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WEBINAR: SEEKING WATER, ENERGY, AGRICULTURE & AIR TECHNOLOGIES IN SOUTHEAST ASIA



17 May 2018

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ABOUT US

In 2010, Kopernik was established to challenge the status quo in the development sector and to find smarter, more effective solutions to address poverty.

Co-Founders:

- Ewa Wojkowska
- Toshi Nakamura



A person wearing a black polo shirt with an 'AGRITECH' logo is using a handheld electronic device to test water in a green cup. The device is connected to a power source on a table. Several bags of small, dark objects, possibly seeds or samples, are scattered on the table. The background shows an outdoor setting with trees and a white tent.

**» KOPERNIK
FINDS WHAT WORKS
TO REDUCE POVERTY
IN THE LAST MILE**

OUR K-TEAM

Staff:

70-80

+ volunteers, fellows, interns

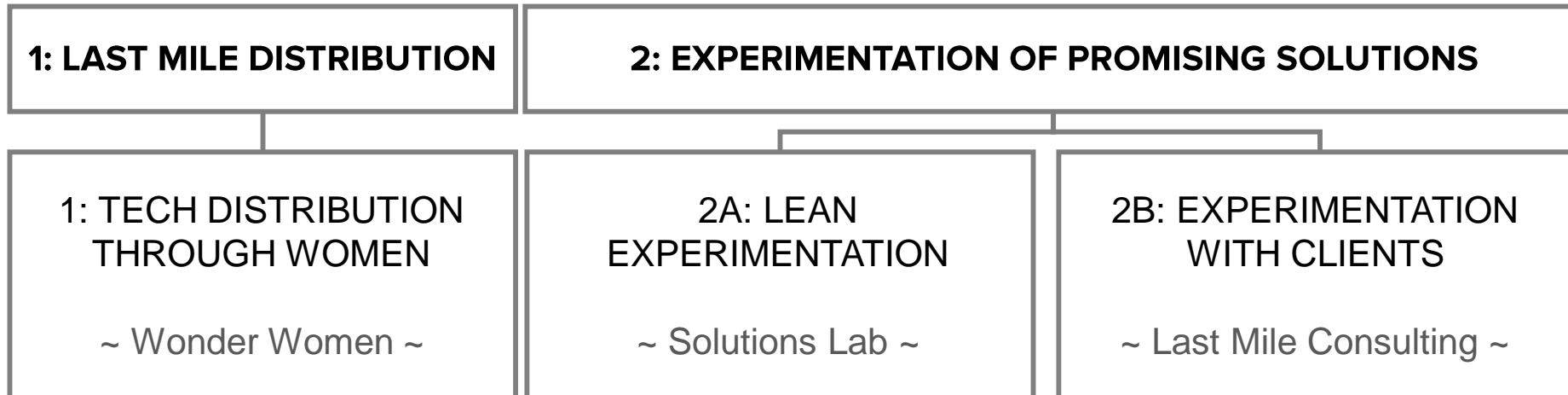
Offices:

- Bali, Indonesia HQ
- 6 x Indonesian offices
- Tokyo, Japan

Four legal entities:



OUR THREE CORE AREAS OF WORK



PARTNERS & CLIENTS OF KOPERNIK'S LAST MILE CONSULTING

NOT EXHAUSTIVE

PRIVATE SECTOR PARTNERS



Supported **Unilever** to test their early stage health products through various distribution channels¹



Supported **Philips** in distributing its solar products to rural Indonesia



Conducted awareness raising and marketing support for **Panasonic** in rural Indonesia



Supported **Mitsubishi Electric** in market research and tested early prototype of off-grid fridge



Conducted testing of mobile app that empowers tuberculosis patients for **Otsuka Pharmaceutical**²



Supported **NHK Educational** in adapting educational materials to Indonesia and develop business opportunities³

RESEARCH PARTNERS



Supported **ACIAR** in testing digital data collection apps to be used in ACIAR's projects



As part of a randomized control trial (RCT), implemented a seasonal migration intervention for **J-PAL**⁴



Researched technological needs in Indonesia and Cambodia as part of **WIPO Green's Asia Pacific** outreach



Designed innovation lab for **UNICEF Indonesia** based on Kopernik's experiences



Provided technical assistance to **DFAT** in designing its Innovation Fund

1. <http://kopernik.info/update/kopernik-partners-with-unilever-to-combat-malaria-and-dengue-in-myanmar>
2. <https://kopernik.info/update/kopernik-partners-with-otsuka-pharmaceutical-and-jica-to-assist-tb-patients-in-indonesia-with>
3. <https://kopernik.info/update/kopernik-partners-with-jica-and-ned-on-a-two-year-education-initiative>
4. <https://kopernik.info/update/j-pal-sea-evidence-action-and-kopernik-team-up-to-research-lean-season-solutions-in-eastern>

TECHNOLOGY NEED OVERVIEW

The technology need identification was conducted in 2 countries comprising of over 16 companies and over 24 needs across the 4 sectors: water, energy, agriculture and air.

INDONESIA



CAMBODIA



Common issues

- Water: limited access to piped water, high prevalence of untreated wastewater, limited access to basic sanitation are the top issues among others
- Energy: limited access to off-grid electricity, inefficient industrial energy consumption are the top issues among others
- Agriculture: post-harvest losses due to inefficient farming and limited access for smallholder farmers to reach the market are the most common issues
- Air: The dominant automobile industry contributes to the poor air quality in Indonesia aside from the seasonal forest fires

- Water: Limited access to clean water and basic sanitation as well as high arsenic content in water resources are top issues among others
- Energy: High electricity prices and limited access to off-grid electricity are the top energy issues in Cambodia.
- Agriculture: Underdeveloped supply chain management and infrastructure remain the obstacles in Cambodia agroindustry
- Air: Rapid increase in the automobile market and reliance on solid fuels in the rural areas are challenges related to air quality

Technology needs

- **6 water needs**, ranging from water treatment to water production technologies
- **8 agriculture needs**, ranging from harvest to post-harvest technologies

- **5 water needs** ranging from water treatment, water production to wastewater treatment
- **3 energy needs** ranging from energy production to energy distribution
- **1 agriculture need** in pre-harvest
- **1 air need** for air quality sensor in urban Phnom Penh

TECHNOLOGY SEEKING ORGANIZATIONS

INDONESIA



CAMBODIA



Water



Teuk Saat 1001



Energy



Agriculture



BUMDES WARMARE
BUMDES PRAFI



Air



PRESENT FOR THE MATCHMAKING EVENT AT ACEF

INDONESIA



CAMBODIA



Water



Teuk Saat 1001



Energy



Agriculture



BUMDES WARMARE
BUMDES PRAFI



Air



PRESENT FOR THE WEBINAR

INDONESIA



CAMBODIA



Water



Teuk Saat 1001



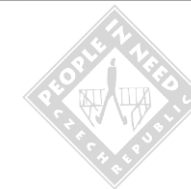
Energy



Agriculture



BUMDES WARMARE
BUMDES PRAFI



Air





Water



Energy



Agriculture



Air



Water



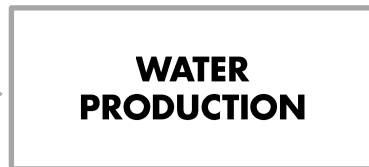
Energy






Agriculture






Air






WATER

Organization	Sector	Area	Needs Overview	Potential Technology Solution
	Water	Bali	Green School is in need of a dew water harvesting technology for its educational material, with scale up possibility to assist areas with recurring water shortages or droughts in Bali.	Dew water harvesting machine
	Water	Sumba	There is a clean water crisis in Sumba with over 600 thousand population, especially in low-land and coastal areas, whereby people walk as far as 5km to get water from a spring or river.	Water desalination system
	Water	Cambodia-wide	Solar water pumps for domestic and municipal uses are needed in areas with recurring water shortages and droughts.	Solar water pumps



WATER

Organization	Sector	Area	Needs Overview	Potential Technology Solution
 SEDEKAH AIR	Water	West Java	Ground water is limited in hilly areas of West Java, thus river becomes the main source of water.	Water filtration system for rivers and/or lakes and solar water pump
 RUMBIA	Water	Aceh	Along with the high electricity cost, power outages often occur, which limit the usage of conventional electric water pumps	Solar water pump, ram pump
 CU. Citra Hidup Tribuana	Water	East Nusa Tenggara	Local residents in Alor, East Nusa Tenggara still use rainwater harvesting practice to collect long-term water supply. During dry season, water is not treated nor stored well and left in the molding basin.	Rainwater treatment technology for large amount (Up to 5,000L/household) to convert stored rainwater into clean and safe drinkable water

WATER

Organization	Sector	Area	Needs Overview	Potential Technology Solution
 Teuk Saat 1001	Water	Cambodia-wide	<p>There is no remote water quality monitoring device for Teuk Saat 1001's water treatment kiosks in Cambodia. The organization seeks to connect their water filter devices on site with GPRS signal.</p>	<p>Remote water quality monitoring device for water kiosks</p>
	Water	Cambodia-wide	<p>The challenge is that there has not been any solution for domestic wastewater system in challenging environments that is affordable for Cambodians (<\$100). Thus, Wetlands Work is seeking technology provider(s) who could supply a domestic wastewater system for flooded and floating households to Cambodia.</p>	<p>Wastewater treatment technologies</p>
 Water SHED	Water	Cambodia-wide	<p>There has not been any solution for domestic wastewater system that is affordable for Cambodians, preferably below USD 100</p>	<p>Wastewater treatment technologies</p>

WATER

Organization	Sector	Area	Needs Overview	Potential Technology Solution
 Water SHED	Water	Cambodia-wide	There is no centralized fecal sludge treatment in place that could manage Cambodia's WASH system	Fecal sludge treatment system
 ZALMON FABRIC	Water	Bandung	During fabric processing, a lot of water is used especially in the printing phase, circa 1 liter/per 2.5meters of fabric. Thus, Zalmon seeks for a technology that could use less water for its manufacturing process.	Water-efficient fabric processing machine



Water



Energy






Agriculture



Air



ENERGY

Organization	Sector	Area	Needs Overview	Potential Technology Solution
	Energy	Phnom Penh, Takeo Province	There are limited affordable solar lighting kit technologies in Cambodia, especially in rural areas. EDM is seeking for a solar lighting kit cheaper than USD 90, with specs that include an equivalent of solar panel, battery Li, 3 lamps (switch and light modes), phone charger and ~25m wires.	Domestic solar lighting kit
	Energy	Phnom Penh, Takeo Province	Limited supply chain of reliable, cost-effective DC appliances for off-grid solar power in Cambodia and Southeast Asia. DC based water pumps, rice post-harvest processing machines (drying, hulling, polishing), refrigeration, and insect incubation technologies	DC appliances for off-grid solar power
	Energy	Phnom Penh, Takeo Province	Existing 2G towers are being replaced by 3G & 4G towers. Thus, Okra needs new hardware + communication infrastructure (e.g. chip + software) for Pay-As-You-Go (PAYG) devices to communicate and be controlled by system owners.	3G & 4G microchip and software



Water



Energy






Agriculture






Air




AGRICULTURE

Organization	Sector	Area	Needs Overview	Potential Technology Solution
	Agriculture	Bali	BSO finds it challenging to harvest their rice crops in different land shapes and terrains. Current machines are either small in productivity and stationary or too large and inflexible to maneuver (tractor). Both consume solid fuel heavily.	Solar-powered rice harvesting technology that could harvest crops in varying land shapes and terrains.
	Agriculture	Bali	BSO has been using an old diesel powered vertical drying machine with capacity of 8ton/day. This machine has proven to be high in fuel consumption and lack in variety of crops to be dried (rice and corn only)	Solar dryer for post-harvest processes are needed to replace the fuel-based vertical drying machine
	Agriculture	Yogyakarta, Bali, Papua	Post-harvest process of drying coffee in Indonesia in general is still being done traditionally through direct sun-drying. In rainy season, farmers still use plastic sheets to protect the coffee beans.	Solar dryer

AGRICULTURE

Organization	Sector	Area	Needs Overview	Potential Technology Solution
	Agriculture	Bali, East Nusa Tenggara	Local farmers need technology remove husk / peel sorghum. Given the constant power outages where farmers operate, husk removing machines that can operate off-grid are preferred.	Solar-powered sorghum husk removing machine
	Agriculture	Bali, East Nusa Tenggara	Many farmers need technology to shred coconuts that can still be operated in off-grid areas taking into account regular power outages. Shredding machines that can operate off-grid are preferred.	Solar-powered coconut shredding machine
	Agriculture	Rural Cambodia	Livestock farmers in rural Cambodia find it challenging to incubate egg naturally given the varied farm conditions in rural Cambodia, resulting in chicken that are hatched with deformities	Solar-powered egg incubators

AGRICULTURE

Organization	Sector	Area	Needs Overview	Potential Technology Solution
	Agriculture	Aceh	Harvested coffee beans are still processed using manual sun-drying methods. Given Central Aceh's high rainfall intensity and humidity, moisture level can become fairly high.	Solar dryer with automatic thermal control system
BUMDES PRAFI	Agriculture	Papua	Unused residues from rice that local farmers cultivate, could be used for livestock feed. Currently, no machines are available to recycle animal waste into biogas	Biodigester and green composting technology/
BUMDES WARMARE	Agriculture	Papua	There is no post-harvest technology for idle palm plantation in Warmare District	Post-harvest technology for palm plantation



Water



Energy



Agriculture




Air

**AIR QUALITY
SENSOR**



AIR FILTRATION

AIR

Organization	Sector	Area	Needs Overview	Potential Technology Solution
	Agriculture	7 Provinces in Cambodia	People in Need seeks to test the quality of air in urban areas, starting from Phnom Penh. While there are a lot of open spaces near the river, rapid construction activities, vehicle emissions and road dust are resulting in poor air quality	Air quality sensor

MATCHMAKING EVENT

The clean technology matchmaking event will be held at the first day of Asia Clean Energy Forum (ACEF), **4th June 2018**. The forum will bring together stakeholders in clean energy sector to identify, discuss and address key clean energy challenges in Asia.



Organizer(s)	Asian Development Bank (ADB), the U.S. Agency for International Development (USAID), the Korea Energy Agency (KEA), and the Asian Development Bank Institute (ADBI)
Thematic Tracks	Energy Efficiency, Renewable Energy, Energy Access, Navigating the Future
Attendees	Over 1,400 attendees from 71 countries across Asia, from private sector, government, academia, and civil society