About GSMA Mobile for Development Utilities

The Mobile for Development Utilities Programme promotes the use of mobile technology and infrastructure to improve or increase access to basic utility services for the underserved. Our programme focuses on any energy, water or sanitation services which include a mobile component such as mobile services (voice, data, SMS, USSD), mobile money, Machine to Machine (M2M) communication, or leverage a mobile operator's brand, marketing or infrastructure (distribution and agent networks, tower infrastructure). The Programme receives support from the UK Government.

The Mobile for Development Utilities Innovation Fund

The Mobile for Development Utilities Innovation Fund was launched in June 2013 to test and scale the use of mobile to improve or increase access to energy, water and sanitation services. In two phases of funding, grants were competitively awarded to 34 organisations across Asia and Africa. Seed grants were awarded for early stage trials, Market Validation grants for scaling or replication of business models, and Utility Partnership grants to foster partnerships between utility companies and innovators.

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Mobile for Development
Utilities
GSMA

Innovation Fund Overview

The GSMA's Mobile for Development Utilities Innovation Fund tests and scales the use of mobile to improve or increase access to energy, water and sanitation services

	Phase 1 (2013-2015)	Phase 2 (2015-2017)
Categories	Seed and Market Validation	Seed, Market Validation and Utility Partnerships
Sectors	Energy and Water	Energy, Water and Sanitation
**Number of Concept Notes	167	218
Number of Organisations Funded	13	21
Funding Amount per Grant	£200k - £350k	£150k – £300k
Matching Component	25% - 50%	25% - 50%
Total Amount Disbursed	£2.4 Million	£3.4 million

**Application to the Innovation Fund is a two stage process. During the first stage each candidate submits a three page concept note. Successful candidates are then asked to submit a full application in the second and final stage.

Objectives of the Analysis

- **Identify** mobile enabled trends in energy, water and sanitation sectors

- **Compare** emerging business models across sectors and geographical markets

- **Share** insights on the maturity of mobile technology usage within the utilities space

- **Analyse** partnerships between Mobile Network Operators (MNOs) and energy, water and sanitation service providers

Methodology Overview

Each concept note was analysed across several dimensions to reveal trends about use of mobile technology, partnerships and business models

- Phase 1 data was collected by reading the concept notes while Phase 2 data was primarily collected through a pre-submission survey filled in by applicants

- Different data analysis techniques are used depending on context and complexity of information i.e. where multiple answers were possible, analysis looked at the frequency of mention. Number of observations is stated in each of the graphs in the format "$n=…$"

- Phase 1 concept notes only covered energy and water sectors while Phase 2 included energy, water and sanitation sectors

- 23 concept notes were not included in Phase 2 analysis due to redundancy and disqualification
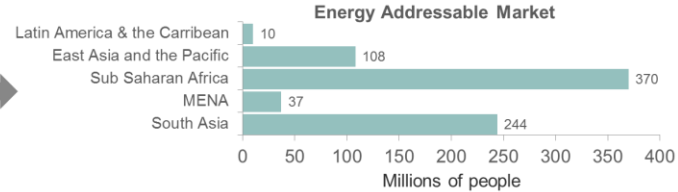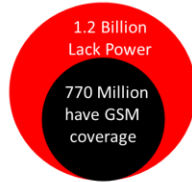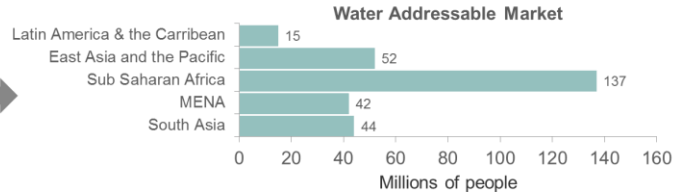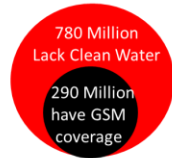
Market Size for Mobile-Enabled Utility Services

Energy

1.2 Billion Lack Power

770 Million have GSM coverage

Energy Addressable Market

Region	Millions of people
Latin America & the Carribean	10
East Asia and the Pacific	108
Sub Saharan Africa	370
MENA	37
South Asia	244

Water

780 Million Lack Clean Water

290 Million have GSM coverage

Water Addressable Market

Region	Millions of people
Latin America & the Carribean	15
East Asia and the Pacific	52
Sub Saharan Africa	137
MENA	42
South Asia	44

Sanitation

2.4 Billion Lack Sanitation

1.8 Billion have GSM coverage

Sanitation Addressable Market

Region	Millions of people
Latin America & the Carribean	69
East Asia and the Pacific	480
Sub Saharan Africa	400
MENA	53
South Asia	792

Overview of Application Stages

218 Concept Notes

Legend:
- ■ Energy (red)
- ■ Water (black)
- ■ Sanitation (teal)
- ■ Multiple Sectors (grey)

Pie values: 83, 51, 20, 63

125 Africa, 66 Asia, 7 Latin America
and the Caribbean (LAC) and 20 Other

47 Full Applications

Pie values: 23, 16, 3, 5

31 Africa, 13 Asia,
1 LAC and 2 Other

21 Grantees

Pie values: 11, 7, 2, 1

15 Africa, 4 Asia,
1 LAC and 1 Other
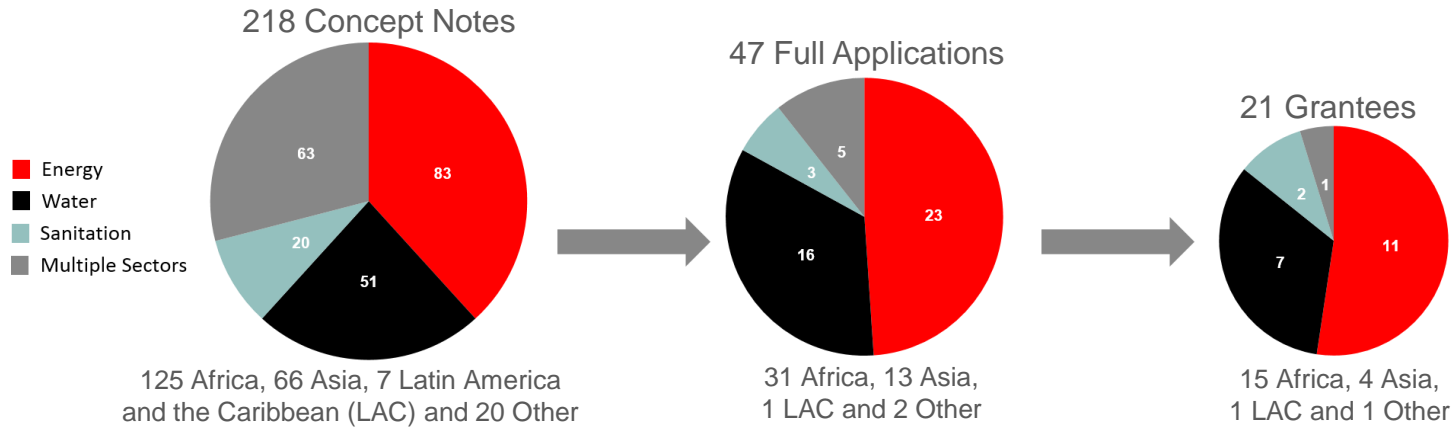
- 218 unique concept notes were received in Phase 2. This represents a 30% increase from the number received in Phase 1
- 168 (77% of total) Seed Grants, 31 (14%) Utility Partnerships and 19 (9%) Market Validation
- Total amount of funding requested was £32 million, 10 times the available amount
- More than 58% of organisations proposed to implement in Africa compared to 30% in Asia. 2% planned to implement in both Africa and Asia
- 27% of organisations already had an MNO partnership at concept note stage

Mobile for Development Utilities

Africa Continues to Dominate in Phase 2

Distribution of Concept Notes by Region
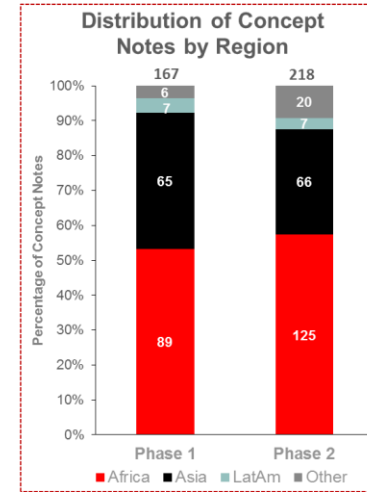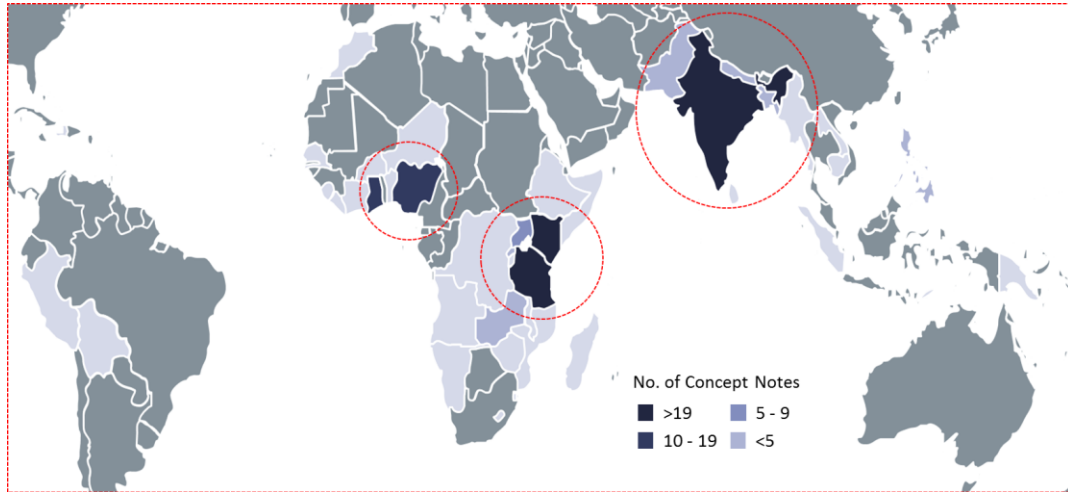
- Concept notes were received from 3 continents and 44 countries
- Geographical hotspots are emerging in East Africa, West Africa and South Asia
- Africa continues to dominate in line with the addressable market size
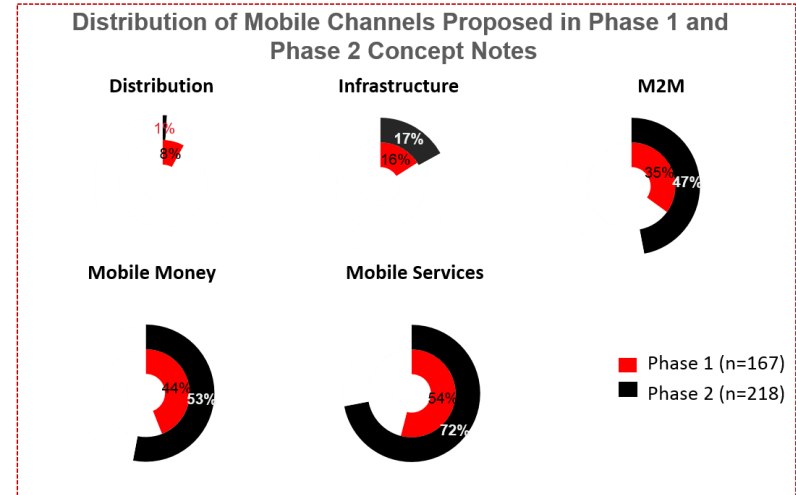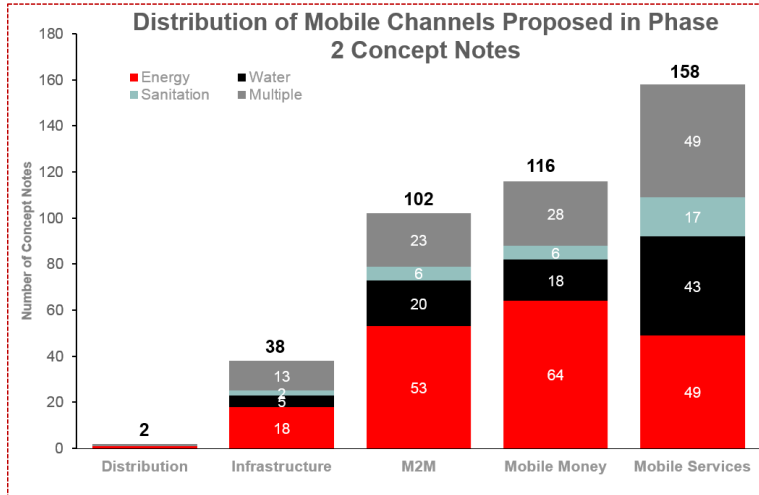- Most popular countries are India (26), Kenya (25) and Tanzania (23)

Mobile Channels Overview

Various mobile channels that can be leveraged for mobile enabled utility services

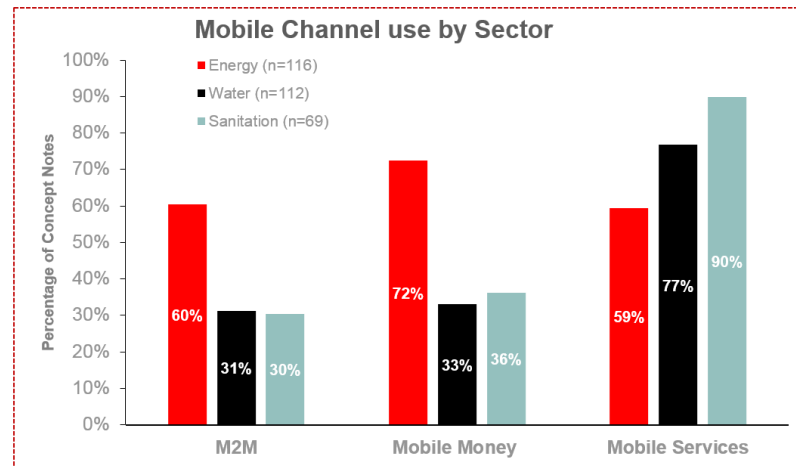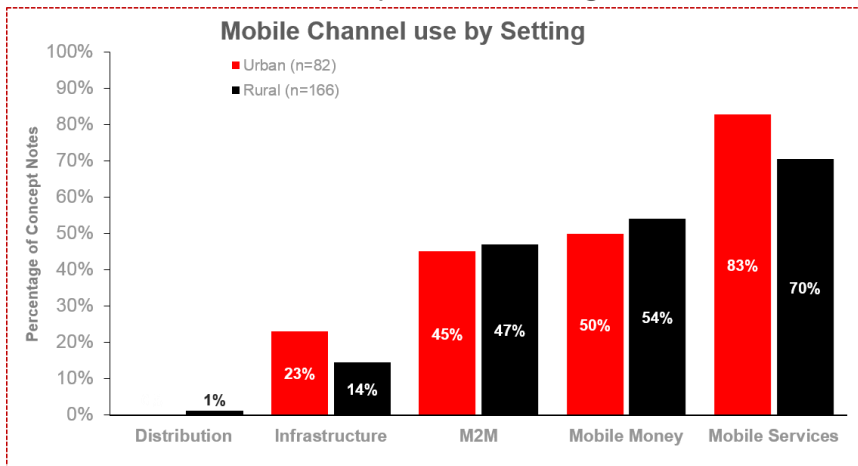| Mobile Infrastructure	Mobile Operator's Distribution Network & Mobile Money Agents	Machine-to-Machine Connectivity	Mobile Payments	Mobile Services
The telecom tower acts as the anchor load for the energy system providing power for consumptive and productive use to surrounding communities via a minigrid and/or energy hub model. The energy can be supplied by a third party Energy Service Company (ESCO) who manages these two demands.	The extensive footprint of Mobile Operator's distribution channels and mobile money agent networks can be leveraged to reach underserved customers and distribute energy, water and sanitation solutions.	Smart metering and monitoring over GSM networks of decentralised utility systems can improve their lifetime and efficiency, and trigger more responsive maintenance and repair. It can also enable on/off control of services for customers on a Pay-as-You-Go (PAYG) arrangement.	Mobile payments (Mobile money services, SMS payments, airtime) and mobile savings are enabling the development of PAYG models and other innovative financing schemes providing affordable energy, water and sanitation solutions to low income populations.	Mobile services (Voice, SMS, USSD, mobile data) can be used by communities, village agents, and service providers to report service delivery status, improve field force operations, optimise supply chain, or provide customer support.

Mobile Channels (1)

Increased usage of mobile channels

Distribution of Mobile Channels Proposed in Phase 2 Concept Notes

Legend: Energy, Water, Sanitation, Multiple

Distribution of Mobile Channels Proposed in Phase 1 and Phase 2 Concept Notes

Distribution, Infrastructure, M2M, Mobile Money, Mobile Services

Phase 1 (n=167), Phase 2 (n=218)

- Average number of channels proposed in energy (2.15) greater than water (1.77) and sanitation (1.75); mobile services frequently proposed especially in water and sanitation sector
- Similar ranking across mobile channels between phases with increased demand for most channels in Phase 2
- Decrease in demand for distribution channel due to preference to manage customer relationships directly and limitation of MNO partnerships involving movement of bulky goods such as solar systems; channel also not very applicable in water and sanitation sectors
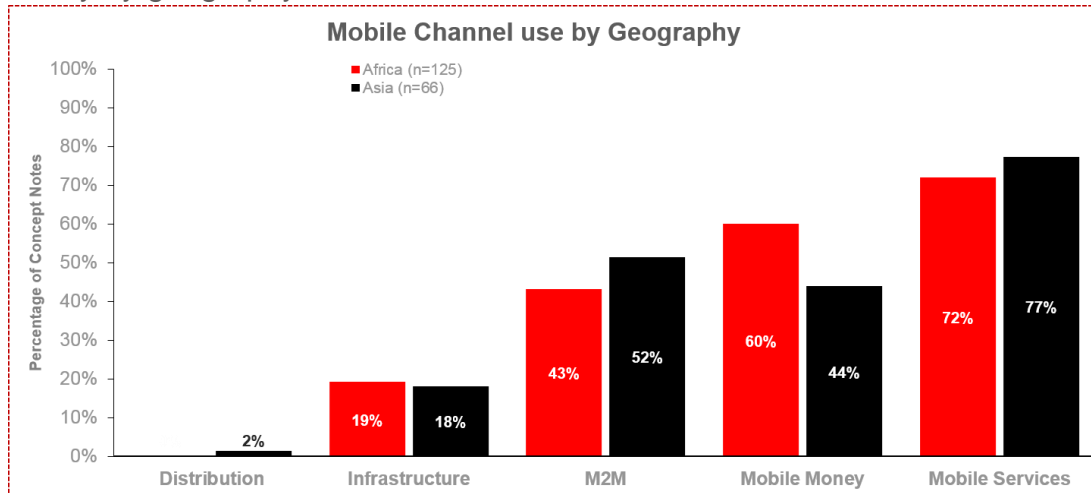
Mobile Channels (2)

Use of mobile channels dependent on target sector and setting

Mobile Channel use by Setting

Percentage of Concept Notes

Urban (n=82)
Rural (n=166)

Setting	Urban	Rural
Distribution		1%
Infrastructure	23%	14%
M2M	45%	47%
Mobile Money	50%	54%
Mobile Services	83%	70%

Mobile Channel use by Sector

Percentage of Concept Notes

Energy (n=116)
Water (n=112)
Sanitation (n=69)

Sector	Energy	Water	Sanitation
M2M	60%	31%	30%
Mobile Money	72%	33%	36%
Mobile Services	59%	77%	90%

- 76% intended to implement in rural setting while only 38% intended to implement in urban setting; big access gaps to energy, water and sanitation in rural setting
- Mobile services, mobile data and SMS more frequently proposed compared to USSD and voice; potentially due to high set up costs of USSD and time intensive nature of maintaining a voice service
- Mobile services are popular in water and sanitation sectors while M2M and mobile money channels are popular in the energy sector; water and sanitation sectors have yet to catch up with the level of sophistication of mobile channel use seen in the energy sector

Mobile Channels (3)

Use of mobile channels vary by geography

Mobile Channel use by Geography

- Africa (n=125)
- Asia (n=66)

Percentage of Concept Notes

Distribution	Infrastructure	M2M	Mobile Money	Mobile Services
2% (Asia)	19% / 18%	43% / 52%	60% / 44%	72% / 77%

- Proposed use of M2M technology higher in Asia compared to Africa. Data from GSMA Intelligence shows that 1 in 2 operators offers M2M services in Asia compared to 1 in 3 in Africa (Q1 2014). In addition M2M penetration rates in Asia are higher than Africa

- Proposed use of mobile money higher in Africa than Asia. The 2014 Mobile Money State of the Industry report shows that 53% of all live mobile money services are within Sub Saharan Africa. Mobile money regulation is also more enabling in Africa when compared to Asia.
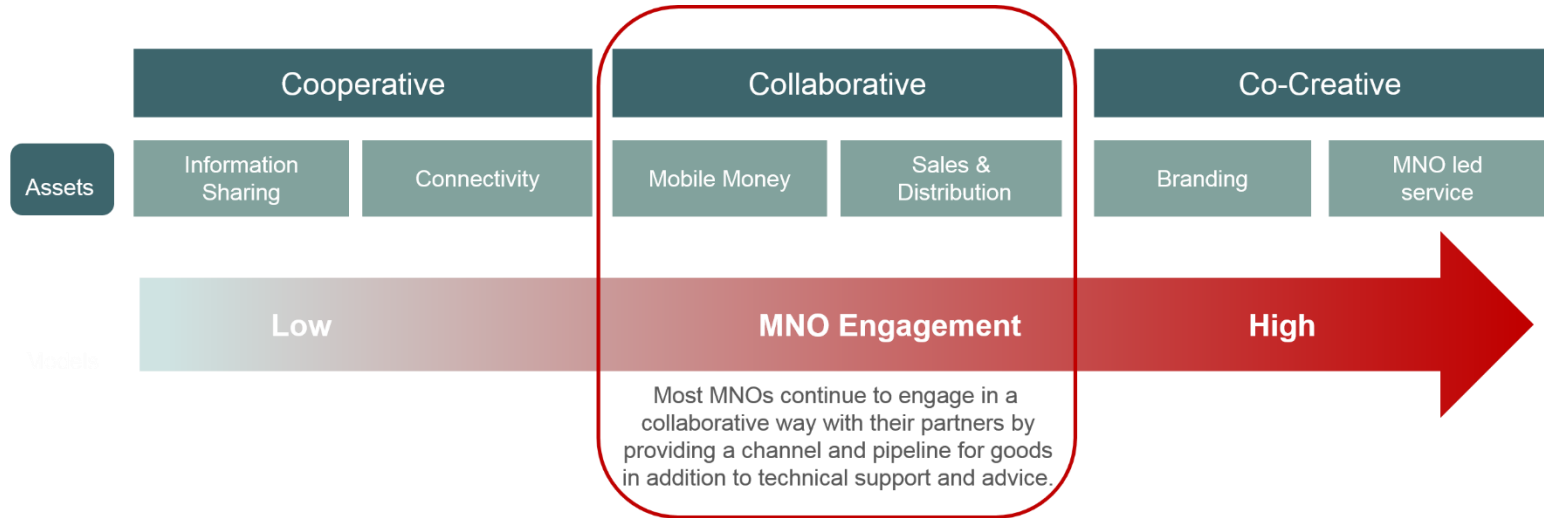
3. Partnerships

Dynamic Partnership Spectrum

Collaborative partnerships continue to dominate

17 applications that included MNOs as partners or lead applicants proceeded to the second application stage. We analyzed their detailed partnership plans to map them against the spectrum of MNO engagement and partnerships with third party providers.

Cooperative		Collaborative		Co-Creative	
Information Sharing	Connectivity	Mobile Money	Sales & Distribution	Branding	MNO led service

Assets

Low — **MNO Engagement** — High

Most MNOs continue to engage in a collaborative way with their partners by providing a channel and pipeline for goods in addition to technical support and advice.

Demand for MNO Partnerships

Increasing latent demand for MNO partnerships

Phase 2 MNO Partnerships

27%

42%

31%

■ Have Partnership ■ Planning to Partner ■ Other
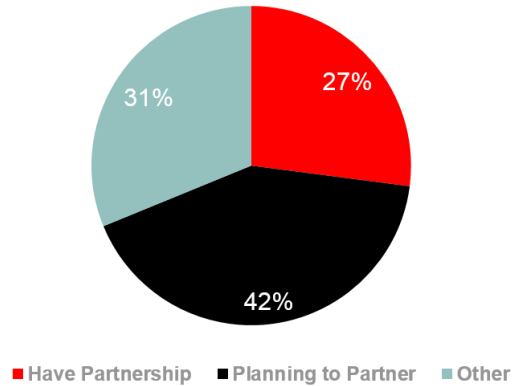
- High proportion (42%) of Phase 2 concept notes planned to have an MNO partnership but were yet to formalize the relationship. More open communication channels on partnership process between MNOs and other organisations needed to streamline partnerships
- In both phases, one in three concept notes with an MNO partner moved from concept note to application stage. Half of the applications with an MNO partner were awarded grants
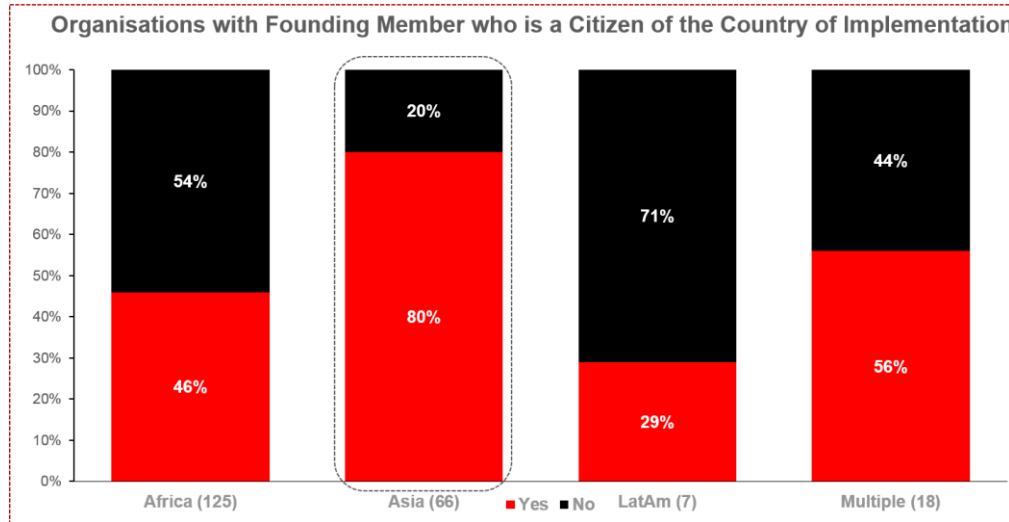
Sector Synergies

Strongest synergies between water and sanitation sectors

Phase 1

Energy
(n=114)

90   24   52

Water
(n=76)

Phase 2

Energy
(n=116)

WASH
(n=134)

83   33   101
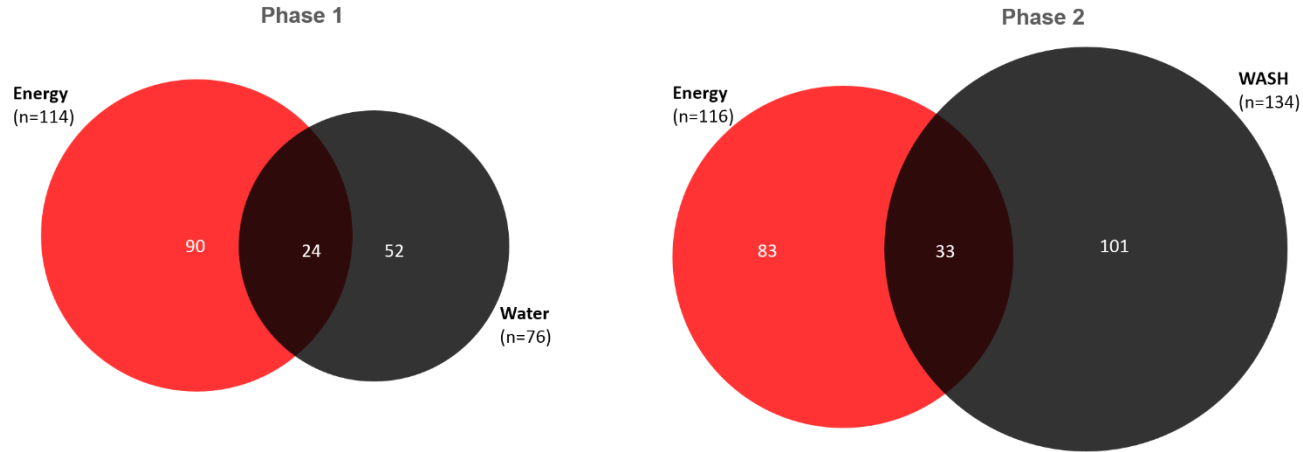
- Strongest synergies between water and sanitation sectors as service providers tend to bundle both services

Founding Team

Organisations implementing in Asia likely to have a local co-founder

Organisations with Founding Member who is a Citizen of the Country of Implementation

	Africa (125)	Asia (66)	LatAm (7)	Multiple (18)
No	54%	20%	71%	44%
Yes	46%	80%	29%	56%

■ Yes ■ No

- Organisations planning to implement in Asia are two times more likely to have a national of the country of implementation as part of the founding team compared to organisations implementing in Africa
- There may be more homegrown entrepreneurs in Asia, enabled by high presence of strong technical institutions compared to Africa
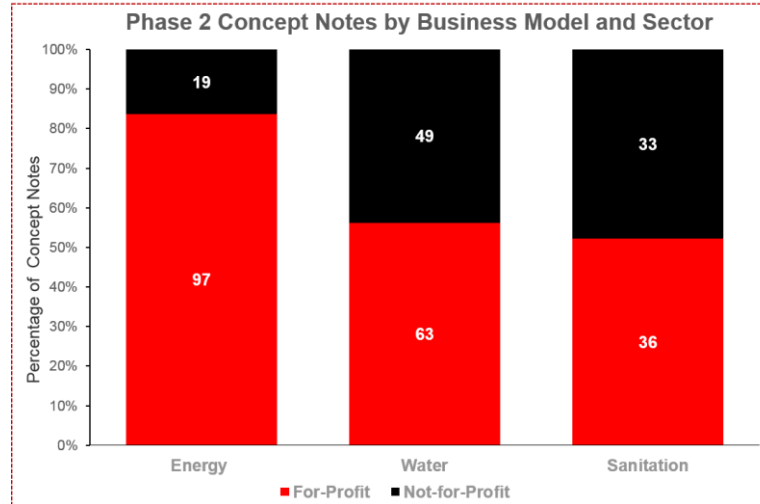
4. Phase 2 Sector Trends

Mobile for Development Utilities

Business Model
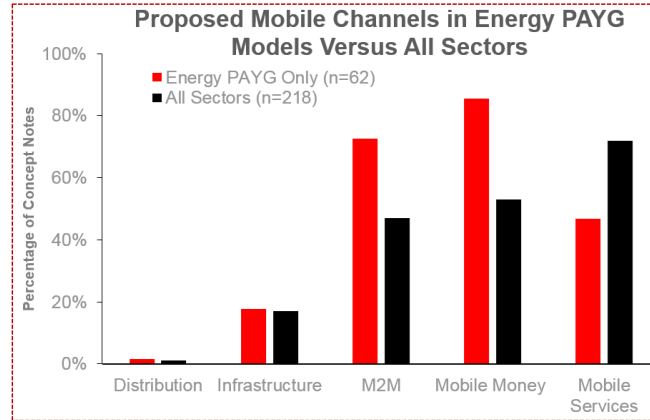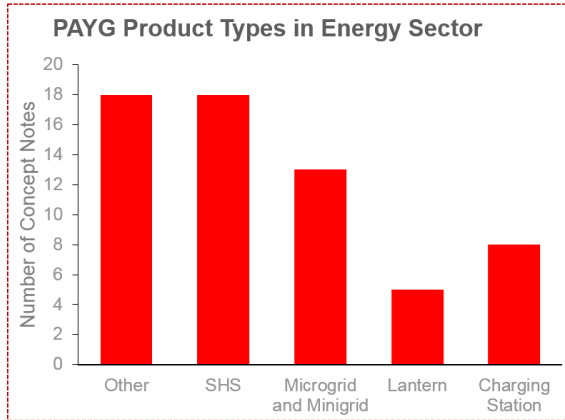
For-profit business model common in energy sector

Phase 2 Concept Notes by Business Model and Sector

- More than 80% of concept notes in energy sector were led by for-profit organisations as customers are accustomed to paying for energy in existing models
- Higher proportion of not-for-profit within water and sanitation organisations reflects:
  - History of consumer non-payment and reliance on heavy subsidies
  - Multi-stakeholder engagement including government coupled with ambiguous policies and complex supply chains in sanitation
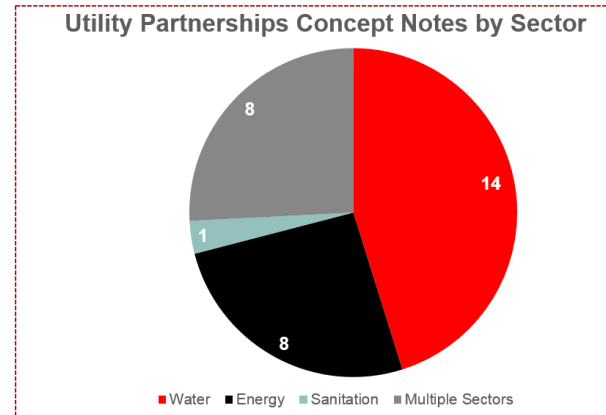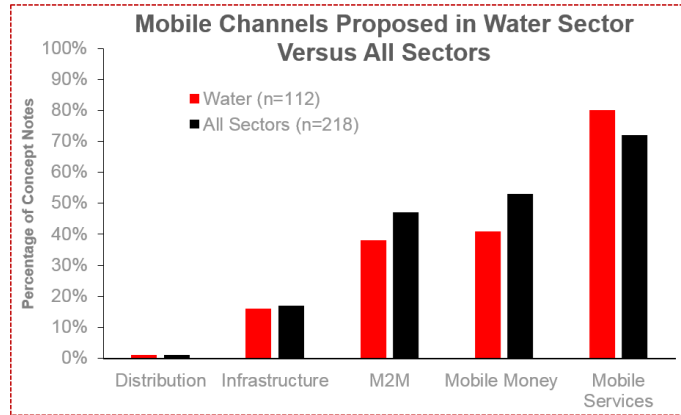
Energy PAYG Models

Continued use of PAYG for larger systems, emergence of new products

PAYG Product Types in Energy Sector

Proposed Mobile Channels in Energy PAYG Models Versus All Sectors

- Energy PAYG Only (n=62)
- All Sectors (n=218)

- ~53% of 116 energy concept notes included PAYG business models
- Larger system sizes were more likely to be PAYG enabled indicating movement up the energy ladder; more than half (53%) of PAYG providers intended to enable solar home systems, minigrids and microgrids; only 8% targeted lanterns
- 85% of PAYG providers intended to leverage mobile money for payment collection as it is a more efficient way to receive payments when compared to cash
- Other emerging PAYG business models target new products and services such as gas cylinders, irrigation pumps, fridges, charging stations and water ATMs
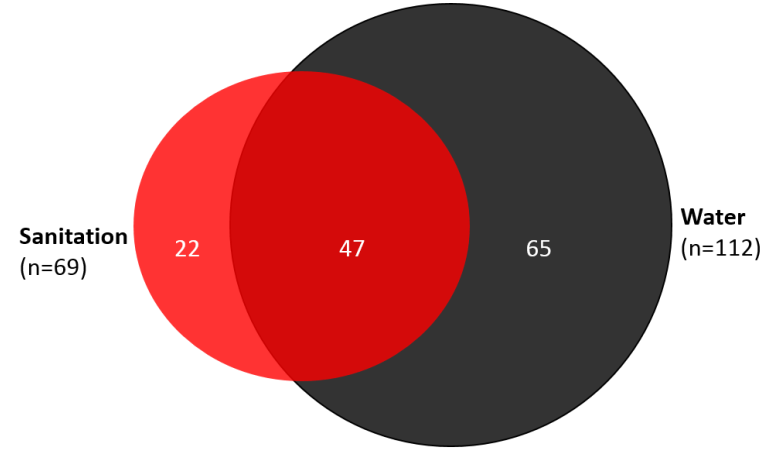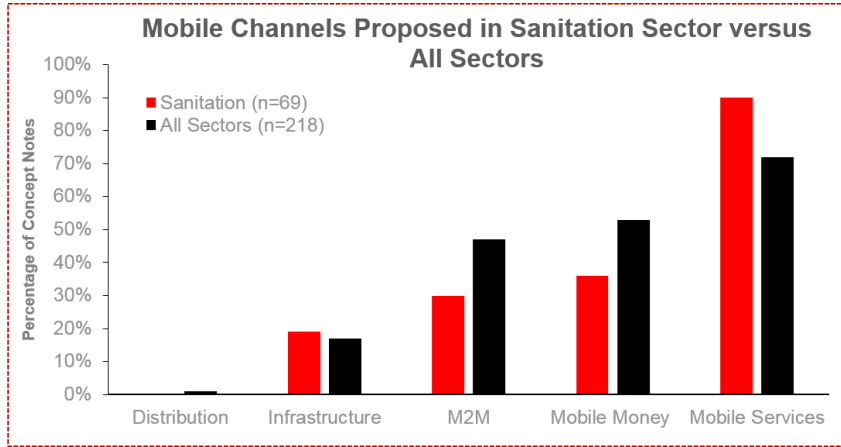
Water Sector

Mobile service use high and broader partnerships

Mobile Channels Proposed in Water Sector Versus All Sectors

Legend:
- Water (n=112)
- All Sectors (n=218)

Y-axis: Percentage of Concept Notes (0% to 100%)

X-axis categories: Distribution, Infrastructure, M2M, Mobile Money, Mobile Services

Utility Partnerships Concept Notes by Sector

Pie chart values: 14, 8, 1, 8

Legend: Water, Energy, Sanitation, Multiple Sectors

- 80% of service providers plan to use mobile services but their use of more sophisticated channels such as M2M and mobile money lags behind other sectors
- 45% of Utility Partnership submissions were for water
- Models in the water sector include:
    - Capacity building through training of water operators and users and sharing of information with relevant stakeholders
    - Management of existing water services through manual or automated monitoring and control of supply

Sanitation Sector

Use of mobile services frequent and strong synergies with water sector

Mobile Channels Proposed in Sanitation Sector versus All Sectors

- Sanitation (n=69)
- All Sectors (n=218)

Percentage of Concept Notes

Distribution · Infrastructure · M2M · Mobile Money · Mobile Services

Sanitation (n=69)   22   47   65   Water (n=112)

- ▪ 90% (62) of sanitation practitioners planning to use mobile services. Use of M2M technologies is growing with a number of providers intending to leverage sensors to optimize collection and emptying of waste
- ▪ 68% (47) of sanitation services are bundled with water; sanitation service providers seek higher health benefits by improving them together
- ▪ 88% (61) of the organisations applied for the seed grant category to trial new ideas. Use of mobile in the sanitation sector is relatively nascent when compared to other sectors such as energy; limitation to using mobile money due to minimum transaction values

Sectors are Maturing

PAYG Energy still dominates, water strengthening, sanitation nascent

PAYG Energy still dominates
- About $200m of investment to PAYG firms to date, increasing commercial investments
- Energy PAYG providers requested for £9m which represented 28% of total amount requested

Water sector use of mobile is maturing
- Utility Partnership grant saw significant interest
- Growing evidence of success from Phase 1:
    - NextDrop: secured government tender to serve all of Bangalore
    - Portland State University (SweetSense Inc.) secured more contracts for sensor monitoring
- **Remaining challenges:**
    - Time required to prove business models: commitment from government and working with many stakeholders

Use of mobile in the sanitation sector remains nascent:
- Less prevalence of payments which restricts business models
- Complex value chain with many stakeholders
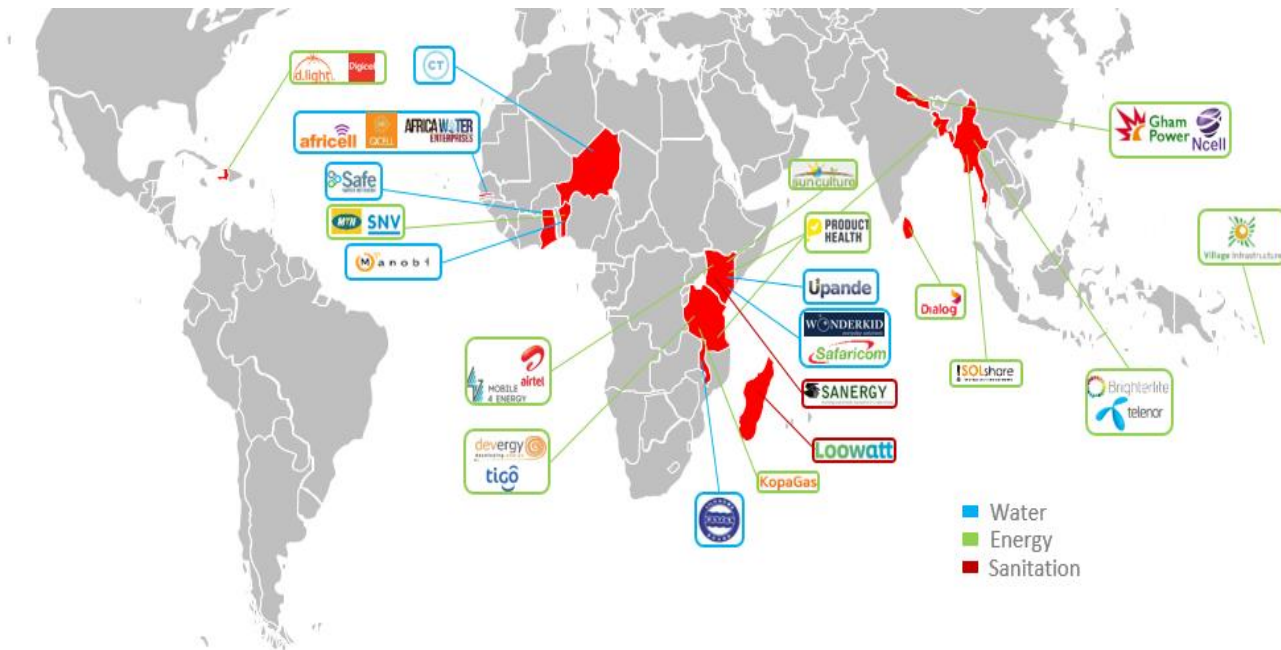- Personal and cultural behavior difficult to change

5. Phase 2 Grantees

Phase 2 Grantee Footprint

£3.4M awarded to 21 grantees across 4 continents

■ Water
■ Energy
■ Sanitation

Mobile for Development Utilities

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