KOPERNIK
FINDING WHAT WORKS

TECHNOLOGY FOR THE LAST MILE

Lean experimentation and impact measurement

GRIPS Disruptive Inclusive Innovation Seminar #4

13 November 2019

INSPIRATION FOR MY DEVELOPMENT CAREER

Sadako Ogata

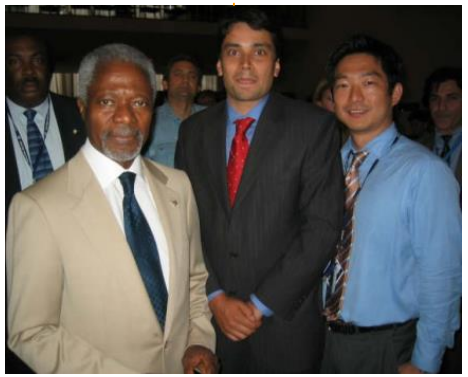
Yasushi Akashi

CAREER PATH

McKinsey
&Company

1999

Present



KOPERNIK

コペルニク
イノベーションをラストマイルに

LOW INCOME WOMAN IN SIERRA LEONE

KOPERNIK TEAM

TABLE OF CONTENTS

KOPERNIK WORKS ACROSS TWO KEY AREAS

KOPERNIK – FINDING WHAT WORKS

1: TECHNOLOGY DISTRIBUTION

Wonder Women Emergency Support

2: R&D LAB FOR SOCIAL AND ENVIRONMENTAL CHALLENGES

2a: In-house experimentation

2b: Experimentation with clients

KOPERNIK WORKS ACROSS TWO KEY AREAS

KOPERNIK – FINDING WHAT WORKS

1: TECHNOLOGY DISTRIBUTION

Wonder Women Emergency Support

2: R&D LAB FOR SOCIAL AND ENVIRONMENTAL CHALLENGES

2a: In-house experimentation

2b: Experimentation with clients

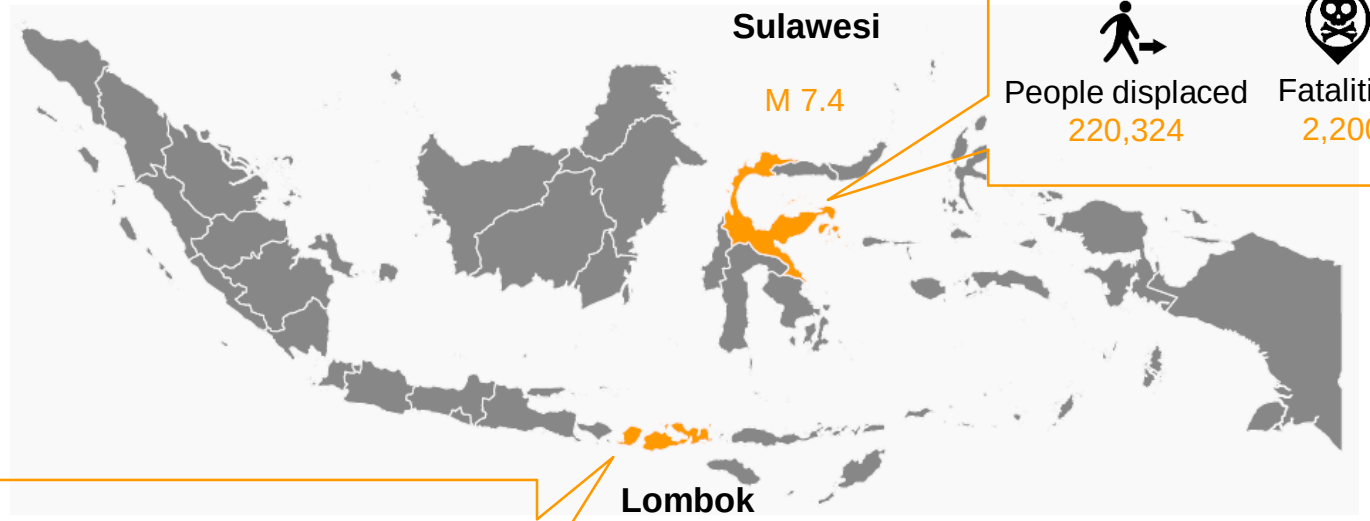
KOPERNIK FINDING WHAT WORKS

TECHNOLOGY DISTRIBUTION THROUGH LOCAL WOMEN'S GROUP


TIGER
TURN BACK CRIME
POLICE

EARTHQUAKE AND TSUNAMI IN SULAWESI AND LOMBOK

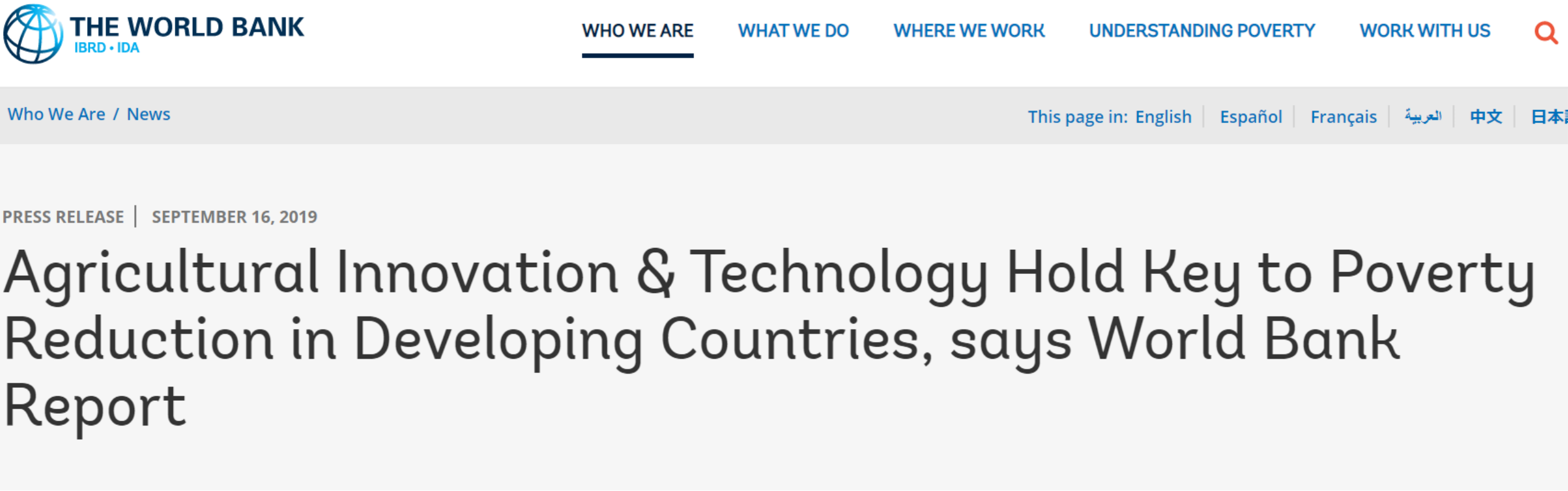
Damage



WHY AGRICULTURE IN THE DEVELOPING WORLD

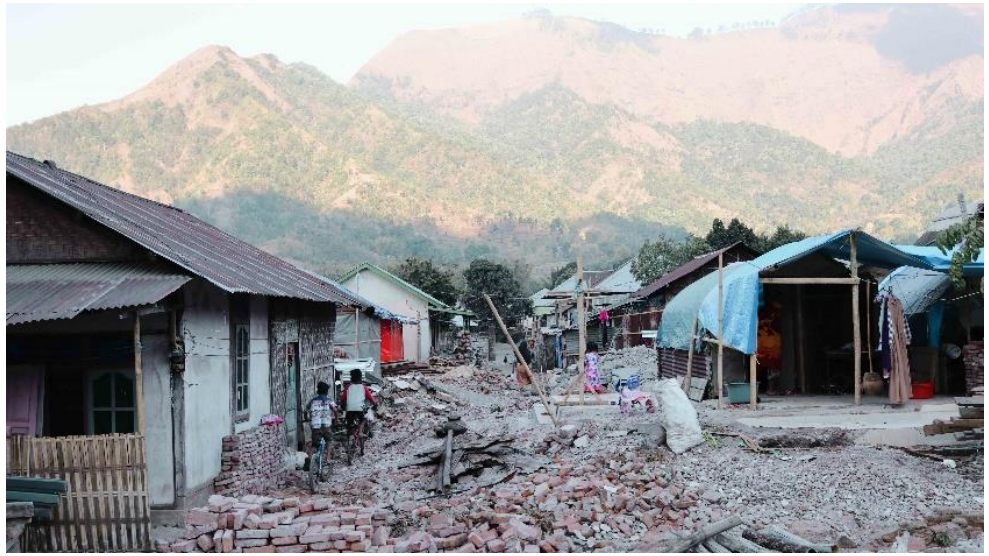
- **65%** of poor working adults made a living through agriculture (2015)
- Agriculture accounted for **one-third** of global gross-domestic product (GDP) (2014)
- Growth in the agriculture sector is **two to four times more effective** in raising incomes among the poorest compared to other sectors.

INNOVATION AND TECHNOLOGY NEEDED IN AGRICULTURE



AFFECTED AREAS

ロンボク島



スラウェシ島

EXAMPLES OF DISTRIBUTED GOODS

Shelter kits


Water filter


Solar light


Tarpaulin


Blankets


Sleeping mats

Reconstruction kits


Rip saw


Crow bar


Shovel


Hoe


Sledge hammer


Hammer


Gloves

Hygiene kits

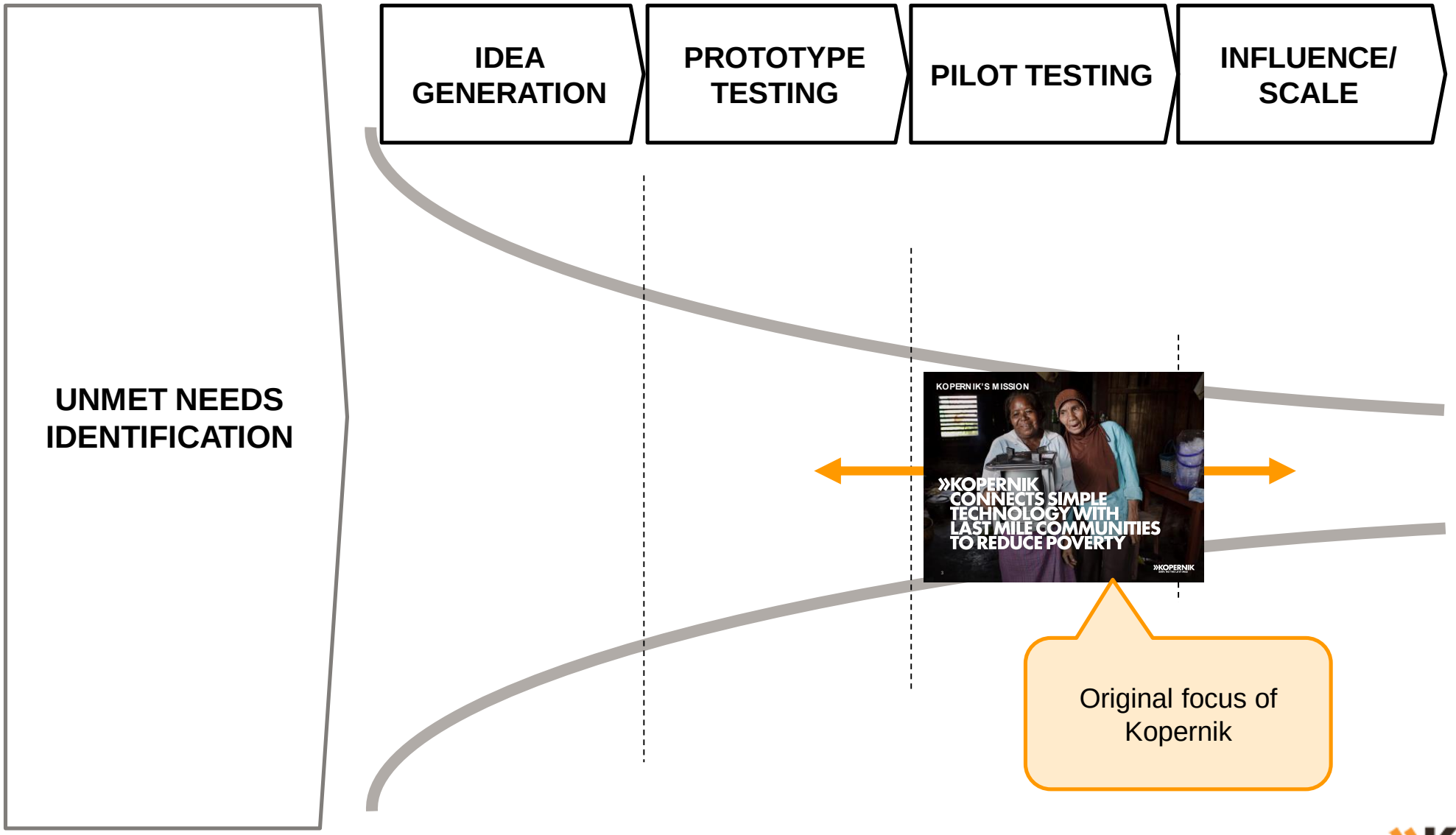

12L bucket


Soap bars


Sanitary napkins


Detergent

KOPERNIK FOCUSES ON THE EARLY PHASES OF THE INNOVATION FUNNEL AND WORKS WITH PARTNERS TO SCALE UP VIABLE SOLUTIONS



»KOPERNIK FINDING WHAT WORKS

KOPERNIK WORKS ACROSS TWO KEY AREAS

KOPERNIK – FINDING WHAT WORKS

1: TECHNOLOGY DISTRIBUTION

Wonder Women
Emergency Support

Shift

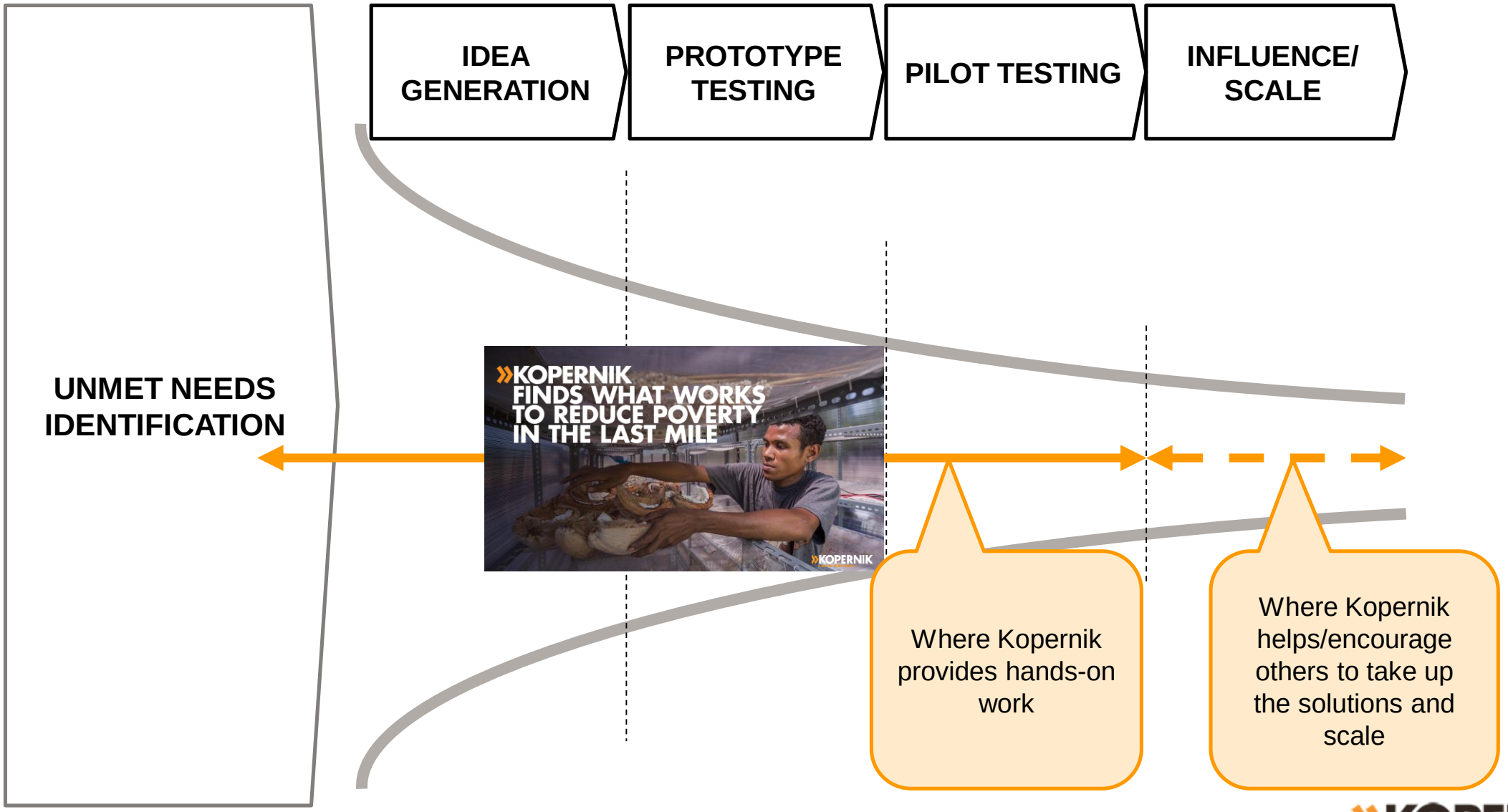
2: R&D LAB FOR SOCIAL AND ENVIRONMENTAL CHALLENGES

2a: In-house experimentation

2b: Experimentation with clients

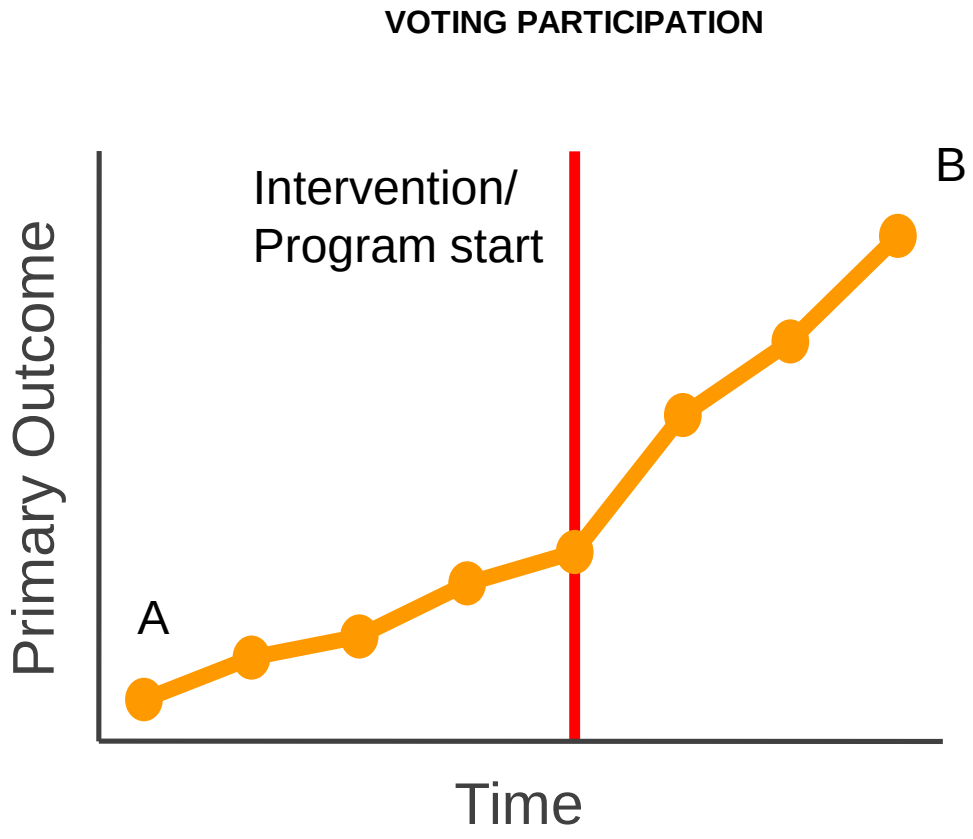
KOPERNIK
FINDING WHAT WORKS

KOPERNIK FOCUSES ON THE EARLY PHASES OF THE INNOVATION FUNNEL AND WORKS WITH PARTNERS TO SCALE UP VIABLE SOLUTIONS



»KOPERNIK
FINDING WHAT WORKS

IN ORDER TO UNDERSTAND DIFFERENT APPROACHES, IT MAYBE USEFUL TO TAKE A STEP BACK AND THINK ABOUT WHAT 'IMPACT' MEANS…



Does the intervention have:

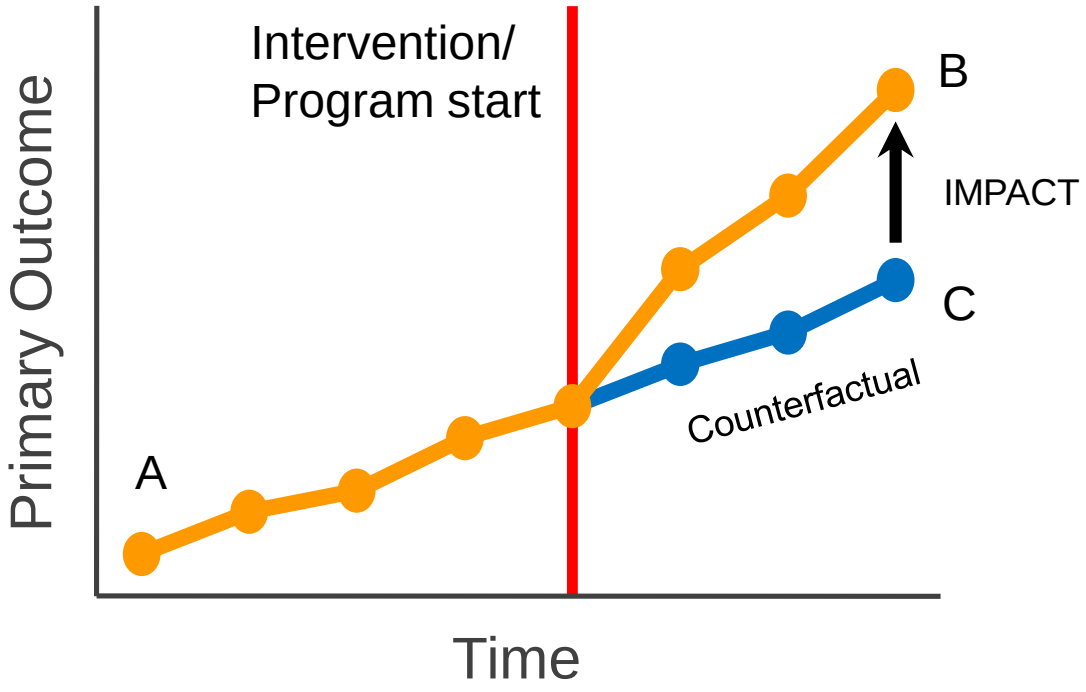
i. Positive Impact

ii. Negative Impact

iii. There's not enough information

WHAT IS IMPACT (OR PRODUCT – MARKET FIT) ?

(VOTING PARTICIPATION I)



Impact is defined as a comparison between:

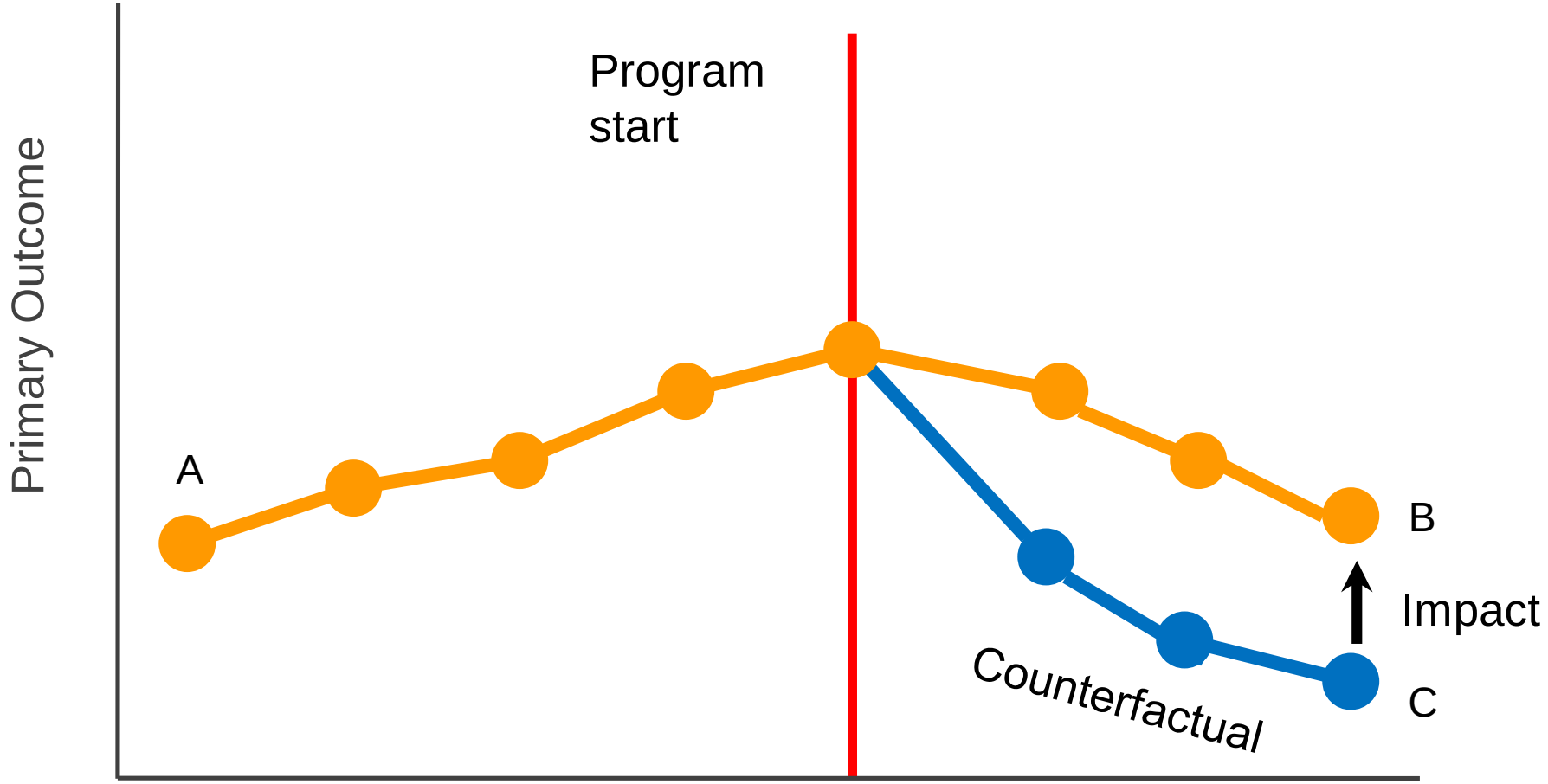
The outcome some time after a program/intervention has been introduced (B)

AND

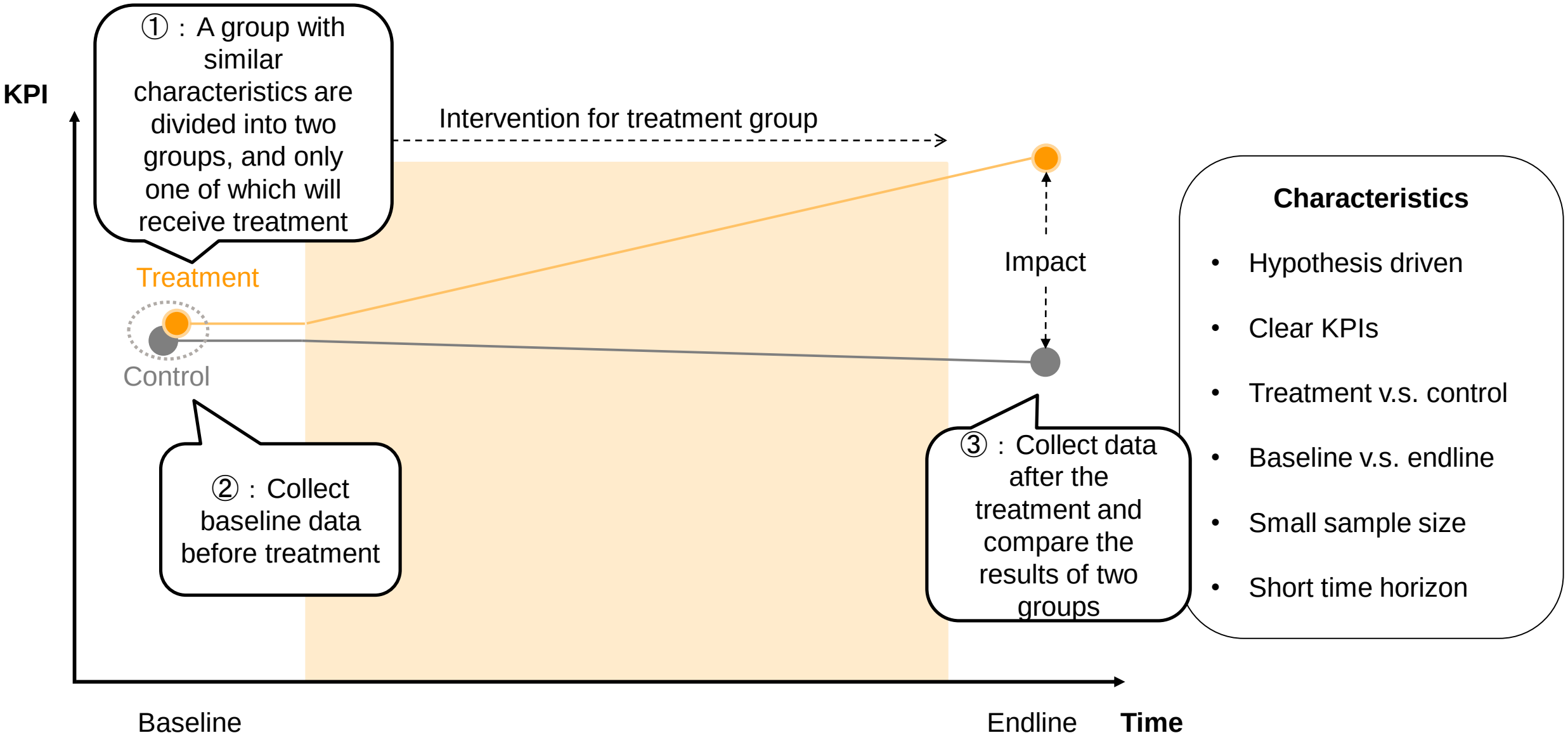
The outcome at that same point in time had the program not been introduced (C). This is known as the Counterfactual/Control

COUNTERFACTUALS ARE IMPORTANT TO HAVE A HOLISTIC PICTURE OF IMPACT. A DECREASE IN OUTCOME DOES NOT NECESSARILY MEAN A NEGATIVE IMPACT

(VOTING PARTICIPATION II)



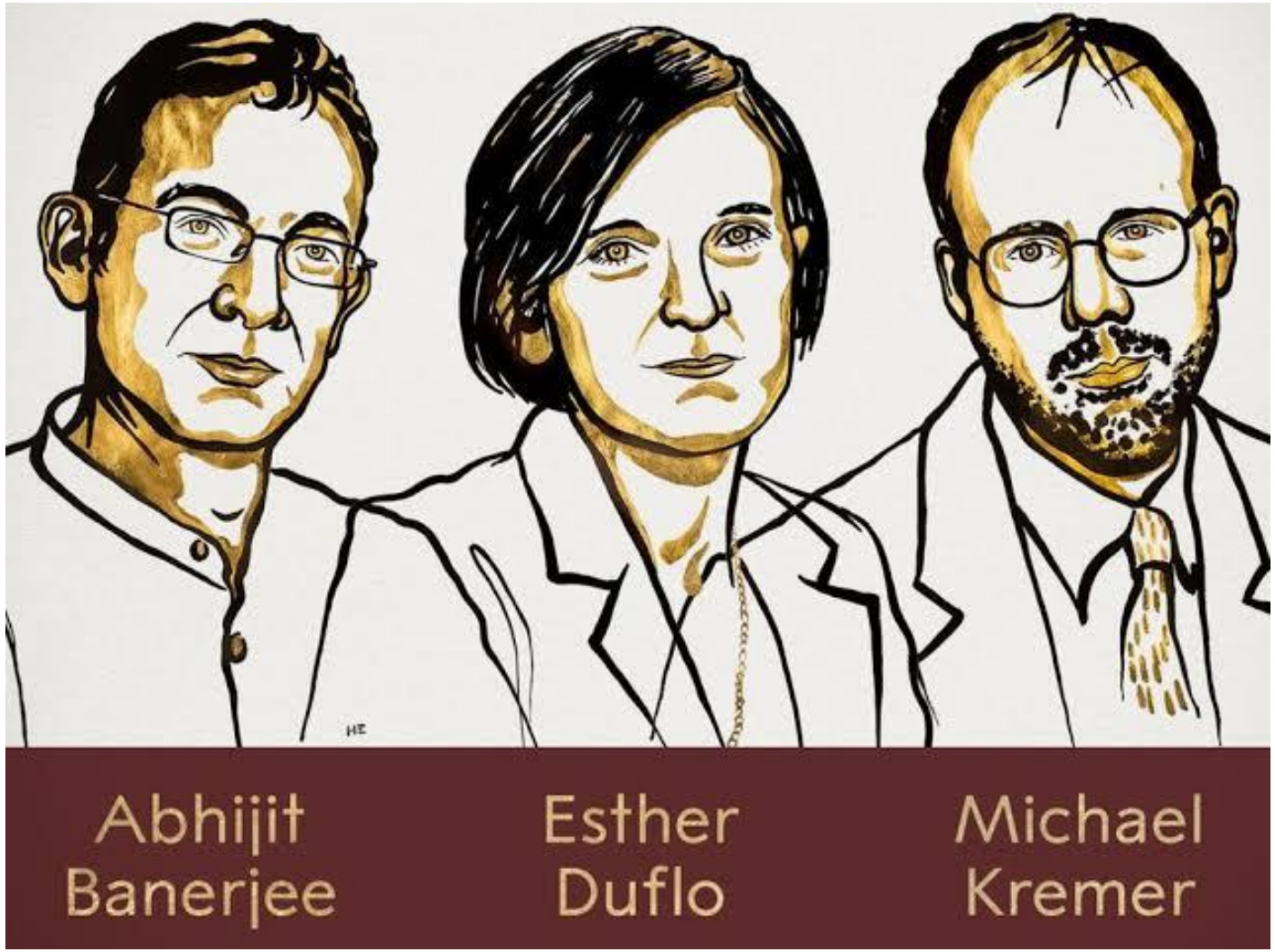
KOPERNIK'S LEAN EXPERIMENTATION APPROACH



Characteristics

- Hypothesis driven
- Clear KPIs
- Treatment v.s. control
- Baseline v.s. endline
- Small sample size
- Short time horizon

NOBEL ECONOMICS PRIZE 2019 GIVEN TO ‘EXPERIMENTATION APPROACH’



NOBEL ECONOMICS PRIZE 2019 GIVEN TO ‘EXPERIMENTATION APPROACH’

DIAMOND online　特集　連載　書籍　週刊ダイヤ　WSJ

今年のノーベル経済学賞が、途上国支援とビジネスの双方にもたらす革命的な影響とは

現場目線で解説する2019年度ノーベル経済学賞

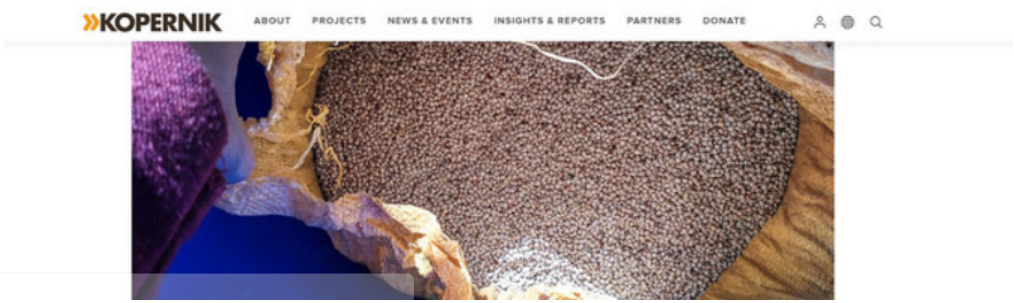
中村俊裕：米国ＮＰＯコペルニク　共同創設者兼ＣＥＯ

経済・政治　エディターズ・チョイス

2019.10.19 4:20

いいね！ 110　シェア　Tweet　B!

2019年度のノーベル経済学賞は、MITのエステール・デュフロ氏、アビジット・バナジー氏、そしてハーバード大学のマイケル・クレマー氏が獲得した。受賞理由は、世界の貧困削減に実証実験を用いたアプローチを行ったこと。一見、日本で暮らす私たちとの関わりは少ないように見える。だが、国際NPOコペルニクの共同創設者・中村俊裕氏によると、今回の受賞者らの業績は、途上国支援やNPOの施策はもちろん、ビジネスにも広く影響を与えるという。受賞者の業績を、途上国の中でも援助の届きにくい地域にテクノロジーを届けて貧困を削減する活動を約10年続けている中村氏が、「現場」目線で解説する。



KOPERNIK FINDING WHAT WORKS

OP-ED IN JAKARTA POST A FEW WEEKS AGO

OPINION TheJakartaPost

Reducing poverty, one experiment at a time

By Toshi Nakamura
Gianyar, Bali
Cofounder and CEO of Kopernik

Efforts toward the eradication of poverty typically comprise difficult choices about where to allocate limited resources and are filled with questions about the most effective interventions to achieve the intended results.

For decades, hefty investments were made through development aid programs that were often designed on assumptions and on what seemed to be commonsense interventions. For example, it seems reasonable that cash handouts would improve the lives of poor families, or that free textbooks would improve the educational outcomes of students in poor rural areas. But with no clear information about the amount of rice you are eligible to receive. Findings from this research set the groundwork for the government's social protection card program in 2013, which informed over 15 million Indonesians about their entitled benefits.

The government has received praise following reports of the nation's poverty rate falling to a single digit for the first time in history, to 9.82 percent in March real-life evidence.

However while more interventions should be rigorously tested for hard evidence of their effectiveness before large-scale, nation-wide roll out, because RCTs are expensive and complex to implement — this approach cannot be applied to every development intervention.

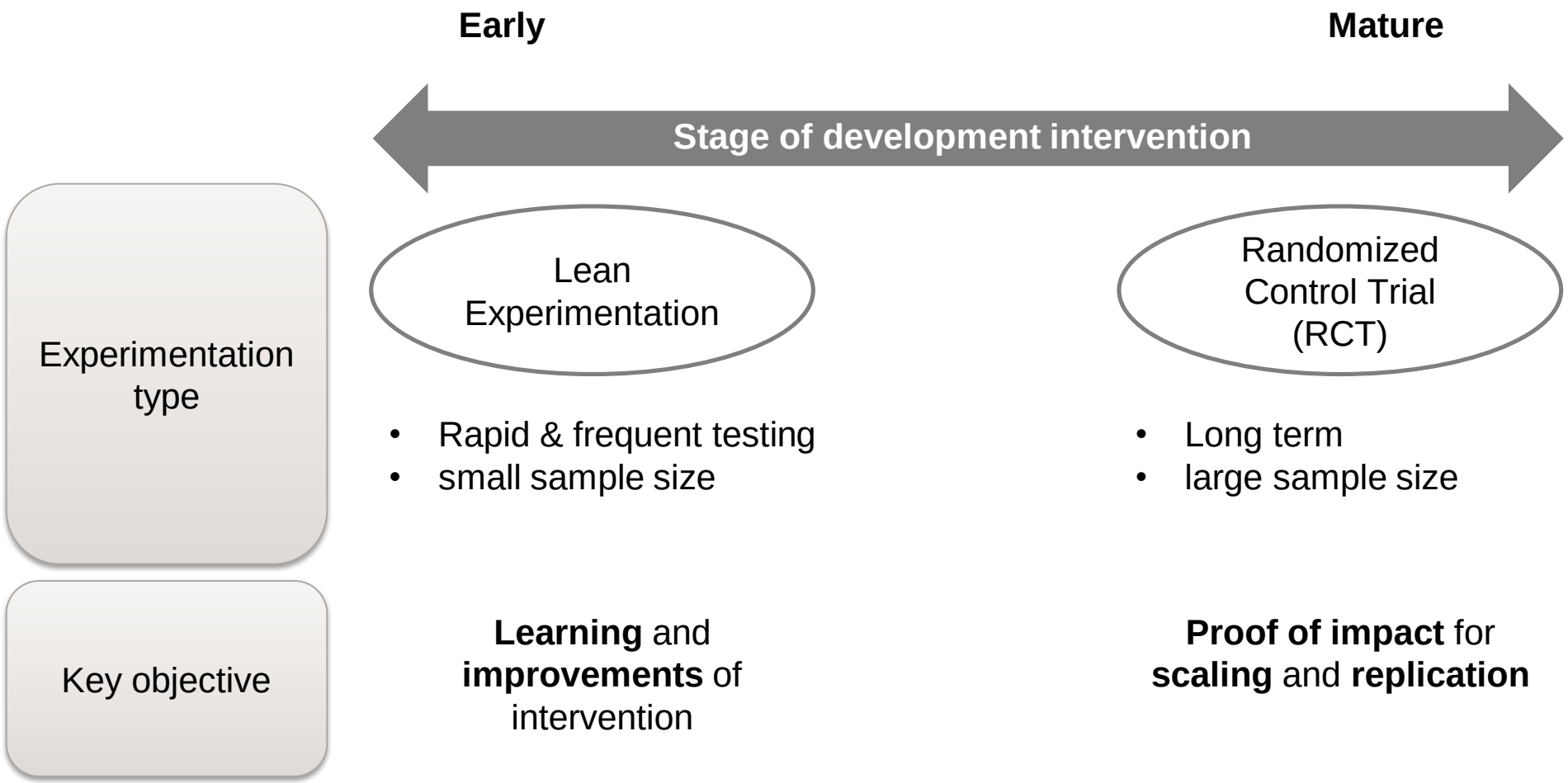
RCTs might run over two to three years with rigorous research processes. However, we tion in Sumba, East Nusa Tenggara. The study, involving 40 female students, explored the link between access to reusable sanitary pads and school attendance.

While we didn't find a significant link, we learned the pads have other environmental and health benefits, especially in remote locations with no waste management infrastructure. But the reusable pads were too expensive, and the high cost was preventing girls in rural Indonesia from using the products.

These results piqued the interest of key players in the water, sanitation and hygiene sector and led to a different and redesigned experiment with multiple part-

KOPERNIK FINDING WHAT WORKS

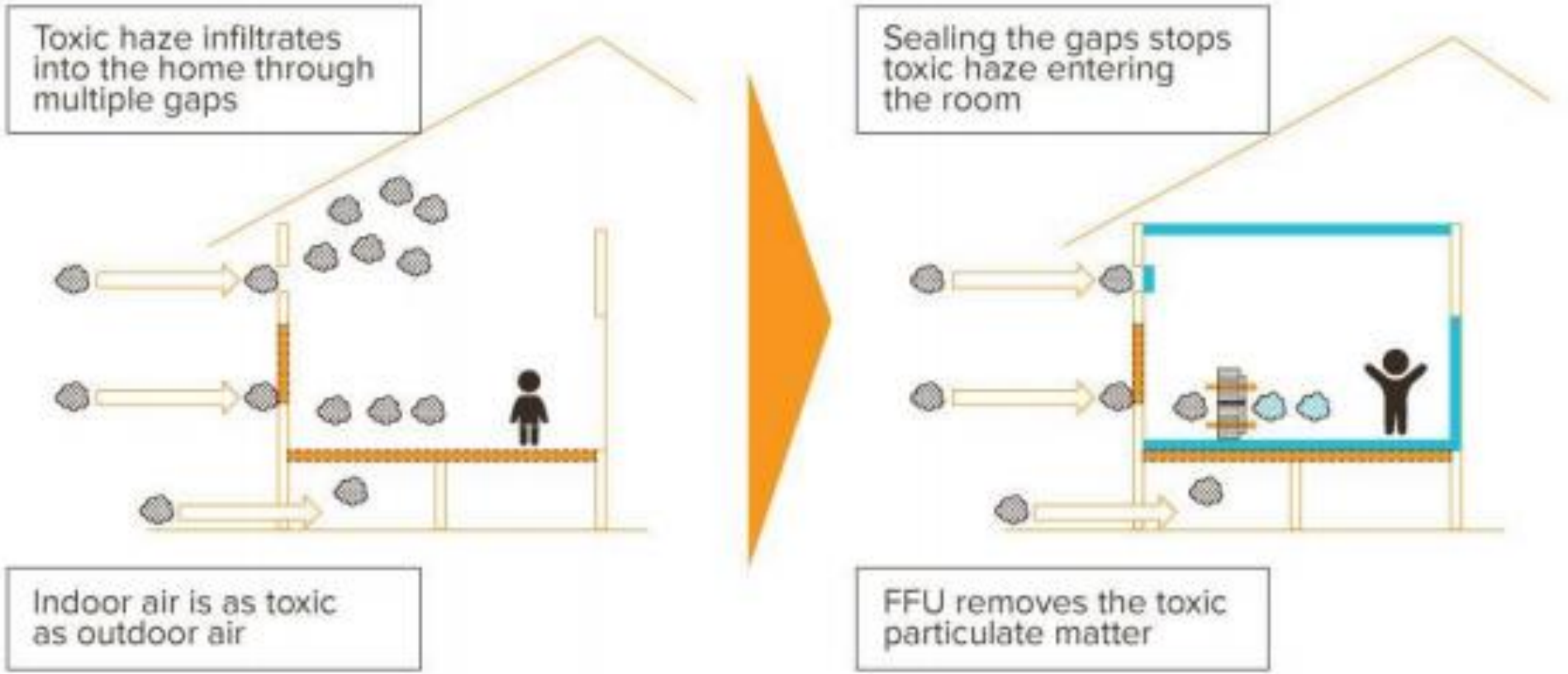
DEGREE OF COMPLEXITY IN EXPERIMENTATION NEEDS TO BE ALIGNED WITH THE STAGE OF THE INTERVENTION



HAZE FROM PEATLAND FIRE

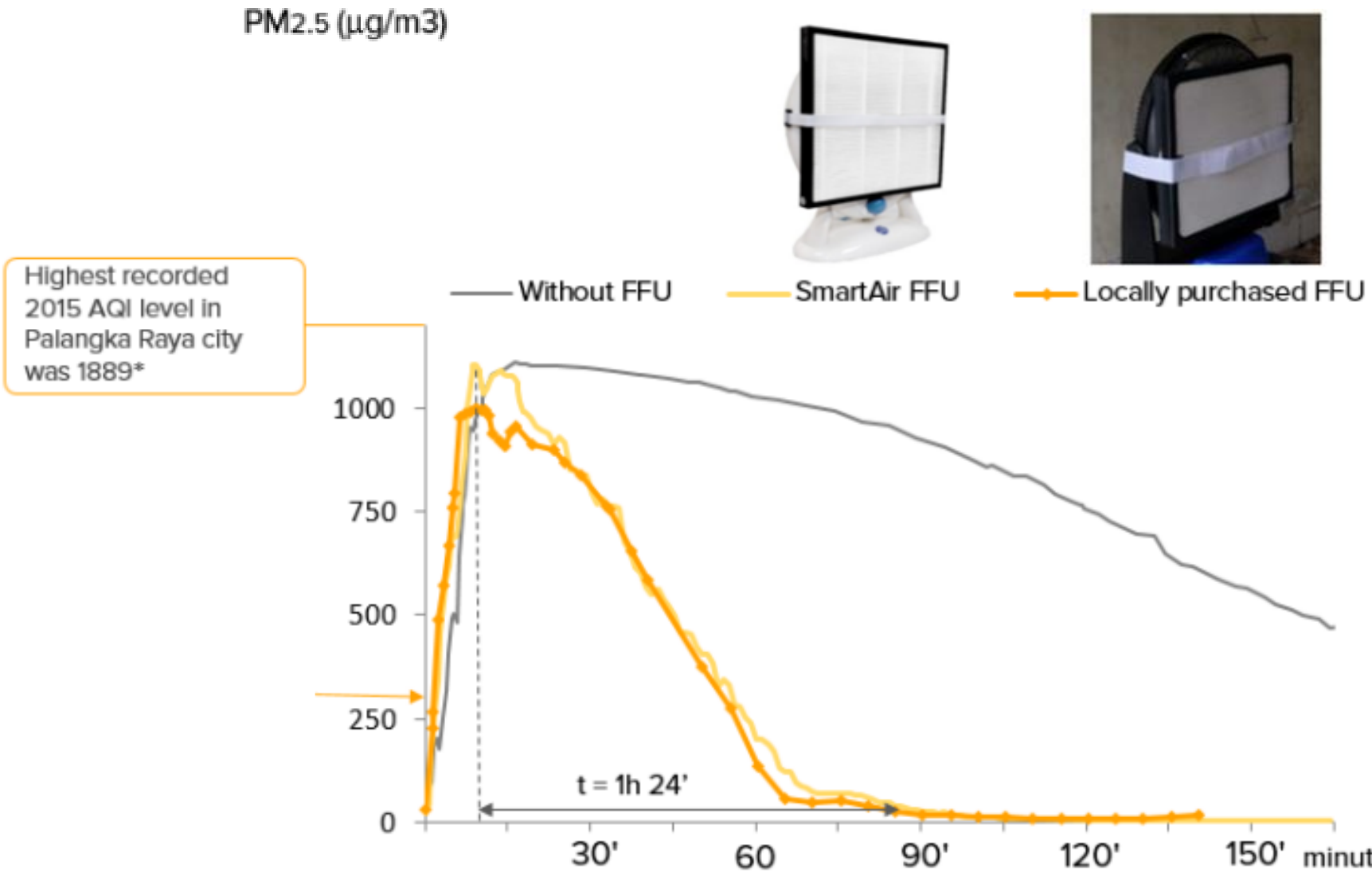
SAFE ROOM FOR CHILDREN

SAFE ROOM FOR CHILDREN

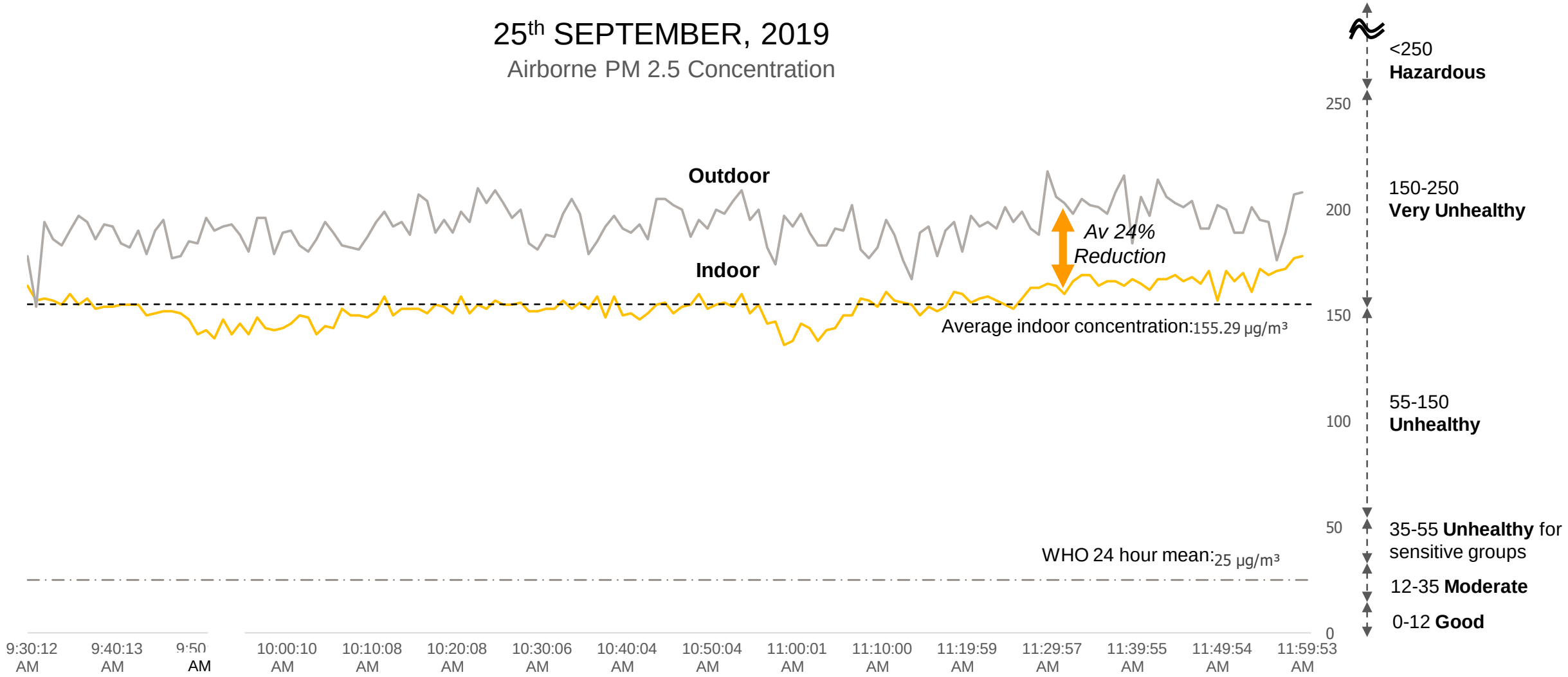


EXPERIMENT IN A CONTROLLED ENVIRONMENT

PM 2.5 trend



RESULTS


25th SEPTEMBER, 2019
Airborne PM 2.5 Concentration
Outdoor
Indoor
Av 24% Reduction
Average indoor concentration:155.29 µg/m³
WHO 24 hour mean:25 µg/m³
250
200
150
100
50
0
<250 Hazardous
150-250 Very Unhealthy
55-150 Unhealthy
35-55 Unhealthy for sensitive groups
12-35 Moderate
0-12 Good
9:30:12 AM
9:40:13 AM
9:50 AM
10:00:10 AM
10:10:08 AM
10:20:08 AM
10:30:06 AM
10:40:04 AM
10:50:04 AM
11:00:01 AM
11:10:00 AM
11:19:59 AM
11:29:57 AM
11:39:55 AM
11:49:54 AM
11:59:53 AM

AS A RESULT OF NEEDS IDENTIFIED, SEVERAL EXPERIMENTS ARE BEING IMPLEMENTED

Publications

Unmet Needs report

Published online

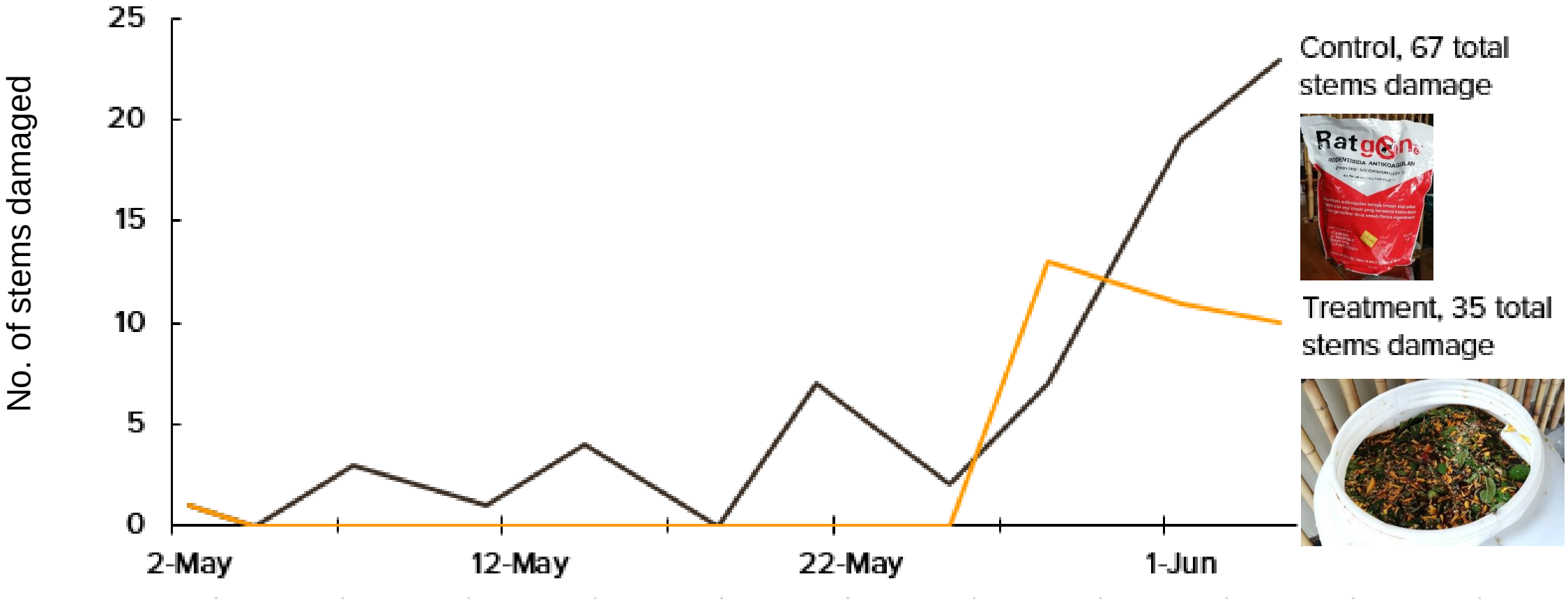
Follow-up projects

Rats in the rice fields: Innovative method to minimize rat infestation of rice fields

Rubber tapping rainguards: minimizing harvest spoilage during the rainy season

RATS EXPERIMENTATION RESULTS

STEM DAMAGE CAUSED BY RATS



CACAO BEANS

TRADITIONAL DRYING V.S. SOLAR DRYER

RESULTS

Research item	Indicator	Traditional drying	Solar dryer
Drying speed	# of days	3 days	4 days
Cacao quality	AA(<85 biji/100 gr) A (86-100 biji100 gr) B (101-110 biji100 gr) C (111-120 biji100 gr)	Grade C	Grade A
	Color of inside of the beans (% of black or brown)	82%	88%

TECHNOLOGY TESTING: CURRENT EXPERIMENTS

EXPERIMENT 1

Cooling solutions for wholesalers
Maumere, NTT

EXPERIMENT 2

Cooling solutions for mobile fishsellers
Maumere, NTT

EXPERIMENT 3

Shredding machine for fish floss makers
Maumere, NTT

EXPERIMENT 4

Solar dryer for seaweed farmers
Lembata, NTT

KOPERNIK WORKS ACROSS TWO KEY AREAS

KOPERNIK – FINDING WHAT WORKS

1: TECHNOLOGY DISTRIBUTION

Wonder Women
Emergency Support

Shift

2: R&D LAB FOR SOCIAL AND ENVIRONMENTAL CHALLENGES

2a: In-house experimentation

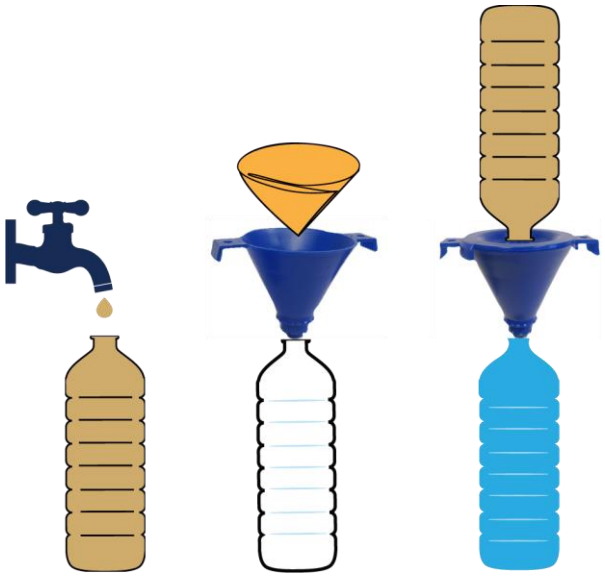
2b: Experimentation with clients

KOPERNIK
FINDING WHAT WORKS

FOLIA MANUFACTURES PAPER FILTERS TO PRODUCE DRINKING WATER AFFORDABLY

Founders: Jonathan Levine & Teri Dankovich

- Nanosilver-coated paper filter
- Able to filter out contaminants from dirty water
- Highly affordable



Folia's Keystone Funnel can be used for easier filtering with typical soda bottles found worldwide

‘FOLIA WATER’ PRODUCT TESTING

FISH BIKE SELLERS IN KUPANG COULD EARN MORE BY USING PORTABLE FRIDGES THAT PROLONG THEIR DAILY SALES DURATION

Design intervention

Current practice

Experimentation practice
“Motorcycle powered fridge”

THIS PROJECT COORDINATED WITH LOCAL FISH SELLERS AND SHADOWED THEM DURING THEIR SALES ACTIVITIES

Field activities



COLLABORATION WITH UNILEVER IN MYANMAR TO TEST ITS MALARIA/DENGUE FEVER PREVENTION PRODUCTS

コペルニク・フォーラム 2019

SDGsビジネスの成果を高めるフィールド実証実験とは
～日本の組織はどのように活用できるのか～

概要
【日　時】2019年12月3日（火）19時00分~21時30分　（18時30分開場）
【場　所】内田洋行株式会社　新川本社　ユビキタス協創広場 CANVAS
【主　催】一般社団法人コペルニク・ジャパン
【協　賛】株式会社内田洋行
【参加費】一般3,000円、学生1,500円

プログラム
19:00 - 19:05　オープニング
19:05 - 19:10　開催挨拶　株式会社内田洋行　相談役　柏原考様
19:10 - 19:40　コペルニク　共同創設者兼CEO　中村俊裕
・2019年の活動報告
・コペルニクはなぜフィールド実証実験を行うのか
19:40 - 20:30　パネルディスカッション
「SDGsビジネスの成果を高めるフィールド実証実験とは」
～日本の組織はどのように活用できるのか～
- 矢崎エナジーシステム株式会社　企画部　部長　大谷晴彦様
- 矢崎エナジーシステム株式会社　管理室企画部　平塚千都様
- 独立行政法人国際協力機構　企画部イノベーション・SDGs推進室
JICA Innovation Quest運営チーム　山江海邦様
- テレビ東京　キャスター　塩田真弓様
- コペルニク　共同創設者兼CEO　中村俊裕
20:30 - 20:40　質疑応答
20:40 - 21:30　懇親会

お申込みはこちら