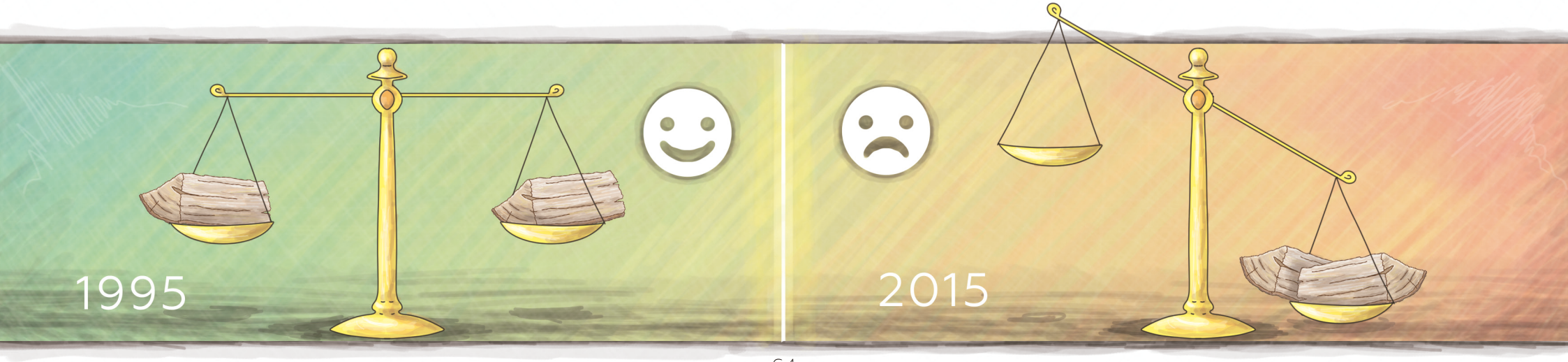
☹ In the past (1995) and until today, there is **inequity** in the use fish ecosystem services in sub-region 1 (from Pikipada to Lespansi II) and in sub-region 2 (from Gunsi to Botopasi).

☹ In the past there was equity in the use of timber ecosystem services in sub-region 1 (from Pikipada to Lespansi II) but there is **inequity** in the use of timber resources in the present.

😐 In the past and in the present there have been some **equity concerns** –no bad, nor good either- regarding the use of timber ecosystem services in sub-region 2 (from Gunsi to Botopasi).

😐 There are some **equity concerns** –no bad, nor good either- regarding the use of crops ecosystem services in sub-region 1 (from Pikipada to Lespansi II).

☹ There is **inequity** in the use of crops ecosystem services in sub-region 2 (from Gunsi to Botopasi).



Possible reasons for inequity results

Population growth: Saamaka community members from more remote villages coming to live in sub-region 1 and 2. Then there is more competition for ecosystem services among the community members.

Roads: The existence of roads in sub-region 1 (from Pikipada to Lespansi II) increase the monetary value of timber ecosystem services. Thus there is more competition for it. Local elites (more powerful community members) can have better possibilities to access timber ecosystem services than many regular community members.

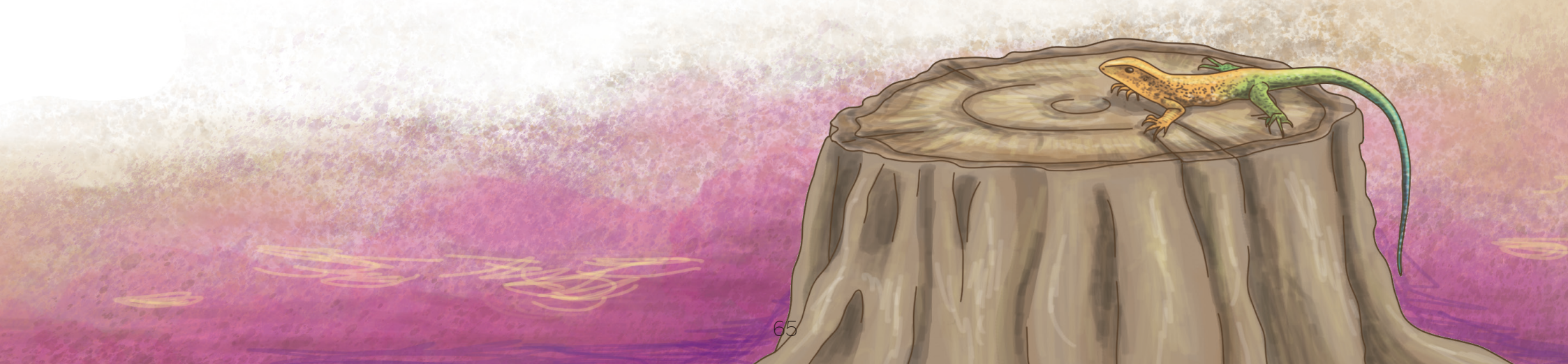
There are no roads yet in sub-region 2 (from Gunsi to Botopasi), therefore, no so much inequity in the use of timber.

How is this information useful?

For the Saamaka communities this information is important to have an idea of equity issues in the Saamaka territory and to understand how roads and population pressure can influence this equity.

It is very important in a community to consider aspects of equity. Because when there is inequity, there can be conflicts between community members and conflict will cause disunity. When there is equity there is harmony and union.

Harmony and union are very important things in the wellbeing of communities.



Social differences within the Saamaka communities

The Saamaka communities are not the same in social terms. There are social differences between them. For example, each Saamaka community member belongs to one of the 12 clans. Clan membership defines the rights to forestland and its ecosystem services. Some clans are higher in the hierarchy because of blood relationship with especial ancestors. Then those clans may have more access rights to forestland and its ecosystem services than other clans that do not have that blood relationship.

To illustrate this, the results of the study done by Tropenbos Suriname show that some clans have better access rights to timber and crops like the table 6 shows.

The faces in the table indicate:

- More possibilities to access and use forestlands and its ecosystem services
- Less possibilities to access and use forestlands and its ecosystem services
- No more nor less (somewhere in between) possibilities to access and use forestlands and its ecosystem services

Table 6: Perception of access possibilities to crop and timber ecosystem services according to clans

Clan	Ecosystem services	Access possibilities of each clan	Number of people asked per clan
Clan 1	Timber	😐	4
	Crops	😐	
Clan 2	Timber	☹	37
	Crops	😐	
Clan 3	Timber	☹	146
	Crops	☹	
Clan 4	Timber	☺	54
	Crops	☺	
Clan 5	Timber	😐	22
	Crops	☺	
Clan 6	Timber	☹	126
	Crops	☹	
Clan 7	Timber	☺	7
	Crops	😐	
Clan 8	Timber	☺	31
	Crops	☹	
Clan 9	Timber	☺	28
	Crops	☺	
Clan 10	Timber	😐	23
	Crops	😐	
Clan 11	Timber	☹	4
	Crops	☹	
Clan 12	Timber	☹	10
	Crops	☺	

What this table shows:

The main message of this table is that there are important social differences within the Saamaka communities. Some have more, some have less, some have more or less possibilities and capabilities to access and use forestlands and its ecosystem services.

How is this information useful?

This information is mainly useful for outsiders who tend to see Saamaka communities as a homogeneous community. They are not, there are social differences among them.

These social differences need to be taken into consideration when policies and projects are planned for the Saamaka territory.

If these social differences are not considered, it is possible that Saamaka communities are not understood by outsiders, thus projects implemented in their territories may be irrelevant for the Saamaka communities.

If these differences are not considered, it is possible that top-down projects cause conflicts with the communities.

Thus, this knowledge cautions outsiders: Policy makers, non-governmental organization (NGO's) and other CSO that when they design projects in the Saamaka territories, it is important to take into account the social differentiation so that policies and actions do not trigger internal conflict. If these differences are considered, projects and actions can have more effect for the communities and for the forest.

CONCLUSION

Things are changing fast in the world and the forces of change reach far into the territory of the Saamaka communities. Because of these forces and changes, Saamaka communities are confronted with commercial land use pressures in their territories, environmental degradation, conflicts between community members and conservation dilemmas (fulfilling short-term livelihood needs over long-term forest conservation).

To deal with all this, it is important that Saamaka communities develop skills to adapt to new social and environmental circumstances. Central to this, it is the urgency to strengthen the capacities of Saamaka communities to manage their territory sustainably in the face of change.

Knowledge tools and local community motivation are two important elements to strengthen this capacity.

Knowledge tools such as the ones generated in this book may empower Saamaka communities to influence the land use decisions affecting them.

But without the **motivation** of local communities to unite and prevent mismanagement of their territory, little will change to conserve their forest. Increasing equity in livelihood options, employment opportunities and access to social services (better access to education, health care, safe drinking water, electricity), may effectively increase the motivation of local communities to participate in their own development.

It is widely acknowledged that access to social services can have greater forest management impacts than those efforts aimed at forest conservation alone.

RECOMMENDATIONS
TO STRENGTHEN SAAMAKA VOICES IN LAND USE DECISIONS

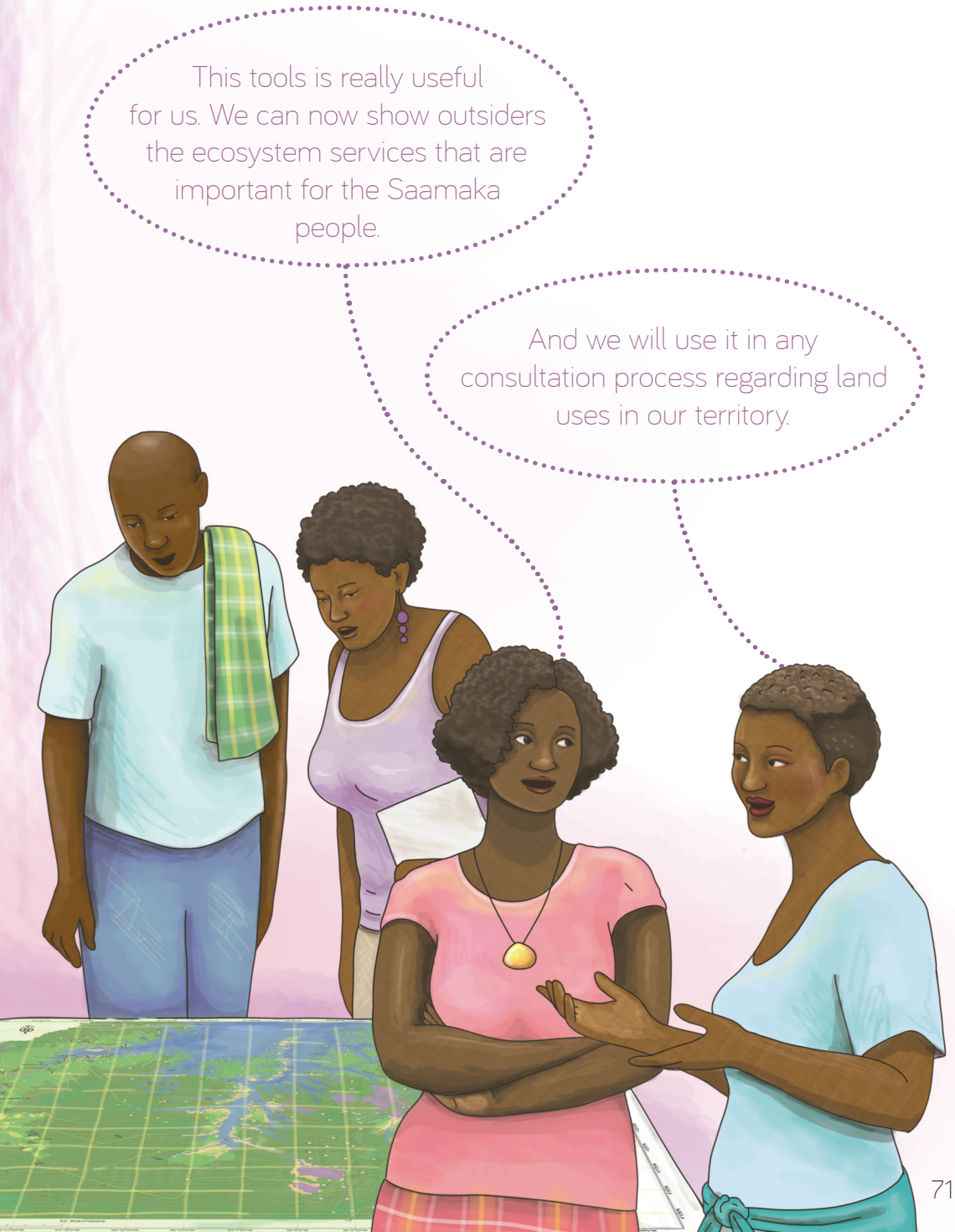
Recommendations for the Saamaka communities

- Saamaka communities can use the maps and the knowledge in them as a defensible documentation of the areas they use and need for their livelihoods and wellbeing.

- Saamaka communities should demand that land use planners use these maps as decision-making tool during consultation processes (for example in Free Prior Informed Consent). In this way, Saamaka communities can have an equal voice in land use decision-making processes in the Saamaka territory.

- Related to this, an important recommendation for the Saamaka communities is to integrate the knowledge in the maps into existing land use decision support systems, like for example Gonini.org. In this way, land use planners and businesses relying on public information, can effectively account for the needs, wishes and current realities of Saamaka communities when designing their intervention plans. What is not known is as if it does not exist, therefore the importance of publicly communicating this knowledge.

- Saamaka communities should use the information about the state of their ecosystem services as a basis for the formulation of management plans, which can help them protect the provision of ecosystem services that are important for their livelihood and wellbeing. Formulation of management plans is also an important step towards land-rights allocation.



Recommendation for policy makers

Policy makers should use this knowledge to understand how Saamaka communities use their territory and the issues they face regarding ecosystem services that are important for their livelihood and wellbeing.

Policy makers should use this knowledge to respond to the needs of the Saamaka communities based on their local reality. This means the replacement of top-down decision-making processes, where the land use and conservation-oriented agendas of governments and donors tend to be imposed on the real expectations of communities regarding the use of their ecosystem services. A better understanding of local realities will lead to more compatible, and hence effective, land use decisions in the Saamaka territory.

Another recommendation for policy makers is to create policy mandates that require the use of the participatory mapping approaches such as those presented in this book, into Strategic Environmental Assessments (SEAs) and Environmental Impact Assessments (EIA) concerning land use interventions in forest areas inhabited by indigenous and tribal communities. In this way, the needs and priorities of local communities, and the forests on which their livelihoods depend, may be respected in land use projects.

Recommendation for practitioners

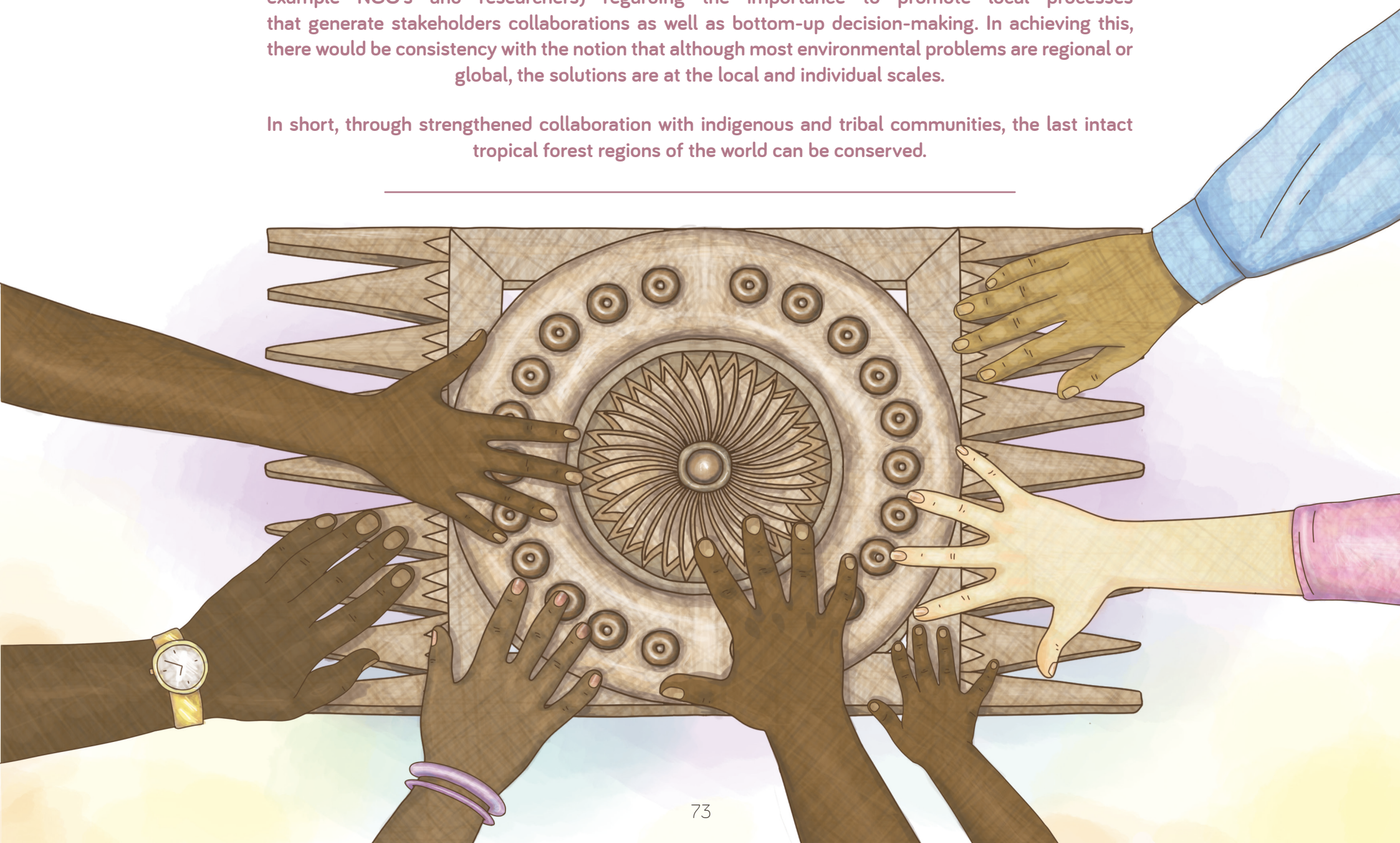
Communication and trust building first. Participatory mapping projects with indigenous and tribal communities must first establish trust through transparent communication, respect and understanding of local realities and expectations; all other participatory mapping objectives must be compliant to this basic requirement.

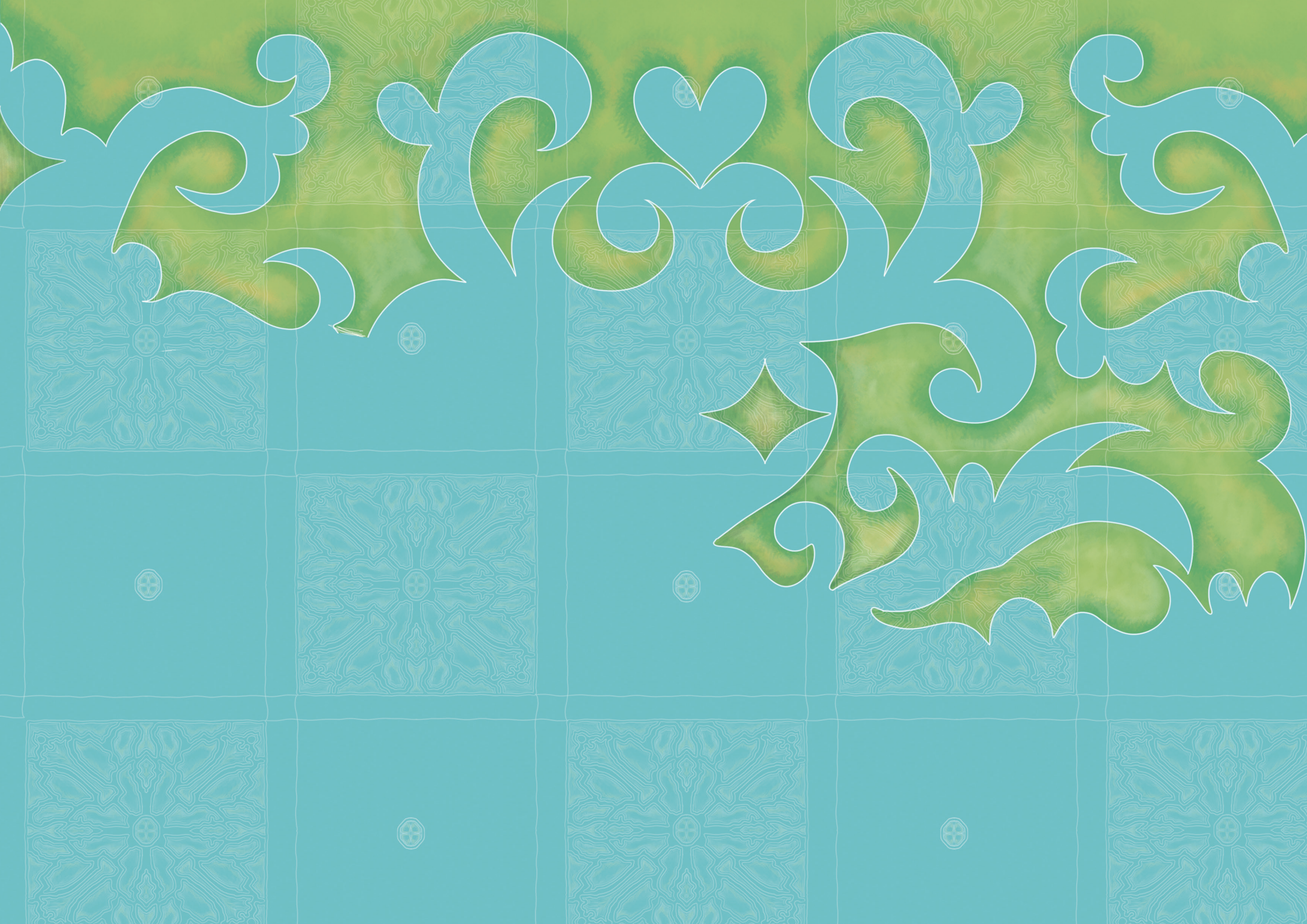
Identify and cultivate an internal champion (strengthen leadership). The objectives of participatory mapping projects with indigenous and tribal communities are unlikely to be successful without a strong internal "champion" who promotes the use of the local knowledge on the maps in relevant projects and decision-making processes. Thus, practitioners should identify, in the early stages of the project, a sympathetic participant or group of participants who can receive the training and technical assistance to fulfill this task.

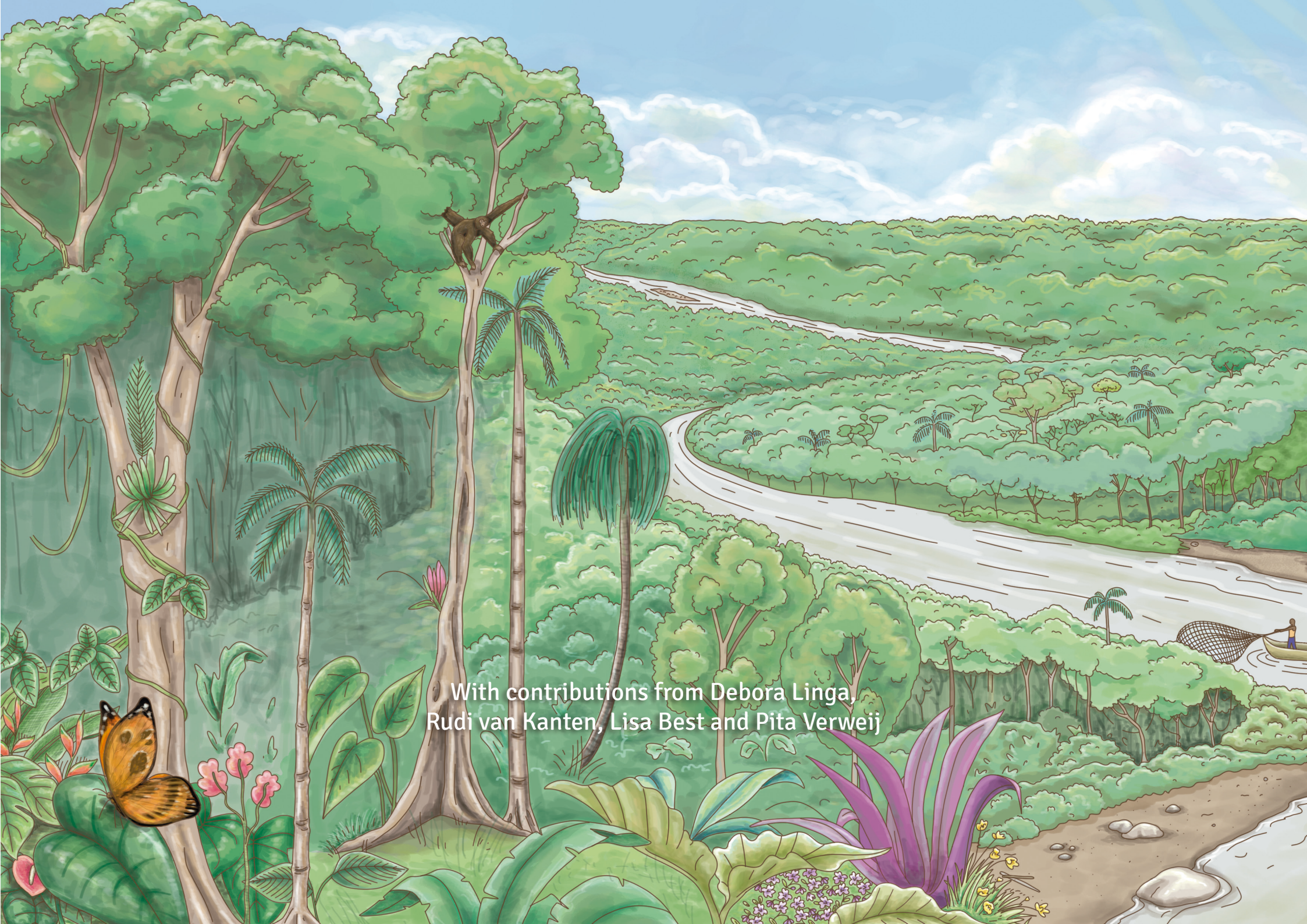
Manage community expectations. A key challenge in participatory mapping projects and assessments as the one reported in this book, is to manage community expectations regarding what will happen as soon as the project has been completed. Communities usually expect that their input is not merely the provision of information but that this information is used to influence decisions. Therefore, an important recommendation is that participatory mapping projects should not constitute the endpoint of projects but the beginning of a process in which identified issues are addressed. In this sense, the main message for practitioners is to design projects that are responsive to local community needs and engage in long term processes that will generate change.

The processes and results in this booklet intend to give a message to practitioners (for example NGO's and researchers) regarding the importance to promote local processes that generate stakeholders collaborations as well as bottom-up decision-making. In achieving this, there would be consistency with the notion that although most environmental problems are regional or global, the solutions are at the local and individual scales.

In short, through strengthened collaboration with indigenous and tribal communities, the last intact tropical forest regions of the world can be conserved.







With contributions from Debora Linga,
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