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TONY RINAUDO – THE – FOREST-MAKER

rüffer & rub visionaries

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Translations from German (texts by Johannes Dieterich and Günter Nooke, and appendix) and proofreading by Suzanne Kirkbright.

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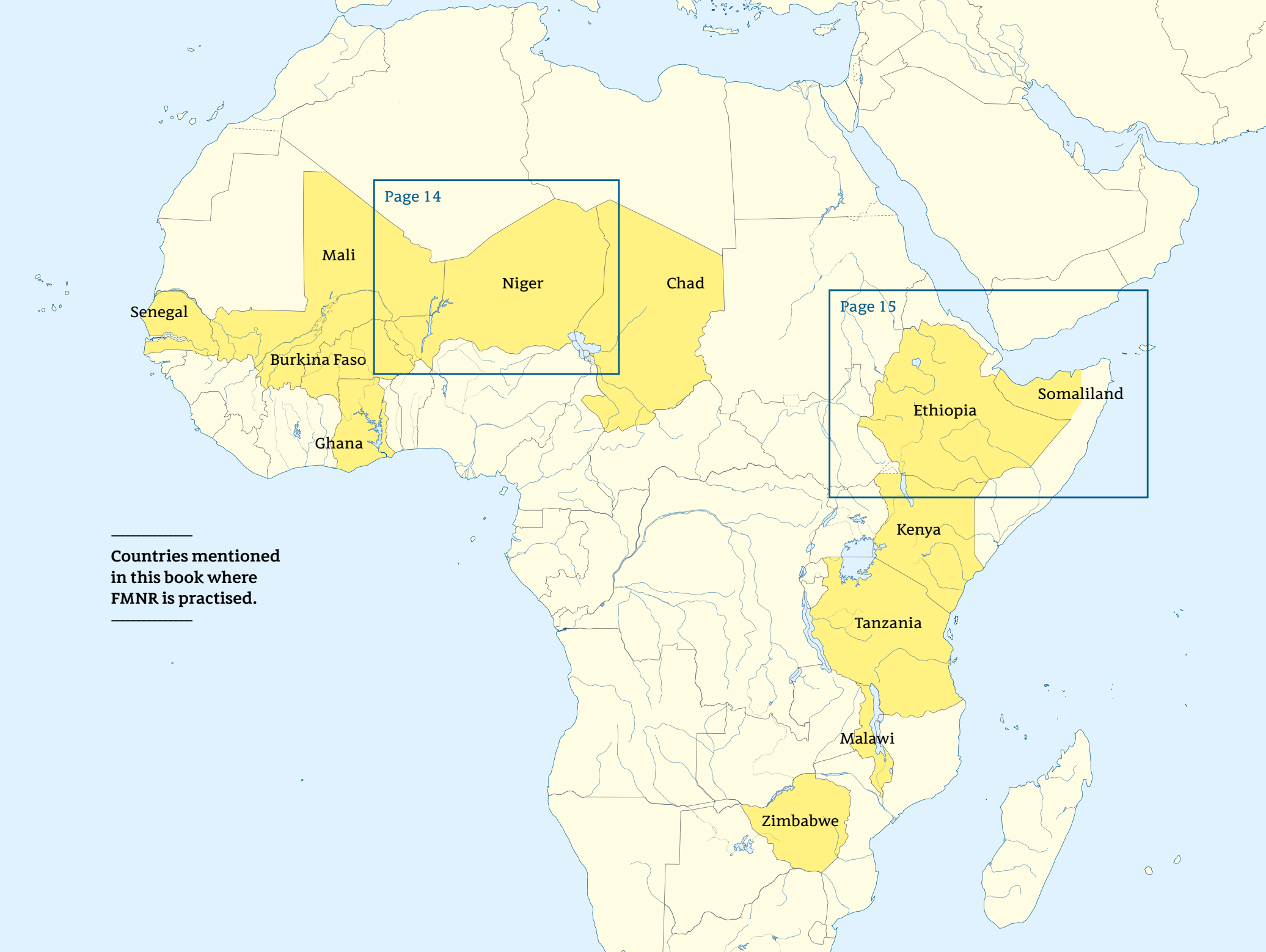
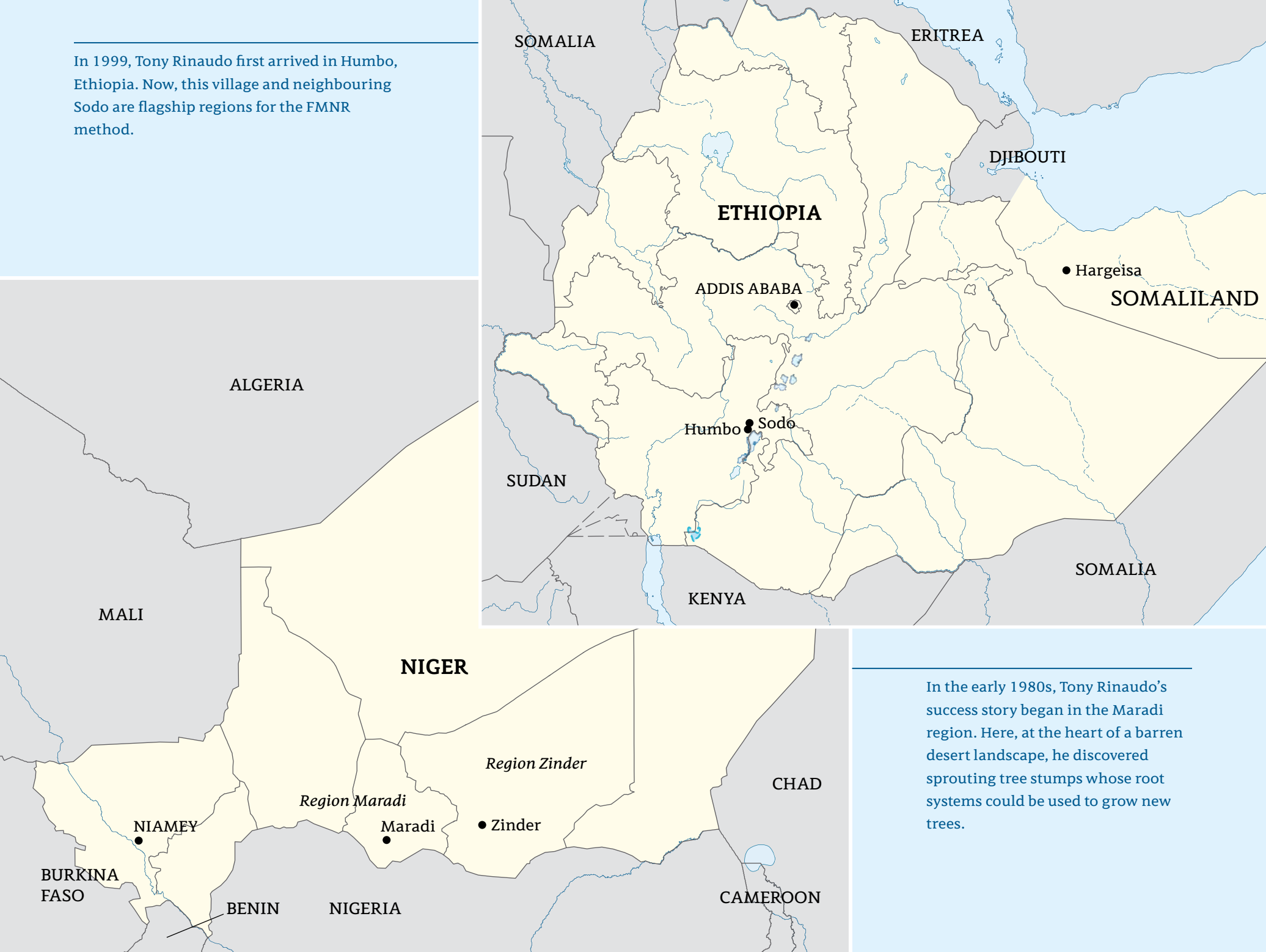


Countries mentioned in this book where FMNR is practised.

In 1999, Tony Rinaudo first arrived in Humbo, Ethiopia. Now, this village and neighbouring Sodo are flagship regions for the FMNR method.



In the early 1980s, Tony Rinaudo's success story began in the Maradi region. Here, at the heart of a barren desert landscape, he discovered sprouting tree stumps whose root systems could be used to grow new trees.

Johannes Dieterich

The setting could easily be a film location for "Heidi". A mountain stream burbles along cheerfully. The cows contentedly munch on the lush grass. Resting his chin on his shepherd's crook, a boy gazes dreamily into the valley. Only his dark skin reveals that this is in fact not Heidi's homeland. Nearby, two grass-covered huts are the final giveaway that this picture-postcard scene is on a different continent, far away from Switzerland. We are in Africa, or more precisely: we are in the mountains near the southern Ethiopian city of Sodo.

"If you had been here ten years ago, you would have been even more astonished," says Tony Rinaudo. The Australian agriculture specialist seems ready to burst with joy. When the Melburnian first arrived in Sodo in 2006 the mountains still looked like a natural disaster zone. Instead of the trees and grass the landscape back then was mostly covered with thorny bushes and trailing plants. Erosion had carved deep channels into the slopes. The mudslides regularly raced down the valley during heavy rainfall, even tearing away several African round huts. On one occasion, a family of five was buried under the mud.

In those days, the people in the Sodo region still depended on food aid—like in Humbo, a village situated 50 kilometres further to the south-west whose local mountain resembled the back of a hippopotamus. Tony Rinaudo had been sent at that point to Humbo by the development and relief organization World Vision to support capping one of the last springs that was still flowing. Yet, the expert quickly realized that the local population here had a much more severe problem than the non-enclosed spring: they had destroyed their livelihood by constantly cutting down trees and overgrazing the pastureland.

"We often talked about whether we should move away," recalls Anato Katmar, whose three hectares of farmland lies at the foot of what was once the hippo's humpback mountain. "But where to?" Then, he was still living with his wife and their five children in a cramped, small hut. The corn and sorghum harvest yields deteriorated every year and sometimes massive boulders rolled down the bare mountainsides into his fields, burying and crushing the crops. From higher up, the only sound echoing down the mountain slope was that of the surviving animals—the mocking cries of the baboons. The monkeys devoured every piece of vegetation that was still sprouting on the barren slope. On many evenings in the year, the Katmars went to bed hungry.

Ethiopia is considered as the continent's prime land of famine. At one time, this state on the Horn of Africa—now with a population of over 100 million—recorded the worst drought disasters on the planet.

Until 1984, when Bob Geldof's "Band Aid" shook the world's conscience out of its lethargy, half a million Ethiopians had to perish. Even today, like most of the continent's 55 countries, Ethiopia has difficulty feeding its population. And while the number of those starving has fallen worldwide over the past 25 years, in Africa it has continued to rise: from 181.7 million in 1990 to 232.5 million in 2017.

Besides the political and climatic causes of the chronic crisis, there are also ecological factors contributing—primarily, the soil deterioration and the disappearance of trees. Ethio-

pia, which was once covered with vast areas of woodland, has lost almost 90% of its woody plants over the past 50 years. Yet, if the experts agree on one thing then it is the importance of trees for the soil quality: they keep the soil fertile and moist, their shade considerably reduces soil temperatures and, as windbreaks, they prevent the desiccated, dust-like earth in the dry season from scattering far and wide.

Ecological devastation has plagued the Sahel region the worst. Until twenty years ago, the desert here was expanding further and further southwards and the trees had vanished. Nearly all attempts to control the growing effects of erosion in the arid zones, by planting new trees, ended in failure: most of the costly seedlings didn't even survive their first birthday. "Millions of US-dollars were wasted," says Tony Rinaudo, who previously managed a small reforestation programme in the Sahel region. "The extremely low survival rates of planted trees was a bitter pill to swallow."

However, now this is history, observes the otherwise remarkably modest Australian. The agronomist from Melbourne believes that he has discovered a substantially more successful method of reforestation and soil revitalization—and one that involves zero costs. Rinaudo has undertaken nothing less than to put a stop to hunger in Africa. His discovery could be more significant for the continent than billions of US-dollars of development aid.

"Get me out of here!"

When the Australian first arrived in Humbo in 1999, he was not greeted like the Messiah. The village residents were not exactly hostile to the overseas agriculturalist, but they were certainly sceptical. They suspected that the pale-faced guest was on a mission to sell their land to investors. Besides, his suggestions sounded ridiculous or even suspicious when he talked about letting trees grow on their valuable fields, keeping starving cattle from the bare slopes for a time, or preventing the charcoal burners from cutting down every last tree. The people preferred to have nothing to do with the curious tree-hugger. Anato Katmar was among the few who were prepared to give the foreigner a chance—possibly because he no longer had anything to lose anyway. "Tony", says Katmar, "was my last hope." For his first cooperative, Rinaudo had to make do with a handful of farmers, and besides that they were also exposed to the ridicule and mistrust of their neighbours.

Today, there are seven cooperatives in Humbo with over five thousand members. None of them seems to doubt Tony Rinaudo's method any more. While in the El Niño year of 2016 the region's other villages were dependent again on food aid, the cooperatives at the foot of the hippo's humpback mountain produced food surpluses that are at times sold to the UN's World Food Programme (WFP) to distribute to those parts of the country in need. The mountain is now covered again with woodland trees that grow above a height of two metres; and the thriving fruit trees on the farms not only give shade and fruit, but occasionally, pruned branches for firewood. Meanwhile, instead of his round hut Anato has managed to afford a real house constructed from bricks and a corrugated iron roof. Apart from the standard corn and sorghum (millet), he also cultivates coffee and bananas, which he sells with the mangos from the garden at the local market. The farmer invested his revenue in his children's education: his two oldest children have already finished their studies, while the three youngest still attend grammar school. The Katmar family currently enjoys three meals a day. "Hunger," says Papa Anato, "is now consigned to our memories."

Tony Rinaudo follows the account of his model farmer with a beaming expression—in Humbo, a dream is being fulfilled for the agronomist. In the early 1980s, Rinaudo was sent to Niger by his organization "Serving in Mission" (SIM). His job there was to stop the advance of the desert by planting new trees. For several years, the Australian behaved like a Don Quixote of the seedlings in his fight against the mills of the sandstorms that were devastating the land. Scarcely 10 % of little trees had survived the heat and dust storms after planting, he recalls. If one of the seedlings did survive, it was later eaten by the goats or finally cut down by people for firewood. Finally, Rinaudo might have lost his faith as well as his patience: "Get me out of here!", he quarrelled like Job with his god.

In the eyes of the former missionary, his story in Maradi continued in a biblical connotation. One day, as Rinaudo stopped to let the air pressure out of the tyres of his off-road vehicle to travel more easily through the loose sand, it was as if the scales fell from his eyes. The green shoots, which were sprouting all around him in the sand, were by no means useless weeds—as he had always assumed beforehand. Rather, on closer inspection he saw that they were trees sprouting from their stumps. However, if these sprouts could grow so vigorously in the sand, an intact root system must be supporting them, concluded Rinaudo. As the same phenomenon could be observed across the region, he could assume that there was a vast network of roots spreading beneath the sand of the Sahel zone: an underground forest with roots resembling the branches of trees stuck into the earth upside down. The significance of this observation was not lost on him. He immediately realized that this vast root system made the need for ineffectual tree planting redundant. The underground forest was the key to success.

His Damascus road experience turned Rinaudo's world upside down as well—from its head to its feet, as Karl Marx would have said. If the little green shoots in the sand were given a chance, they would grow into trees of their own accord, he speculated: all that was needed for the regeneration of the devastated landscape was a penknife, which Rinaudo always carries with him and uses to trim back the shoots of the young trees that grow more like bushes. As the sprouting trees can draw on the nutrients that are still stored in the root system, particularly sugar, they usually grow into mature trees at a breathtaking pace. He has often seen how in three years a weak, sprouting stump becomes a five-metre tall tree, explains the Australian.

City of disused petrol stations

Maradi must be the city with the world's highest number of petrol stations per resident. The filling stations on the arterial routes of the Nigerien provincial city are lined up like telegraph posts. However, most of them are not in use. They exist thanks to a Nigerien governmental ruling which states that only the owners of a petrol station are granted a fuel export licence for the neighbouring country of Nigeria. Obviously, the local border traffic facilitates such high earnings that the costs of building a useless station are very quickly paid off. This is one example of the bizarre bureaucracy which the almost 17 million residents of the West African state must negotiate in their daily life.

Otherwise, Maradi is like any other provincial city in these latitudes: too hot, too dusty and yet full of activity around the clock. The drivers of the ubiquitous motorcycle taxis only spend the fiercest midday heat sprawled across the tank of their Chinese machines, while vintage Peugeot 404s still clatter along the mostly unpaved streets and old men seated on large

stones pass the time playing board games. The only lush green in the otherwise sand-coated city is in the stadium with its artificial grass funded by FIFA. Now and then, cattle herders from the surrounding area move in to the seemingly lush pasture with their livestock, city dwellers scornfully report: only to find out that the fresh grass in the football arena is in fact plastic. Otherwise, there is not much for the city residents to laugh about. In Maradi, not even half of those looking for paid work have a job. Most of the almost one million residents must make do with the equivalent of one euro per day. Their corrugated iron huts usually have neither running water nor electricity.

The Sahel zone is the stepchild of the continent whose basic conditions are dysfunctional: in the strip of land measuring only a few hundred kilometres wide, and stretching from Senegal in the west of the territory to East African Sudan, poverty seems to be deeper rooted than the wild fig tree with its 120-metres deep shoots. The Sahel zone is the source of a high number of migrants who seek their fortune on the neighbouring European continent, despite the perilous journey. Here, enraged Islamists find it easy to recruit new fighters—they regard the influence of the Christian world rulers as at least one cause of their misery. Not far from Maradi, the Nigerian sect Boko Haram spreads its terror—the name 'boko' meaning 'Western education' and 'haram' meaning 'sin'. In northern Niger, members of the "al-Qaeda in the Islamic Maghreb" terrorist group are active. Western armed forces regard the Sahel region as such dangerous territory that they have stationed thousands of their soldiers here. However, the French, American and German army commanders also know that the true causes of the danger cannot be dealt with by armed force. It is the poverty, which must be conquered, and this is Tony Rinaudo's vocation.

Speaking 'Hausa' like a donkey from Kano

"Tony, Tony!", calls an older man, as he recognizes the pale-faced passenger in the vehicle on the outskirts of Dan Indo village. The vehicle is soon surrounded by a swarm of young people and about a dozen laughing men. Despite his now grey-tinged hair, everyone instantly recognizes the former missionary—they clap their hands, embrace and shake their heads in disbelief. An imposing man introduces himself as Tony too: his parents named him after the Australian over thirty years ago. This is not the only dark-skinned Tony in Maradi district, as it emerges during our visit. Judging by the popularity of his name alone, Rinaudo must have achieved outstanding work here.

Sule Lebo, the village elder in Dan Indo, has no intention of letting go of his visitor's hand again. The two are deep in conversation in Lebo's native language, Hausa, which repeatedly makes him burst into loud peals of laughter. "He can still speak it!", the mayor slaps his knees. Tony speaks Hausa "like a donkey from Kano", we often hear during the next few days. Apparently, this is meant as a compliment.

After the overjoyed greeting, however, Sule Lebo quickly gets to the point. Things have been tough in recent years, explains the village chief. The rains failed abysmally, the harvests were miserable and finally the 63-year-old also had to have an operation on his prostate which cost an equivalent EUR 400. To pay the school money for his children, Lebo was forced to sell three of his eight oxen—and still the farmer and his two wives and 17 children are doing much better today than in the early 1980s, when he got to know Rinaudo. While Lebo only farmed three hectares of land back then, today he farms 22 hectares. He used to harvest only 150 kilograms of millet per hectare, while now it is 500 kilograms. And his wife's 20 goats and

sheep didn't exist in those days. When the Australian agronomist started work here, Lebo goes on to say, there was scarcely a tree to be seen between the village and the paved road almost two kilometres away. Today, there are hundreds of trees scattered across the fields.

The village chief was one of the few who gave Rinaudo a chance at that time. Dan Indo was one of the first villages included in the projects managed by the foreign expert. The field trial could hardly have gone any better. Within just a few short years, plenty of trees had sprouted on the fields belonging to the village residents—they gave shade, reduced the soil temperature, acted as windbreaks and as a by-product even produced timber for building huts or for firewood. The proceeds from Lebo's harvest tripled and meanwhile his annual earnings, from the sale of timber alone, are about EUR 130—that's a considerable sum by Nigerien standards. Thanks to his many fields, the oxen, goats and chickens the subsistence farmer has fulfilled his ambition to become a diversified farmer. Lebo laughs that next to the Almighty he only has to thank Tony for this.

There are many nuances to the situation that emerges while touring the villages in a 30-kilometre radius north of Maradi. In Waye Kai, by his own admission the village chief Dan Lamso manages "so many trees", that he could "not even count them any longer". As a mark of his gratitude, he hands Rinaudo two cockerels that land with loud protests on the loading platform of our hired vehicle. Scarcely 20 kilometres further on and the mood is already slightly more depressed: here, in the past two years the number of trees in the villagers' fields has been drastically reduced. To compensate for the lost harvests because of the drought, the smallholder farmers sold large quantities of wood. At least, this is how they managed to make ends meet without too much hardship, Rinaudo consoles himself. "Trees can be like a savings account that you can live on when times are hard."

Rinaudo seems irritated by the conditions in Sarkin Hatsi where right at the beginning of the visit a woman comes up to him begging. "Go back to your field and look after the plants and trees, then you don't need to beg," the petitioner is told. The former missionary has no intention of distributing charity handouts, instead he wants to change the conditions. "Isn't that Tony?", a man with his arm in a sling calls from the neighbouring house. Damani Idi injured his shoulder in a fall from the roof. The 58-year-old turns out to be one of Rinaudo's former star pupils. He cultivated hundreds of acacias on his fields and made coffee out of their seeds. However, Idi explains that he has now closed his roastery: his sieve broke down. "Oh, nonsense!", protests Rinaudo. A new sieve could cost a few euros at the most. Then he was simply too lazy, the farmer stalls any more questions—obviously, the father of 13 children (of whom six have already died) is trying to avoid a lengthy discussion. Rinaudo says that to find out what is actually happening in the village, he would need much more time than he has available. At least, one thing is to be documented: not all the problems of a community can be solved with trees.

Tambara-Sofoua makes the best impression of all the villages during the visit. Here, the locals have even set up a community watchdog to protect themselves against tree thieves. Besides, an expert funded by World Vision has the job of further refining the rather long-named "Farmer Managed Natural Regeneration" (FMNR), the method made famous by Rinaudo. Currently, he is showing the smallholder farmers how grafting improved cultivars of *Ziziphus* onto regenerated wild *Ziziphus mauritania* trees. The fruit of this tree, known as the "Apple of

the Sahel", can be sold for a good price at the market. In addition, WV is introducing modern beehives, now that there are enough regenerated trees to support the industry.

During his time in Maradi, Rinaudo also experimented with the introduction of non-domestic trees. Due to their rapid growth, their drought resistance and the nutrient-rich seeds, he especially liked the Australian *Acacia colei* which had already been brought into the country by the Niger Government. The smallholder farmers achieved great success with the seeds. Baro Yacouba from Kumbulla delighted his neighbours with acacia spaghetti and acacia pancakes. However, Rinaudo prefers not to discuss the subject, as some scientists heavily criticized his imports of trees. Hard-core invasive weed specialists argued that alien trees had no place in a non-native environment: This kind of "biological imperialism" would only spread disaster. Rinaudo finds the ideological debate appalling. In over 35 years there has been no 'alien acacia species' invasion as predicted, he counters. Rather, it has contributed to environmental restoration and brought great blessing to arguably the poorest people on earth.

Lakes in the desert

Dark clouds gather on the journey back to Maradi. Soon afterwards, it starts to rain torrentially—and this is still before the actual rainy season, which usually gets off to a quieter start. Rinaudo explains animatedly that he has never experienced such a cloudburst in Niger, while the semi-desert around us is transformed into a lakeland. In his time, rainfall happened mostly at night, the agriculturalist continues. During the daytime, there was probably "too much heat reflected" from the white sand which deflected the rain clouds. Rinaudo is convinced that the rising tree population has an effect on the climate: he had often seen how the clouds move across the heated open spaces, while they release their rain over the cooler woodland areas. Research in this context is still in its early stages. However, it now seems to be widely acknowledged that trees influence rainfall.

Tony Rinaudo is pleased that his visit coincides with the first rains of the season. This is how—jokingly, of course—he can boast about being the rain maker. Those who are familiar with the appearances in Africa of Western benefactors and self-professed experts, will appreciate Rinaudo's social grace among Africans: he is warm, yet funny, extremely polite and always modest. He has a special relationship with Joho, his former employee, whom he has engaged again as a driver for our tour. The two are doubled up with laughter, while they reminisce on the journey about old times—everything is discussed in Hausa, of course. Joho is proud of his white fellow passenger, the 'Nasarra'. He introduces him to strangers as a team member from the United Nations, or as an influential expert who has the ear of the president. Slightly uncomfortable, Rinaudo generously lets the stories pass.

Back in Maradi, a crowd of old friends is already waiting at the entrance to the mission headquarters. They want to shake Rinaudo's hand, introduce their son or ask for support with a grandchild's school education. Previously the compound was accessible to everybody, whereas now a two-metre high wall protects it. This is both due to the increasing crime as well as the deteriorating relations between radicalized Muslims and the small Christian minority. An angry crowd of people enraged by events elsewhere in the world had already wanted to set fire to the mission headquarters. Five missionaries from Australia and the US still live at the base. However, they are not involved in reforestation activities.

Every tree was once a shrub: A farmer from the Nigerien village of Tambara-Sofoua grafts the shoot of an Apple of the Sahel tree onto a Jujube tree (top left), **while the village chief, Sule Lebo, from Dan Indo shows his friend the latest successes with FMNR. Even in dust-dry north-eastern Somaliland, Tony Rinaudo doesn't give up hope** (below left).

Humbo's hippo humpback mountain—
before the FMNR project start, 2006

Humbo's hippo humpback mountain—
six years after the project start, 2012