Structuring and Funding Development Impact Bonds for Health: Nine Lessons from Cameroon and Beyond

Roxanne Oroxom, Amanda Glassman, and Lachlan McDonald

Abstract

Despite the considerable interest in Development Impact Bonds (DIBs), only a few have reached the implementation phase. The lack of publicly available information on DIBs that have failed to come to fruition, as well as the limited documentation on the negotiation processes underlying impact bonds more generally, limits the development community's ability to address issues in the impact bond market. We use information from stakeholder interviews to describe the design of one DIB ("the cataract bond") in-depth and use lessons from a range of impact bonds to develop recommendations for potential partners to future DIBs. Lessons from the set of impact bonds reveal a need to reset expectations, particularly around the time and effort needed to develop and market a DIB. In addition, interviewees stressed the need for better data on current investment practices and the importance of leveraging the flexibility of the DIB model.

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Contents

Since the launch of the Millennium Development Goals in 2000, the global community has committed to a growing number of development initiatives, each more ambitious than the last. The Sustainable Development Goals (SDGs) alone contain 169 targets and are estimated to need USD 3.3 to 4.5 trillion in additional funding per year if they are to be achieved by 2030 (UNCTAD 2014). Such commitments continue to be made despite the increasingly competitive nature of the funding environment, which has seen only moderate growth in official development assistance (ODA) despite a worsening of major humanitarian crises (OECD 2016). In addition, changes in leadership at the national and agency level suggest that the development finance landscape could be dramatically different in the near future, with less concessional resources available overall (Merrick 2016; McVeigh 2017).

Innovative financing models are thought to have the potential to revolutionize development financing and better leverage the private sector's growing capacity. Influential leaders like Jim Kim of the World Bank and Melinda Gates of the Bill & Melinda Gates Foundation have cited the transformative potential of various new approaches, including Development Impact Bonds (DIBs) (GFF 2016). Yet the successful implementation of innovative financing mechanisms requires that key partners, such as donors, governments, and private investors, understand the potential and perils of each approach. Generating an evidence base on what works where and what further information is needed is thus critical to moving the sector forward. Certain mechanisms, such as Performance-Based Financing (PBF), have been tested in several settings and have a sizeable evidence base.[1] Other approaches, including DIBs, have attracted a lot of interest, but are still relatively new and have a limited evidence base. Given the immense interest in DIBs (as documented through the numerous feasibility studies in existence), it is important to lay down markers—lessons learned and general principles from experiences in the field—to guide decision-makers in development.

This paper aims to set out what is known about DIBs thus far and document the development of one DIB on cataract surgery services in Cameroon ("the cataract bond"). To gather information for this paper, interviews with staff from the organizations involved with the cataract bond and individuals with knowledge of innovative financing more broadly took place over the period from August 2016 to May 2017.[2] A full list of interviewees and commenters can be found in Appendix 1. In addition, we reviewed the mostly gray and published literature related to DIBs and Social Impact Bonds (SIBs); these publications are cited throughout the document and as part of the bibliography.[3] As DIBs are a nascent undertaking and given the focus of this paper on "how-to", this paper is inevitably incomplete—not every DIB partner was interviewed, not every DIB contract was available in the public domain, and few efforts to launch DIBs are documented in any detail. However, this work aims to start exploring two questions that need be answered for DIBs to

[1] See https://www.rbfhealth.org/resources for a collection of PBF-related impact evaluations, presentations, and more.

[2] To ensure the cataract bond's development was accurately captured, interviewees affiliated with the cataract bond, as well as additional staff from Sightsavers and one of the final investors in the bond, had the opportunity to review the paper and provide comments.

[3] Social Impact Bonds are also known as Pay for Success in the United States (Eldridge and TeKolste 2016) and Social Benefit Bonds in Australia (Gustafsson-Wright, Gardiner, and Putcha 2015).

deliver on their promise for development: Why is it so hard to get DIBs off the ground? How can past approaches to DIBs be modified to avoid common pitfalls?

To put the focus of this paper, the cataract bond, into context, the next section describes the DIB instrument and its current applications. The paper then sets out the cataract bond's specific trajectory and discusses challenges encountered during its development. To conclude, we use lessons from the cataract bond, as well as insights from other bonds, to draft recommendations for investors, donors, service providers, and intermediaries interested in applying the DIB model in the future.

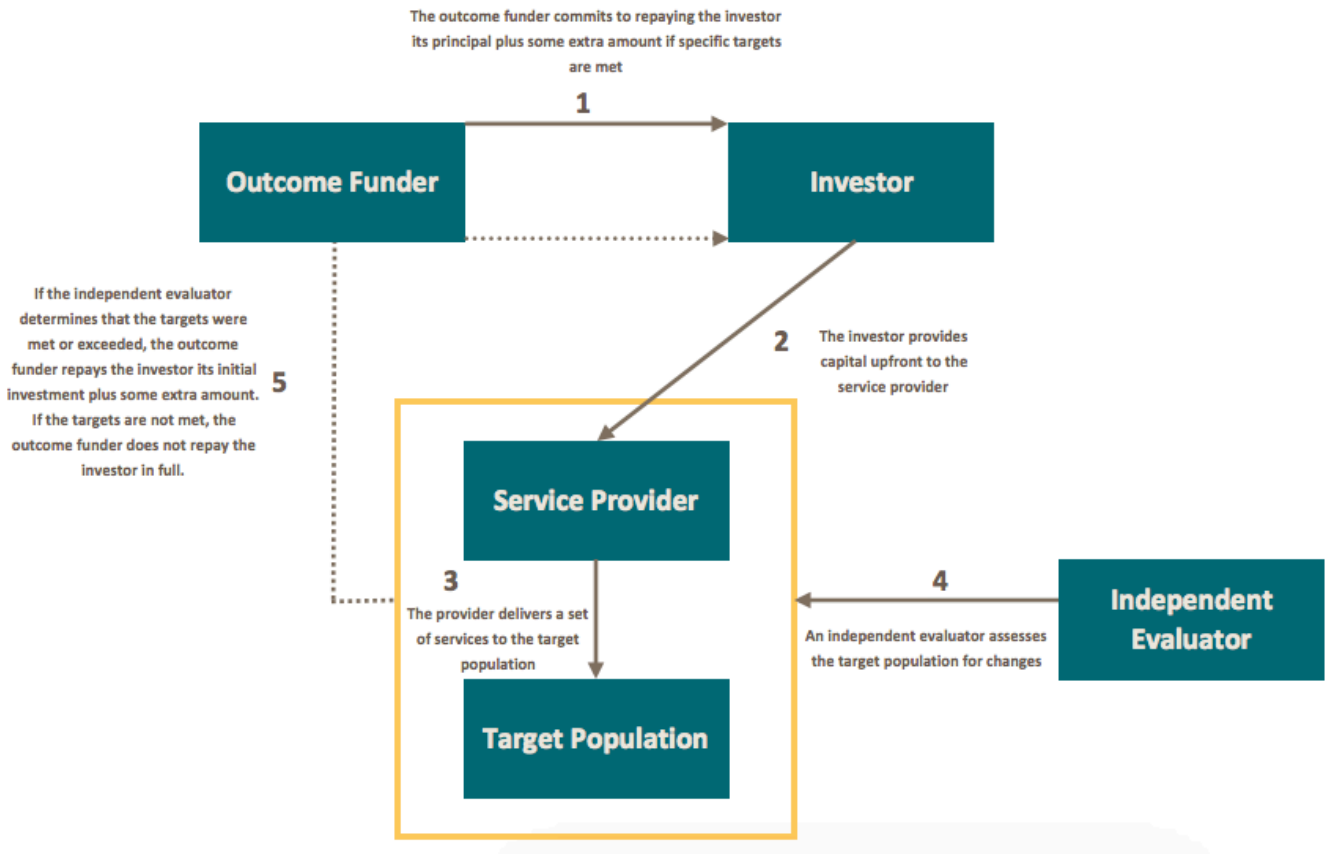
1. Introduction

1.1. What Is a Development Impact Bond?

A Development Impact Bond or DIB is a results-oriented funding mechanism that coordinates public, philanthropic, and private-sector resources to leverage upfront financing for service delivery.

DIBs involve four main players: **investors** who provide the start-up or growth capital for an intervention and bear some financial risk, **service providers** (also referred to as implementing organizations) who use the capital to implement the intervention, and **outcome funders** (also referred to as outcome payers) who agree to repay investors their principal plus some rate of interest if the intervention reaches certain previously agreed-upon targets. An **independent third party** must verify the results generated by the intervention before the outcome funder repays the investor. An intermediary organization can also assist with the design of the DIB, the search for investors, and generally facilitate negotiations between all involved parties. Figure 1 presents the DIB model as proposed by the Center for Global Development and Social Finance UK's Development Impact Bonds Working Group (Development Impact Bond Working Group 2013).

Figure 1. The DIB Model in Theory



DIBs are like other financing mechanisms that tie payments to results, but they differ in a few key ways (see Appendix 2 for specific comparisons). DIBs connect multiple organizations under at least one contract, require an upfront transfer of funds to the service provider, hinge payouts to investors on progress toward outcomes, and do not compel the implementing organization to deliver services in any one manner.[4] Unlike Social Impact Bonds, DIBs have an aid agency or a philanthropic foundation as the outcome payer, rather than a government, and are specific to low- and middle-income countries (LMICs). It is important to note that impact bonds are not "true" bonds since a tradable instrument is not issued (Center for Global Development 2016).

1.2. When Can Development Impact Bonds Be Useful?

DIBs aim to address a three-part coordination problem hypothesized to characterize the status quo in many LMICs. First, organizations often struggle to attract enough low-cost[5] and flexible funding or capital to support the scale-up of socially valuable services, even if the delivery of such services can potentially generate a profit. Second, private investors hesitate to supply low-cost capital to projects that do not generate a sufficiently high financial return, even if they have substantial social value. Finally, donors and philanthropists frequently utilize ex post, input-based funding approaches whereby they only cover incurred expenses for preapproved program inputs. Such funding approaches may limit the ability of recipients to innovate for impact, limit access to upfront financing, and fail to create mechanisms that allow public and private funding to be combined for scaled-up service provision.

DIBs tackle the three-part problem by basing payments on verified changes in outcomes, introducing private-sector approaches to the oversight of service delivery, and being flexible enough to adapt to the needs of all the involved parties. Each of these three strategies imply a theory of change.

Under the first theory of change, implementing organizations can adjust their service delivery strategy at any point if they determine another approach might work better. They have the funding to innovate and quickly implement new strategies based on their knowledge of the local context since investors in a DIB supply funding upfront. Implementing organizations also have the mandate: outcome funders and investors only want to see changes in outcomes that can satisfy a third party's rigorous and independent assessment.

In line with the second theory of change, the literature on impact bonds suggests that a main source of innovation in a DIB comes from the investor. The risk posed to the investor if the

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[4] Inputs can be thought of as the tools used (e.g., vaccines) during an intervention, while outputs are the goods and services the intervention generates (vaccination). Outcomes are the main objective of the intervention (a decrease in the number of deaths caused by a vaccine-preventable disease) (Roberts and Khattri 2012).

[5] For example, an organization interested in scaling-up a project may have to turn to a bank for a loan, upon which interest will be owed, or a line of credit (Dear et al. 2016).

intervention fails is meant to incentivize the investor to guide the service provider in tracking its progress and responding to setbacks. The reputational risk to the service provider acts as another incentive; the service provider is consequently encouraged to seek out and use the investor's feedback.

Lastly, many elements of the DIB model can be adjusted to fit the needs of the partners involved. Impact bonds can be structured as individual transaction impact bonds or impact bond funds (Gustafsson-Wright, Gardiner, and Putcha 2015). In an impact bond fund, the outcome payer defines a price per outcome that it is willing to pay and then service providers bid on one or more of the outcomes. This can serve as a more cost-efficient contracting model. Aid agencies may also find it politically difficult to divert funds from a remedial intervention toward a promising preventive intervention. DIBs address this issue by shifting the upfront financing requirement to the investor. The fact that the financial return on a successful intervention comes from a reputable outcome funder with a strong balance sheet (established during due diligence), rather than the cash flows of a service provider, eases some of the risk investors take on by providing funding upfront.

The flexibility afforded by the DIB model also provides an opportunity to align organizations that approach the same problem differently. An impact bond on juvenile offending, for example, could create a platform for more fluid action and discussion among actors in the education, criminal justice, and social work systems. The process of developing a DIB would require organizations from all three sectors to outline their respective priorities and seek out areas of overlap.

Box 1: Choosing an Intervention Area for a Development Impact Bond

Characteristics that make an issue well-suited for a DIB:

- There are proven, cost-effective, evidence-based interventions that can be implemented to address the issue
- Interventions are preventive rather than reactive
- Improvements in outcomes are easy to measure
- Changes in outcomes can be attributed to the intervention
- Outcomes are meaningful and will materialize within a reasonable time-horizon
- The issue could benefit from increased innovation and accountability
- Robust disaggregated data to design payment triggers/serve as baseline figures are available or could be easily generated

Source: (Bloomgarden, Eddy, and Levey 2014; Gustafsson-Wright, Gardiner, and Putcha 2015)

Despite their flexibility, parties to a DIB should prioritize several factors when selecting an intervention (see Box 1). The chosen intervention should be cost-effective and empirically proven to work in at least one form (e.g., in a different setting or at a smaller scale). Those are the kinds of interventions that will draw investors to a project and will keep costs (e.g.,

guarantees) to the outcome payer down (Bloomgarden, Eddy, and Levey 2014).[6] The value-for-money argument can also be strengthened if the intervention is preventive rather than remedial. Furthermore, the outcomes in a DIB must capture meaningful changes that are straightforward to measure and will materialize within a reasonable time horizon. If it is too difficult to measure the desired outcomes and they cannot be readily compared with a baseline counterfactual, it will be difficult (or just very costly) to prove that the intervention worked. If the outcomes cannot materialize within a reasonable time horizon, the cost of the DIB will outweigh its effectiveness as the opportunity cost of the invested funds will grow and partners must be involved over a longer time span.

1.3. Where Have SIBs and DIBs Been Used?

As mentioned above, an impact bond in an LMIC is considered a SIB if a domestic government agency serves as the outcome funder instead of an aid agency or philanthropic foundation. In almost every other respect, however, SIBs and DIBs are the same, so experiences with SIBs can provide lessons for DIBs. In this section, we say an impact bond has "launched" if a final contract has been signed. We say an impact bond has been "announced" if it has been shopped around with potential outcome funders or investors, but does not have a final contract.

The world's first Social Impact Bond launched in 2010 in Peterborough, England. It focused on reducing rates of recidivism among adult male offenders with short-term prison sentences. More than 60 SIBs have been implemented since then, mostly in high-income countries such as the United States and the United Kingdom (Dear et al. 2016). The largest SIB to date, with an investment of USD 30 million, launched in April 2016 (Social Finance 2016). The intervention pairs specially trained nurses with first-time low-income mothers in South Carolina, with the overall aim of helping the mothers have healthy pregnancies (South Carolina Department of Health and Human Services 2016).

SIBs in LMICs remain in the development phase for the most part. According to Social Finance UK's Impact Bond Global Database, SIBs in the pipeline intend to address water consumption (Costa Rica), care for patients with long-term health conditions (Brazil), child neglect (Chile), and youth unemployment (Palestine) (Social Finance 2016). The database has limited information on these SIBs, but it does note that the SIBs in Costa Rica and Brazil are meant to serve as cost saving mechanisms. The SIB in Costa Rica aims to reduce water consumption, while the one in Brazil aims to shift long-term care toward more cost-effective options. Exploratory work has also sought to determine whether a SIB could help Fiji transition its tuberculosis program off grant support from the Global Fund more smoothly (Matthews 2017).

The Western Cape Department of Health and Department of Social Development committed to serving as the outcome funders for three early childhood development SIBs in South Africa in March 2016 (Silicon Cape Initiative 2016). In doing so, they became the first government entities in any LMIC to formally commit SIB funding, which they will

[6] A guarantee is an amount of money an investor will be repaid regardless of whether the intervention succeeds.

eventually channel through an impact bond fund (Gardiner and Gustafsson-Wright 2016). In March 2017, Colombia launched the first SIB in an LMIC. Colombia's SIB focuses on job placement and retention for vulnerable individuals, specifically those who are extremely poor or displaced due to conflict (Gustafsson-Wright and Boggild-Jones 2017).

With respect to DIBs, a pilot intervention in Peru remains the only DIB to have reached the payout stage. That DIB aimed to increase and improve the production of coffee and cocoa by members of the Kemito Ene Association (KEA), a coalition of indigenous Asháninka farmers. The Common Fund for Commodities (CFC) served as the outcome funder, the Schmidt Family Foundation (SFF) operated as the investor, and the Rainforest Foundation UK (RFUK) acted as the service provider. SFF invested USD 110,000 in the project and got back USD 75,625 after three out of four target indicators were achieved or partially achieved (Belt 2015).[7]

The UBS Optimus Foundation, Children's Investment Fund Foundation, Educate Girls, Instiglio, and IDinsight launched the world's second DIB in 2014 (Instiglio 2014). The DIB, commonly referred to as the Educate Girls DIB, aims to improve the enrollment rates and learning of 18,000 children in Rajasthan, India, half of them girls (Instiglio 2015b). UBS invested USD 238,000 for service provision in the project. Improvements in learning for girls and boys in grades 3-5 will affect 80 percent of the total outcome payment. Improvements in the enrollment rates of girls ages 7-14 who are eligible for grades 2-8 will inform the remaining 20 percent of the payout (Instiglio 2015a). Data from the DIB's first year of implementation showed the intervention had reached 42 percent of the target enrollment rate and 27 percent of the target learning rate (Gustafsson-Wright and Gardiner 2016). Results from the second year, released in July 2017, revealed that the project reached 87.7 percent of the target enrollment rate and 50.3 percent of the learning goal (Instiglio 2017).

In September 2017, the ICRC, along with several partners, launched a Humanitarian Impact Bond (HIB)—essentially a development impact bond for humanitarian issues—on physical rehabilitation. In December 2017, Population Services International (PSI) and the Hindustan Latex Family Planning Promotion Trust (HLFPPT) launched a DIB on maternal and newborn health in Rajasthan, India with the United States Agency for International Development (USAID), Merck for Mothers, the UBS Optimus Foundation, and Palladium. These DIBs speak to a broader trend where many of the DIBs in development relate to health. This includes the cataract bond, a DIB on sleeping sickness in Uganda, a DIB on Kangaroo Mother Care (KMC) in Cameroon, and a DIB on malaria in Mozambique. While section 2 of this paper (next) will examine the cataract bond in depth, section 3 will return to

[7] There was some debate over the applicability of the baseline data that was collected in 2013. By the time the project started in 2015, the number of KEA members had dropped from 133 to 99, so the characteristics of the group participating in the intervention could be have much better or worse than in the original sample. As a result, it was difficult to tell how much of an effect the DIB's intervention actually had (Belt 2015).

a wider set of impact bonds and discuss lessons learned more broadly. More detailed information on the other impact bonds can be found in Appendix 3.

2. The Cameroon Cataract Bond

The cataract bond aims to address a critical shortage of cataract surgery services in Cameroon and its neighboring countries. It will provide USD 2 million in financial support for operational costs at a new hospital in Cameroon, with the overall aim of enabling the hospital to reach self-sufficiency in five years.[8] The hospital, called the Magrabi ICO Cameroon Eye Institute (MICEI), builds on the demonstrated success of the social enterprise model of eye care first popularized in India by the Aravind Eye Care System. MICEI, under the guidance of the Africa Eye Foundation (AEF, MICEI's parent organization), plans to adapt Aravind's proven cross-subsidization pricing, high service volume, and revenue diversification strategies to provide quality cataract treatment services to the poor at low or no cost. Though the Aravind model has been applied around the world, a lack of low-cost and flexible capital has constrained its application in sub-Saharan Africa (McDonald 2016).[9]

The Conrad N. Hilton Foundation (the Hilton Foundation) serves as the bond's primary outcome funder. The Hilton Foundation will cover approximately 80 percent of what is owed to the investors if the intervention succeeds. The Fred Hollows Foundation (FHF) and Sightsavers—organizations focused on preventing and treating avoidable blindness—will cover roughly 10 percent each.[10] The outcome funders are also contributing roughly USD 800,000 in additional funding for bond development costs, such as legal fees and transaction manager fees. The Overseas Private Investment Corporation (OPIC) and the Netri Foundation will finance 87.5 and 12.5 percent of the total investor ask, respectively, through loans disbursed simultaneously. MICEI has secured USD 10 million in cash and in-kind support separate from the cataract bond from a range of NGOs, international investors, technology companies, and Dr. Akef El-Maghraby (the hospital's principal donor, who has contributed more than USD 8 million).[11]

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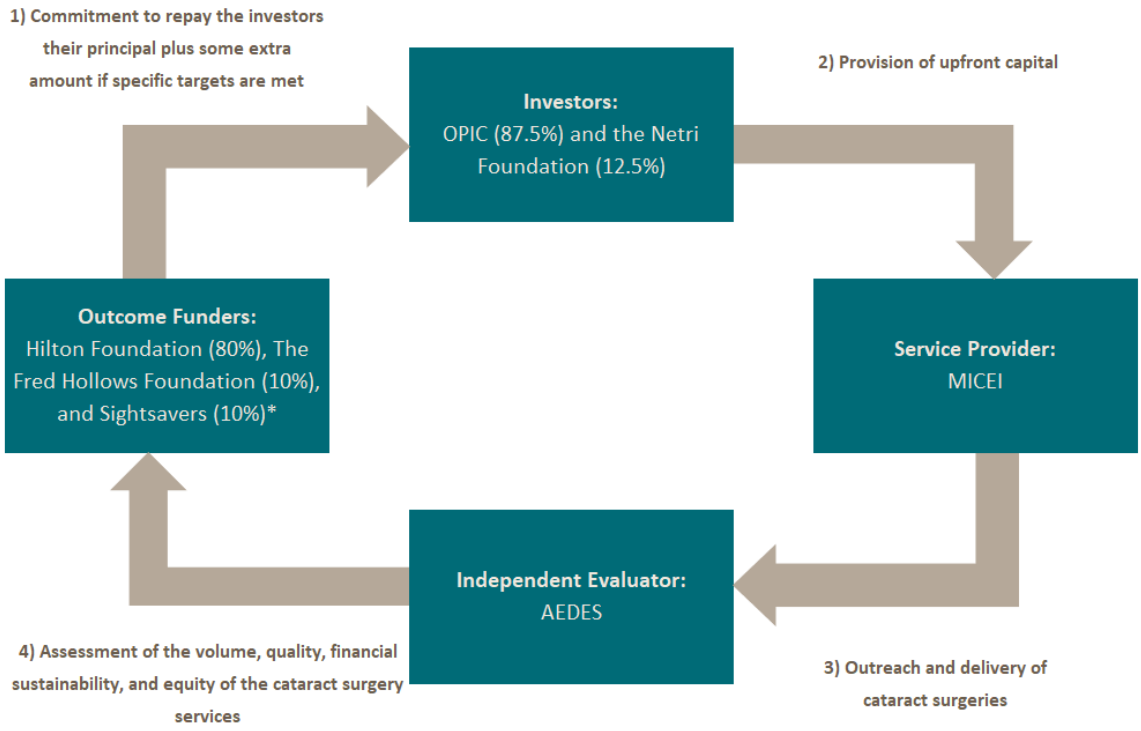
[8] This covers costs related to infrastructure, IT, outreach, overhead, training, and more.

[9] The Magrabi Foundation, one of the organizations involved with the cataract bond, operates a hospital in Cairo with a cross-subsidization and targeted outreach model.

[10] Avoidable blindness is blindness that can be prevented or treated (The Fred Hollows Foundation and Social Finance 2015).

[11] Support came from CBM, Orbis, Seeing is Believing (Standard Chartered Bank), Lavelle Foundation for the Blind, and Lions Club Foundation, among others. MICEI also receives technical support from eye health experts like the Magrabi Medical Group, Aravind Eye Care Systems, and Lions Aravind Institute of Community of Ophthalmology.

Figure 2: The Cataract Bond



*These percentages are approximate values.

Financing from OPIC and the Netri Foundation will provide MICEI with start-up capital for its first five years of operation. Relieved of the need to repay any loans, MICEI will use the capital to expand its market reach and increase the number of cataract surgeries it provides while also keeping costs low. A secondary goal of the cataract bond is to leave a financially sustainable hospital in place after five years that can also serve as a regional training institute for the Central African Economic and Monetary Community (CEMAC) region. If the project succeeds, it could potentially serve as a replicable model for growing the number of social enterprises elsewhere in Africa.

Four targets, each measuring a different aspect of the social enterprise model of service delivery—volume, quality, financial sustainability, and equity—inform the cataract bond's payment process (see Box 2). Targets 1-3 must be achieved for the investors to generate a return on their investment. The coalition included the fourth target as a specific incentive for the service provider.

Box 2: Performance Indicators for the Cataract Bond

For the outcome funders to pay the investors, MICEI must meet 3 targets:

1) 18,000 cataract surgeries (+/- 10 percent) completed over 5 years (volume)
   - 7,000 surgeries after 3 years +/- 20 percent
2) At least 50 percent of annual surgeries have a "good outcome", i.e., visual acuity of 6/18 in their operated eye as measured one day after cataract surgery (quality)
3) The hospital records a net profit (before interest, taxes, depreciation, and amortization) within 5 years of opening (financial sustainability)

For the outcome funders to pay MICEI a bonus, it must reach a fourth target.

4) 40 percent of cataract surgery patients are in the bottom two income quintiles in Cameroon (equity)

Data from the Africa Eye Foundation was used to build the financial modeling behind the performance indicators. Advisors from the International Eye Foundation, Aravind, and elsewhere provided feedback on the targets. The quality indicator specifically aligns to the World Health Organization's benchmark for a good cataract surgery outcome, i.e., at least 80 percent of patients present an uncorrected visual acuity of 6/18 (Congdon et al. 2013). An evaluation agency (AEDES) has been contracted and the overarching monitoring and evaluation protocol has been set (a comparison to the historical baseline). Logistical details will be finalized during pilot data collection, which will take place shortly after the launch of the bond.

2.1. History

In 2013, staff at The Fred Hollows Foundation began brainstorming ways to crowd in the additional financing needed to reduce the prevalence of cataract blindness through improved service delivery.[12] FHF considered a variety of innovative and result-based financing models, including DIBs. Early scoping work revealed that focusing on the delivery of cataract surgery services had a number of advantages from the results-based financing perspective: cataract surgery is a well-known, cost-effective procedure with clearly measurable outputs (i.e., improved vision) and clear linkages to positive socio-economic outcomes (The Fred Hollows Foundation and Social Finance 2015). FHF had a strong interest more generally in being an early adopter of DIBs and creating public goods that could be shared with other parties interested in applying the DIB model.

Selecting the specific eye health intervention that would best suit the DIB financing model took about 8 to 12 months. With informal assistance from D. Capital, Instiglio, and Social

[12] A cataract is a cloudy or tinted lens in the eye that causes blurry or distorted sight. A simple visual exam can test for cataracts.

Finance UK, FHF discarded many intervention options for not having the right characteristics. For example, the link between outcomes and financing for interventions related to human resources development and health system strengthening (HSS) were deemed to be too imprecise and thus would undermine attribution. Interventions on those topics also had financing that was already relatively accessible.

FHF initially chose to develop a DIB to directly finance cataract surgeries in large-scale outreach eye camps.[13] FHF presented a proposal for outcome funding to the Australian Department of Foreign Affairs and Trade (DFAT) in 2014. FHF pitched Cambodia or Lao PDR as a potential setting for the DIB, given Southeast Asia's position as a programmatic priority for FHF and DFAT. DFAT turned down the proposal as the agency was pivoting away from service delivery toward a health systems strengthening approach. DFAT also indicated that the additional value created from directly funding cataract surgeries, albeit at a larger scale, in terms of risk-transfer to investors was minimal. Informal discussions with other bilateral and multilateral donors also revealed that cataract surgery was not seen as a sufficiently high development priority to warrant additional funding.

Undeterred, FHF cast the net for potential outcome funders more widely. The tides turned in February 2015 when senior staff from FHF presented a similar proposal to staff at the Hilton Foundation. Individuals at the Hilton Foundation liked the idea, but were unable to support it as its Avoidable Blindness Portfolio focuses on sub-Saharan Africa. At a later meeting, individuals at the Hilton Foundation noted that there was a social enterprise eye care hospital in Cameroon that needed additional funds. The hospital had raised USD 5 million in grant funding and other in-kind support by that point, but needed around USD 2 million to achieve sustainability faster. FHF followed up on the Hilton Foundation's interest and approached the Africa Eye Foundation's leadership to discuss collaboration.[14]

It was at that time that FHF committed funding to cover the initial development costs of a DIB mechanism. It engaged D. Capital, the intermediary partner for a DIB on malaria, as the deal's technical advisor in April 2015. FHF and the Africa Eye Foundation worked with D. Capital over several months to refine the specifics of the DIB, including the general rationale of the investment, how the project would fill an outstanding need, the nature of the targets, and the capital needs of the implementer. During the development process, Sightsavers joined the bond's design team. Sightsavers provided additional funding for the development of the DIB and agreed to serve alongside the Hilton Foundation and FHF as an outcome funder. Sightsavers brought specialized knowledge of the eye care sector in Cameroon and substantial experience with monitoring and evaluation.

After a formal grant proposal was presented to and approved by the Hilton Foundation's board in mid-2015, a coalition comprised of FHF, D. Capital, Sightsavers, and AEF was

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[13] Outreach eye camps target the most difficult-to-reach populations in LMICs by directly providing ophthalmic services, including cataract surgery, at temporary clinics erected in remote locations.

[14] Though relationships already existed between FHF and AEF and between AEF and the Hilton Foundation, the DIB represents a new type of partnership for all involved.

established. An executive committee, comprised of senior representatives from the coalition partners, was then formed to oversee the governance of the cataract bond, i.e., negotiations with investors and the logistics behind the bond's development.[15] Early discussions centered on the structure of the bond, particularly whether to contract through a Special Purpose Vehicle (SPV) or directly with MICEI. The consortium also discussed funding arrangements for the duration of the project. A key consideration was that the Hilton Foundation, as a grant-making organization, did not have a mechanism to make contingent grant payments at some time in the future, as per the pay-for-success nature of a DIB. The Hilton Foundation also needed to provide the funds for the bond to a registered charity. As a result, the Hilton Foundation's initial outcome funding agreement was structured like a conventional grant: with a set schedule of payments and an accredited grant recipient (FHF). As each grant payment is received, FHF forwards the money into a trust. Payments from the trust will be managed and released by FHF in line with the contractual agreement of the DIB.[16]

With the structure, outcome funders and service provider locked in, and work underway on the broader management of the bond, D. Capital's attention turned to fundraising. This phase began with a private meeting in London in January 2016. A number of prospective social investors were invited to hear a presentation on the bond's background and proposed terms. Invitees came from family offices, development organizations and social investment funds. Dr. El-Maghraby, the principal donor to MICEI, discussed the hospital at the meeting. Concurrent attempts were also made to tap crowdfunding networks—in particular via the African diaspora-based financing organization, Homestrings. No concrete commitments came forth at the time, though a number of leads were identified, including the Netri Foundation, a private impact investment foundation. The Netri Foundation wanted to wait until a first investor joined the DIB before getting involved, but continued to follow the project's fundraising progress. Throughout the investor outreach period, the coalition continued to settle key questions about the DIB's design.

The Deutsche Bank Community Development Finance Group at one point considered investing in the project. Deutsche Bank was familiar with the social enterprise cataract hospital model, having been involved in a pooled social investment vehicle, Eye Fund I, which provided debt finance to established hospitals. Deutsche Bank proposed several changes to the bond's offered terms, as well as provided guidance and insight from the social investor community, but ultimately did not end up investing in the project due to a change in their organizational strategy and pivot toward their foundation work.

In March 2017, the Overseas Private Investment Corporation—a United States government agency that provides direct loans, guarantees, and risk mitigation products to help American businesses invest in emerging markets—began formal due diligence for a proposed anchor

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[15] A steering committee, also comprised of representatives of the coalition partners, provided regular technical advice to the executive committee.

[16] The effective prepayment of outcome funding commitments into a trust meant that discussions regarding what to do in the event of failure needed to consider whether, and how, funds could be repatriated to the Hilton Foundation from the trust.

loan of USD 1.75 million to the bond. OPIC's interest in and ability to finance the cataract bond with a loan was facilitated by the Hilton Foundation's presence in the outcome funder coalition. Their presence made the cataract bond compatible with OPIC's mandate to support the emerging markets activities of American organizations. Around late 2017, following OPIC's commitment, the Netri Foundation agreed to provide USD 250,000 in financing to the cataract bond.

The bond formally launched in January 2018.

Box 3: Major Events in the Cataract Bond's Timeline

- 2013 – FHF starts working on a DIB to reduce the backlog of untreated cataracts
- February 2015 – The Hilton Foundation responds positively to the proposal and notes that MICEI needs funding
- March 2015 – AEF becomes involved with FHF on the development of the project
- April 2015 – FHF engages D. Capital as a technical advisor
- July 2015 – Sightsavers joins the project
- August 2015 – Coalition between FHF, D. Capital, AEF, and Sightsavers formalized
- November 2015 – The Hilton Foundation's board approves the grant proposal for the DIB
- December 2015 – The Foundation awards FHF a grant for USD $2,900,000
- January 2016 – The search for investors begins with an initial private meeting with potential investors, including Netri Foundation
- September 2016 – Soft launch of MICEI
- November 2016 – Construction on the hospital finishes
- March 2017 – MICEI launches officially
- March 2017 – OPIC decides to enter the formal due diligence process
- May 2017 – Cataract surgeries commence at MICEI
- June 2017 – Due diligence visit from OPIC to MICEI
- January 2018 – The cataract bond formally launches

2.2. Key Challenges

The cataract bond's biggest challenge was getting investors to sign on to the project. Misconceptions about investors' risk-versus-return preferences led to several rounds of negotiation around the bond's payment structure. The executive committee had to strike a delicate balance between making the bond more attractive to investors and maintaining the bond's value to the outcome funders and ensuring its replicability in the future. As an additional challenge, early presentations of the bond did not fully capitalize on its strengths. Many of these operational issues can be traced back to the relative newness of the impact bond model, as well as the lack of "how to" resources on impact bonds.

2.2.1. Understanding the Investors

Reflecting negotiations with Deutsche Bank, OPIC and others, the cataract bond's terms have changed considerably throughout its development (see Table 1). The most substantive changes to the terms have focused on improving the risk-adjusted rates of return for investors. In the wake of the initial investor presentation in early 2016, changes to the terms centered on lifting investor guarantees, which were increased from 50 percent to 100 percent (without interest); in effect, this offered investors full capital protection in the event of failure. An important part of this, however, was a change to the mix of the guarantees; specifically, AEF adopted some financial responsibility for repaying investors at the conclusion of the deal in the event the hospital fails to meet its targets. This sent a signal to investors that AEF felt confident in the hospital's business model and its prospects for financial sustainability.

Many of these changes were retained in subsequent negotiations with OPIC. However, some further changes were necessary to meet OPIC's needs. As an institutional investor with clear investing guidelines, OPIC is required to charge an interest rate that covers their cost of funds and an interest rate spread to cover the commercial/political risks involved in each investment. As such, OPIC was uncomfortable with failure scenarios in which they would receive no interest payments at all. Accordingly, the final terms involved a lift in the interest rate, from 5 percent to 8 percent. Furthermore, interest payments will also be made over AEF's principal repayment period, while a further change to the mix of guarantees somewhat reduced AEF's financial obligation.

Other changes to the terms aimed to better align the assessment and payment schedule of the bond with the realities of a start-up business. Specifically, from the outset investors asked to move from annual targets and payments to cumulative targets and payments to allow enough time for progress to be made.

The executive committee had to incorporate such changes in the end, as initial expectations around investors' appetite for the cataract bond did not fully play out in reality. In particular, the committee underestimated how risky investors would view an investment involving a start-up social enterprise. Investors who ultimately did not invest in the bond also cited their own lack of knowledge or interest in eye care/eye care hospitals and the sovereign risks inherent in Cameroon as reasons for not committing. The construction of MICEI did actually take longer than initially expected: difficulties in getting access to water, getting connected to the electricity grid, and having a nearby road expanded all delayed the opening of the hospital.

Investors who were concerned about the aforementioned topics, but remained interested in the bond asked for more downside protection. They asked for guarantees, higher interest rates, currency hedging, and one investor even asked for a commission. According to one interviewee, Deutsche Bank typically invests in established hospitals that are one year from breaking even and provides 3-4 year loans with an interest rate around 8-10 percent. That interest rate is much higher than what the coalition was offering at the time and for a brand-new hospital.

Table 1: Terms of the Bond Over Time

Terms	January 2016: *Initial terms presented to investors*[17]	April 2016: *Following negotiations with Deutsche Bank and others*	November 2017: *Final terms*
Investment	USD 2.5 million	USD 2.5 million	USD 2 million
Maturity	5 years	5 years	5 years
Assessment	Annually	Years 3 and 5	Years 3 and 5
Interest rate	5% per year if targets are met, paid annually	5% per year if targets are met, paid in Years 3 and 5	8% per year if targets are met, paid in Years 3 and 5 4% per year if targets are not met (OPIC); 0% if targets are not met (Netri)
Repayment to the investor in the case of success	Annual payments	If targets are met by: **Year 3:** 60% of principal & accrued interest over the first 3 years is repaid by the outcome funders **Year 5:** 40% of principal & accrued interest over the last 2 years is repaid by the outcome funders	If targets are met by: **Year 3:** 60% of principal & accrued interest over the first 3 years is repaid by the outcome funders **Year 5:** 40% of principal & accrued interest over the last 2 years is repaid by the outcome funders
Repayment to the investor in the case of failure	50% of the outstanding principal is repaid by the outcome funders	If targets are not met by: **Year 3:** 75% of principal is repaid by the outcome funders & 25% of principal (with no interest) is repaid by AEF over 5 years starting in Year 6 **Year 5:** 40% of principal is repaid by the outcome funders & 60% of principal (with no interest) is repaid by AEF over 5 years starting in Year 6	If targets are not met by: **Year 3:** 76.5% of principal is repaid by the outcome funders & 23.5% of principal is repaid by AEF over 5 years starting in Year 4 **Year 5:** 55% of principal is repaid by the outcome funders & 45% of principal is repaid by AEF over 5 years starting in Year 6 Note: 100% of the failure interest rate is paid by the outcome funders
Target 1 buffer	10% in each year	Year 3: 20% Year 5: 15%	Year 3: 20% Year 5: 10%
Bonus to the service provider	Paid to the service provider if the intervention is successful and equity target met	Paid to the service provider if the intervention is successful and equity target met	Paid to the service provider if the intervention is successful and equity target met

[17] The initial proposal to the Hilton Foundation also differed from the initial investor proposal. The October 2015 iteration had 5 annual repayment tranches to investors, a guarantee from the outcome funders of 50 percent of outstanding principal, no contingent liability from AEF, and a target buffer of 10 percent each year.

2.2.2. Marketing the Bond and the Partners

Pitches of the cataract bond to investors focused on specific novelties, such as the project's financing structure and its goal of addressing cataracts, an oft-forgotten issue. The marketing strategy placed less emphasis at times on highlighting other characteristics, such as the project's comparatively strong focus on results or the wide buy-in from established actors in the eye health and development financing spaces. Other interviewees noted that the emphasis on the innovative aspect of the DIB might have presented the project in a riskier light, i.e., as a new service delivery model rather than as a new financing mechanism.

The investors approached at the start of the fundraising phase were also not the same investors that would have placed a premium on the organizations involved. The Fred Hollows Foundation is a well-known organization in Australia, as is Sightsavers in the UK. However, initial outreach to investors in Australia and the UK that leveraged this brand recognition was limited.[18] Similarly, Dr. El-Maghraby has a lot of experience in starting and running hospitals and the Aravind Institute was providing technical and capacity building support to MICEI, but many investors continued to see the newness of the hospital as a key reason to not invest. Outreach to family offices, development banks, or high net worth individuals in the Middle Eastern market could have been more consistent and spotlighted the commitment of the Hilton Foundation to a greater degree, according to one interviewee.

The lack of publicly available data points on other eye care infrastructure investments further hampered efforts to highlight the value add of the DIB. Available information suggests the cataract bond will be more results-oriented (and focused on a wider array of results) than typical eye health investments. Projects supported by the International Finance Corporation (IFC) in India and Mexico have "number of patients reached" as their relevant indicator ("Sala Uno" n.d.; "ESIP EyeQ" n.d.). Similarly, a Lok Capital project in India measures a combination of inputs and outputs like the number of patients treated in rural towns, eye glasses provided, outreach camps conducted in villages near vision centers, and eye surgeries performed ("Disha Medical Services (Drishti-Eye Centre)" n.d.).

2.2.3. Financing the Development of the Bond

Maintaining a steady stream of financial support for the development of the cataract bond required multiple grant requests. The coalition submitted a grant proposal of USD 200,000 to Standard Chartered Bank's competitive "Seeing is Believing" Innovation Fund investment program to support the development of the bond around the same time it submitted a proposal to the Hilton Foundation, so the latter proposal asked for fewer funds than truly needed. When funding from Standard Chartered did not come through, the partners were left in a bind. The lack of funding hampered the design coalition's ability to raise the interest rate of the bond and necessitated the re-negotiation of other contracts (e.g., with the

[18] Subsequent investor outreach to the Australian impact investment market indicated that there was indeed interest in investing in DIBs and that the involvement of FHF and Deutsche Bank (at the time) were key attractors. This was in addition to the catalytic role played by Deutsche Bank in keeping smaller investors interested.

monitoring and evaluation agency) and expenses. A lot of resources were used up trying to find ways to cut costs in order to accommodate later changes to the bond's terms. The lack of additional funding also led many of the organizations and individuals involved to work on a pro-bono basis, which is not sustainable in the long run.

3. Lessons Learned

The bond's designers faced several challenges in launching the cataract bond. Many of those same obstacles have likewise affected other impact bonds and are likely to apply to future deals, so it is important to extract the main lessons learned. This section builds on the experiences of the cataract bond; DIBs on malaria, sleeping sickness, and nutrition; the Humanitarian Impact Bond; and an early childhood development SIB. It also draws on lessons from experiences at the Multilateral Investment Fund (MIF)—a development finance institution that supports SIBs across Latin America—the Educate Girls DIB, and the coffee/cocoa DIB in Peru. The nine points outlined here represent a selection of the difficult "how-to" challenges of developing a DIB.

Lesson 1: Do not underestimate the resources needed to launch an impact bond

Partner organizations initially expected the cataract bond's fundraising phase to last anywhere from four months to one year. Fundraising for the bond took much longer in reality—a full two years—and takes a long time more generally. A study of 38 SIBs found that deals have taken anywhere from 6 months to 3 years to develop (Gustafsson-Wright, Gardiner, and Putcha 2015). The mismatch between the expected and actual time to launch has important implications for the allocation of staff, time, and funding resources. That so many investors asked for some degree of capital protection in the event of a failure highlights another cost anyone looking into the DIB model should consider.

The prolonged time to launch can also hurt institutional support for a DIB and the documentation of lessons learned. Early encouragement for the cataract bond and for greater thinking about results-based financing within FHF came from a diverse set of sources. FHF had a former Reserve Bank economist promoting the concept and had in-house expertise on financial markets that contributed to its ability to gain broader internal commitment. Furthermore, all the cataract bond's partners were united in their value of paving a new market in innovative financing and creating public goods along the way. In contrast, the initial request to scope out a DIB on nutrition came from a single individual at a donor agency, and when that person left the agency to work elsewhere, the nutrition DIB lost momentum.

Lesson 2: The partners involved in a DIB are as important to its success as its design

Creating a DIB is inherently an iterative and adaptive process so it is important to select partners carefully. One element of partner selection should focus on choosing organizations that firmly believe in the DIB model and are prepared to "learn by doing." In essence, choosing organizations that are prepared to make and learn from their mistakes. OPIC proposed further changes to the bond's terms, but unlike negotiations that had occurred with other potential investors, which did not fully include all the outcome funders (see below), the changes proposed by OPIC were openly debated by all the design partners in real time. As a result, the coalition partners reached a consensus on the new set of terms faster they did in other cases.

The second element of partner selection should focus on choosing partners within whom a rapport and trust can be developed. One of the reasons the nutrition DIB in Mozambique failed to come to fruition was because of a lack of trust across organizations. Individuals who heard early presentations of the Mozambique nutrition DIB did not understand why investors had to be involved and were concerned that the project could be perceived as investors making money off of poor and malnourished people.

Partner selection should also consider the advantages of being able to leverage an organization's reputation with investors or outcome funders. For one thing, organizations with large networks or with substantial experience in the issues to be addressed may help attract financing, in general or earlier than would otherwise be expected. Better leveraging of the reputations of the organizations involved with the cataract bond might have brought in a more diverse array of private-sector investors, such as corporate investors, per one stakeholder. On another level, the partner organizations' experience in eye health meant that they did not have to spend so much time refining the target indicators because everyone had in-depth knowledge of the sector.

Lesson 3: Once the organizations have been selected, it is important to clarify everyone's priorities and roles (current and potential)

Each partner's responsibilities and the way those responsibilities could change under different circumstances (e.g., if the bond struggles to obtain its first official funding commitment) should be clearly demarcated. Some stakeholders involved with the cataract bond noted that having a defined leader with substantial experience in development finance would have been extremely beneficial. In addition, each partner's expectations and goals for the bond, particularly the non-negotiable aspects, should be clear from the beginning. Establishing mechanisms for regularly airing grievances will also allow partners to raise and address issues quickly.

As an example, representatives from the Hilton Foundation did not initially join the regularly scheduled calls about the DIB. The impact bond literature has flagged potential issues with the outcome funder taking on a highly involved role during the development process, including a reduction in the value-for-money aspect of the DIB.[19] There was also a concern that having too strong a hand in the initial process would place excessive responsibility (and liability) in the hands of the funder. At the same time, the rest of the coalition did not want to pressure the Hilton Foundation to join the calls. This variance led to a moment where the Hilton Foundation was surprised by the degree to which risk was reduced and returns were increased after negotiations with Deutsche Bank. They felt the new terms dampened the most important element of the DIB to them: testing the integrity of the DIB model, especially the aspect of risk sharing. In contrast, the negotiators saw the changes as a

[19] One report notes, "For the benefit of the DIB model to fully be realized, the outcome funder will need to play a limited role: the intermediary will be rewarded for identifying and managing successful projects and it would not represent good value for money if the outcome funder felt the need to replicate much of this work… if the donor plays a large role in specifying contractual relationships or the nature of the intervention, it would be better placed using a more traditional form of aid, or another payment by results modality" (Drew and Clist 2015).

promising step forward with the investor. Reconciling the two views required re-articulating the context and rationale for the changes to each of the coalition members.

Lesson 4: There are pros and cons to prioritizing outreach to investors versus outreach to outcome funders

Interviewees involved with the cataract bond largely felt that the order in which the investors and outcome funders were approached, with the latter locked in far ahead of time, was not ideal and that a more simultaneous approach would have been better. One argument for approaching the outcome funder second is that the outcome funder may need the request to be submitted via a grant (as the Hilton Foundation did). If the terms of the bond are constantly changing due to negotiations with different investors, providing updates on the DIB to outsiders can present the DIB's management as weak or disorganized. In addition, requesting a specific amount of funds via a foundation's grant proposal process leaves little flexibility to increase the funds available to entice any new investors. For example, if investors ask for a higher interest rate or a higher guarantee, or if benchmark interest rates (such as LIBOR) increase, there may not be enough room in the budget to meet that request. It was also argued that reaching out to investors first would have revealed their preferences clearly and early on. If investors had signed on, their knowledge of the financial market could have also been used to attract other investors.

On the other hand, having a well-known donor sign on to the bond first may provide a signal to interested, but cautious investors about the security of the bond. It might also be easier to find an investor for a niche topic compared to finding a donor for a niche topic. Donors are agenda-driven; they have priority countries and issues, while investors are seen as being more focused on the terms of the deal. Additionally, it is difficult to engage investors, who are used to a quick turnaround, in a meaningful way when outcome funders are not on board to provide additional information or may have significant changes to any proposal that is put together using only investor feedback.

There are examples of both approaches in the DIB space: Corporations, including mining companies like Anglo American and BHP Billiton, financed a 3-year pilot in a few Mozambican districts after getting commitments from development partners for a larger malaria DIB proved to be very difficult. Similarly, DFID was keen to bring on other outcome funders for the sleeping sickness DIB, but when presented with the proposal, no other donors or investors signed on officially.

Relatedly, some interviewees noted that parties to a bond too often want to set up the legal structure without knowing who all the players are, and therefore, without knowing what is important. This is not sensible as outcome funders and investors can have specific limitations, such as not being able to contract with people in certain jurisdictions, or wants, such as wanting to set up a corporate entity through which to issue genuine bonds.

Lesson 5: Survey the investor market before announcing the bond[20]

For the cataract bond, it would have been beneficial to better understand how investors assess a project's risk level and value eye health during the outset and planning of the project. Doing more work to understand both could have helped the marketing of bond. As one stakeholder noted, there is only one chance to announce a bond, so it is worth doing well. Unlike the cataract bond, the SIBs being developed in South Africa were presented to a small focus group of investors to see if the issue, early childhood development, and its associated outcome measures would be of interest on the market. Similarly, the International Committee of the Red Cross held a roundtable in early 2016 to scope out investor interest and gather feedback on their Humanitarian Impact Bond's preliminary structure. Responses from the individuals in attendance were varied; concerns revolved around the stated terms of the bond, its evaluation process (in particular whether the evaluation would span multiple years), and the payment indicators ("Building Humanitarian Impact Bonds in Developing Countries" 2016). Holding these "test" meetings prior to announcing the bond would have allowed the cataract bond's design team to adjust their initial term sheet based on what investors perceived as reasonable or to better direct their investor outreach.

Lesson 6: Strategically time the announcement of the bond

Timing the announcement of the bond to the opening of the hospital would have allowed AEF and MICEI to provide investors with data on, among other things, the number of patient visits, the income levels of those patients, and how many staff members were needed to run the hospital. Investors could have also visited the hospital. Since the bond was announced far ahead of the hospital's opening date, no hard data from the hospital was available to prove that outreach was on target or that performance management systems were in place to drive course correction, though past performance from other successful hospitals across AEF's network and those using the social enterprise model of cataract surgery were cited. The ICRC and the other partners in the HIB addressed this challenge for its three new physical rehabilitation centers by building on the standardized data points from the ICRC's established network of centers, specifically the number of appropriately applied physiotherapy and mobility devices accounting for staff size at the center, device type, and application time, as well as the ICRC's history of working in difficult operating environments.

Other impact bonds, such as the SIB in South Carolina that pairs nurses with first-time low-income mothers, placed a premium on being able to test and refine the service provider's performance management system. Indeed, incorporating a pilot phase into the project timeline facilitated the project's implementation and helped identify potential problems. The SIB in South Carolina needed to recruit more first-time low-income mothers to the Nurse-Family Partnership (NFP) program, but hiring the additional staff to do so prior to the finalization of the SIB would have exposed it to greater risk (Social Finance 2016). The pilot period also allowed the service provider to work with the South Carolina Department of

[20] As noted earlier, references to "announcing" the bond means pitching the bond to potential investors or outcome funders.

Health and Human Services (DHHS) and the Abdul Latif Jameel Poverty Action Lab (J-PAL) to set up data sharing agreements and systems that adhere to the Health Insurance Portability and Accountability Act (HIPAA) of 1996, which is designed to secure and protect patients' medical information. The SIB in South Carolina is also being evaluated using a randomized control trial, so the pilot period allowed the involved organizations to get acquainted with the enrollment and randomization protocols. These preliminary steps can help build investor's confidence in the project.

Lesson 7: Much work still needs to be done to convince organizations to pivot toward financing DIBs or projects based on outcomes or results

Even within the upper-management of the organizations working on the cataract bond, the benefits of the DIB model were not always clear due to the complexity of the model. For example, one organization's board members asked why the money for the hospital could not be obtained via a large grant instead of via the DIB: they felt the additional costs of the bond seemed high, while the obvious benefit to parties involved seemed unbalanced.

The lack of literature around SIBs and DIBs limits the evidence with which important elements of the DIB model can be conveyed. In addition, the multitude of ways in which DIBs can be structured and evaluated has made it very difficult to present a business case for DIBs. DIBs have yet to be empirically assessed against traditional aid models, SIBs, or other Results-Based Financing (RBF) or Results-Based Aid (RBA) approaches. The Health Results Innovation Trust Fund (HRITF) is currently undertaking such comparative evaluations within its portfolio of Performance-Based Financing programs by occasionally comparing PBF to business-as-usual, or PBF to business-as-usual and additional financing that is not tied to performance (Bauhoff and Glassman 2017).

Lesson 8: Champions are critical within the impact bond space

Since impact bonds are so new to the developing country context, a lot of their costs remain high. In March 2014, the Inter-American Development Bank's Multilateral Investment Fund became the first development finance institution to allocate money toward the development of an impact bond (Multilateral Investment Fund 2014). MIF has promised to host roundtables between SIB/DIB organizers and train service providers, as well as public officials, on the mechanisms underlying impact bonds (Levey 2104). In addition, MIF contracts with locally based intermediaries with the aim of building the capacity of new organizations, but also facilitating engagement with governments and other partners. Moreover, it will start developing a set of standardized frameworks that can be used in other projects, such as legal templates. MIF has also taken the unusual, but very commendable step of identifying elements that highlight a country or issue as promising for a SIB. For example, it is interested in countries that already have Public-Private Partnerships (PPPs) and established legal frameworks around PPPs (Levey 2104). Good data on social issues, as well as service providers and governments that can manage the complexity of an impact bond are other influencing factors. Openly committing to impact bonds and to improving the impact bond space by absorbing some of the early costs is vital to driving the market forward.

Lesson 9: Some of the data needed to develop new DIB proposals are either not available or of poor quality

As noted in section two, figures on the guarantees or interest rates accepted by investors for comparable investments on eye care infrastructure were difficult to find. Such information is sometimes only accessible to intermediary organizations, which have a special financial license. If such information is not available in the public domain and neither is qualitative data on the kinds of impact bond investments investors would like to see, then that requires an initial level of investment (e.g., hiring an intermediary) to find that information.

Some of the data that are available are also of poor quality. It was only after the contract for the cocoa production DIB in Peru had been signed that the data underlying a specific target were determined to be of poor quality. The fact that some of the data were too optimistic may have contributed to the end result where not enough association members were able to meet the production threshold needed to trigger a payment to the investor. Similarly, it was difficult to select indicators and the target population for the girls' education DIB due to the fact that the data provided by the government were highly problematic (Gustafsson-Wright and Gardiner 2016). All the involved parties had to be more flexible about the metrics used as a result.

4. Recommendations for Future Development Impact Bond Partners

Investors:

- Provide easily accessible and detailed terms for a handful of existing investments, so organizations developing an impact bond proposal can start with a reasonable set of terms.
- Supplement the information described above with details on the range of returns and related terms that would make an impact bond on a specific issue appealing. Deutsche Bank's 8-10 percent interest rate for established eye care hospitals provides a useful benchmark.

Aid agencies & philanthropic foundations

- Require any funded feasibility studies, learning documents, and templates be made publicly available, preferably through a centralized database.[21] The Centre for Social Impact Bonds (hosted by the U.K.'s Cabinet Office) or the Pay for Success Learning Hub (hosted by Nonprofit Finance Fund) could be expanded, combined, or used as a model for future DIB-specific databases.
- Explore the use of a Development Impact Bond Fund to test multiple DIBs (or even DIBs against other forms of RBF) at once whilst also reducing the transaction costs of designing individual DIBs.
- Host internal workshops on the DIB model to increase awareness of the approach; the workshops should provide opportunities for innovative financing departments to speak with issue-specific departments or target specific groups such as board members.

Intermediaries

- Prior to announcing the bond, organize investor roundtables to gauge interest and soft test the bond's terms with focus groups of investors. These events will allow bond creators to have a better sense of what terms seem reasonable to investors, if there is any interest in the project, etc.
- Organize discussions that pitch the idea to investors and aid agencies or philanthropic foundations simultaneously to better understand everyone's goals or non-negotiable points.
- Clearly define the responsibilities of all the involved parties and denote how those responsibilities may shift if certain needs arise, e.g., if the pipeline of outcome funders or investors is more limited than expected.
- Discuss best practices for sharing data with investors (e.g., how helpful were data rooms and what kinds of data were investors interested in) with others.

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[21] Though different, one analogy is the Bill & Melinda Gates Foundation's open-access policy for funded researched.

Implementing organizations

- Introduce performance management systems before the intervention begins to give employees enough time to get acquainted with the system.
- Provide evidence that your organization is interested in being assessed and rewarded based on performance.

All partners

- Communicate needs in a clear and timely manner.
- Select partners that can commit the necessary time, manpower, and patience to the development of an impact bond.
- Since impact bonds can take a while to come to fruition, document lessons learned and missed opportunities on a routine basis.
- Work with organizations whose brands can be leveraged, or incorporate a pilot period into the DIB's design, so investors can see evidence of sound implementation and adaptation practices.
- Select intermediaries with an on-the-ground presence and/or established networks in the places where you expect to raise capital.

5. Conclusion

Despite the considerable interest in Development Impact Bonds, few DIBs have made it to the launch phase. Some of the proposed projects may have been better suited to a different investment vehicle or been too costly to pursue. The lack of publicly available information on DIBs that have not come to fruition limits the development community's ability to course correct when exploring new impact bonds. It also hampers the community's ability to reflect on what those challenges mean for innovative financing more broadly. Consolidating the experiences of those who have been involved in designing or considered investing in an impact bond is thus vital to advancing the conversation around impact bonds.

This paper takes a step toward building the knowledge base on DIBs and fostering a larger community of practice around impact bonds. It describes the general impact bond model and the development of one health-related DIB in particular, a bond on cataract surgeries in Cameroon. The paper also outlines the challenges faced by the designers of the cataract DIB and places those challenges within the context of obstacles faced by the creators of other impact bonds.

The stakeholders we interviewed stressed the importance of united actors with clearly defined responsibilities and engagement protocols. They also highlighted the importance of taking a tactical approach to the marketing of a bond. More work needs to be done to bridge the gap between the development community and the private sector, particularly with regards to data on current investment practices and areas of interest. Finally, new actors need to be oriented to the premise and promise of results-focused programming.

This paper could not have been written without the initiative of the organizations supporting the cataract bond. Their willingness to be transparent about the major challenges or frustrations experienced during the DIB's development served as the foundation of this paper. To re-energize the conversation around what works in health and what role DIBs can play in meeting the SDGs and development goals beyond that, development partners need to similarly commit to turning their challenges into learning opportunities.

Appendix 1: List of Interviewees/Commenters

Cataract Bond Interviewees	
Name	**Organization**
Christina Sanko	Africa Eye Foundation
Tamer Makary	Africa Eye Foundation
Thulasiraj Ravilla	Aravind Eye Care Systems
Justin McAuliffe	Conrad N. Hilton Foundation
Robert Miyashiro	Conrad N. Hilton Foundation
Shaheen Kassim-Lakha	Conrad N. Hilton Foundation
Barbara Kong	D. Capital Partners
Liesbet Peeters	D. Capital Partners
Lily Han	D. Capital Partners
Olivia Iloetonma	D. Capital Partners
Victoria Sheffield	International Eye Foundation
Lucy Sidey	Linklaters LLP
Mark Nuttall	Linklaters LLP
Dia Martin	Overseas Private Investment Corporation
Thomas Engels	Sightsavers
Kirsten Armstrong	The Fred Hollows Foundation
Lachlan McDonald	The Fred Hollows Foundation
Victoria Morris	The Fred Hollows Foundation
Cataract Bond Commenters	
Elena Schmidt	Sightsavers
Thomas Engels	Sightsavers
Dia Martin	Overseas Private Investment Corporation
Non-Cataract Bond Interviewees	
Sophie Gardiner	Brookings
Emily Gustafsson-Wright	Brookings
Maria del Mar Garza	Instiglio
Zachary Levey	Inter-American Development Bank
Serena Guarnaschelli	KOIS Invest
Chris Walker	Mercy Corps
Caitlin MacLean	Milken Institute
Harlin Singh	Milken Institute
Eleanor Nettleship	Social Finance

Appendix 2: DIBs Compared to Other Innovative Financing Mechanisms

Mechanism	Similarities	Differences	Example
Results-Based Aid: disbursements from a donor to a recipient government are tied to the achievement of specific results			
Cash on Delivery Aid (COD Aid): a donor agrees to pay a recipient government a set sum for every additional, verified unit of progress toward a specific outcome (Perakis and Savedoff 2014).	• Payment is contingent on the achievement of predetermined targets • A third party verifies the results before payment can occur • The payer does not strictly define the process by which results are achieved • Prioritizes paying for outcomes over inputs	• Money flows between only two parties and those parties are a donor and a government • The recipient government uses existing funds to cover the cost of implementation • Payment is always defined on a per unit basis	In 2011, the United Kingdom's Department for International Development (DFID) agreed to pay the Government of Ethiopia for every additional student who took and passed the national grade 10 exam (DFID 2016a).
Results-Based Financing: disbursements from a domestic government or donor(s) to individuals, households, or non-government service providers are tied to specific results			
Output-Based Aid (OBA): an agreement in which a service provider receives a subsidy that complements or covers (in full or in part) an existing user fee. The collection of performance data and follow up based on that data, in the form of rewards or sanctions for the contractor, are integral to PBC.	• Payment is contingent on the achievement of predetermined targets • A third party must verify the results before payment can occur	• Payment to the provider is contingent on the delivery of outputs • Payments are tied to the size of the user fee • Providers use their own resources to support the delivery of services	In 2007, the Global Partnership on Output-Based Aid (GPOBA) contracted three service providers in Morocco to connect unplanned urban settlements to water and sewage services. Providers received 60 percent of their subsidy-based payout after connecting the settlements and the remaining 40 percent after independent verification confirmed that the settlements had been connected for 6 months without interruption (Trémolet and Evans 2010).

Mechanism	Similarities	Differences	Example
Performance-Based Contracting (PBC): the purchase of clearly defined services (in terms of quantity, quality, location, target population, etc.) from a non-state provider for a specific length of time (Loevinsohn 2008).	• The service provider can be a non-state entity • Performance data inform payments	• The service purchaser may be a government, donor, or insurance entity • The purchaser determines (and strictly defines) the services to be provided • Service providers can be sanctioned	The United States Agency for International Development (USAID) tried to improve access to primary health care in rural areas of Haiti by offering NGOs there the chance to earn 95 percent of their original contract value plus a bonus worth up to 10 percent of the contract if the data proved they were providing key services, such as deliveries assisted by a skilled attendant (Loevinsohn 2008)
Social Success Note (SSNs): a spinoff of social and development impact bonds introduced by the Rockefeller Foundation and Yunus Social Business in 2015 where the implementing partner must be a social enterprise (Yunus Social Business 2015).	- There is at least one contract between multiple parties, including investors and outcome funders - Payment is contingent on the achievement of predetermined targets	• The implementer must be a social enterprise • The social enterprise repays the investor their principal • The outcome funder only pays the bonus due to the investor(s) for each outcome achieved	The first SSN pilot is still forthcoming.

Source: (Development Impact Bond Working Group 2013; Fritsche, Soeters, and Meessen 2014; Perakis 2016; Perakis and Savedoff 2015; SIDA 2015)

Appendix 3. Notes on Other Health-Related Impact Bonds

Physical Rehabilitation – Multiple Countries

The International Committee of the Red Cross (ICRC) launched a 5-year Humanitarian Impact Bond in 2017. As part of the HIB, 3 new physical rehabilitation centers will be built in Mopti, Mali; Maiduguri, Nigeria; and Kinshasa, Democratic Republic of the Congo. The HIB will expand on ICRC's existing network of physical rehabilitation centers, which includes 139 centers across 34 countries. New Reinsurance Company Ltd (New Re) and Lombard Odier bank will serve as the investors for the bond with the governments of Belgium, Switzerland, Italy, and the UK, as well as La Caixa Foundation, a private Spanish organization, acting as the outcome funders (Bollag 2017).

The first 3 years of the bond will focus on constructing, supplying, and staffing the centers, while improved data systems and more innovative approaches, such as socially inclusive physical therapy, will be used in the last 2 years of the bond (KOIS INVEST 2016).The ICRC held a roundtable in early 2016 to scope out investor interest and gather feedback on the bond's structure.

Maternal Health – India

The Utkrisht Impact Bond is a DIB aimed at improving maternal and newborn health outcomes in Rajasthan, India. Its goal is to work with 440 private medical facilities in Rajasthan to help them obtain two important certifications of quality maternal care in India: The Manyata certification and recognition from the National Accreditation Board for Hospitals and Healthcare Providers (NABH). The health facilities involved will have to earn 50 percent of NABH points and 11 of the 16 Manyata standards to receive the full payment of USD 18,000, while those who earn 30 percent of NABH points and 6 Manyata standards will receive USD 4,500 (Boggild-Jones 2017).

The primary investor, UBS Optimus Foundation, has committed USD 3.5 million in initial capital. The outcome funders, USAID and Merck for Mothers, have committed USD 8 million of outcome funding should the targets be reached. Palladium, Inc. is the implementation manager, while Population Services International (PSI) and the Hindustan Latex Family Planning Promotion Trust (HLFPPT) will help implement the project and provide services. The latter two organizations are also investors: PSI and HLFPPT together will comprise 20 percent of the capital, and receive rewards and losses at the same rate as UBS Optimus. The Government of Rajasthan will have a non-executive, oversight role and plans to contribute outcome funding in the later years of the bond. Mathematica will serve as the independent verifier (USAID 2017).

This DIB was conceived by USAID India and the Center for Accelerating Innovation and Impact, a section of USAID focused on approaching health interventions through a business lens.

Sleeping Sickness – Uganda

Sleeping sickness, or Human African Trypanosomiasis (HAT), is a parasitic disease that can be transferred from cattle to humans via the tsetse fly. The United Kingdom's International Development Secretary announced in 2014 a new £1.5 million "inception project" to explore the use of the DIB model to address sleeping sickness in Uganda. The project focused on Uganda because both strains of HAT, Gambian and Rhodesian sleeping sickness, are found there and previous outbreaks of HAT affected up to 70 percent of the rural population in Uganda (DFID 2016b). Several cost-benefit analyses suggested substantial savings (£30 million) and profits (£300 million) could be accrued through the eradication of the disease in cattle (DFID 2016b). Information gathered through the pilot was meant to outline a set of best practices (on data collection, how many cattle could be treated a day, beneficiary outreach, payment triggers, etc.) that could be applied to the launch of a full-scale DIB.

Two parts of the project have been carried out. The first is a survey capturing the parasite prevalence and number of cattle in 150 villages (DFID 2016b). The second is a pilot intervention to test the effect of an insecticide and cattle treatment on the parasite's prevalence. The pilot was scheduled to end on September 30, 2016 (DFID n.d.).

To cover the affected area, the initial estimate for the DIB was valued at around USD 50 million.[22] DFID was keen to bring on other outcome funders, but no other donors or investors signed on officially. In response to the lack of commitments, the involved organizations are considering only conducting the intervention in the northern part of Uganda where the survey found the HAT parasite prevalence to be alarmingly high. DFID has yet to decide on next steps for the project.

Malaria – Mozambique

The Rollback Malaria Partnership (RMP) contracted Dalberg and D. Capital Partners in 2012 to investigate if a DIB could be used to address the prevalence of malaria in Mozambique. Corporations, including the restaurant group Nando's, financed a 3-year pilot in a few Mozambican districts after getting outcome payer commitments for the DIB proved to be very difficult. The pilot, an adaptation of an intervention successfully used in Ghana, reduced the prevalence of malaria in the targeted districts by 70 percent (Murray 2016). An application was submitted to the Global Fund to scale up the intervention, which includes training community health workers (CHWs) to diagnose and treat malaria, sensitizing communities to indoor residual spraying (IRS), and training IRS personnel (Devex n.d.). Funds will also go toward purchasing spraying materials and artemisinin-based therapies (ACTs). Funding from the Global Fund would be matched by private sector sources, including Nando's and several mining companies. The offer to investors is currently being fine-tuned.

[22] Information in this section comes from an interview conducted on November 11, 2016.

The MMPB is notably distinct from other health-related DIBs. It is the first to be structured with a Special Purpose Vehicle. The SPV, named the Goodbye Malaria Trust (GMT) will disburse funds to the service provider. The MMPB is also using a separate entity, the Bond Against Malaria Mozambique (BAMM) Operating Company to oversee the implementation of the intervention.

Kangaroo Mother Care – Cameroon

The Kangaroo Mother Care (KMC) approach aims to increase the amount of skin-to-skin contact between mothers and their newborns (especially low birth weight infants), with an overall goal of at least 12 hours of contact a day (Charpak 2014). KMC also trains mothers to breastfeed their babies and has mothers visit a clinic or hospital with their babies on a daily basis until the baby is gaining at least 15 grams per kilogram per day. KMC has been shown to reduce mortality at time of discharge and lead to increased infant weight (Conde-Agudelo and Díaz-Rossello 2016). Grand Challenges Canada is providing financial support to Social Finance and the MaRS Centre for Impact Investing to develop a DIB around KMC. Baseline data on the health of low birth weight and pre-term infants in Cameroonian hospitals is currently being collected (Grand Challenges Canada 2016). The Ministry of Health has agreed to serve as a technical partner. Additional financing, worth USD $2 million, is expected to come through the World Bank (World Bank 2016).

Nutrition – Mozambique[23]

A bilateral donor working in Mozambique asked the Global Alliance for Improved Nutrition (GAIN) to explore the use of a DIB to address malnutrition. A GAIN staff member traveled down to Mozambique on two occasions to present to a cohort of donors on the DIB model, possible outcomes that could be used, and how well nutrition interventions fit the DIB model (nutrition gains are easy to measure and interventions are relatively cost-effective). Donor feedback was unenthusiastic. In addition to not understanding the rationale for and not liking the optics of including investors, the donors felt the entire DIB mechanism was too complex. Though they remained interested in a RBF mechanism, they wanted an approach that had fewer moving parts. One donor said they might be interested in the DIB, but would need a co-financing commitment from the government of Mozambique. At the time, the Mozambican government was not allocating significant amounts of money to malnutrition. The DIB's momentum faltered even more after the DIB's champion within the bilateral donor agency went to work at another organization.

In February 2014, the Center for Global Development hosted a roundtable to continue the conversation around a DIB on nutrition. Attendees, who came from a broad range of backgrounds, discussed concerns about the high initial transaction costs of developing a DIB and possible topics (stunting or maternal and/or child anemia) around which to base outcomes (Perakis 2014). They also discussed issues plaguing the nutrition sector. For example, the groups that are the most affected are also the most marginalized, nutrition

[23] Information in this section is based on an interview conducted on November 18, 2016.

doesn't fall neatly under either health or agriculture, and there is mistrust between public and private institutions.

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