



**Beyond development aid:
Sanitation financing & revenue models
in reuse (human) waste**

CONFERENCE PROCEEDINGS

Organized by

**WASTE, Netherlands &
Institute for Fiscal Studies (IFS), UK**

May 15th, 2017 – The Hague

SYNOPSIS

Beyond Development Aid: Sanitation Financing & Revenue Models in Reuse (human) Waste

The Institute for Fiscal Studies, in collaboration with WASTE, organized the conference “Beyond Development Aid: Sanitation Financing & Revenue Models in Reuse (human) Waste” in The Hague, Netherlands, the 15th of May 2017.

This conference brought together from different parts of the world; academics, practitioners and policy-makers with the aim to generate knowledge regarding sanitation financing and revenue models on sludge reuse.

The subject of the morning session was on financing of sanitation. Academic presentations on policy and impact research in sanitation financing (Britta Augsburg, Alex Armand (he also facilitated the session), Antonella Bancalari (IFS, UK), setting up of impact bonds (Jeremy Keele, Sorensen Impact Centre, Utah USA) and (micro)-financing of sanitation (Valentin Post, WASTE, Netherlands), were followed by short question and answer sessions.

The cases of practitioners; Jacqueline Barendse (WASTE for @scale), Sjef Ernes, (A4A on water kiosks), Sarbani Bhattacharya (KPMG, Sanitation Impact Bond) and Kajetan Hetzer (SEF, missing middle) were pitched and reviewed in smaller groups. Feedback from the groups was shared with the plenary.

A large part of the audience changed over lunch as the financial specialists were outnumbered in the afternoon by WASH specialist who looked into revenue models in reuse of human waste. The session was ably facilitated by Grietje Zeeman (LEAF, Netherlands). Academic presentation by Barbara Evans (Leeds University, UK on willingness to pay for emptying in rural Bangladesh), Barbara Ward (Eawag, Switzerland on end use and resource recovery) and Mariska Ronteltap (Unesco -IHE, Netherlands on pathogen management in converting human waste) were followed by a joint question and answer session.

The cases of practitioners; Pradeep Mohanty (FSMC Indian for profit converting human waste), Aart van den Beukel, (Safi Sana, Ghana for profit entity to convert faecal sludge), Andreas Schmidt (Borda Germany, emerging businesses in prefabricated dewats converting human waste in products) and Mary Roach (Loowatt, UK making value form waste) were pitched and reviewed in smaller groups. Feedback from the groups was shared with the plenary.

Discussions were of much interest due to their potential to overcome sanitation challenges in developing countries.

The entire day was captured in the evening by Pim van der Male (DGIS, Netherlands) who viewed these direction as being the right ones, whereby (unusual) partnerships are gaining importance.

Lastly, Jacqueline Barendse (WASTE) outlined how WASTE has been structured to remain relevant and flexible in these new settings with the setting up of a Cooperation, WASTE Coop uA, next to the Foundation and the WASTE BV.

Beyond development aid:

Sanitation financing & revenue models in reuse (human) waste

May 15th, The Hague

Organised by: Institute of Fiscal Studies (IFS), UK & WASTE, Netherlands

Time	Topic	Speaker/Format
9:00-9:30	Registration	
9:30-9:40	Introduction and background of the workshop	Alex Armand (IFS)
Session A: Finance (Session Chair: Alex)		
09:40-09:50	Introduction Speakers, general overview of how session are planned	Britta Augsburg (IFS)
09:50-10:00	Brief overview of relevant work at IFS (incl 3ie proejct)	
10:00-10:40	Talk 1 – “Impact bonds and impact monitoring, lessons learned”	Jeremy Keele (MD Sorenson Impact Centre, University of Utah)
10:40-10:45	Q&A	
10:45-11:05	Talk 2 – “Sanitation & micro finance; Avoiding loan diversion, loan tenures & quality control in micro financing sanitation”	Valentin Post (WASTE)
11:05-11:10	Q&A	
11:10-11:40	<i>Coffee Break</i>	
11:40-12:00	4 x 5 min talks/pitch on ongoing and planned work (primary practitioners) <ul style="list-style-type: none"> 1. @Scale BV: bridge for financing water, sanitation and waste 2. Safe Water Enterprises - untapped potential – lessons for sanitation? 3. Concept of a sanitation impact bond 4. Fund for the missing middle 	Jacqueline Barendse (WASTE) Sjef Ernes (A4A) Sarbani Bhattacharya, (Partner KPMG) Kajetan Hetzer, Director (SEF)
12:00-12:20	Break-out sessions/discussions 1 related to the topics pitched just before	
12:20-12:40	Break-out sessions/discussions 2 related to the topics pitched just before	
12:40-13:00	Feedback from session by pitch speakers and summing up	
13:00-14:00	<i>Lunch</i>	

Time	Topic	Speaker/Format
Session B: Reuse (Session Chair: Valentin)		
14:00-14:10	Introduction Speakers, general overview, etc by Session Chair)	Grietje Zeeman (LEAF)
14:10-14:25	Talk 1 – On <i>Operational Subsidies</i> or “Towards sustainable sanitation management: Establishing the costs and willingness to pay for emptying and transporting sludge in rural districts with high rates of access to latrines”	Barbara Evans (Leeds University)
14:25-14:30	Q&A	
14:30-14:45	Talk 2 – “End use and Resource Recovery”	Barbara Ward (EAWAG)
14:45-14:50	Q&A	
14:50-15:05	Talk 3 – “Pathogen management in converting human waste – what to look for”	Mariska Ronteltap (UNESCO-IHE)
15:05-15:10	Q&A	
15:10-15:40	<i>Coffee Break</i>	
15:40-16:00	4 or 5 x 5min talks/pitch on ongoing and planned work (primary practitioners) <ol style="list-style-type: none"> 1. An Indian for profit entity in converting faecal sludge 2. A Ghanaian for profit entity to convert faecal sludge Safi Sana (winner Sarphati Award) 3. Emerging businesses in prefabricated dewats converting human waste in products 4. Loowatt – making value from waste 	Pradeep Mohanty (CEO FSMC) Aart van den Beukel (Director) Andreas Schmidt (BORDA Representative Southern Africa) Mary Roach (Loowatt global partnerships)
16:00-16:20	Break-out sessions/discussions 1 related to the topics pitched just before	
16:20-16:50	Break-out sessions/discussions 2 related to the topics pitched just before	
16:50-17:10	Feedback from session by pitch speakers and summing up	Grietje Zeeman (LEAF)
17:30	<i>Borrel / drinks</i>	
18:00- 18:15	<i>Recap of the day for new guests</i>	<i>Pim van der Male (DGIS)</i>
18:15-18:30	<i>The new WASTE</i>	<i>Jacqueline Barendse (WASTE)</i>
19:30	<i>Closure</i>	

**Beyond development aid:
Sanitation financing & revenue models in reuse (human) waste**

May 15th, The Hague

Organised by: Institute of Fiscal Studies (IFS), UK & WASTE, Netherlands

Name	Organisation
Ingrid van de Burg	Amref
Sjef Ernes	Aqua for All
Hester Foppen	Aqua for All
Marleen Hasselerharm	Aqua for All
Andreas Schmidt	Borda
Sören Brosch	Borda
Adriaan Ferf	Chair WASTE
Pim van der Male	DGIS
Melanne Rouw	DGIS
Paula Beens	DGIS
Barabara Ward	EAWAG
Denise Carvalho	EUR
Santwana Sneha	Finish Society
Louis Strijdom	FMO
Hein Gietema	Free lance
Gert de Bruijne	Free lance
Hans Slegtenhorst	HS Investment for Development
Britta Augsburg	IFS
Alex Armand	IFS
Antonella Bancalari	IFS
Francisco Oteiza	IFS
Dr. Claire Furlong	IHE Delft Institute for Water Education
Andrea van der Kerk	IRC
Sarbani Bhattacharya	KPMG
Grietje Zeeman	LEAF
Barbara Evans	Leeds University
Marija Urumovska	Lend a Hand
Erna Goudt	Lend a Hand
Mary Roach	LooWatt
Joke Le Poole	Max Foundation
Laura Geurs	Nationale Nederlanden
Paul van Koppen	NWP, board member WASTE

Name	Organisation
Rien Hazeleger	Oikocredit
Tikvah Breimer	Plan
Marije van den Broek	Practica
Lucy Stevens	Practical Action
Rene van Veenhuizen	Ruaf
Gabor L. Szanto	RVO
Aart van den Beukel	Safi Sana
Kajetan Hetzer	SEF
Johan Sundberg	SIDA
Tomas Wadstrom	SIDA
Jimena Duran	Simavi
Sara Ahrari	Simavi
Sharon Roose	SNV
Jeremy Keele	Sorenson Impact Center, University of Utah
Cheryl Hicks	TBC
Ger Pannekoek	The Pancake Effect
Mark van Doesburg	Triple Jump
Mariska Ronteltap	UNESCO-IHE
Dorcas Mbuvi	UNU
Valentin Post	WASTE
Jacqueline Barendse	WASTE
Alix Reichenecker	WASTE
Tatiana Lukyanskaya	WASTE
Verele de Vreede	WASTE
Henock Belete Asfaw	WASTE
Jan Spit	WASTE
Hanny Maas	WASTE
Otto Ferf Jentink	Waternet
Matteus Van Der Velden	WSSCC

Introduction and IFS-EDePo Research Agenda

Alex Armand (University of Navarra & IFS)

The SDG 6 purpose is to ensure availability and sustainable management of water and sanitation for all. Our aim is to improve understanding through evidence-based policy-making.

Randomized controlled trials (RCTs) allow the reliable identification of causal effects (RCTs).

Ideally, we rely on collaboration between researchers, practitioners and policymakers. RCTs remain ideal to make causal inference and understand the mechanisms behind the strengths and weaknesses in public policy.



Britta Augsburg (IFS - EDePo)

EDePo sanitation agenda: projects in Pakistan, Nigeria, India. Particularly relevant for this workshop is the project SIEF India, which aims to evaluate the impact of providing microcredits for sanitation. Key questions: Are the loans actually used for sanitation investment? (low rates make them attractive). Who are the households taking up the loan? Are there changes in total number of toilets constructed? Other unintended consequences? Less education investment? Does sanitation actually improve health? Increase in height for age observed.



Introductions and IFS-EDePo Research Agenda

Antonella Bancalari (IFS-EDePo, London School of Economics)

Shared community facilities are a viable option in densely-populated slums with low private investment, but even when these are available, open defecation persists. This may be related to low willingness to pay (WTP) for sanitation facilities. However, there is little understanding on the drivers behind this. We will study the role of information and supply-side factors (i.e. cleanliness and adequate maintenance) as determinants of WTP and usage of community toilets. The study will be conducted in Lucknow, Uttar Pradesh, where slums have widespread availability of pay-to-use community toilets. Large amount of these toilets are considered 'dirty and stinky'. Method: Lab-in-the-field experiment to measure WTP and RCT.



Session A: Finance

Valentin Post (WASTE)

6.4% of India's growth does not occur due to inadequate sanitation investment. The necessary investment is similar to the economic loss. "Sanitation & microfinance: avoiding loan diversion, loan tenures & quality control in micro financing sanitation" Do's and Don'ts learned from microcredits for sanitation projects in Kenya and India: Adoption increased steeply as of March 2016 after a change towards a more business oriented focus. It has now become a "High impact" investment with very low default rates. Reuse is still happening on own plots, not commercialized yet.



Jeremy Keele (Sorenson Impact Center, University of Utah)

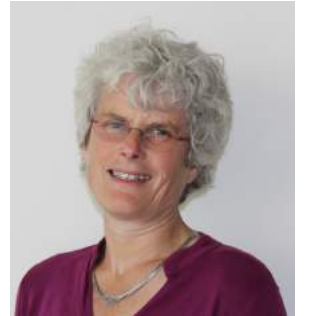
Development Impact Bonds. Social sector challenges: underinvestment in prevention; focus on inputs/outputs; no focus on short term funding - results; lack of data to inform monitoring of the implementation/evaluation of impact – this distorts the effectiveness of programs. Blended financing structure that combines grants (philanthropy), junior and senior investors with different risk and return profiles. The financing opportunity is there. Rationale: money saved from negative outcomes is invested in prevention.



Session A: Finance – 5min pitches

Jacqueline Barendse (WASTE)

SDG targets imply a very steep improvement in social indicators, particularly in sanitation. A fundamental, but often overlooked component is enabling environment. How to scale projects? @scale, started by Aqua4all and WASTE, is a facilitator to scale up sanitation projects by designing revenue models and linking with financing partners. Scale is needed and possible!



Sjef Ernes (A4all)

Public and private partnerships are a viable option as business opportunities for the sanitation sector. There is a large potential for safe water enterprises (SWE), the market is there. Decentralized sanitation services can fit into government plans and utilities' business model. Important: work with the government while also using entrepreneurs. Giving people a choice in water is translatable to sanitation – this provides information to households. Difficulty of proving benefits makes it hard to work with SIBs.



Session A: Finance – 5min pitches

Sarbani Bhattacharya (KPMG)

Swachh Bharat Mission (SBM) toilet construction subsidies paid ex-post to repay sanitation investment loans. Funding is there by Government of India (GOI), so why an impact bond? To scale and improve results. Investors (philanthropic and other) are there, willing to fund sanitation projects by pre-financing government grants, creating demand and eligibility of finance and supporting financing.



Kajetan Hetzer (SEF)

SEF is an investment fund focusing on small and medium-size enterprises (SMEs) that provide basic needs. Large challenge to tackle: large gap in financing to achieve SDGs, but SME sector provides potential: 80% of employment. Use of “social metric tool”. Blending finance sources (grants, debt, etc) provide the right combination of risk and return to different actors. Why is there no private investment if opportunities are there? It might take time to persuade the private sector, but growth potential is there. Risk mitigation via grants, insurance companies, plays an important role.



Session B: Reuse

Barbara Evans (Leeds University)

8 million single pits have been built in Bangladesh over the last 10 years, and now need emptying every 3.7 years. Business case for sustainable, for profit, pit collection services is feasible at a cost of around 14 USD per emptying event; but stated WTP is 40% lower. This creates a deficit of USD 145,500 per year for Bhaluka subdistrict. WTP would rise if the service could be delivered on a 'subscription' (monthly fee) basis. Besides the link between hygienic removal of sludge, regulated transporting of sludge would generate 350 jobs. Farmers were interested in buying human sludge fertilizers, but market of fertilizers is heavily subsidized. Therefore, to sustain the service, an efficient approach would be for the municipality to provide a small operational subsidy to ensure proper treatment of FS.



Barbara Ward (SANDEC)

Quantitative comparison of different faecal sludge treatment products to generate the most profitable business model for treatment facilities. Fuel combustion products have the highest market values in some urban areas (e.g. Kampala, Uganda). Challenges: 1) dewatering and drying; 2) sludge has high ash content. Important parameters to measure: calorific value, ash fraction and heavy metals. Take-aways: 1) co-processing with biomass improves fuel quality and quantity, 2) drying is preferable to carbonization for fuel production from faecal sludge.



Session B: Reuse

Mariska Ronteltap (UNESCO-IHE)

There is a high risk related to pathogen transfer linked to inadequate sludge treatment, including ascariasis, cholera and other enteric infections. Constructing more toilets does not solve the sanitation problem, it just shifts the problem towards more faecal sludge. Dangers persist even post-treatment technology. Disinfection mechanisms are necessary: treatment, ageing, drying, temperature, pH, exposure to urea, worms, etc. It is important to create pathogen inactivation standards for faecal sludge treatment, but it is not so straightforward: most excreta technologies produce products, not effluent as is the case in domestic wastewater treatment. Therefore, the current developments in standardization of analytical methods, technologies and maximum allowed pathogen levels are very important yet also very complex.



Session B: Reuse – 5min pitches

Pradeep Mohanty (FSMC)

FSMC develops community-led faecal sludge treatment in India. Co-compost process results in fertilizer sold locally. Q&A: social stigma, demand generation and government acceptance.



Aart van den Beukel (Safisana)

Safisana operates factories that transform waste (collected from public toilets and organic waste) into fertilizer and fuel for electricity. People are not reluctant to buy faecal-based fertilizer. They are actually aware that these products have higher nutritional value. Q&A: Need for organic fertilizer, but how feasible is this in countries where organic is not common?. Need to develop a model resilient to changing environments.



Session B: Reuse – 5min pitches

Andreas Schmidt (BORDA)

BORDA is an expert organization on reuse human waste. They are a demand-driven organization that provide services and sanitation financing. Q&A: understand the context of the market and conditions in which individuals demands these services (i.e. WTP of households and government).



Mary Roach (Loowatt)

Loowatt provides a waterless sanitation solution. The organization has set up a WTP proof-of concept in Madagascar and seeks to work with utility and service partners to scale a sustainable business model. Q&A: there is a need to understand what models work, their sustainability and how feasible they are to scale up.



Closing remarks

Pim van der Male (DGIS)

“We are entering the SGD-era that requires a steep improvement curve. Collaboration between research, policy making, NGO’s and Government is as important as ever.”



Jacqueline Barendse (WASTE)

WASTE has changed its operational strategy, allowing for flexibility and to encourage and stimulate innovation. WASTE operates via a diversity of legal entities (NGO, Business, Cooperative) depending of the type of activities. Staffing is flexible and includes a diversity of experts with international background as well staff from WASTE’s vast international network.





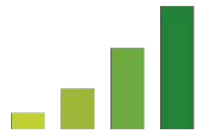
Alex Armand
Assistant Professor,
University of Navarra

Alex Armand is Assistant Professor at the University of Navarra (Spain) and Faculty Fellow at the Navarra Centre for International Development. His main research fields are Development Economics and Policy Evaluation. His current work focuses on the effect of providing gender-targeted cash transfers on household outcomes, rent-seeking behaviour and natural resources discovery, and education- and health-related policy interventions. During his professional career he worked on the evaluation of interventions in Eritrea, Mozambique and Eastern Europe, where he worked on the implementation and the evaluation of the first CCT in the Balkan region, the CCT for Secondary Education introduced by the Government of Macedonia. He holds a PhD in Economics from the University College London.



Antonella Bancalari
Researcher, Institute
of Fiscal Studies

Antonella Bancalari is a researcher at the development sector of the Institute for Fiscal Studies, the Centre for the Evaluation of Development Policies (EDePo), and a PhD candidate at London School of Economics. Her work at EDePo concentrates on understanding constraints to willingness to pay for and usage of shared sanitation facilities in India. In the past she has worked on evaluating sanitation, nutritional and child and maternal health programmes and policies in Peru, Bolivia, El Salvador and Nigeria. At present, her research focuses on evaluating the impact of different sanitation interventions on child health in lower-middle income contexts. Antonella holds a Master of Public Administration/International Development (MPA/ID) from London School of Economics and a BSc in Economics from Universidad del Pacifico.



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Beyond development aid:
Sanitation financing & revenue models in
reuse (human) waste

Alex Armand, PhD

Research Fellow, Institute for Fiscal Studies

Assistant Professor, University of Navarra (Spain)

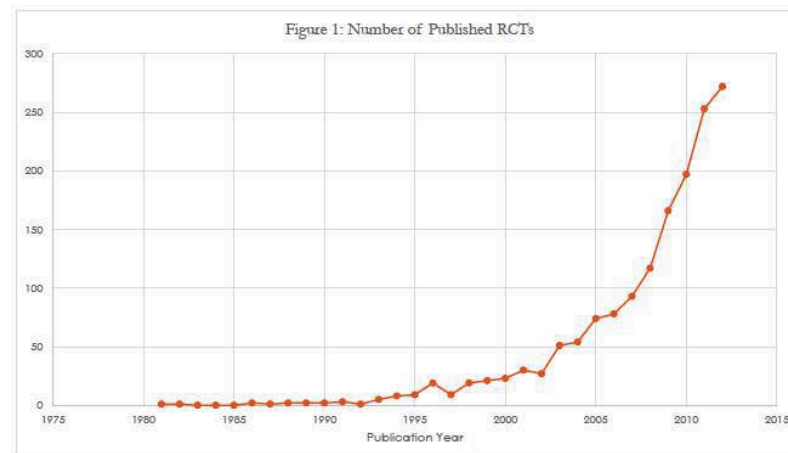
Sustainable Development Goals and Sanitation

GOAL 6: Ensure availability and sustainable management of water and sanitation for all.

- How may scarce water resources be used more efficiently?
- What marketing methods are most effective in increasing adoption and use of sustainable technologies?
- What is the impact of population awareness and behavior change campaigns on adoption of sustainable technologies?
- What methods may help sustainably manage and restore healthy environments?

How can we improve the understanding of efficiency and effectiveness of development policies?

- 1. Evidence based policy making has become a major focus**
 - Use of policy evaluation as an instrument for policymakers
 - MEASUREMENT
- 2. Hand-in-hand with the identification of rigorous approaches**
 - CAUSAL INFERENCE and IDENTIFICATION
 - Rise of **social experiments (RCTs)** in the developing



- 3. Bring together researchers, practitioners and policymakers**

Do policies work?

- Some argue that this trend is of concern:
 - Increased pressure on aid agencies to provide evidence from RCTs
 - The quest for internal validity, design-based studies have become narrow or idiosyncratic
 - The experimentalist paradigm leads researchers to look for good experiments, regardless of whether the questions they address are important

Beyond ‘whether’ – how and why?

- Rigorous and clean (if properly implemented) evaluation methods identify causal relationships.
- This makes them the ideal foundation for understanding **mechanisms**:
 - Why does an intervention (not) work?
 - How does it work?
 - How can it be improved?
 - How can resources be used more effectively?

Beyond ‘whether’ – who?

- Knowing impacts and understanding mechanisms provides the right information to advise implementers
- But, also impacts and mechanisms do not yet tell us the whole picture
 - We also want to understand **who is being reached** by an intervention (directly and indirectly) and who is not?
 - We also need to understand in what **form/intensity** the intervention was implemented.
 - Such questions are particularly crucial when thinking about **scale and scalability**

Plan of the day – Two sessions

1. Sanitation financing (MORNING)

- 10 minutes presentations
- 5 min talks/pitch on ongoing and planned work
- Discussion

2. Revenue models in reuse waste (AFTERNOON)

- 10 minutes presentations
- 5 min talks/pitch on ongoing and planned work
- Discussion

Acknowledgement

- **Institute for Fiscal Studies**
- **WASTE**
- **3ie International Initiative for Impact Evaluation**
(Development Priorities Window)



Sanitation financing I

- **Britta Augsburg (IFS)** 09:40-09:50
 - An overview of relevant work at IFS
- **Antonella Bancalari (IFS)** 09:50-10:00
 - Community toilet use in slums
- **Jeremy Keele (University of Utah)** 10:00-10:45
 - Impact bonds and impact monitoring, lessons learned
- **Valentin Post (WASTE)** 10:45-11:10
 - Sanitation & micro finance; Avoiding loan diversion, loan tenures & quality control in micro financing sanitation

Sanitation financing II

5 min pitch on ongoing and planned work

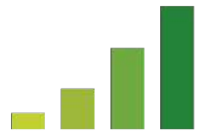
11:40-12:00

- **Jacqueline Barendse (WASTE): @Scale BV:** bridge for financing water, sanitation and waste
- **Sjef Ernes (A4A):** Safe Water Enterprises - untapped potential – lessons for sanitation?
- **Sarbani Bhattacharya (Partner KPMG):** Concept of a sanitation impact bond
- **Kajetan Hetzer, Director (SEF):** Fund for the missing middle



Britta Augsburg
Senior Research
Economist, EDePo

Britta Augsburg is Senior Research Economist in the development sector of the Institute for Fiscal Studies, the Centre for the Evaluation of Development Policies (EDePo), and an affiliated researcher at the United Nations University-Merit in Maastricht, the Netherlands. Her research concentrates on understanding the effectiveness of programs and policies that tackle constraints to productivity of poverty affected individuals and households, with a particular focus on credit and technology adoption constraints. She has worked on a number of studies related to microfinance and particularly the effectiveness of this financial tool in achieving improved outcomes for the intended beneficiaries. At present, a large part of her project portfolio focuses on sanitation technology – understanding information and financial constraints to uptake at the demand as well as the supply side. To this end, she is managing a number of large scale sanitation impact evaluation projects, primarily randomized field experiments, in India and Nigeria.



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Sanitation

Understanding why and how
Interventions Work (Or Not)

Britta Augsburg, PhD

Senior Research Economist

@ EDePo

EDePo at the Institute for Fiscal Studies

- **EDePo: Center for the Evaluation of Development Policies**
 - Aims to promote best practice in the design, conduct and evaluation of development policies.
 - Understanding and modeling the decisions of agents (individuals, HHs, firms) and how they are affected by the environment they face
 - Strongly grounded in economic theory
 - Typically involves the design and implementation of surveys for micro-level data collection
 - Topics worked on: Human capital investment, technology adoption, consumption, labour supply,...

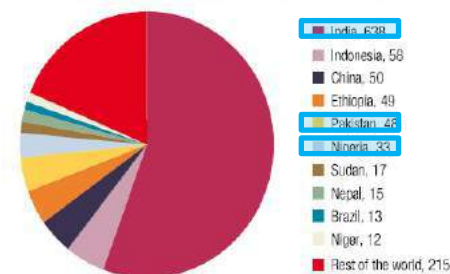
EDePo - Research on sanitation

- The focus lies on understanding...
 - ...the effectiveness of programmes addressing different constraints to sanitation uptake and usage;
 - ...the relative effectiveness of different approaches and/or how interventions interact.

EDePo RCTs in sanitation: Ongoing RCTs



81% of 1.1 billion people that defecate in the open in the world live in 10 countries



Sustainable Total Sanitation (STS), Nigeria.

Implementer: WaterAid
Funder: Gates Foundation

RBF WASH Evaluation, Pakistan.

Partner: OPM
Implementers: PLAN, WaterAid
Funder: DfID

SIEF Sanitation, India.

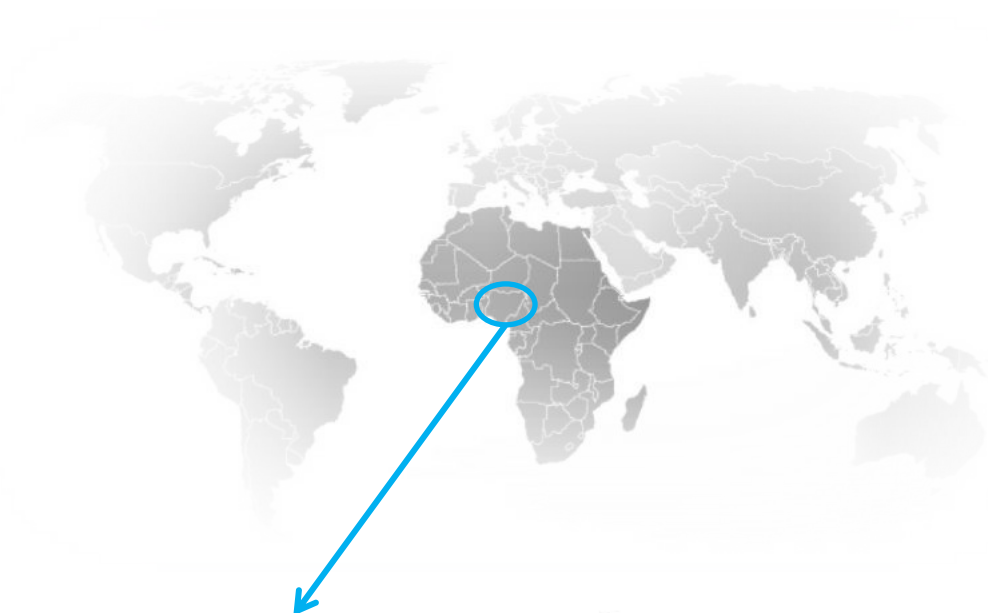
Partner: WSP, WB
Implementers: GK, ND
Funder: Strategic Impact Evaluation Fund (SIEF)

WTP community toilets, India.

Implementers: FINISH/Cashpor
Funder: 3ie

FINISH Evaluation, India

EDePo RCTs in sanitation: Ongoing RCTs



Sustainable Total Sanitation (STS), Nigeria.

*Implementer: WaterAid
Funder: Gates Foundation*

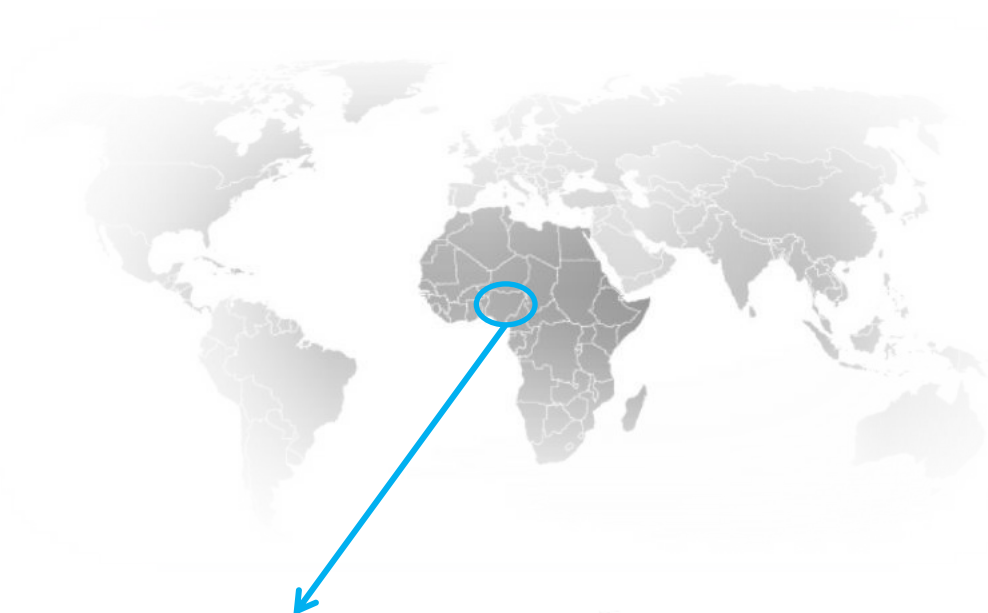


Research questions:

Effectiveness of...

1. ...Community-Led Total Sanitation (CLTS) in creating uptake/use?

EDePo RCTs in sanitation: Ongoing RCTs



Sustainable Total Sanitation (STS), Nigeria.

*Implementer: WaterAid
Funder: Gates Foundation*



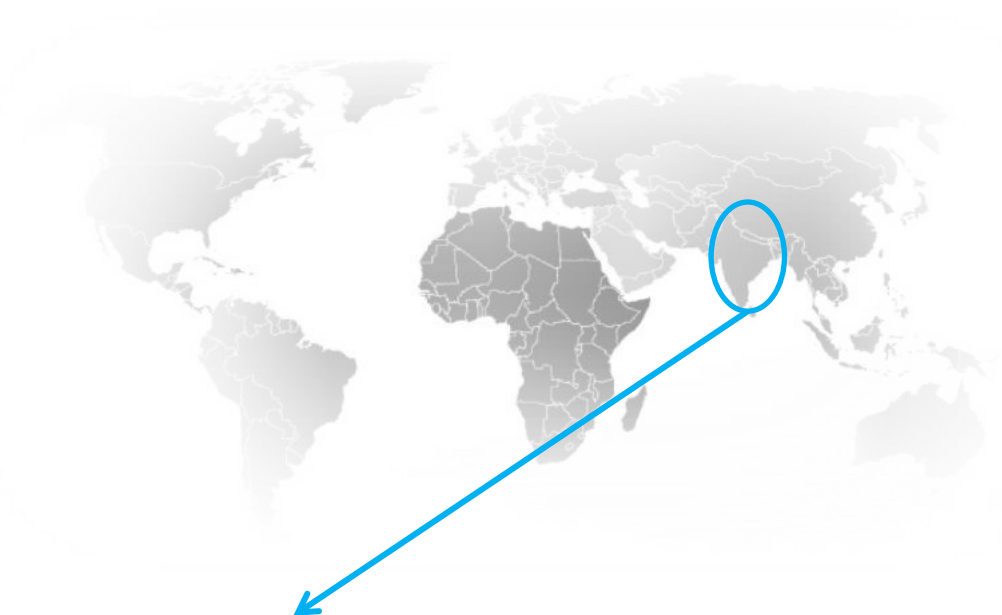
Research questions:

Effectiveness of...

1. ...Community-Led Total Sanitation (CLTS) in creating uptake/use?
2. Sanitation Marketing (SanMark).



EDePo RCTs in sanitation: Ongoing RCTs



SIEF Sanitation, India.

Partner: WSP, WB

Implementers:

GK, ND

Funder: Strategic Impact
Evaluation Fund (SIEF)



Research questions:

Effectiveness of...

1. Providing micro-credit for sanitation

EDePo RCTs in sanitation: Ongoing RCTs



SIEF Sanitation, India.

Partner: WSP, WB

Implementers:

GK, ND

Funder: Strategic Impact
Evaluation Fund (SIEF)



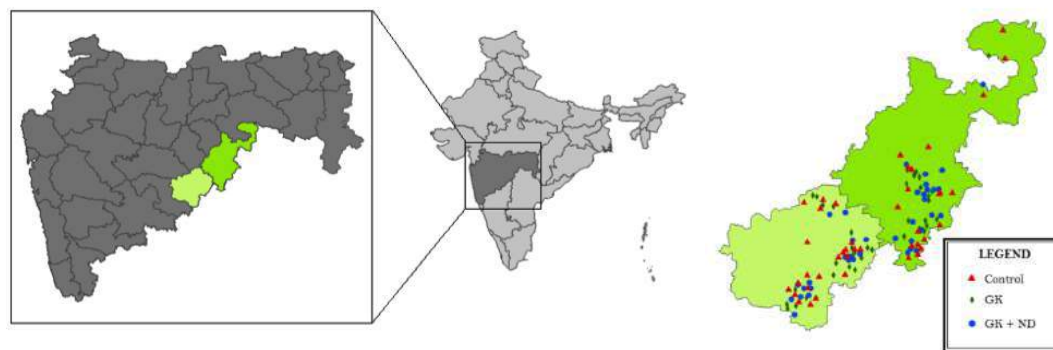
Research questions:

Effectiveness of...

1. Providing micro-credit for sanitation
2. Conducting in addition awareness creation activities

EDePo's contribution: Sanitation uptake/usage

- Study Design: Randomized Control Trial
 - 120 villages in which MFI operates, randomized into three groups:
 1. Provision of sanitation microcredit
 2. Provision of sanitation microcredit + information
 3. Control (credit offer as usual, no sanitation credit)



– Key dates:

- Baseline: December 2014/January 2015
- Intervention: From February 2015
- Endline: About to go to the field

EDePo's contribution: Sanitation uptake/usage

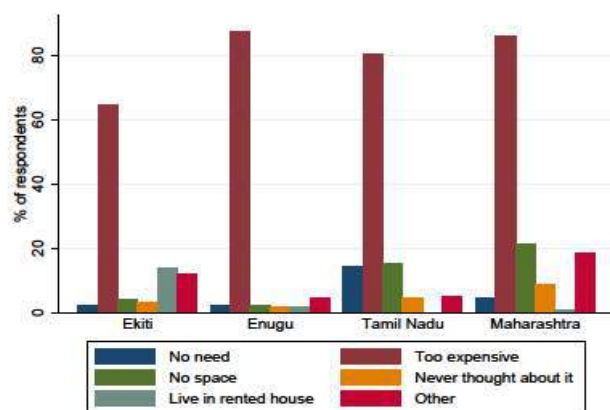
Project: **Microcredit for sanitation, India**

- Great enthusiasm around the relaxation of credit constraints to increase sanitation uptake
- Typically based on two facts:
 1. Households stating that sanitation investments are 'too expensive'
 2. Microfinance loans for sanitation investments are being taken up

EDePo's contribution: Sanitation uptake/usage

Project: Microcredit for sanitation, India

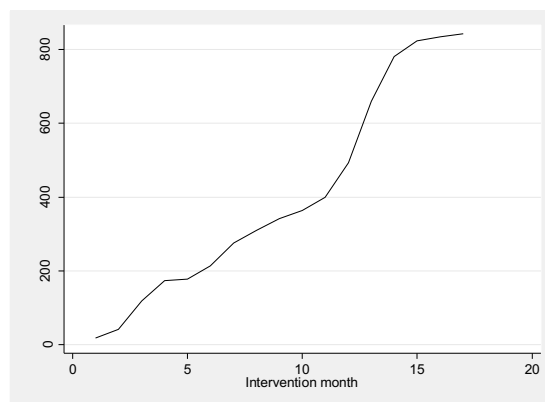
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EDePo's contribution: Sanitation uptake/usage

Project: **Microcredit for sanitation, India**

- Great enthusiasm around the relaxation of credit constraints to increase sanitation uptake
- Typically based on two facts:
 1. Households stating that sanitation investments are 'too expensive'
 2. Microfinance loans for sanitation investments are being taken up:



EDePo's contribution: Sanitation uptake/usage

Project: **Microcredit for sanitation, India**

- The **Key Questions** are though:
 1. Are the loans used to construct sanitation facilities?

EDePo's contribution: Sanitation uptake/usage

Project: **Microcredit for sanitation, India**

- The **Key Questions** are though:
 1. Are the loans used to construct sanitation facilities?
 - Sanitation credit typically cheaper than other credit.
 - Within our partner MFI, average interest rate:
 - “Productive loans”: 22-25% (avg >23%)
 - “Social loans”: 18-22% (avg sanitation: 20.8)
 - ➔ Cheaper credit always preferable
 - ➔ Stresses the importance of loan use monitoring

EDePo's contribution: Sanitation uptake/usage

Project: **Microcredit for sanitation, India**

- The **Key Questions** are though:
 1. Are the loans used to construct sanitation facilities?
 2. Are these sanitation facilities *that would not have been built without the availability of the loans?*

EDePo's contribution: Sanitation uptake/usage

Project: **Microcredit for sanitation, India**

- The **Key Questions** are though:
 1. Are the loans used to construct sanitation facilities?
 2. Are these sanitation facilities *that would not have been built without the availability of the loans*?
 - I.e. does the loan replace other funding? Or is it additional funding?
 - Only if it is additional funding, will loans lead to an increase in sanitation coverage!

EDePo's contribution: Sanitation uptake/usage

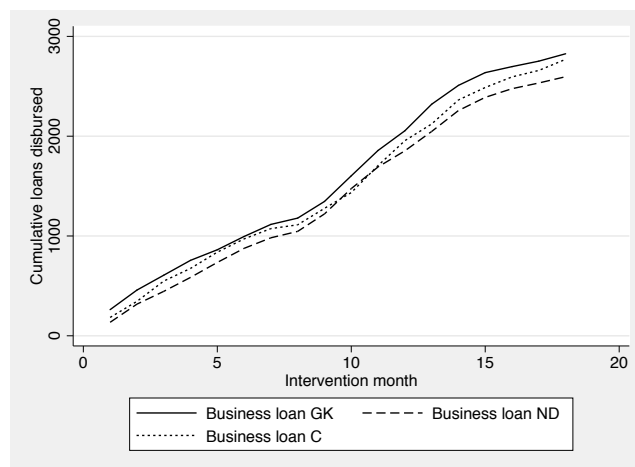
Project: **Microcredit for sanitation, India**

- The **Key Questions** are though:
 1. Are the loans used to construct sanitation facilities?
 2. Are these sanitation facilities *that would not have been built without the availability of the loans?*
 3. What (if any) other investments are not being made? Are there unintended consequences?

EDePo's contribution: Sanitation uptake/usage

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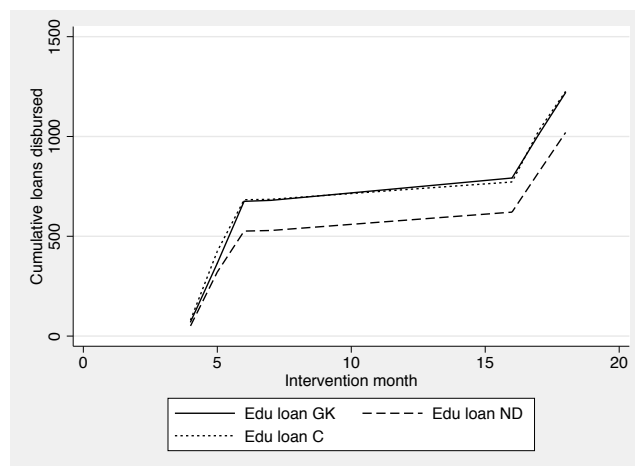


➔ No difference in business loan uptake in areas where sanitation loans were given and not

EDePo's contribution: Sanitation uptake/usage

Project: **Microcredit for sanitation, India**

- The **Key Questions** are though:
 1. Are the loans used to construct sanitation facilities?
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 3. What (if any) other investments are not being made? Are there unintended consequences?



➔ Delay and reduction in education loan uptake!

➔ Lower human capital investment due to sanitation loans?

EDePo's contribution: Sanitation uptake/usage

Project: **Microcredit for sanitation, India**

- The **Key Questions** are though:
 1. Are the loans used to construct sanitation facilities?
 2. Are these sanitation facilities that would not have been built without the availability of the loans?
 3. What (if any) other investments are not being made? Are there unintended consequences?
 4. Do (additionally) constructed toilets improve health?

Beyond uptake, towards health impacts

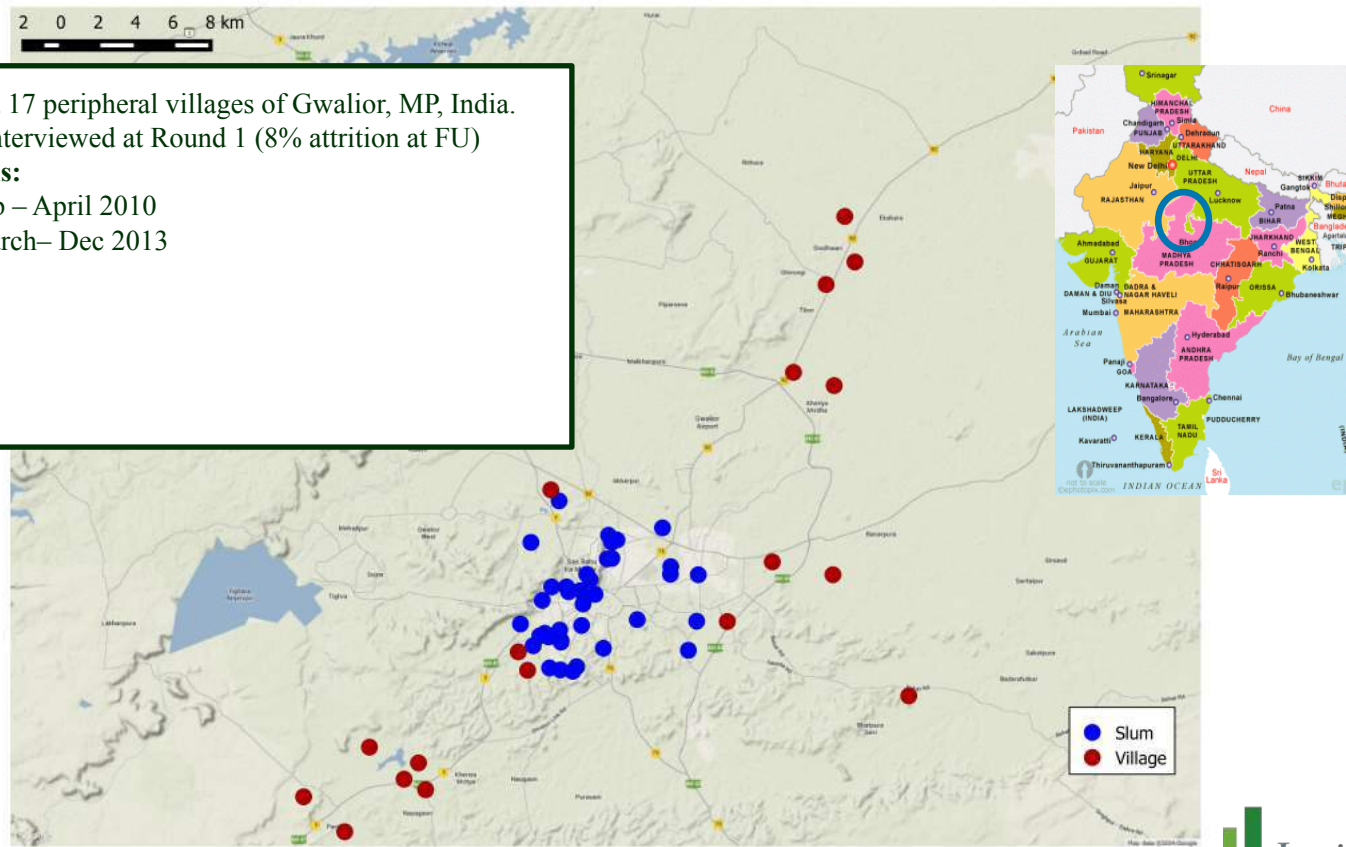
- The idea is simple: Sanitation....
 1. ...isolates faeces
 2. ...breaks down the faecal-oral transmission of disease
 3. ...reduction of diseases
 4. Health improves

- So far it has been challenging to demonstrate health (and other) benefits of low-cost private sanitation (interventions), particularly in recent experimental studies

- Most notable study: Clasen et al. (2014), Lancet. ~50% uptake, no health impacts (diarrhoea, anthropometrics)

Beyond uptake, towards health impacts

- Study with FINISH in Gwalior, India (urban slums)



Beyond uptake, towards health impacts

- Study with FINISH in Gwalior, India (urban slums)
- **Key findings:**
 - 10% increase in sanitation coverage -> ~0.7cm increase in 4 year old child
 - Impacts are driven by girls: 10% increase in sanitation coverage -> 1.05cm
 - Impacts primarily age 6-22 months (largest placidity in growth and not exclusively breastfed anymore)

Thank you!

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EDePo's contribution: Sanitation uptake/usage

Project: Microcredit for sanitation, India

- The Key Questions are though:
 - Are the loans used to construct sanitation facilities?
 - Are these sanitation facilities *that would not have been built without the availability of the loans?*

Purpose of loan	Category of Loan	% of outstanding loan portfolio	Interest rate	Average amount of loan in Rs.
			(min;max)	(min;max)
Animal Husbandry	IGL: Pragati, Pragati Plus and Supplement	37%	23.5 (22;25)	21700 (5000;45000)
Trading	IGL: Pragati, Pragati Plus and Supplement	16%	23.6 (22;25)	20300 (5000;45000)
Transportation	IGL: Pragati, Pragati Plus and Supplement	5%	23.6 (22;25)	21600 (5000;45000)
Production	IGL: Pragati, Pragati Plus and Supplement	13%	23.6 (22;25)	20000 (5000;45000)
Education	Education	16%	18.6 (18;22)	9800 (5000;10000)
Festival	Festival	1%	19.7 (18;20)	2000 (2000;2000)
Sanitation	Sanitation	9%	20.8 (18;22)	14500 (10000;15000)
Water Connection	Water loan	0%	20 (18;20)++	5000 (5000;5000)++

Sanitation loan: relatively high loan amount and low interest rate



Jeremy Keele
President & CEO,
Sorenson Impact
Center

Jeremy Keele is President & CEO of the Sorenson Impact Center at the University of Utah's David Eccles School of Business. The mission of the Sorenson Impact Center is to marshal capital for social good, empower evidence-based programs and policies, break down silos across sectors, and equip the next generation of leaders with social purpose. Jeremy's work at the Center is dedicated to advising stakeholders from philanthropy, government, investment, and nonprofits on innovative and data-driven approaches to solving difficult social problems in their communities. Under Jeremy's leadership, the Center has grown from three employees in 2014 to 35 in 2017, with an additional 50 graduate and undergraduate student fellows working on live projects and investments around the world every year. Center staff include experts from finance, policy, business, law, data science, communications, and sociology. Jeremy received his Juris Doctor from New York University and a Master in Public Administration from Harvard's Kennedy School.



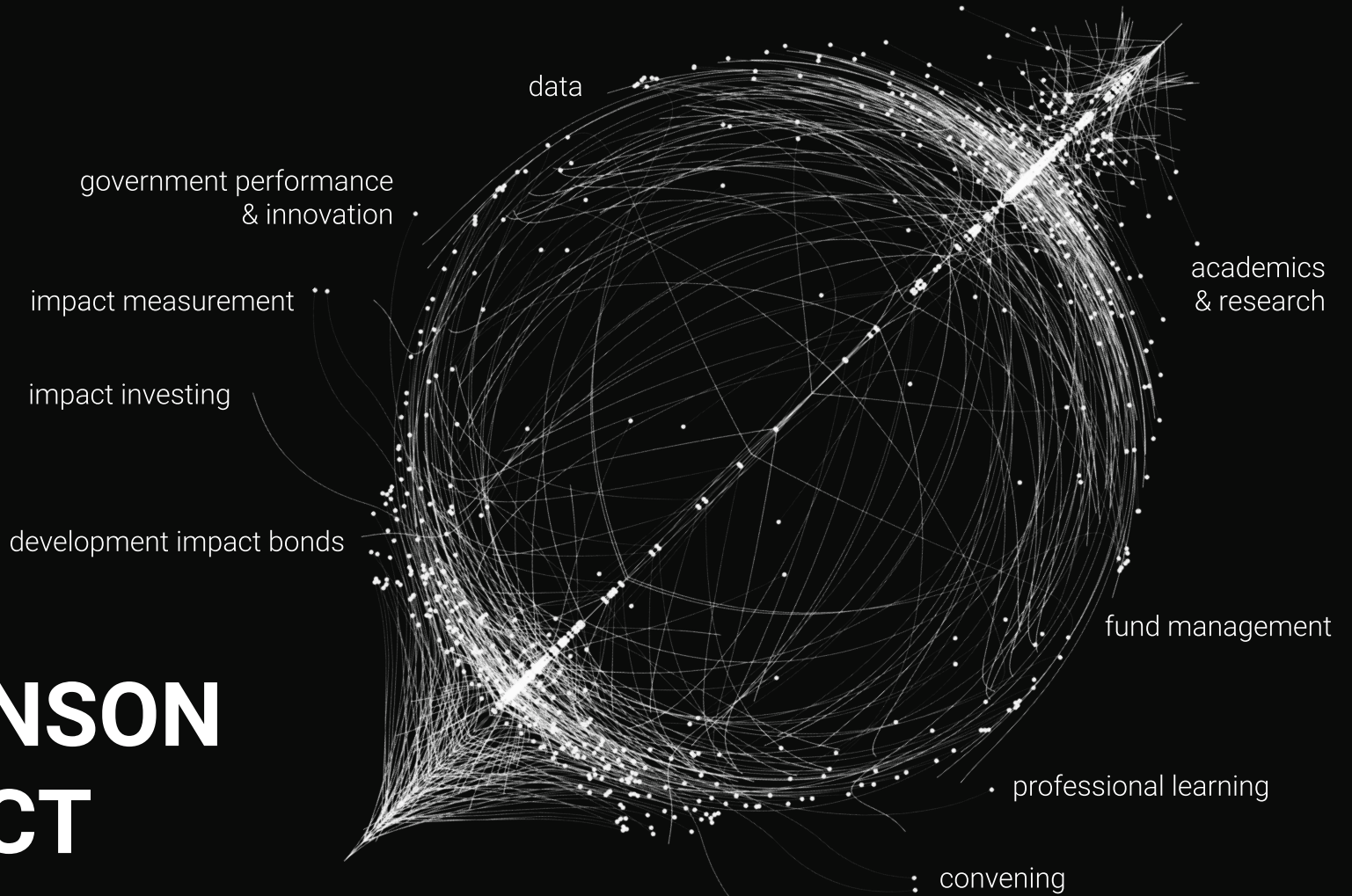
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DEVELOPMENT IMPACT BONDS: LESSONS LEARNED

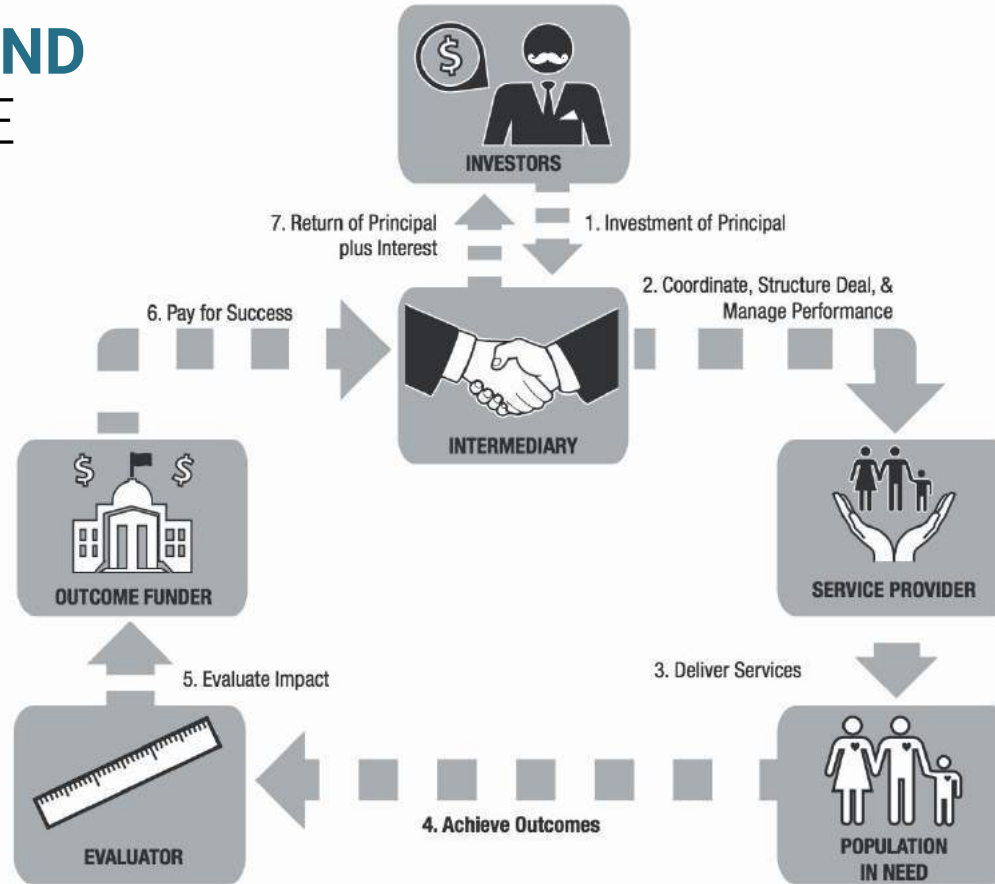
Right Now! May Conference • The Hague

Jeremy Keele • President and CEO, Sorenson Impact Center

ABOUT **SORENSEN** **IMPACT**



IMPACT BOND STRUCTURE



The Potential and Limitations of Impact Bonds: Lessons from the First Five Years of Experience Worldwide
Global Economy and Development Program – BROOKINGS

IMPACT BOND FEASIBILITY



The Potential and Limitations of Impact Bonds: Lessons from the First Five Years of Experience Worldwide
Global Economy and Development Program – BROOKINGS

EXAMPLES OF **SOCIAL IMPACT BOND** ISSUE AREAS



Community-based interventions that prevent institutionalization

- *Foster care, juvenile and criminal justice, behavioral health*



Health-based interventions that result in Medicaid savings

- *Home visitation*



Education-based interventions that promote grade progression, retention, and school completion

- *Pre-school*



Interventions to address homelessness

- *Supportive housing*



Workforce-based interventions

- *Job readiness*



UTAH PRE-K SOCIAL IMPACT BOND

600
kids


2013 County Pilot

3,700
kids over
5 years


2014 SIB

\$11,000,000
to support **4,000**
kids per year

2016 Legislative Session

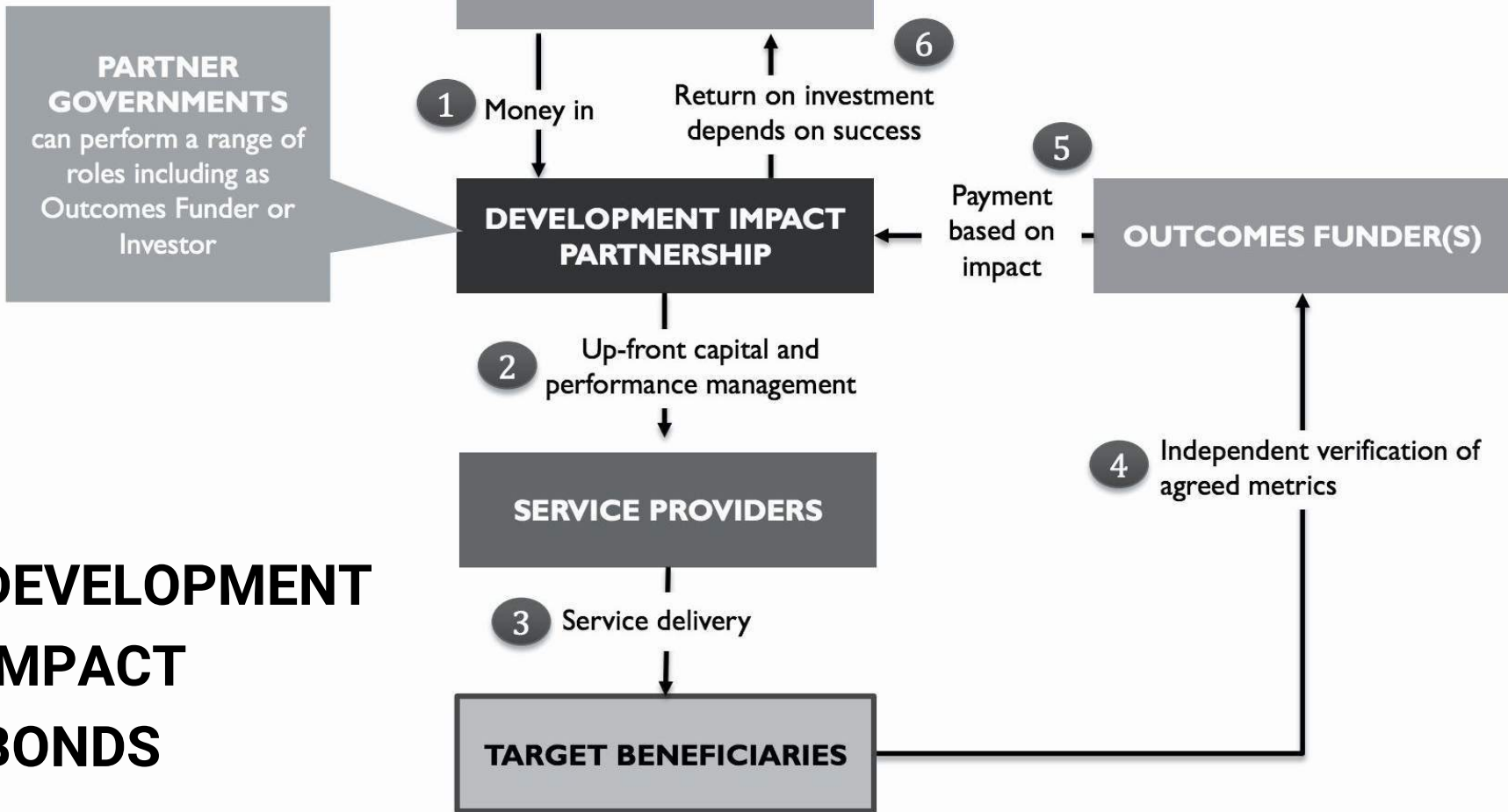
SIB NAME	Utah High Quality Preschool Program*			
LOCATION	State of Utah (Salt Lake City and surrounding areas)	COUNTRY	United States	
START DATE (date of contract signing)	August 2013	CONTRACT DURATION	60 months	
SOCIAL ISSUE	Limited access to Early Childhood Education			
TARGET POPULATION	Up to 3,500 low income 3- and 4-year-olds across up to five cohorts of around 600 per year. The first cohort included 600 children in the 2013-2014 school year and the second cohort will include 750 children in the 2014-2015 school year.			
INTERVENTION	Utah High Quality Preschool Program, a high impact and targeted curriculum to increase school readiness and academic performance among 3- and 4-year-olds			
SERVICE PROVIDER	Granite School District, Park City School District, Guadalupe School, YMCA of Northern Utah, Children's Express, and Lit'l Scholars.	OUTCOME FUNDER	State of Utah	
INTERMEDIARY (roles in parentheses)	United Way of Salt Lake (oversees the implementation of the project, contracts with and manages payments to and reports from the providers)	TECHNICAL ASSISTANCE PROVIDER	Voices for Utah Children (financial structuring, research and analytic support) Granite School District (training and professional development for service providers)	
UPFRONT CAPITAL COMMITMENT (USDM)*	7.0	NON-RECOVERABLE GRANTS	N/A	

	Senior Investors	Subordinate Investors
INVESTOR NAME	Goldman Sachs' Urban Investment Group	J.B. Pritzker (individual)
INVESTMENT (USDM)*	4.6	2.4
MAXIMUM POTENTIAL LOSS (% of principal)	100%	
OUTCOME METRIC	Years of special education (remedial education) avoided Kindergarten through 6th grade for students “likely to use special education services” (as defined by testing at least two standard deviations below mean on the Peabody Picture Vocabulary test (PPVT) before entering the Pre-Kindergarten program). These students form the “payment cohort.”	
OUTCOME EVALUATION METHOD [Evaluator in brackets]	Validated administrative data (special education use by those likely to use special education given historical data) [Utah State University]	
PAYMENT SCHEDULE	Seven annual payments from the outcome funder to the investors for each cohort	
THRESHOLD FOR PAYMENTS FROM THE OUTCOME FUNDER	Any child in the payment cohort not using special education	Subordinate investors are eligible for repayment once senior investors are repaid.

SIB NAME		Juvenile Justice Pay for Success Initiative		
LOCATION	Commonwealth of Massachusetts (Chelsea, Boston and Springfield areas)	COUNTRY	United States	
START DATE (date of contract signing)	January 2014	CONTRACT DURATION	84 months	
SOCIAL ISSUE	Prison recidivism			
TARGET POPULATION	929 at-risk young men aged 17 to 24 who are in the probation system, in the juvenile justice systems, are leaving the custody of the Suffolk, Essex, Hampden, and Middlesex Houses of Correction, or are leaving the custody of Massachusetts Department of Correction.			
INTERVENTION	Two years per participant of active education, life skills and job training, and two years of rigorous follow-up			
SERVICE PROVIDER	Roca Inc.	OUTCOME FUNDER	Commonwealth of Massachusetts (Social Innovation Financing Trust Fund) and the United States Department of Labor	
INTERMEDIARY (roles in parentheses)	Third Sector Capital Partners	TECHNICAL ASSISTANCE PROVIDER	Harvard Kennedy School Social Impact Bond Technical Assistance Lab (assistance to government)	
UPFRONT CAPITAL COMMITMENT (USD M)*	16.1	NON-RECOVERABLE GRANTS	N/A	

	Senior Investors	Subordinate Investors	Recoverable Grants and Investment Guarantees
INVESTOR NAME	Goldman Sachs' Social Impact Fund	Kresge Foundation and Living Cities (In addition, Roca Inc. and Third Sector Capital could be considered subordinate investors as they have deferred their fees and stand to earn success fees)	Anonymous Foundation, New Profit, and The Boston Foundation
INVESTMENT (USDM)*	8.0	2.66 (from Kresge Foundation and Living Cities)	5.45
MAXIMUM POTENTIAL LOSS (% of principal)	100%		
OUTCOME METRIC	<ol style="list-style-type: none"> Decreases in incarceration (treatment vs control groups) Increases in job readiness (number of quarters that a Roca participant engages with a Roca youth worker nine or more times) Increases in employment (number of quarters that a Roca participant is employed as compared to similar young men who are not in the program) 		
OUTCOME EVALUATION METHOD [Evaluator in brackets]	Randomized Control Trial (RCT) (metric 1) and Validated administrative data (metrics 2 and 3) [Urban Institute]		
PAYMENT SCHEDULE	Payments from outcome funders to investors in years 2 to 7		Potential for grant recycle at the end of the program
THRESHOLD FOR PAYMENTS FROM THE OUTCOME FUNDER	<ol style="list-style-type: none"> 5.2% reduction in incarceration and 3. Any positive increase in job readiness and employment. 		Potential for grant recycle at the end of the program if outcome payments exceed repayment to senior and subordinate investors

DEVELOPMENT IMPACT BONDS



WHAT MAKES FOR A GOOD IMPACT BOND?

- Meaningful & measurable outcomes
- Government support for transaction
- Robust evidence that service provider could produce desired outcomes
- Credibility/capacity of intermediary

BENEFITS:

INCREASED ACCOUNTABILITY

Transparency in public procurement, government values, and decision-making processes

GOVERNMENTS AND DONORS ONLY PAY FOR WHAT WORKS

Payments are made only if outcomes are successfully met

OUNCE OF PREVENTION

With upfront funding, working capital is available quicker and helps to drive resources to prevention rather than remediation

FUNDING STABILITY FOR PROVIDERS

Service providers guaranteed funding for a period of years to run the program

RIGOROUS PROGRAM EVALUATION

DIBs build the field of social / health science through rigorous evaluation of programs; service providers begin to constantly examine and improve their programs

POTENTIAL CHALLENGES:

LENGTHY NEGOTIATION PERIOD

Complexity surrounding structuring of DIBs and convening stakeholders leads to a lengthy start-up period

HIGH TRANSACTION COSTS

High administrative costs detract from money that could be spent on direct impact

INSUFFICIENT DATA

Difficult to obtain accurate baseline data in developing countries

DIFFICULTY IN SELECTING ACCURATE
SUCCESS METRICS

Large benefits combined with low-capacity service providers creates incentives to manipulate the system

REQUIRES STRONG SERVICE
PROVIDERS

DIBs most successful when service providers have a past history of success and the capacity to scale-up their operations

PITCHING **DEVELOPMENT IMPACT BONDS**

- ① Redirects Capital Resources
- ② Focuses on Outcomes Instead of Outputs
- ③ Allows for Innovation and Adaptation
- ④ Builds Knowledge Base

RAPIDLY GROWING MARKET



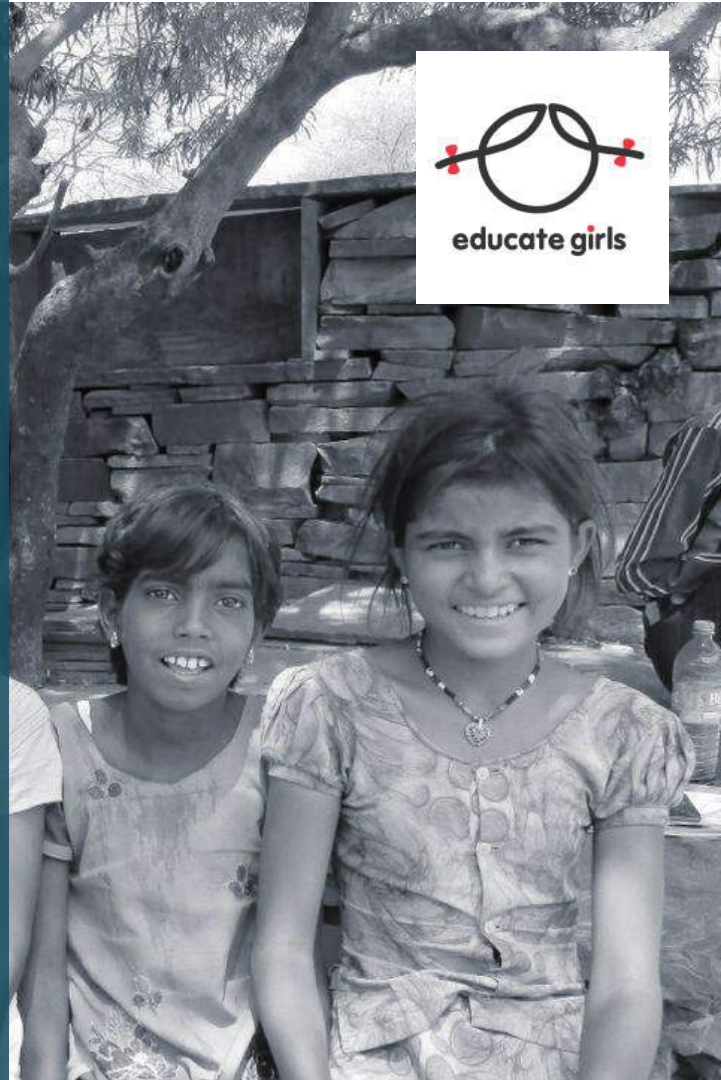


FIELD BUILDING RECOMMENDATIONS

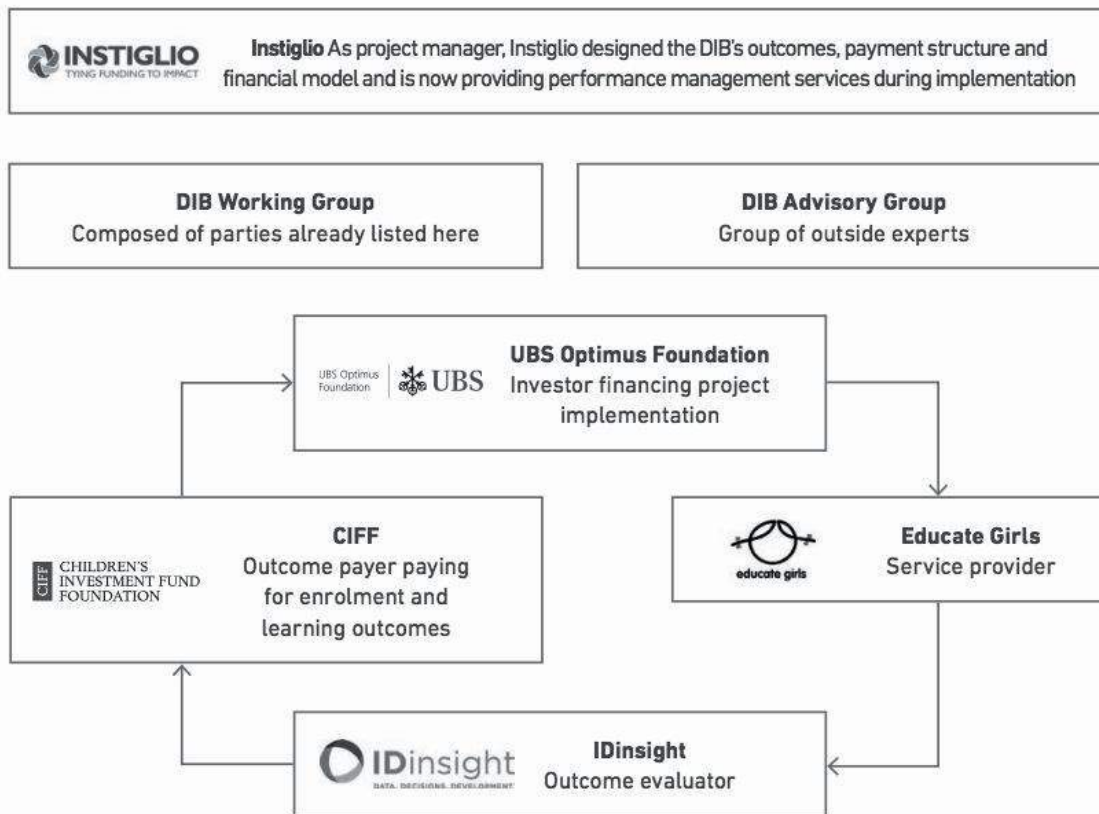
1. Establish a DIB Outcomes Fund
2. Catalyze the DIB market through foundational and philanthropic support of transaction costs
3. Facilitate information-sharing and create opportunities for sharing best practices

CASE STUDY: EDUCATE GIRLS

- **Target Population:** 18,000 children in Rajasthan, India
- **Intervention:** Enrollment, retention, and learning of marginalized children, specifically girls, through a comprehensive community program
- **Investor:** UBS Optimus Foundation
- **Outcome Payor:** Children Investment Foundation
- **Outcomes:** Increased enrollment and children's progress in literacy and numeracy



EDUCATE GIRLS project structure

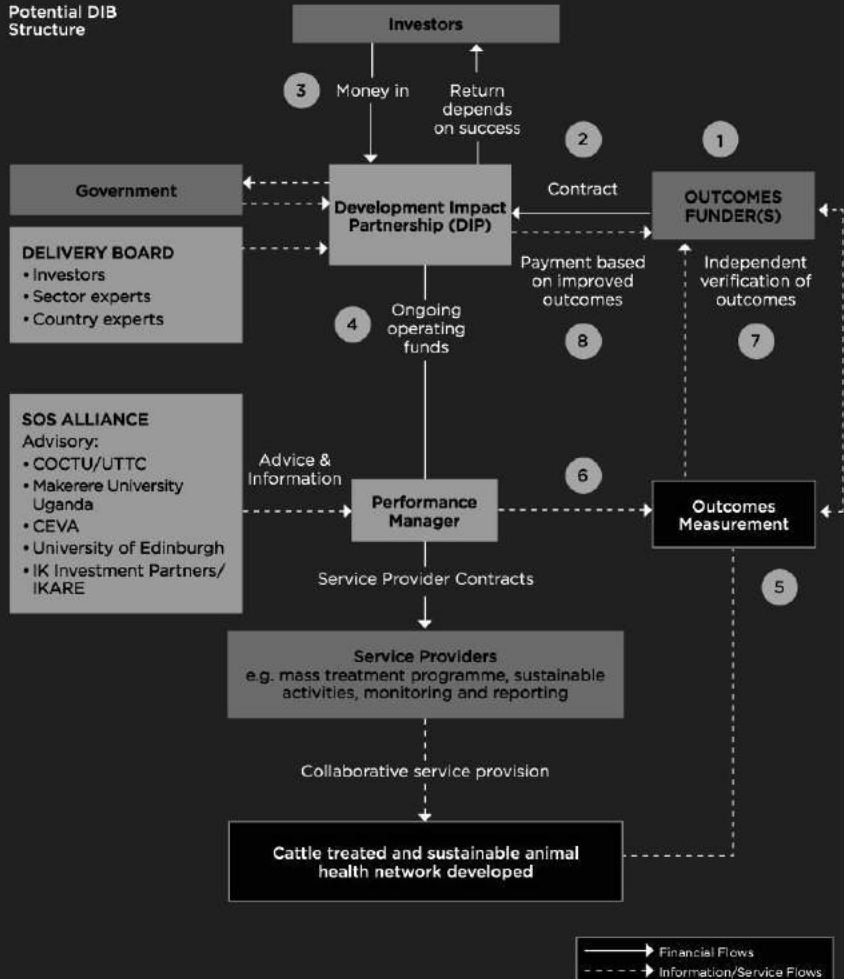


CASE STUDY: REDUCTION OF RHODESIAN SLEEPING SICKNESS

- **Target Population:** 32 high risk districts and 18 lower risk districts in Uganda
- **Intervention:** Establishment of community-based insecticide spray network
- **Outcomes:** Reduce the level of parasites in cattle able to infect humans



Potential DIB Structure



REDUCTION OF RHODESIAN SLEEPING SICKNESS

project structure

SANITATION IMPACT FINANCE INITIATIVE

- National Level Impact Finance: Securitizing Global Aid
- Municipal Level Impact Finance: Social and Development Impact Bonds
- Household-Level Impact Finance: Empowering Domestic Users



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