Welcome to SimGas

Our Power

SimGas is a commercial biogas company that develops, sells and installs biogas digesters for rural households in East Africa

Why? Because biogas digesters are life-, money -, time- and climate savers

With 2,500 sales reaching 12,500 people to date, SimGas (est. 2009) is already the largest domestic biogas company in Africa

By 2030 our domestic biogas products will improve the lives of 10 million people in Africa and Asia

Every day (rural) households in Africa and Asia endanger their lives, lose money and time, by cooking on solid fuels

Pains

Alternatives are not viable: access to electricity in rural East Africa is <4-8% and solar is not a low-cost solution for cooking

Rural households in developing countries require energy mainly for cooking, lighting and charging phones, of which ~90% accounts for cooking (GIZ 2017). Solar home systems provide excellent low-cost solutions for lighting, charging phones, powering a radio or even televisions. But not for cooking, which requires ~2 kW for ~3.5 h a day. Off-grid solar home systems for >1kW costs between 2.5 USD/W and 16 USD/W (IRENA 2016), which is much more than the costs of using woodfuel and charcoal for the same.

3

Deforestation

Chopping down trees for wood fuel or charcoal causes deforestation and is time consuming.

2

Indoor air pollution

Family is exposed to toxic fumes and dangerous open fires while cooking. Women often cook on the floor.

1

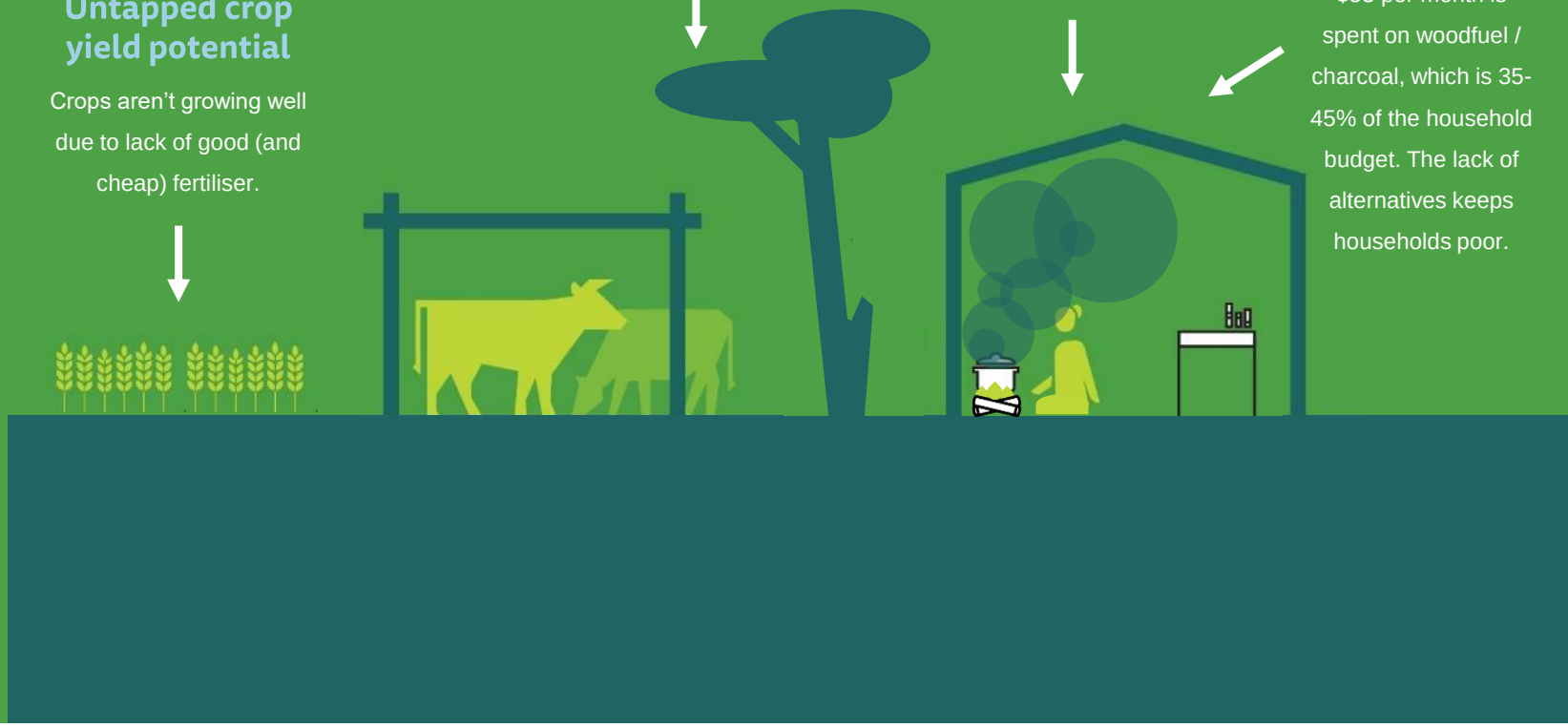
Expensive to be poor

$53 per month is spent on woodfuel / charcoal, which is 35-45% of the household budget. The lack of alternatives keeps households poor.

4

Untapped crop yield potential

Crops aren't growing well due to lack of good (and cheap) fertiliser.



Clear customer business case: what goes in is costless, what comes out saves $53/m and boosts income by $34/m

Gains

4

Organic fertiliser boosts crop yield

Crops are growing well due to organic fertiliser from the biogas digester. This provides food security and extra income (~$34/month).

1

Money saver

Every day, manure and water goes in, biogas and fertiliser come out. No more costs for cooking fuel, saving 30-45% of household budget (~$53/month).

3

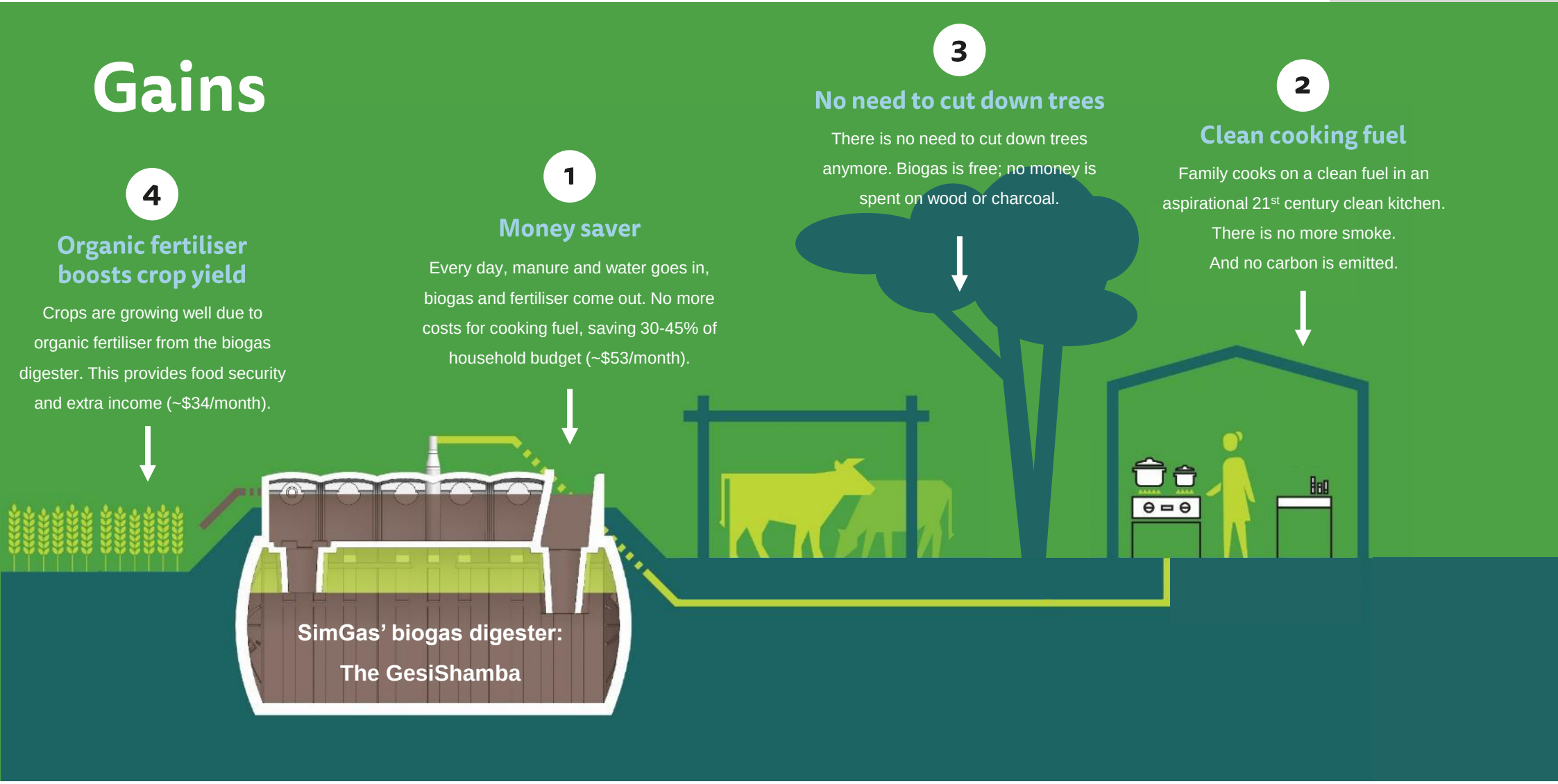
No need to cut down trees

There is no need to cut down trees anymore. Biogas is free; no money is spent on wood or charcoal.

2

Clean cooking fuel

Family cooks on a clean fuel in an aspirational 21st century clean kitchen. There is no more smoke. And no carbon is emitted.



Monthly repayment is lower than actual fuel savings and after 24 months there are no more fuel costs

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Slurry value due to increased crop yield*

+ 34 $/m

Fuel saving**

+ 53 $/m

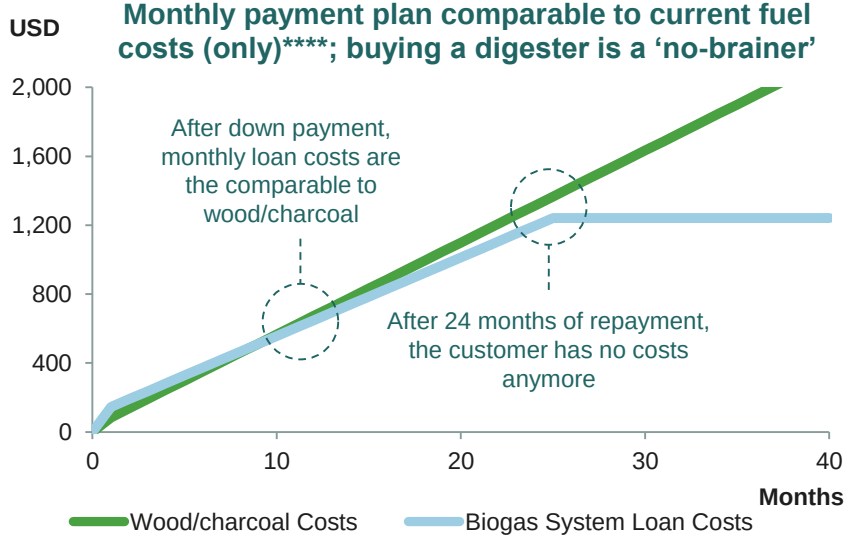
Pay in instalments***

- 45 $/m **24 m**

** Potential crop yield increase of 25-400%, resulting in very conservative 34 USD/month estimate*
*** Wood/charcoal eq., based on survey of 745 customers*
**** Price for a 6m³ system: USD 150 down payment and instalments of USD 45 x 24 months; Three different loan offers are available: pay in 5 months, 12 months or 24 months*
***** Payment plan available for 5 months, 12 months, 24 months and 36 months. See appendix C for the respective graphs.*

Loan offers	Pay in 5 months		Pay in 12 months		Pay in 24 months	
Size	Downpayment	Instalments	Downpayment	Instalments	Downpayment	Instalments
Medium: 2 - 3 cows	KSh 40,000	KSh 8,500	KSh 15,000	KSh 6,500	KSh 15,000	KSh 3,600
Large: 3 - 4 cows	KSh 50,000	KSh 10,500	KSh 15,000	KSh 8,500	KSh 15,000	KSh 4,700
X-Large: 5 - 7 cows	KSh 65,000	KSh 14,000	KSh 15,000	KSh 11,000	KSh 15,000	KSh 6,500

Monthly payment plan comparable to current fuel costs (only)**; buying a digester is a 'no-brainer'**



This is Ann: 25 years old, owns 3 cows, and 3 months ago, she switched from cooking on woodfuel to biogas only

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We are pleased to inform and update you on our latest innovation

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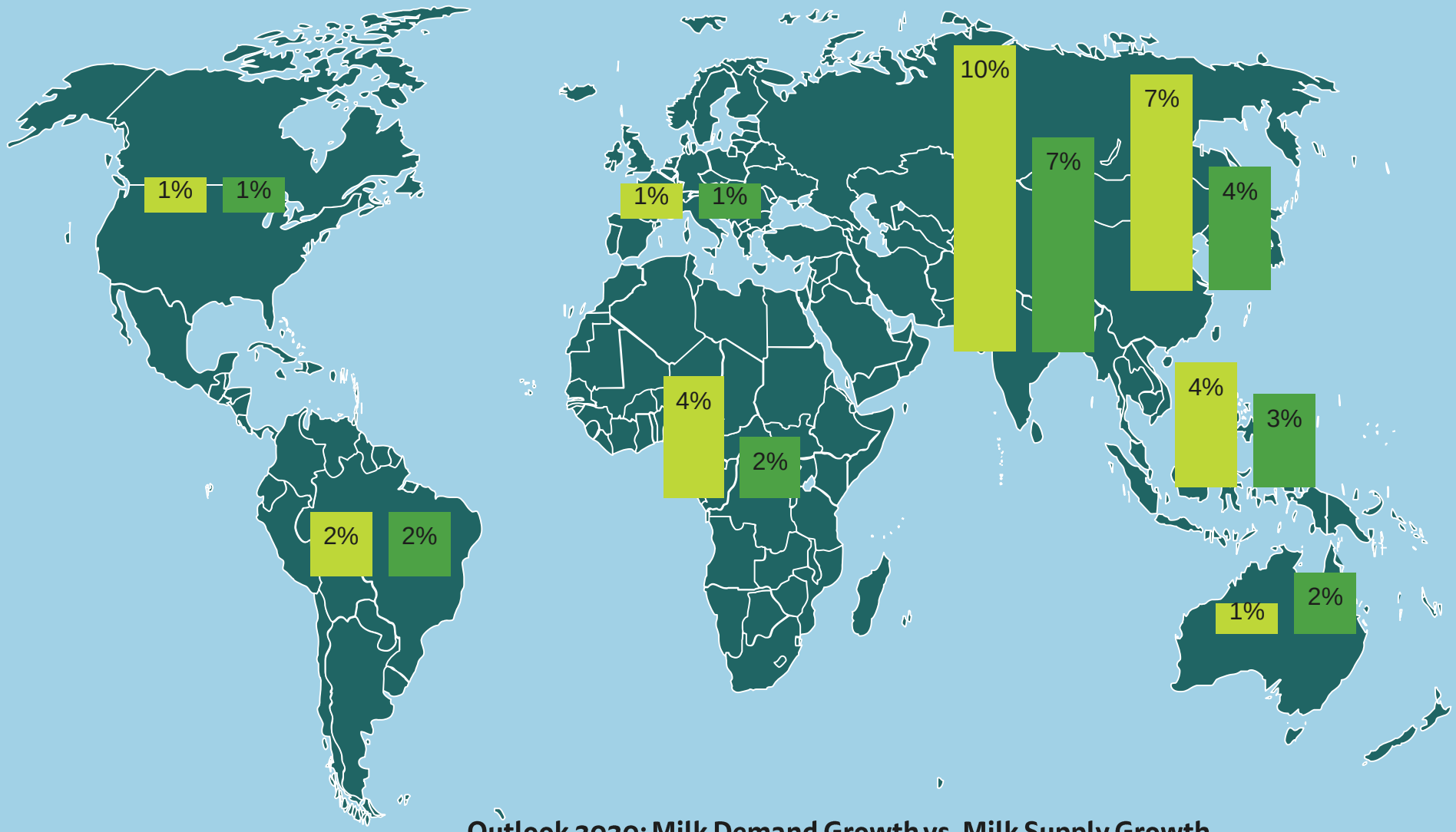
Why the Biogas Milk Chiller?



Outlook 2020: Milk Demand Growth vs. Milk Supply Growth

Demand Growth

Supply Growth

Source: Fonterra, 2015

Why the Biogas Milk Chiller?

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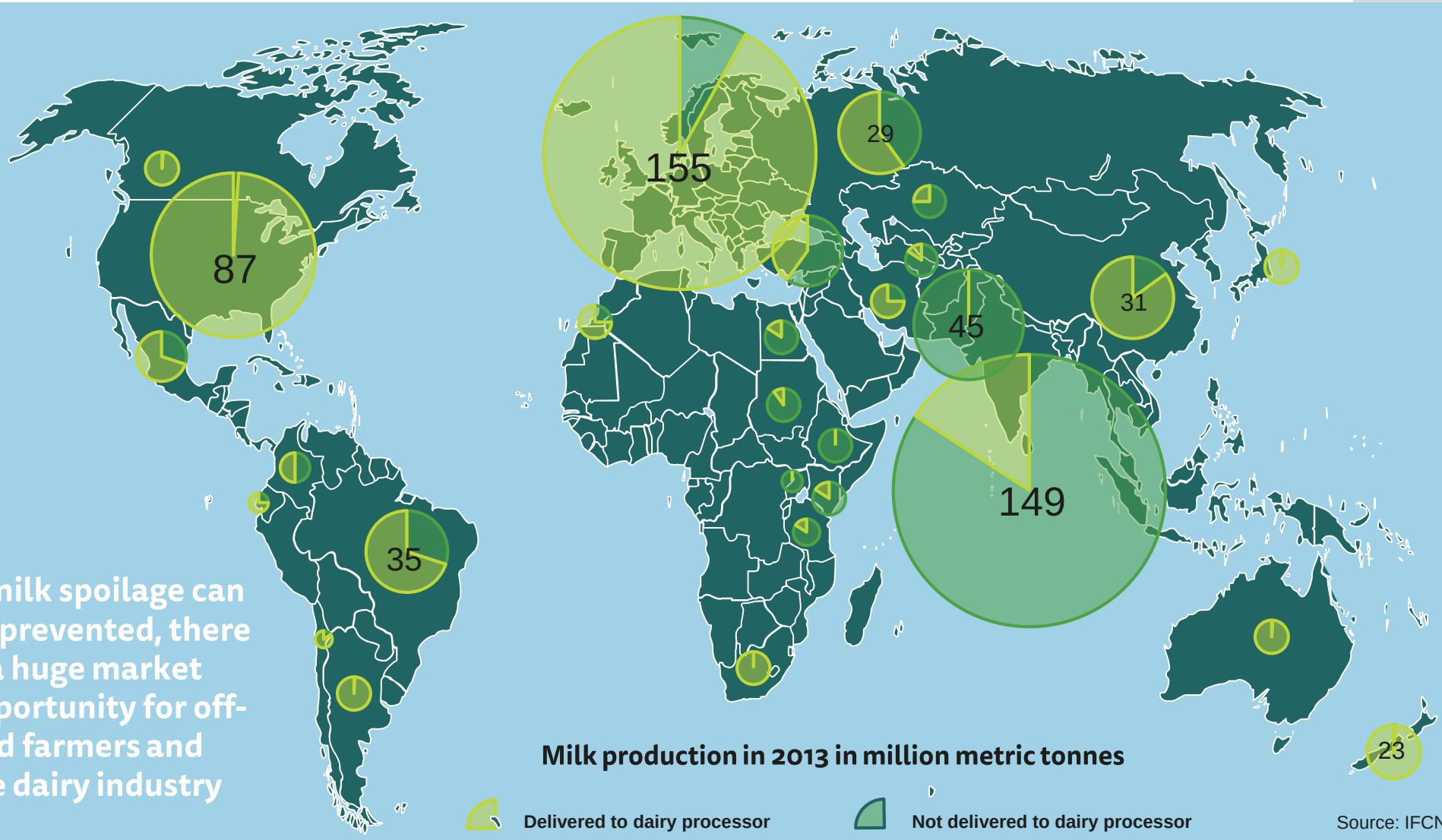

If milk spoilage can be prevented, there is a huge market opportunity for off-grid farmers and the dairy industry

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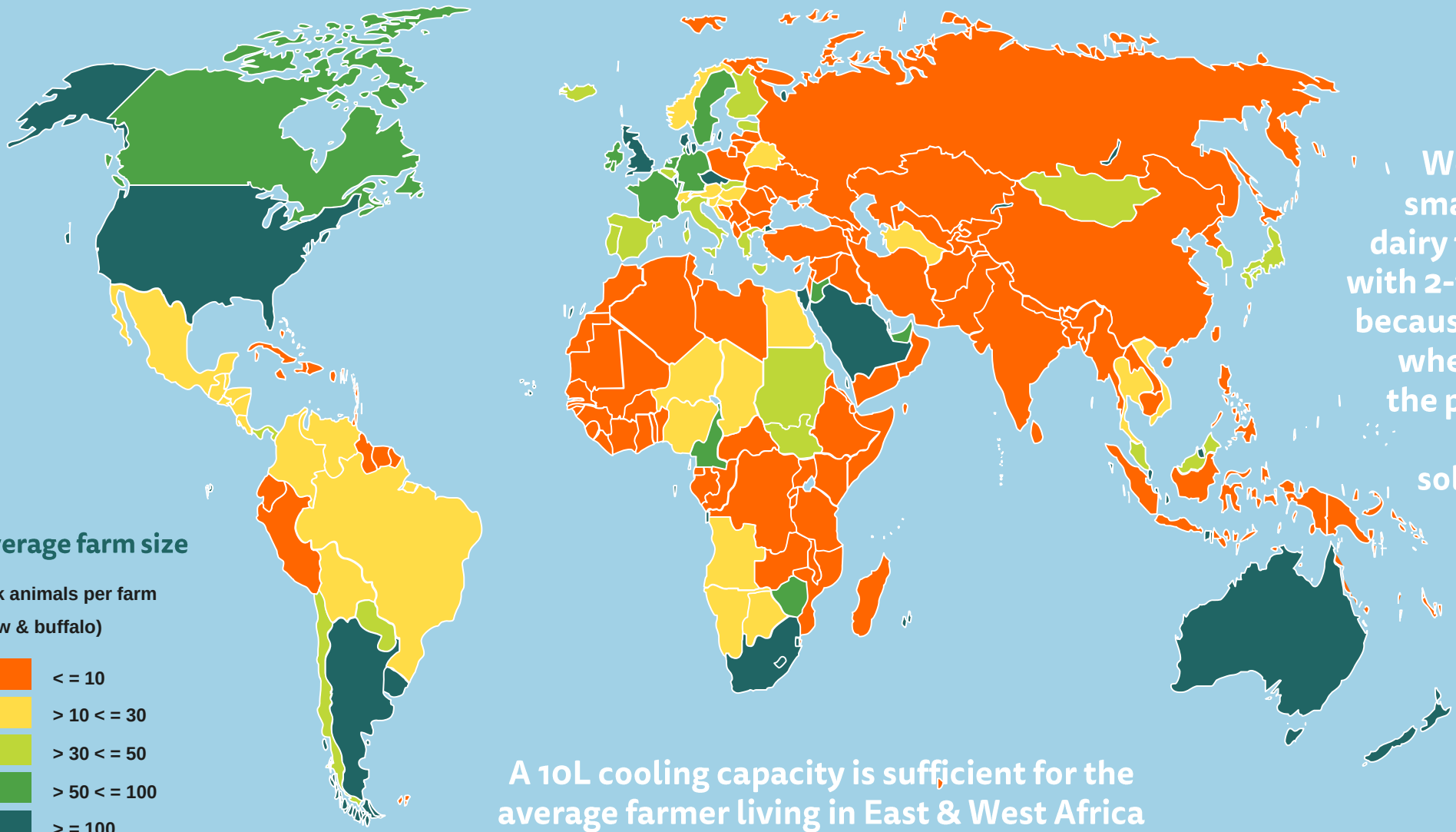

We target small scale dairy farmers with 2-10 cows because that's where both the problem and the solution is found.

A 10L cooling capacity is sufficient for the average farmer living in East & West Africa and almost all of Asia

Source: IFCN Database 2014

Why the Biogas Milk Chiller?

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Our milk chiller allows dairy farmers to cool, store and sell more milk, increasing supply across the chain.

How does it work?

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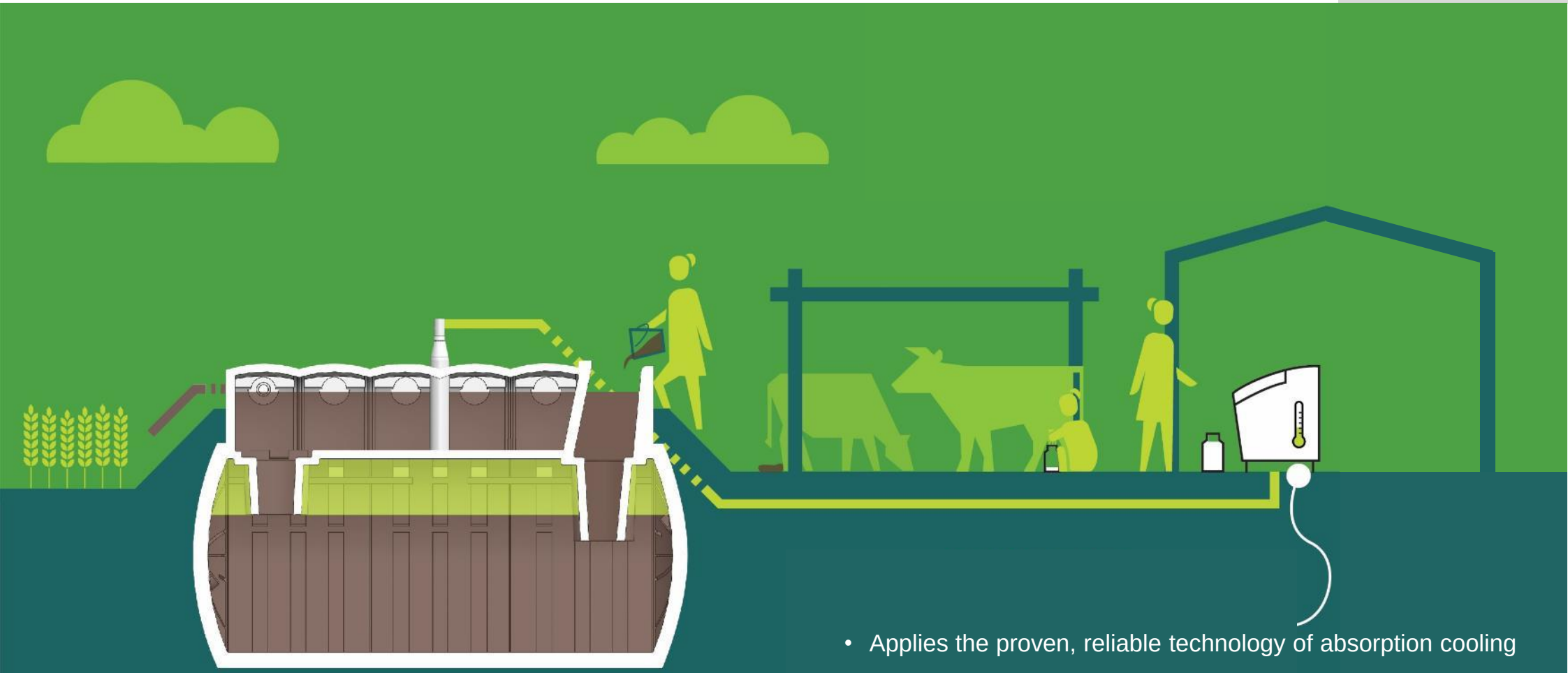

- 100% Powered by biogas
- Runs on any type of domestic anaerobic digester

- Applies the proven, reliable technology of absorption cooling
- Tailored cooling capacity of 10 Litres milk of night milk
- Cools milk within 4 hours from 35°C to 7°C
- Low gas consumption leaves enough gas to cook

How does it work?

ICE COMPARTMENT

Ice is stored in the aluminum compartment. This ice is used for cooling the milk. More ice means colder milk.

MILK COOLING COMPARTMENT

When you place the milk-can in the water, the ice melts and the milk is cooled.

BIOGAS FLAME

When this flame is ON, ice is made in the ice compartment. The longer the flame is on, the more ice is created.

EXTRA COOLING COMPARTMENT

You can keep other products cool in this compartment like vegetables.

What is the status of the project and what is next?

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Latest model, field test in Kenya

- ✓ 3x version 1 prototypes tested in the lab (2014); proof of working principle
- ✓ Market assessed in Kenya, Tanzania, Zambia, Rwanda by SNV (2015+2016); proof of market potential
- ✓ 4x version 2 prototypes tested in Tanzania (2015) ; proof of concept in the field
- ✓ 14x version 3 prototypes tested in Kenya and Tanzania (2016); value proposition assessed for farmer as well as cooperative, together with IDEO.org
- ✓ 3x version 4 prototypes tested in Kenya, ongoing (2017); optimised efficiency, usability and lower costprice

Next step: Pilot with 200 milk chillers in Kenya to proof impact at scale, on the whole dairy value chain (2018)

What do we want to achieve?

Our dream is that by 2025, milk spoilage by off-grid dairy farmers is something of the past;

The Biogas Milk Chiller shall be a widely accepted link in the cold chain for emerging dairy sectors worldwide