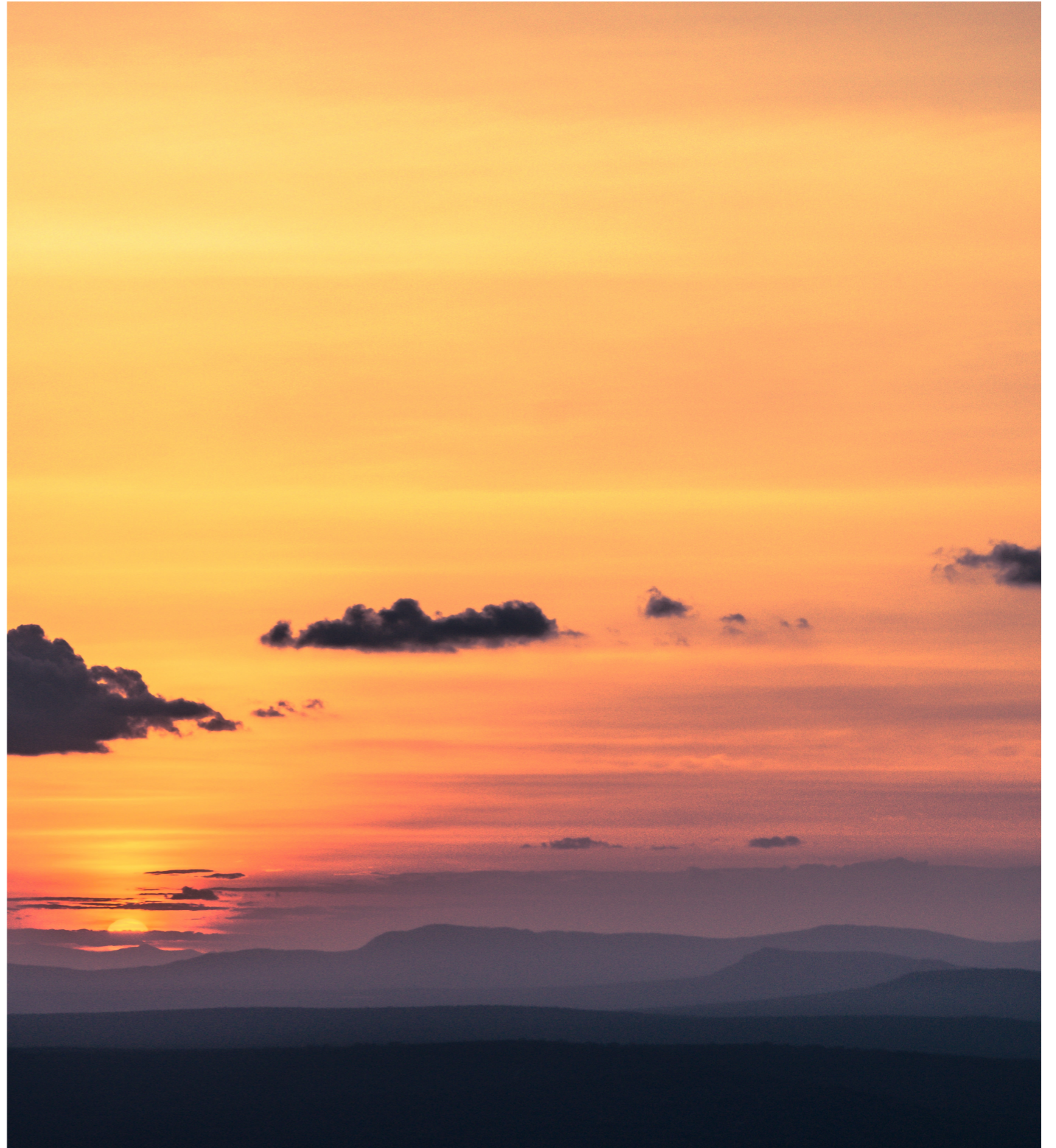


Offsetting with Quambio

Our programs, briefly
explained.

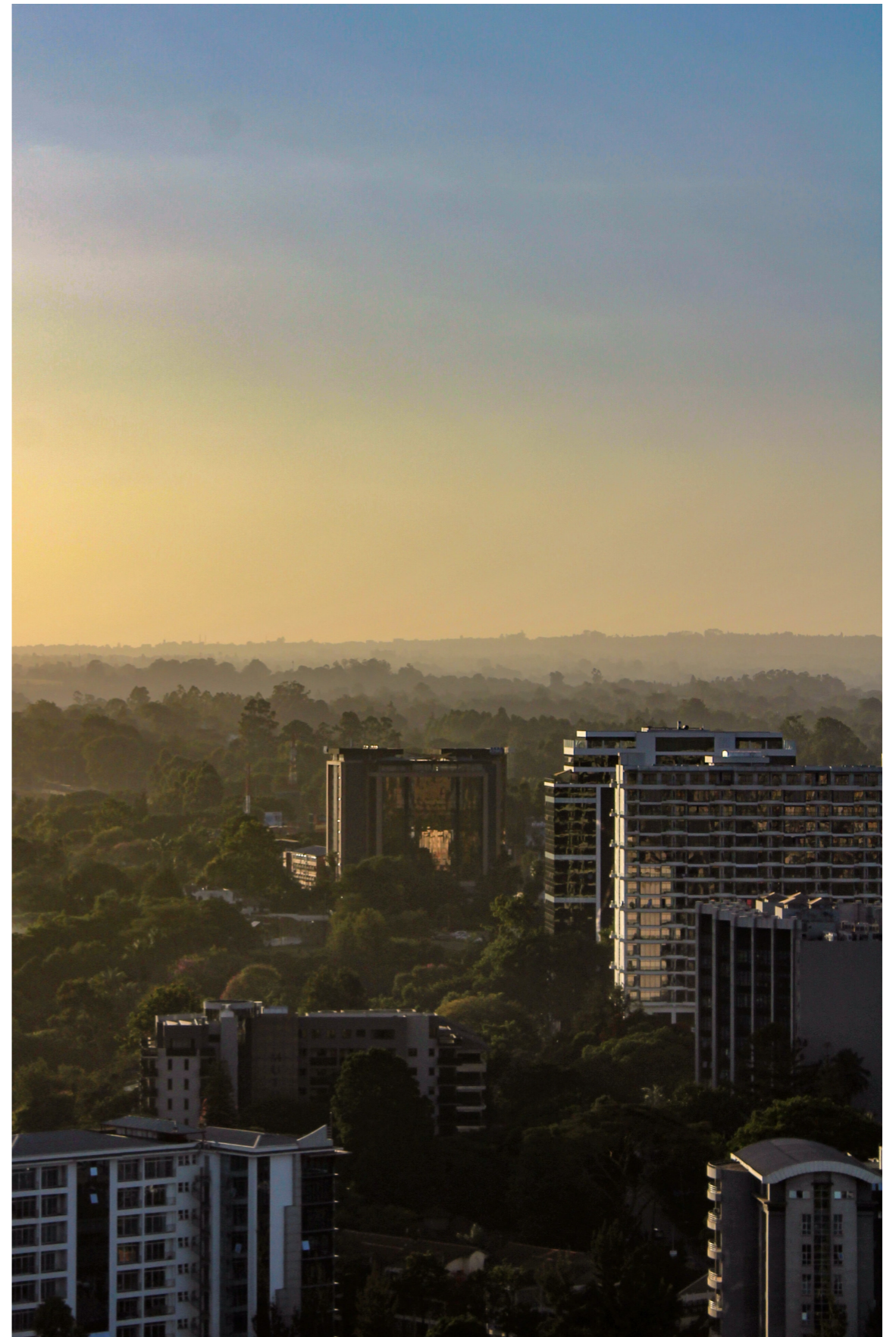


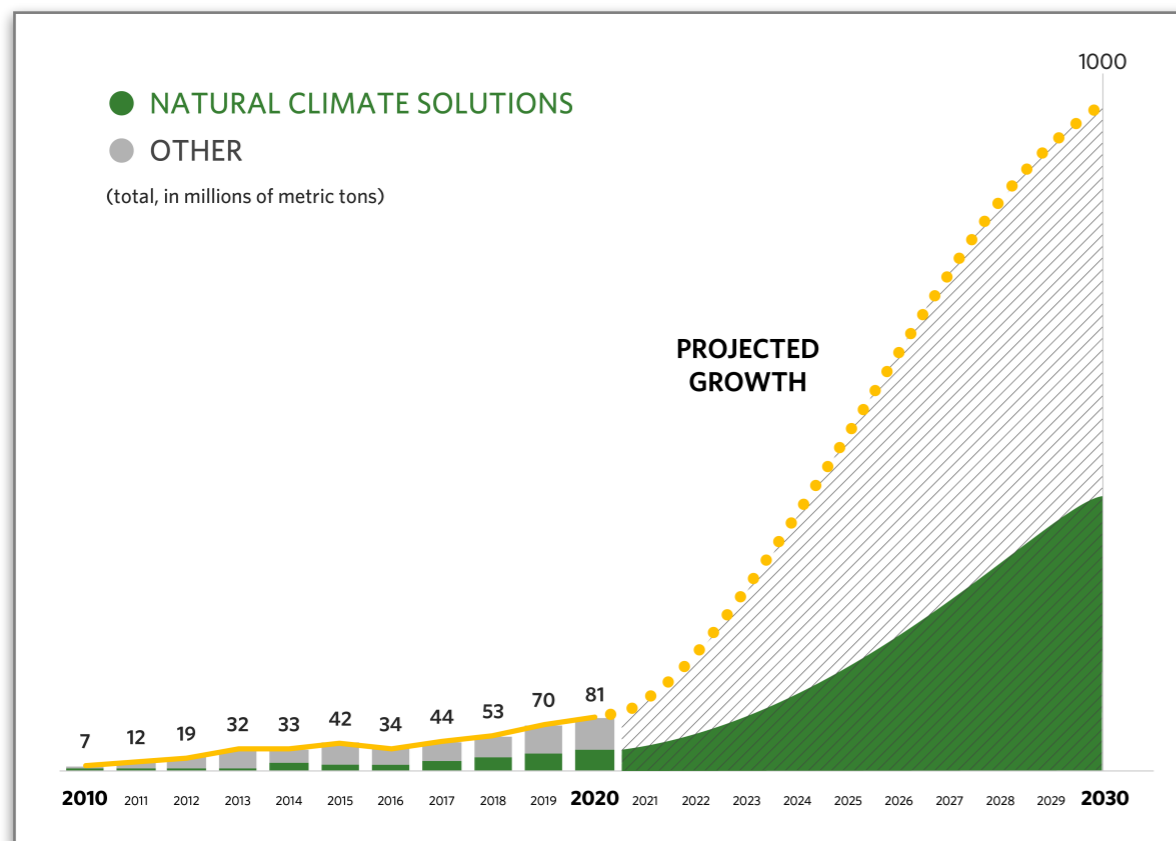
The problem

Not all carbon emissions are avoidable.

In our methodology paper, available on the website, we discuss how personal actions should be a core strategy for societal carbon emission reductions. The 2022 UN energy gap report [1], for instance, states unequivocally that the use of public transport must double in the next 7 years in order to meet the targets of the Paris agreement. Quambio's mission is aligned with that objective. We aim to promote global emission reductions via personal actions. We work towards this objective with the engagement of a large community, now totalling several hundred thousands.

There are many ways we can reduce our own emissions, including by leaving our cars home or by taking a train instead





of a plane for the next short distance business trip. But no matter what we do, some of our emissions are unavoidable. We still need to heat up our homes. Our devices still need to consume energy, so do our databases. The same is true for businesses. Very few businesses today can claim to be carbon negative on the merit of their own business model.

Carbon offsets can play a valuable role in reducing unavoidable emissions. At Quambio, we believe that anyone or any business working towards net neutrality should first and foremost search for ways to reduce wasteful, avoidable carbon emissions. Offsets can play a crucial and even societal role beyond the point.

Today, at Quambio we manage four separate offset programs, which we offer to companies looking to compensate unavoidable emissions, exclusively. We do offer the more traditional nature-based programs, which we describe in the next section. We also offer a more innovative kind of offsets, constructed based on the concepts of emission avoidance and therefore are intuitively aligned with our business model and mission.

In doing so, we contribute to a global market that has seen tremendous growth in recent years and that is expected to continue to grow in coming years. In 2022, traded global market permits amounted to about USD 850 billion. Yet, only about 20% of all global emissions were covered by those markets. Additional emissions are covered by voluntary mechanisms, but the gap between unavoidable emissions and existing compensations remain abysmal. The figure on the left is just one of many projections of short term potential growth in voluntary market volumes [2]. While just an estimate, it points to the need for new programs, but also for increased transparency, controls and thoughtful approaches.

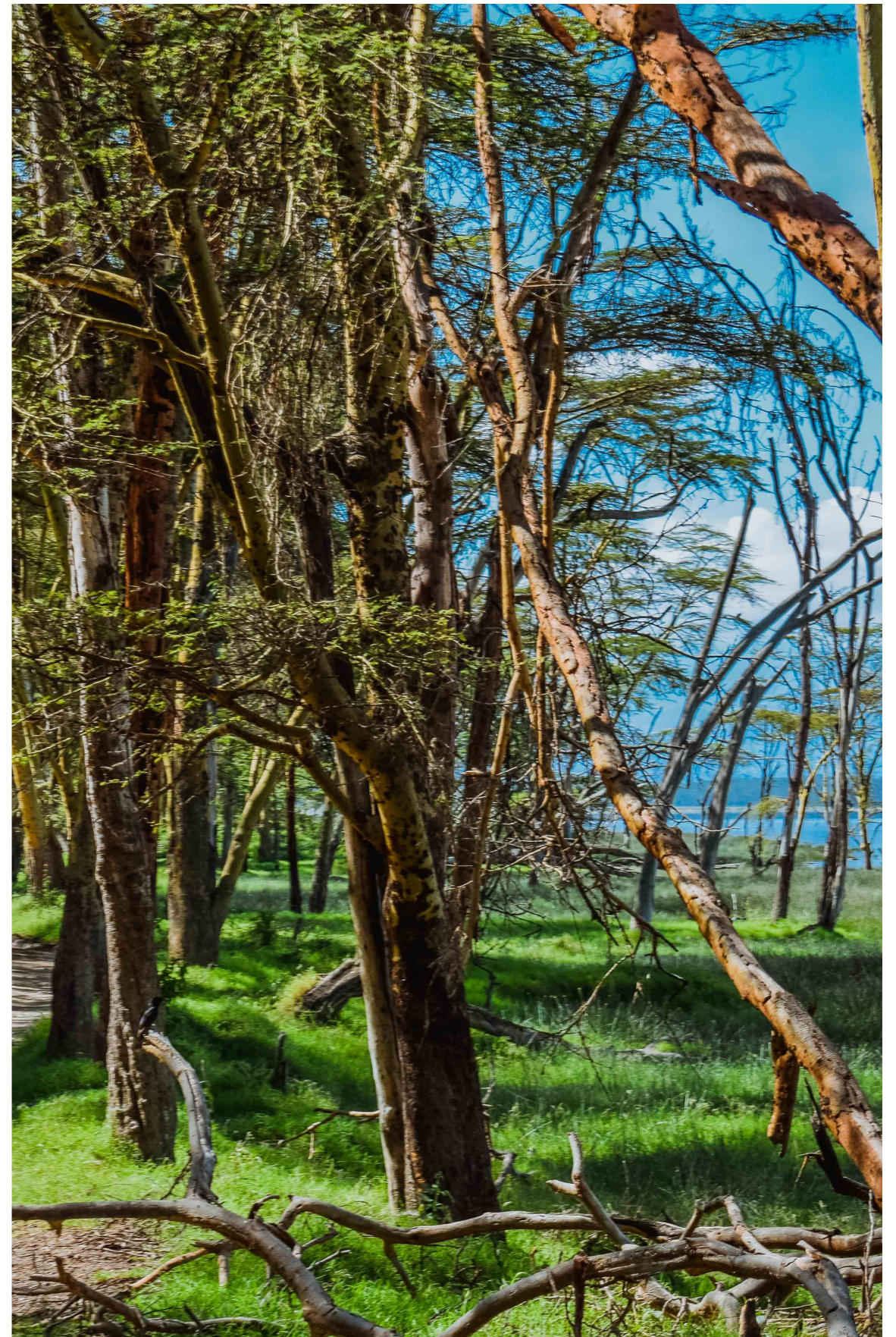
We remain critical of the concept of offset purchases to claim neutrality, for the reasons listed in our methodology paper. We support thoughtful offsetting approaches, that have also the potential to contribute social impacts for the communities residing in areas where they are implemented. You will learn more about our programs below, including their technical details. We also remain at your disposition if you wish to learn more or explore partnerships.

Activating nature

Impact is all about marginal gains.

In 2023, Quambio will be managing the abatement power of more than 1'500 acres of land in Kenya. On paper, that amount of land is capable of abating anywhere from 20'000 to 50'000 tonnes CO₂e (tCO₂e) a year. However, that range represents an estimate of the absolute potential output. Most of the lands in our programs have been forested for many years, and therefore much of the CO₂ abated has already been reflected in global emission budgets and gaps to this date.

What we are busy with in this program is to improve the performance of those lands. The true forward-looking abatement of a forested area is the increased carbon



capture efficiency over time. In 2023, we will be working with land owners towards managing those forested areas, which have remain uncared for until now. We believe we can increase absorption efficiency by at least 10% for 2023. This outcome will be achieved by clearing old trees, maintaining the grounds and planting new trees when possible.

The lands themselves are located in two Kenyan areas, owned and controlled by one family. The land is private and exclusively used in our programs. One area covers more than 1'000 acres. The second area is about 300 acres in size. We are capable of deploying offsets produced by those areas from the beginning of 2023. Geolocation of the lands, type of trees, density, age of the trees and the landowner activities to maintain and enhance the lands will be documented and kept on a ledger that will be shared with buyers on request. This information can also be shared with any party interested to better understand the program.

We base our offset calculation on the impact of individual improvements. The plantation of new trees is accounted for on a discounted rate, to reflect their age and growth stage. Any trees that need to be removed are accounted for as well. Individual improvement actions such as clearance and irrigation are also reflected in the assessment. All impacts are measured individually and traceable in our databases, starting from a baseline calculation estimating the past abatement capacities based on in-situ information.

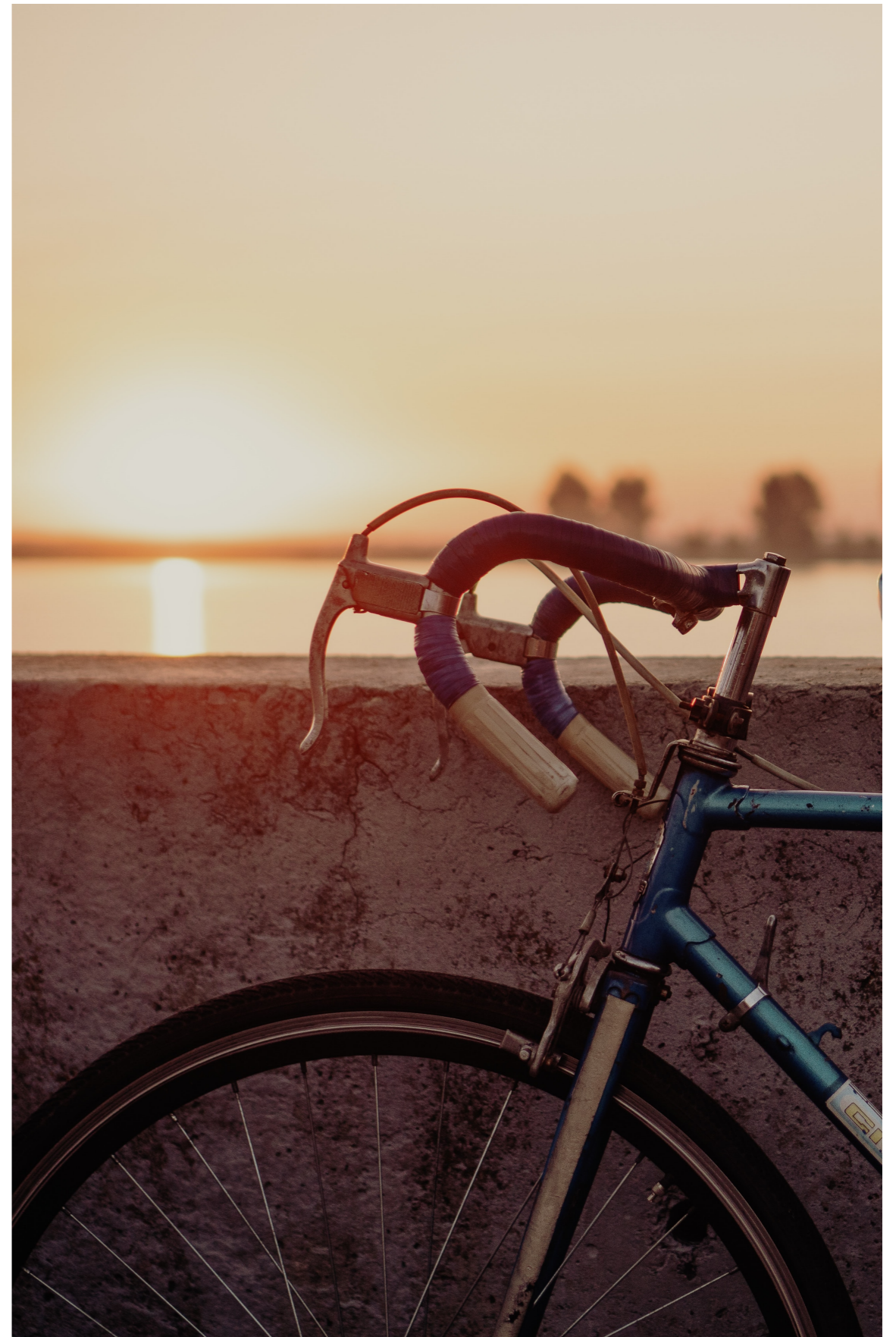
It is also important to note that this program is as much about social impacts as it is about environmental impacts. It is in fact a feature of all our offset programs. A large portion of proceeds will go back to the landowner, which in turn will be able to provide incomes to local workers and resources to the community.

Activating communities

Not emitting is a permanent CO₂ emission offset.

We are excited by the impacts of our nature-based programs. Yet, we are even more excited by the community programs we are implementing. Entering 2023, Quambio has signed several partnerships with public transit organisations in Kenya and in Rwanda. Those partnerships give us access to a community of several hundred thousands bus passengers traveling on hundreds of bus and thousands of routes daily.

We are now capable of connecting with this entire community at will. We also have access to detailed data for every single bus trip covered by our partners. The data is available in real-to near real-time. Combined with our mobility algorithm,



which is described in our methodology paper, we are able to compute the overall impact of the transit systems managed by our partners. We are able to do this for present data as well as for the recent past so that we can not only determine the current impact of the system but also the recent emission baseline.

Just as for the tree program, past activities and benefits of such a program are already implicitly accounted for in global carbon budgets and therefore cannot be packaged as offsets. Changes against this baseline however, such as increases in usage or bus route optimisations, are offsets. There is also a segment of current users that actively decide to use buses to avoid jam traffic on their way to work, for instance. While the total value of their actions cannot be exactly quantified, it represents an offset. We estimate it to represent about 5% to 10% of all uses today in large cities such as Nairobi.

The offset capacity of the programs under consideration is still unknown, but given the amount of passengers, bus sizes, number of routes and usage, we can conservatively say that the programs will enable the annual offsetting of many thousands tCO₂e.

At a technical level, offset assessment will rely on the same algorithm used in our App and described in our methodology paper. However, the partners we are working with are able to give us individual ticket information, such as passenger identification, route details, time and day, bus type, occupancy information. Every ticket is validated onboard, so

we know precisely how the routes are being used. With that information, we are able to calculate the impact of each journey in contrast with an equivalent journey in a car. We use the App as a validation tool, which allows us to sample a subset of trips and calibrate expected distances based on route planning against actual distances covered.

Offsets are produced based solely on the margin gains that we are able to create over time (plus the impact of those already using buses because of environmental concerns). In other words, we analyse additional uses at a system level as well as at an individual passenger level. Just as for the tree program, the marginal gain matters. We then enable increase usage via reward programs targeting individual passengers, but also targeting the infrastructure itself. We call those direct and indirect reward mechanisms. To us, this is again the most exciting part of the program. We are in fact able to give back to the local community at a system level, therefore creating a potential societal impact for millions of people. Nairobi and Kigali, two cities where our programs are active, count 5.1 and 1.2 million people respectively.

References

- [1] <https://www.unep.org/resources/emissions-gap-report-2022>
- [2] <https://www.nature.org/en-us/what-we-do/our-insights/perspectives/carbon-markets-for-faster-climate-action/>

Conclusions

Reduce unavoidable emissions effectively.

Quambio has the scale and partners necessary to help you confidently compensate your unavoidable emissions. As we enter 2023, we can count on a community comprising several hundred thousands people, which produces hundreds of tonnes of CO₂ emissions abatements every month.

As stated in the United Nations Environmental Program 2022 gap report, we must double usage of public transit by 2030. Our offset programs are designed to do that. We not only create compensations that you can trust, underpinned by

detailed and quantitative data, we also feedback into infrastructure projects that benefit everyone in the areas we operate. Better public transit infrastructure means more usage. More usage means more impact. More support from our partners and clients means greater societal impact as well.

We still remain convinced that the right way to create a climate strategy must first include a thoughtful strategy of active reductions. Offset should be used to compensate unavoidable emissions. It is also critical to not just think about climate in vacuum. Having positive biodiversity and societal impacts are also critical needs. This is where we stand and what we aim to achieve with our compensation programs. Join us today to learn more, and leverage our expertise to first reduce your avoidable emissions and then to our large offsetting capacity to compensate sources that cannot be reduced in your business processes.



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