REPELLENTS TO PREVENT MOSQUITO-BORNE DISEASE

February 2022

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Base of the
Pyramid Group

DISCUSSION: KEY POINTS

SC JOHNSON:
Who we are + why we're in this space

HUMAN-CENTERED DESIGN:
How we're guided by the people we aim to serve

TOOLS:
What we're doing to prevent mosquito-borne disease.

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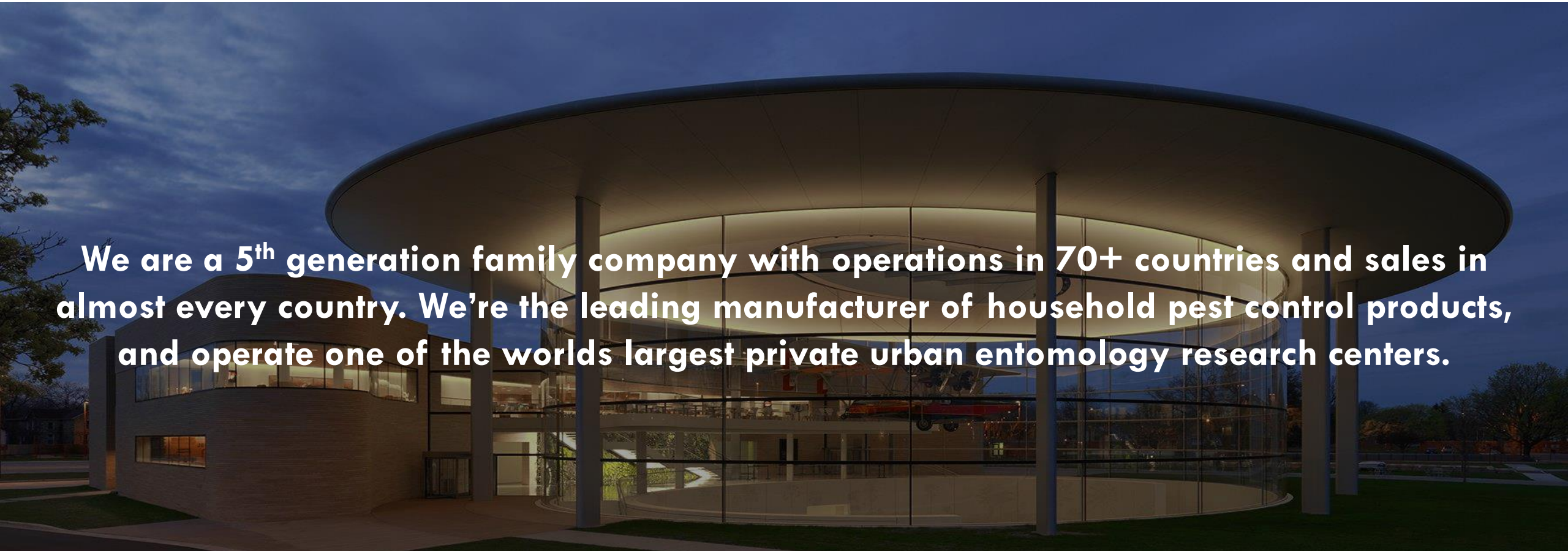
SC JOHNSON: OVERVIEW



Autan · Windex · Fuyi · Scrubbing Bubbles · Raid · Mr Muscle · Baygon · OFF! · KIWI

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SC JOHNSON: BASE OF THE PYRAMID GROUP

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BASE OF THE PYRAMID GROUP: STRATEGIC PARTNERSHIPS

We believe in the collaborative power of partnerships that create impact beyond what we could accomplish on our own.

POLICY

- World Health Organization
- Republic of Rwanda Ministry of Health
- UNHCR
- COUNTRY GOVERNMENTS

FUNDING

- Bill & Melinda Gates Foundation
- The Global Fund
- Unitaid
- COUNTRY GOVERNMENTS
- USAID
- Grand Challenges Canada / Grands Défis Canada

IMPLEMENTATION

- sfh Rwanda
- The Sumba Foundation
- CRS Catholic Relief Services
- WWF
- Médecins Sans Frontières / Doctors Without Borders
- unicef
- The MENTOR Initiative

ACADEMIA

- London School of Hygiene & Tropical Medicine
- Johns Hopkins University
- EIJKMAN
- UCSF University of California San Francisco
- Swiss TPH
- University of Notre Dame
- LSTM Liverpool School of Tropical Medicine
- Institute of Tropical Medicine

CONSORTIUM

- Bill & Melinda Gates Foundation
- IVCC
- malaria consortium
- apima Asia Pacific Leaders Malaria Alliance
- APMEN
- malaria NO MORE
- EAST AFRICA COMMUNITY (EAC)
- ROLL BACK MALARIA

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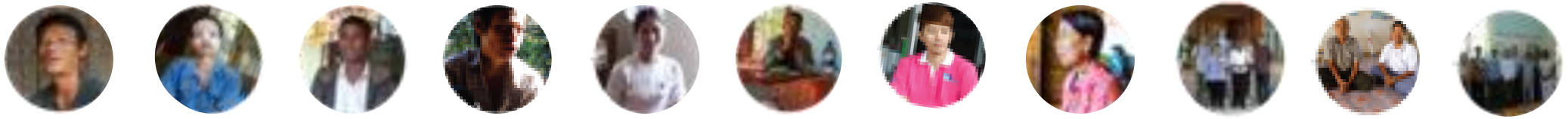
HUMAN-CENTERED DESIGN: GUIDED BY THE PEOPLE WE SERVE

We immerse ourselves in the lives of the people we are trying to serve in order to create solutions that align with their priorities.

EXAMPLE SCJ BOP INITIATIVE: OUTDOOR PROTECTION IN GREATER MEKONG SUBREGION

MYANMAR

THAILAND



mobile workers | mothers | shopkeepers | village leaders | midwives | health officials | doctors | community health workers | ministries of health | NGOs | regional WHO

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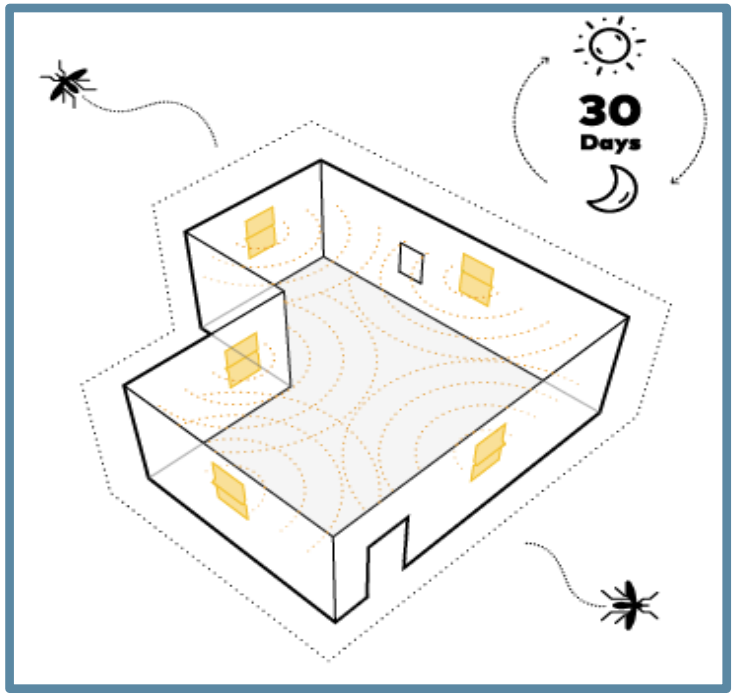
HUMAN-CENTERED DESIGN: GUIDED BY THE PEOPLE WE SERVE

We design to enable ease of transport, implementation, and use.



EASE OF TRANSPORT

Lightweight, minimal footprint, product as primary packaging to enable delivery to last mile locations.

EASE OF IMPLEMENTATION

Simple and clear enough to enable instruction and application by community health representatives.

EASE OF USE

Set it and forget it to enable minimal interaction or altered behavior to ensure compliance and efficacy.

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HUMAN-CENTERED DESIGN: MALARIA PERCEPTIONS

"If you eat certain foods, you can get malaria."

- Thim

"Walking too much in the sun can give you malaria."

- Thị Minh Khai

"I need to earn money to send my child to school. I worry about that more than malaria."

- Duangkamol

"My leg hurts – that's how I know I have malaria."

- Apinya

"Malaria is just a way of life for us."

- Bopha

"I don't know what malaria is."

- Natwadee

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“I don’t bring any mosquito repellent because its too expensive and bothersome to use all day long. I blow smoke onto my body to repel mosquitos. It works for about 5 minutes but its not that effective, But since I smoke anyways, it’s easy to do.”

- Ko Thein

Rubber Tapper, Myanmar

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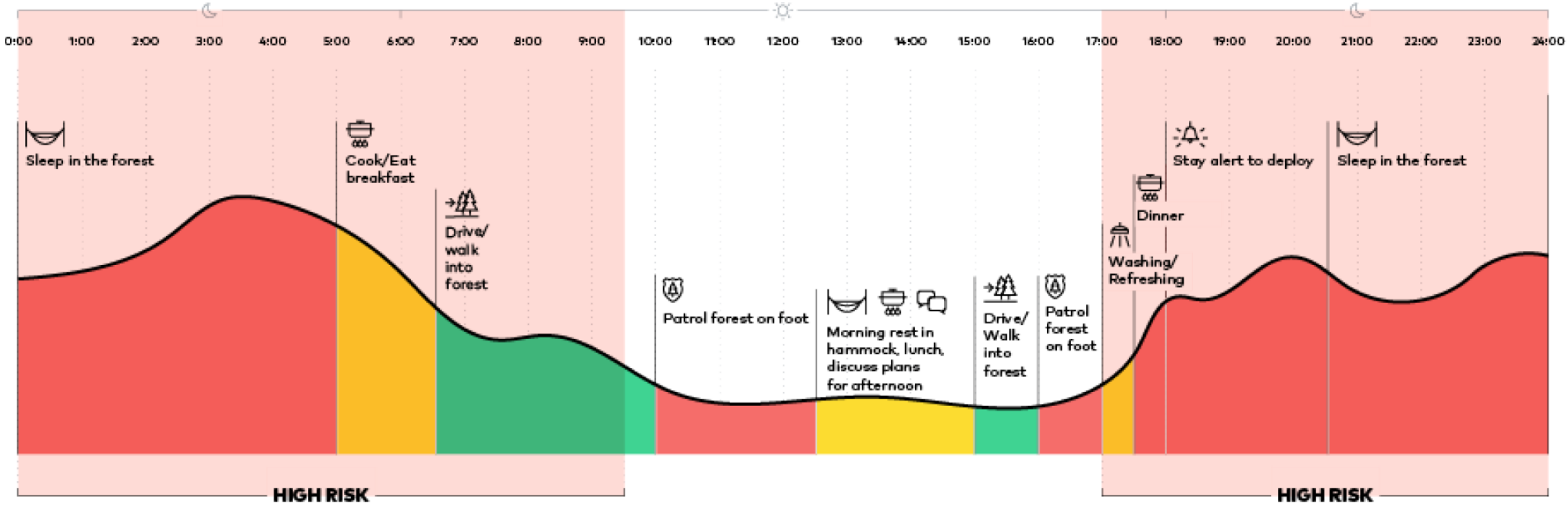
A RANGER'S JOURNEY: MONDULKIRI PROVINCE, CAMBODIA

Personal repellents can be used to fill the gaps during high-risk times when core interventions may be constrained.



Perceived Bite Risk:
- High
- Medium
- Low

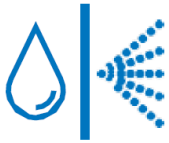
Mosquito Abundance

Biting Periods (*Anopheles* Mosquitoes)

WWF + SC Johnson Base of the Pyramid Group

PERSONAL REPELLENTS: A GLOBAL PUBLIC HEALTH TOOL

Personal repellent attributes and usage can be tailored to situations where residual transmission exists and core interventions may be constrained.



Available in spray, lotion, and aerosol applications

Offered with a variety of duration (hours of efficacy), driven by active ingredient level

DEET and Picaridin registered with US EPA*

Targeted for at-risk populations where the use of core interventions is constrained

*DEET and Picaridin have been evaluated by the WHO as active ingredients for personal protection in public health settings.

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SPATIAL REPELLENTS: PATH TO PUBLIC HEALTH RECOMMENDATION

We're developing interventions that demonstrate efficacy in clinical trials against mosquito-borne diseases including malaria, dengue, + zika.

PATH TO A WHO RECOMMENDATION FOR SPATIAL REPELLENTS

01

INTERVENTION CONCEPT DEVELOPMENT
2006 - Present

02

PROOF OF CONCEPT
Entomological Outcomes

- **CHINA** 2007 - 2009
- **INDONESIA** 2010 - 2011

EFFICACY GUIDELINES
Contributed to WHO guidelines for testing of Spatial Repellents
2013

WE ARE HERE

03

PROOF OF PRINCIPLE
Large Scale Epidemiological Trials

- **INDONESIA** 2014 - 2019
- **PERU** 2014 - 2019
- **KENYA** 2021 - 2023
- **MALI** 2021-2024
- **SRI LANKA** 2022 - 2024

Mosquito Shield + Envelope

04

POLICY SETTING
Piloting Intervention for Public Health Policy

- **SOUTH SUDAN** 2021 - 2024
- **UGANDA** 2021 - 2024

Mosquito Shield

05

COUNTRY POLICY
Registration and Use

- **GLOBAL** 2021 - Beyond

Mesh

Mosquito Shield

FUNDERS:

PRINCIPAL INVESTIGATORS:

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REPELLENTS TO PREVENT MOSQUITO-BORNE DISEASE

SHIELD

PRICE PROFILE:
$2.88 per person per year
~$0.30 per unit

KEY BENEFITS:
Product is package

DURATION PER UNIT:
1 month @ 24 hours per day

COMMERCIAL AVAILABILITY:
Registration underway 2020

MESH

PRICE PROFILE:
$1.83 per person per year
~$2.29 per unit

KEY BENEFITS:
Duration, no user interaction

DURATION PER UNIT:
6 months @ 24 hours per day

COMMERCIAL AVAILABILITY:
Registration underway 2021

AEROSOL

PRICE PROFILE:
$0.53 per person per year
~$1.40 per unit

KEY BENEFITS:
Control, portability

DURATION PER UNIT:
1 month @ 12 hours per day

COMMERCIAL AVAILABILITY:
15+ countries by 2023

LOTION

PRICE PROFILE:
$3.36 per person per year
~$0.56 per 50 ml tube

KEY BENEFITS:
Portability, non-greasy feel

DURATION PER UNIT:
4 hours per application

COMMERCIAL AVAILABILITY:
> 50 countries

COILS

PRICE PROFILE:
$1.42 per person per year
~$0.02 per unit

KEY BENEFITS:
Low cost

DURATION PER UNIT:
8 hours per day

COMMERCIAL AVAILABILITY:
> 50 countries

PRICE ASSUMPTIONS

Months per year protected: six (peak transmission seasons) **Average people per HH:** five **Average HH size:** 25m^2

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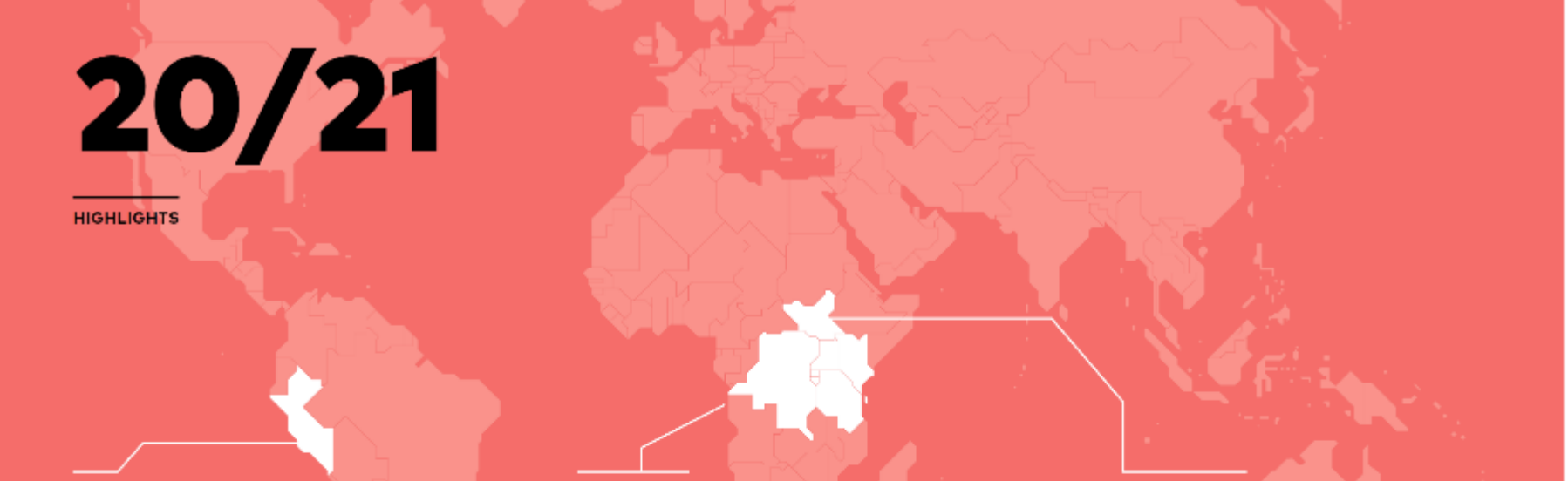
20/21

HIGHLIGHTS



PERU

Partnered to conduct first-of-its kind clinical trial of an innovative spatial repellent that demonstrated reduction of Aedes-borne virus infection rates by an estimated 34%.

EAST AFRICA

Partnered with eight East African country governments to create the Great Lakes Malaria Initiative (GLMI). The GLMI will prevent malaria for 60 million people in cross-border areas.

SOUTH SUDAN

Launched South Sudan's first community health clinic in Gudele, providing health care access to 15,000 people.

19.5M
People Reached With Public Health Education

9
New Partnerships Established

19
Existing Partnerships Expanded

2
New Disease Prevention Interventions Launched

4.8M
People Reached With Tailored Products

1248
Community Health Workers Trained + Employed

18
Countries Reached/ Engaged

3
MOUs Signed With National Governments

Impact to Date

SINCE 2013

71.5M+
People Reached

$30M+
Funding Committed

26
Countries Impacted

10
New Products

7
Patents Awarded

70
Community Health Posts Built

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