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SPECIAL REPORT

# Innovative Finance: Mobilizing Capital for Maximum Impact



# INTRODUCTION

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Ending poverty and fostering sustainable development — the aims of the United Nations Sustainable Development Goals (SDGs) — will require some \$3.9 trillion annually for the next 15 years in developing countries alone. But official development aid and philanthropy, which are the traditional sources of funds, can be counted on for only slightly more than a quarter of that. Attention has therefore turned to the private sector and the vast sums of money that could be coaxed out with just the right investment opportunity. While the private sector has long been involved in development efforts, and its level of investment has been growing, it is still nowhere near the level required to meet the SDG financing gap. Creative new ways to bring private capital to bear — innovative financial mechanisms — are needed.



In this report, we describe what has come to be known as innovative finance and the various forms it has taken. These include everything from entirely new financial mechanisms to adaptations of existing ones to mechanisms that really aren't financial instruments at all but strategies for channeling revenue streams from a variety of sources toward development.

In view of the fact that an enormous amount of ingenuity has already been demonstrated in devising mechanisms, we then address the question of why there hasn't been more innovation and more mobilization of private capital. We consider fiduciary constraints, attitudinal impediments, lack of know-how and institutional barriers. And we note some efforts that are underway to overcome these obstacles.

Next, we look at some of the many innovations that have been made in a variety of asset classes, from equity and bonds to guarantees and insurance. We provide a glimpse of the people who have had the breakthroughs and the circumstances that have been conducive to them. We also note the potential, limitations, expansion and replication of these innovative strategies.

In a final section, we look for patterns in the innovations we have examined. In doing so, we hope to find clues as to what can be done to foster more of the innovation required to marshal sufficient resources to achieve the SDGs in the time allotted.

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# CONTENTS

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I. The SDG Financing Gap and Innovative Finance	2
II. Barriers to Private Sector Participation	5
III. Innovations and Their Origins – Part 1	8
SIDEBAR: The International Finance Facility for Immunisation	9
SIDEBAR: Sucharita Mukherjee and MOSEC	12
IV. Innovations and Their Origins – Part 2	14
SIDEBAR: Richard Wilcox and the African Risk Capacity	15
SIDEBAR: PEPTV and Robert Philipp	16
SIDEBAR: Data Levy – Richard Wilcox	17
V. Ingredients for Innovation	19
SIDEBAR: Impact Exchange – Durreen Shahnaz	20
SIDEBAR: NPX	21



## I. The SDG Financing Gap and Innovative Finance

**IN 2002, TWO YEARS INTO THE TARGET DATE SET** by the United Nations for reaching its Millennium Development Goals (MDGs), it was becoming increasingly apparent that more than official development aid and other sources of public finance would be needed to achieve the ambitious goals to eradicate poverty and hunger, improve health and promote environmental sustainability. An added boost from philanthropy could go just so far. That left private capital. But there was not nearly enough of that coming to the fore to help reach the goals. So, the leaders of the International Conference on Financing for Development, which was held that year in Monterrey, Mexico, concluded that the pursuit of “innovative finance” should be a top priority.<sup>1</sup>

Now, 14 years later, in the first year into the Sustainable Development Goals agenda, the successor to the MDGs, innovative finance is again being looked to as a source of critical funding. The gap between what is likely to be available in public, philanthropic and other funds and what will be required to achieve the goals is, if anything, wider than it was 14 years ago.

“It’s a huge enterprise,” says Richard Wilcox, special adviser to the U.N. World Food Programme.

“We need a step change in financing to address the biggest challenges,” says Lorenzo Bernasconi, associate director of The Rockefeller Foundation, a New York-based organization that works to build better health and economic conditions in poverty-stricken areas of the world. The SDGs, a 17-point initiative to end hunger, prevent disease, eliminate poverty, provide quality education, build sustainable communities, protect the environment and more, are even more ambitious than the MDGs. To be achieved between 2016 and 2030, the goals carry a price tag of some \$3.9 trillion annually for developing countries alone, according to the U.N.

Current available funding is estimated to be \$1.4 trillion, leaving a gap of \$2.5 trillion, according to the U.N. Conference on Trade and Development (UNCTAD).<sup>2</sup>

Sources of potential funding include domestic government revenues and domestic and foreign direct investment, official development assistance (ODA) and charitable contributions.

The largest single sources are domestic public and private funds. Government revenues in developing countries total about \$5.5 trillion and domestic private investment some \$3.7 trillion, according to the Center for Global Development. Remittances amount to another \$341 billion. Foreign direct investment amounts to \$928 billion.<sup>3</sup> ODA provides \$135 billion while charitable contributions are about \$30 billion.

All of these sources need to increase their contributions, and there is especially strong potential for generating more funds from domestic public finance and both domestic and international private investment. The pressure on these areas is ever greater, in part because ODA seems likely to shrink under mounting budget concerns of donor governments and other competing needs, including refugee aid.

Even if donor countries were to meet the U.N. target contribution of 0.7% of gross national income (GNI), ODA would still amount to only about double the \$135 billion that was available in 2013, according to the World Bank.

Funds from domestic public finance could be substantially increased if domestic tax collections were improved in many countries and illegal financial flows were stemmed. Laundered money and evaded taxes in Africa alone were estimated at \$50 billion annually between 2000 and 2008, exceeding ODA of \$46.1 billion in 2012, according to the U.N. Economic Commission for Africa.

However, stemming these illicit flows and improving tax collections require initiatives that are not likely to produce results sufficient to close the funding gap in the short term.

That leaves private investment.

Even if the math did not point to private capital as a prime source for funding to fill the gap, there would be strong impetus to look to the private sector. The SDGs themselves depart from the MDGs in that they seek a more holistic approach to achieving development, placing a greater emphasis on sustainable development in a governmental, social and environmental sense. In contrast, the MDGs were targeted at achieving more discrete goals than systemic transformation.<sup>4</sup> Many believe that the degree to which development issues are tackled through market mechanisms, the more likely it is that the mechanisms will remain in place, become a permanent fixture and be the foundation for sustainable development.<sup>5</sup>

Plentiful funds are available, if they could be tapped. There are enormous pools of private-sector money, including pension funds and sovereign wealth funds. In developing countries, pension funds, insurance companies, mutual funds and other asset pools held more than US\$6 trillion in 2013, and these assets were growing by 15% per year, according to the Innovative Finance Foundation, a Geneva-based nonprofit that generates funding for social infrastructure and development.<sup>6</sup> Globally, sovereign wealth funds had assets of more than \$6 trillion, and pension funds in developed countries held \$20 trillion in 2014, according to UNCTAD.<sup>7</sup>

The challenge is how to mobilize these funds to help achieve the SDGs.

There's no shortage of money to be invested, says Bernasconi. The problem is, "The system is not set up to create the solutions we need. Once you get something investable, there's plenty of money. The trick is to create something investable."

This is where innovative finance comes in.

## WHAT IS INNOVATIVE FINANCE?

What is innovative finance? There are many definitions and no definitive one. In this context, it refers to new mechanisms and approaches to harness private-sector capital to address the world's key social, economic and environmental problems. These are aimed at mobilizing more funds, but they are also designed to make the best possible use of the funds that are already available.

"It is as much about creating incentives to make sure that money is spent better as about raising more money," says Georgia Levenson Keohane, a senior fellow at New

America, a think tank focused on policy changes in the digital era, and the author of the forthcoming book, *Capital and the Common Good: How Innovative Finance is Tackling Some of the World's Most Urgent Problems*.

The term innovative finance logically calls to mind items such as derivatives and securitizations. For the most part, innovative finance is not that but rather the inventive use of existing mechanisms.

"It's not financial innovation in the way Wall Street would think of it; it's the innovative use of finance," says Adam Connaker, a program associate at The Rockefeller Foundation.

Innovative finance covers a broad spectrum of initiatives, and one category that draws on existing asset classes and makes use of them in new combinations and circumstances comes closest to being entirely new. Such mechanisms developed since the launch of the MDGs agenda include the Advanced Market Commitment for Pneumococcal Vaccines, social impact bonds, the International Financing Facility for Immunization and earlier, catastrophe (cat) bonds.

Equally as important are variations on mechanisms that have long been used. Bonds, loans, insurance products, guarantees, securitizations and other strategies may be used in new places for new purposes, but the essential mechanisms are not new. These include the African Risk Capacity, green bonds, microfinance and many others. In some instances, there are not clear lines between new mechanisms and re-jiggered existing mechanisms.

One example of a novel use of funds is that of the Medicines Patent Pool through which proceeds from UNITAID, a tax on airline tickets, are used to compensate pharmaceutical companies for donating their patents so that generic medicines can be developed for low- and middle-income countries. Another possible novel use would be giving funds raised through an extractive industries tax to a private company to build a factory to produce vitamins rather than to a nongovernmental organization to fund programs to reduce malnutrition, says Robert Filipp, founder and president of the Innovative Finance Foundation.

A third type of innovative financing isn't really a market mechanism at all but one to address instances when market mechanisms simply will not work to attract private capital to achieve a development goal.

These are "for certain market failures that are so large that they can't be addressed with private capital," says Bernasconi. These include various mechanisms based on levies, such as UNITAID and UNITLIFE, payments for specified behavior, such as Reduction in Emissions from

Deforestation and Forest Degradation (REDD), and debt relief arrangements, such as Debt2Health and debt for conservation swaps.

All these mechanisms are deemed innovative because whether through new or adapted means, they make new funds available for achieving development efforts. In some instances, they are particularly significant because of the scale of the funds they mobilize, in others because they make particularly effective use of the funds, and in still others, they serve to improve the efficiency and effectiveness of whatever development efforts they are applied to.

The African Risk Capacity is a prime example of the use of a mechanism to improve the effectiveness of the development efforts for which it provides funding. The ARC provides insurance against droughts to participating African nations, with premiums paid for by the participating governments. In addition to applying the sovereign risk pool concept to a new area for a new purpose, it requires governments to create highly detailed disaster response plans to qualify for insurance payments in the event of a disaster. Social impact bonds (SIBs) also fall in this category of mechanisms that can improve the efficacy of interventions. Reducing recidivism, for example, has been one of the principal aims of early SIBs.

"It may be that we are compelling governments to think about interventions differently," says Keohane. "I'm not a cheerleader for SIBs, but we certainly have begun to think differently about the cost of mass incarceration. Though, it's hard to say whether the development of the SIB was the cause or effect."

Finally, innovative finance changes the development world itself, Filipp says. The introduction of innovative finance has pushed public development institutions to be more receptive to innovation, and the mechanisms have created greater understanding between the private and public sector and an appreciation of the differences in their cultures, incentives and risks, he says. As innovative finance mechanisms have proliferated and produced results, international development institutions that have had little incentive to leverage private capital are now regularly requesting that his organization devise innovative finance strategies to tackle particular development challenges, Filipp says.

There are several principles that underpin the innovative mechanisms that have been developed. One is moving payments forward. That is, using in the present, payments that are promised in the future. The International Finance Facility for Immunisations (IFFIm), which yields funds to finance vaccines through a bond based on future donor commitments, exemplifies this strategy.

Another key principle is monetizing the value of assets that have not been assigned a value or have been undervalued. Examples include the forest resilience impact bond, which produces funds for forest restoration designed to decrease burn severity and increase water availability for local utilities, according to The Rockefeller Foundation. Another example is archaeological development bonds, which are issued to pay for restoration and development of archeological sites based on future revenues anticipated from enhanced tourism and other values.

A third principle is monetizing the value of avoided costs and using that value to pay for preventive measures that obviate or reduce the need for rehabilitative measures in the future.

Glenn Yago, senior fellow at the Milken Institute and founder of its Financial Innovations Labs, sees avoided costs as representing an enormous amount of potential resources for development.

"If Rwanda went to 100 percent renewable energy, that's \$1 billion in avoided costs annually," he says. "If you can divert that to the local economy — 30% of the harvest gets thrown away because of spoilage. If you figure you out how to improve storage, you save all that..."

Social impact bonds operate on this principle. Private investors pay for social programs and then are repaid by government entities based on the avoided costs due to the intervention.

It is important to note that although innovative finance often focuses on mobilizing private capital, most initiatives involve some public-sector participation. The IFFIm, for example, depends on commitments from donor governments to back the mechanism's bond issues. The African Risk Capacity depends on donor government payments to fund the risk pool, and social impact bonds depend on government payments to repay private sector investors.

Despite the Monterrey Consensus commitment to make innovative finance a top priority and numerous groundbreaking initiatives, innovative finance mobilized \$90 billion to \$100 billion between 2001 and 2013<sup>8</sup> and is expected to mobilize just \$24 billion annually by 2020, according to Dalberg Global Development Advisors.<sup>9</sup> That commitment would have to be multiplied by more than 100 to fill the gap for financing the SDGs.

This raises the question of what is preventing the billions and trillions potentially available from being mobilized for the purpose. ■



## II. Barriers to Private Sector Participation

### **THERE IS AN ESTIMATED \$2.5 TRILLION ANNUAL**

gap between what is needed to reach the U.N.

Sustainable Development Goals and funds available. Because of the growing demands of global crises – from refugee relief to natural disasters and terrorism – and already constrained national budgets, as well as a belief that sustainable development demands a growing roll of private capital, the private sector is being looked to as a major source of funds to fill the gap. To understand how such resources might be mobilized, it is important to understand what some of the barriers are to private-sector participation.

Fundamentally, many investors, including institutional investors, which are the repositories of some of the largest pools of capital, often have the fiduciary duty to obtain market-rate returns. This presents many challenges. One is that many investments for sustainable development simply cannot command such returns. Compounding the problem is the fact that there are not enough people with both the financial and social impact expertise trying to create deals, with or without such returns. The problem is further exacerbated by the fact that there are no central sources of information where investors can find out what deals are available.

Just as there are brokers in the conventional commercial markets to bring together buyers and sellers, the same function is needed in the social sector, says Nick O'Donohoe, senior adviser to the Bill & Melinda Gates Foundation and co-founder and former CEO of Big Society Capital, a for-profit company in the United Kingdom founded to make social investments and act as a broker between the private and social sector.

In addition to a means by which private investors can find out about businesses and other entities seeking funds for

development, and vice versa, there is a need for a source of guidance through the development world.

"If you want to make an investment in African renewable energy, there's no one to advise you how to do that. There's no one to make sense of what all these MDBs offer and how to use what they do offer," Bernasconi says.

For the private sector, investing in development is a fairly new endeavor for which the risks are relatively unknown and methodologies for quantifying and balancing the financial and social returns have only recently begun to be developed. Working with the public sector also can be daunting, as it is often seen as slow and bureaucratic.

A number of organizations, including Big Society Capital, have formed to respond to some of the needs. While many of them have made important contributions, none can fill the void alone.

"Big Society Capital has been a driving force of social investment in the United Kingdom," Bernasconi says. "It provides resources, market intelligence, investor education and the stamp of approval for investment managers. But we need 10 of these."

O'Donohoe believes it's crucial that intermediaries such as Big Society be independent, nongovernmental entities. Governments should not be involved because they cannot help but allow political considerations to influence investment decisions, which is destructive to the investment process, he says.

Big Society was formed in 2012 at the urging of the U.K. government. There are likely to be a half-dozen imitators of the "social investment wholesaler" within the next five years, says O'Donohoe. Big Society has received numerous inquiries about its model from several other countries, indicating strong interest.

Organizations with similar objectives have also started online, such as Convergence in Canada. While these online intermediaries can play an important role in bringing together investors and social enterprises, human interactions are crucial, and it is unlikely that online entities can entirely replace the brokering that Big Society and others like it provide, O'Donohoe says.

A number of niche brokers have been created especially to match investors with small- and medium-sized businesses. They include Renew and the BiD Network. Aligned Intermediary is yet another broker of transactions, in its case connecting large institutional investors with projects specifically to address climate change. Combined, these entities' transactions amount to slightly more than \$1 billion, nowhere near the level of deal-making needed to satisfy the needs of the SDGs.

In addition to brokers, there's a critical need for deal makers. According to Surya Kolluri, managing director for policy and market planning in Bank of America Merrill Lynch's global wealth and retirement solutions business, there's no shortage of demand for impact investments. The bottleneck is that there are not enough deals.

Christopher Egerton-Warburton, a former Goldman Sachs investment banker, agrees there's a major void to be filled in this regard. To help respond to that need, eight years ago, he co-founded Lion's Head Global Partners, an investment bank based in London and Nairobi that specializes in emerging markets and sub-Saharan Africa.

"It became clear to me that there was a need for Goldman Sachs-style structuring and pure investment banking skills in the development space," says Egerton-Warburton, a partner at Lion's Head. "It's a space where there's still a shortage of skills. Everyone wants to invest, but there are no deals to do. There are no deals because you need to be creating transactions, negotiating transactions. Those are skills that investment bankers have."

Currently, Egerton-Warburton sees few competitors to Lion's Head. There are many consulting firms, but not investment banks. He suspects that as Lion's Head grows, more competitors will enter the field.

"The barriers to entry in the financial sector are very low," Egerton-Warburton observes.

Multilateral development banks (MDBs) and other development institutions are often cited as holding missed opportunities in that they do not leverage as much private capital as they could for development initiatives.

Ideally, MDBs can reduce the risk of projects by vetting them, ensuring that they comply with environmental, social

and governmental standards, and giving them their "good housekeeping" seal of approval, all important cost-saving measures, says Homi Kharas, senior fellow and deputy director for the Global Economy and Development program of the Brookings Institution, a nonprofit public policy organization based in Washington, D.C.

But these institutions that were not set up to work with the private sector have not done all they could.

A tradition of not working with the private sector was reinforced in the United States by an effort by the Meltzer Commission in the late 1990s to limit the MDBs' activities to providing concessionary funds to the poorest, least creditworthy nations and leaving nonconcessionary lending to the private sector, according to Kharas.

"As a result, there was less activity than warranted," he says. "It removed the MDBs from creating a bridge."

Since the Third International Financing for Development conference in Addis Ababa in July 2015, the ideology has begun to shift and there's been a renewed commitment "to provide bridge instead of firewalls," he says. But the MDBs are still operating under the old, firewall rules, he says.

In general, putting together deals with the development banks is a painstakingly slow process, in part because they have become increasingly risk averse, says Kenneth Lay, senior managing director of The Rock Creek Group, an investment management firm, and former treasurer of the World Bank. At the World Bank, the risk aversion has developed partly as a result of some projects that have had unintended adverse impacts on communities and the bank adding safeguards to ensure that such incidents don't recur.

Although the addition of the safeguards have been well intentioned, "the time it takes (to approve projects), the number of reviews, is dramatically higher," Lay says.

In general, the full potential value of the funds donated for the SDGs is likely to be lost as the funds sit idle waiting to be spent, which can take a long time because of the bureaucratic procedures of many of the organizations through which they are funneled, including the MDBs, says Filipp. Ideally, the funds would be invested in conservative investments and be making at least mid-single digit returns in the interim.

This waste of an opportunity stems from wariness by the public sector that it will be "fleeced" by the private sector, says Filipp.

"It needn't be these extremes of zero percent and being taken by gangsters. Safe investments exist," Filipp says.

For example, he has been trying to arrange to have the U.N. invest money from levies like UNITAID and UNITLIFE, which his foundation developed, in financial markets between the time the funds are received and distributed. Depending on the specific agency involved, there are often either legal impediments or resistance because of concerns that the institutions' reputations could be harmed if some of the money was invested in objectionable ways, such as in arms manufacturers, he says.

Filipp was similarly frustrated when he tried to collaborate with Deutsche Bank and the Bank of Abu Dhabi to create an exchange-traded fund (ETF) based on the Dow Jones Global Index, whose constituents were companies that supported the mission of the Global Fund to Fight AIDS, Tuberculosis and Malaria, which he created. He had hoped that the fee the banks would have received for managing the ETFs would be donated to the Global Fund. But the idea failed because the Global Fund was reluctant to get involved in marketing the ETF for fear of damaging its reputation by working with the private-sector banks, Filipp says.

The African Development Bank has encountered similar barriers stemming from wariness of the private sector, says Robert Masumbuko, head of the financial inclusion cluster in the Financial Sector Development Department of the bank.

Like other MDBs, the bank was not designed to take private money, says Masumbuko. When the Gates Foundation offered to make a donation, it took the bank months to decide whether to accept it, recalls Masumbuko.

"People got stuck, wondering what the motivations were," he says. The bank is now changing so that it can take private contributions, a shift that he believes is necessary.

Yet another impediment to the participation of private capital is that some governments simply want certain social needs, such as health and education, met by the public rather than the private sector, says Kharas.

"In health and education, regulatory and ideological (impediments) in many developing countries put a stop to private capital," he says.

Some countries, such as Egypt, only allow nonprofits or for-profit entities operating solely on the profit motive. Dual purpose entities that may give up financial returns for social impact are not allowed, Kharas says.

In the absence of overarching solutions to eliminating these and other obstacles, an essential part of the challenge of developing innovative mechanisms is to try to overcome or circumvent these barriers through the design of the strategies themselves. ■



### III. Innovations and Their Origins – Part 1

#### LOANS AND BONDS

The IFFIm is one of numerous novel mechanisms drawing on various forms of credit instruments or loans that have been devised to channel funds toward achievement of the SDGs.

Some of these mechanisms are based on the IFFIm's strategy of arranging to use in the present funds that are promised in the future. Others are premised on the strategy of paying for interventions in the present with funds that would have had to have been spent in the future if the preventive actions had not been taken (avoided costs). Social, environmental and development impact bonds come in this category. A third category is the use of bonds or loans under unconventional conditions for unconventional purposes. Catastrophe bonds, green bonds, diaspora bonds and microfinance belong in this group. The Forest Resilience Impact Bond is both an example of taking advantage of avoided costs and realizing the true value of a asset to pay for preventive measures that mitigate a sharp rise of the cost of that asset in the future.

The IFFIm and the Forest Foundation Fund are perhaps most similar to a Wall Street sort of financial innovation, while agricultural value chain financing is premised on simple loans but makes use of them in ways that optimize their value for their recipients.

While the IFFIm has mobilized billions of dollars in private capital to improve the health of millions of children, the mechanism seems unlikely to be widely emulated. It requires "a number of stars to align," including donors willing to make a multiyear commitment, an issue that requires front-loaded cash, and a government willing to champion the effort, says Egerton-Warburton.

#### SOCIAL, ENVIRONMENTAL AND DEVELOPMENT IMPACT BONDS

Social, environmental and development impact bonds are not true bonds. Rather, they are mechanisms that involve payments, with the potential for profit, made by the public sector or donors to investors who fund impact initiatives. For each, a private-sector entity provides funding for an initiative and is paid back by the public sector or donors if the program is successful, as measured by predetermined parameters. The payback includes both principal and a return if the program meets or exceeds targets. The payments are based on the public sector's projected avoided costs as a result of the intervention.

Social impact bonds, the model for environmental and development bonds, were first used in the U.K. in 2010 in a program to reduce recidivism in prison populations. It has since been used to address a number of other issues, including child and maternal health and early childhood education, in the U.K., the U.S. and elsewhere. The model has only recently begun to be applied to environmental and developing country interventions. One of the first development impact bonds was arranged by Children's Investment Fund Education (CIFF), a philanthropy in the U.K., to improve the educational performance of girls in Rajasthan, India.<sup>10</sup>

The Forest Resilience Impact Bond is one of the first environmental impact bonds under development. Designed by Blue Forest Conservation, a for-profit company dedicated to social and environmental impact, it aims to provide payment for forest management services from the benefits of such services accruing to utilities and the forest service. In the western U.S., forest fires, which are made more frequent by droughts and overgrowth resulting from forest management budget cuts, are decimating woodlands and threatening a vital storehouse of water. Funds from

# The International Finance Facility for Immunisation

## DRAWING ON DIVERSE EXPERIENCE

"Impossible" was the verdict of just about everyone on Christopher Egerton-Warburton's team at Goldman Sachs in response to a challenge issued by the U.K. Treasury to several major investment banks.

In early July 2002, the treasury had asked Goldman, where Egerton-Warburton was the capital markets banker for the U.K. government, and the other banks to come up with a scheme whereby government spending budgeted over the next 15 years for international development could be moved up and spent as quickly as possible.

The impetus was a warning issued by then-Chancellor of the Exchequer Gordon Brown shortly after the Sept. 11 attacks. In a speech he gave in New York, Brown said that if the vast and crushing poverty and lack of opportunity afflicting billions of people worldwide was not urgently addressed, terrorism would become increasingly common.

As earnestly as it considered the request, Egerton-Warburton's team couldn't figure out how the treasury's objective could be achieved without the accelerated spending counting as debt, raising donor countries' national debts, something few, if any, were likely willing to do.

"That was the Rumpelstiltskin problem. It seemed impossible," Egerton-Warburton says. "It would have to be counted as debt, just like spending of expected tax money that governments do all the time."

But he wouldn't let the challenge drop. It ignited his passion for unravelling

complex problems.

"It was like I'd been given a set of math questions," Egerton-Warburton recalls, with evident relish. Besides, since the U.K. government was his client, he had a particularly strong incentive to want to please.

With a deadline looming, Egerton-Warburton was pedaling fast one day on his daily commute along the Thames when he had his "lightbulb moment."

The basic idea he devised while atop his 10-speed was what was to become the International Financing Facility for Immunisation, a mechanism that so far has raised \$5 billion to provide vaccinations in more than 70 countries and saved more than 2 million lives.

The solution drew on his broad experience at Goldman and on experience he'd gained working on a couple of deals, in particular.

One key insight that was essential for designing a structure that kept donor nations' contributions off their balance sheets came from his knowledge of European accounting practices and his strong relationships with European treasuries.

A second critical insight was that it was possible to have one entity yielding a stream of payments that were "referencing something else," he says. That came from his work arranging a German government bond issue that was linked to whether Russia continued to service its Paris Club debt. Thus, a bond could be issued to raise money for an aid

project, and the bonds could be repaid from donor countries' future official aid commitments.

A third element was arranging a proxy for performance on which the donor payments to recipients would depend. The solution was to make payments to the International Monetary Fund, the last institution to which any country wants to be in default, as the proxies.

"If one linked these cash flows to countries where you were trying to create impact, that would be cool," he says.

Egerton-Warburton was familiar with how to do that from Goldman's work on a deal that involved arranging preferred creditor status for Argentina.

In the ensuing four years, it was decided that the funds raised through the IFFIm would be used to pay for vaccines. The Global Alliance for Vaccines and Immunisations (GAVI) was designated as the recipient, the World Bank was designated the treasurer, Eurostat gave its approval, donor countries were enlisted and countless other facets of the deal were worked out and approved.

The IFFIm issued its first bond in November 2006.

Since its inception, the IFFIm has raised \$5 billion on the bond markets, drawing on commitments from nine donor countries and providing immunizations for hundreds of millions of children in developing countries.

projected savings for utilities in providing water as a result of healthier forests and hydroelectric power are to be used to prune, to conduct controlled burns and for other forest management activities. Private investors would pay upfront for forest management projects, and the Forest Service and the utilities would pay back the investors if the forest management work actually reduces fires and increases water yields.<sup>11</sup>

The use of social, environmental and development impact bonds has so far been limited, in part because they are a new concept. As of February 2016, there were more than 50 SIB projects underway in 12 countries.<sup>12</sup> Total investments in grants, guarantees and senior investments amounted to \$160 million worldwide in 38 deals as of March 2015, according to the Brookings Institution.<sup>13</sup>

But questions also have been raised about whether the mechanism can grow to significantly greater scale, largely because of the complexity of the deals. As SIBs are now arranged, there are five entities involved in their execution – a government, investors, a service provider, an evaluator and an administrator.

"Because they're social services projects, they're so many complexities," says Surya Kolluri, managing director for policy and market planning in Bank of America Merrill Lynch's global wealth and retirement solutions business, which has arranged a \$13.5 million private placement for a social impact bond for a jobs program for ex-inmates in New York.

"The challenge has been the supply of deals," he says, adding that there's no shortage of private capital interested in investing in such deals. With time and experience, though, he believes arranging the bonds will become easier and their scale will grow.

In addition, donors have played a large role in providing guarantees that reduce investors' risks for SIBs. The need for such guarantees could also limit the scale SIBs can attain. Using its own funds versus investors' funds, Goldman Sachs has participated in a couple of deals with sizeable guarantees. In its first deal to decrease recidivism at Riker's Island, a New York City prison, it invested \$7.2 million backed by a \$6 million guarantee from Bloomberg Philanthropies. In a second deal for an early childhood education program in Utah, Goldman provided \$4.6 million in senior capital alongside \$2.4 million in subordinated debt provided by the Pritzker Family Foundation.

While she does not see it in the short term, Andrea Phillips, former head of the social impact fund and social impact bond investing at Goldman Sachs, says, "Our hope is that over time, as risks are better understood, the need for subordinated capital or credit enhancements will diminish."

Another innovative mechanism – an impact security – under development by Lindsay Beck and Catarina Schwab, co-founders of NPX, could serve to boost the scale of use of SIB-like mechanisms by making them available to a wider group of investors and providing transparency so that investors can obtain more information about the relative value of deals, both in terms of return and impact.

Whether or not SIBs attain a scale that would make a dent in the SDGs, they are likely to have an important impact on altering the way governments procure social services, pushing them from buying services to buying outcomes and shifting their focus to funding prevention rather than cures. At the same time, they are likely to cause service providers to place great emphasis on delivering results.

## GREEN AND DIASPORA BONDS

Unlike social, environmental and development impact bonds, green and diaspora bonds are true bonds. Green bonds, introduced in 2007 by the World Bank, are issued for projects that protect the environment and mitigate climate change. They may be issued by public or private entities and are repaid with proceeds from the project funded. Diaspora bonds are issued to people who have migrated from their countries of birth but who want to contribute toward development efforts in their home countries.

While the green bond market has grown to significant proportions – to more than \$42 billion in 2015 – many questions have been raised about whether the completed projects have indeed contributed to the protection of the environment.

"There's no rating association with green bonds, no stipulation as to what green bonds are. There's no (differentiation between) dark and light green bonds," says Georgia Levenson Keohane, senior fellow at New America and the author of a forthcoming book on innovative finance. "They can be used for any environmentally friendly project, however that's defined. So, it's basically an infrastructure bond."

"Green bonds do not get higher yields than regular bonds, they're not riskier than regular bonds, so they aren't necessarily funding projects that wouldn't have gotten done anyway, nor are they bringing down the cost of doing environmental projects," she adds.

Among the questionable use of green bonds has been an issue by Toyota to finance more purchases of the Prius, which is the company's hybrid economy car.

In an effort to address this problem, Egerton-Warburton has proposed the introduction of green bond coupons

that would be issued to investors, like the coupons that regularly are issued for conventional bonds, and would verify that certain quantifiable objectives had been met with respect to protecting the environment.

"That way, investors will be able to see whether the impact is light or dark green, and the bonds can be priced differently based on their impact," says Adam Connaker, a program associate at The Rockefeller Foundation.

Diaspora bonds are issued by governments for development projects to members of a country's diaspora, often at a discount and with yields below market rate. They are not new. They have been used by Japan and China since the 1930s, but they are only recently being tried in locales such as Africa. With an estimated 30.6 million people in the African diaspora, between \$5 billion and \$10 billion could be raised annually for development, according to the New Partnership for Africa's Development (NEPAD).<sup>14</sup>

These bonds could be attractive if donors were confident that their investments would be used for the purposes for which they were intended, says Robert Masumbuko of the African Development Bank. This was a concern, among many others, in an issue for the Ethiopian Grand Renaissance Dam project. So far, Ethiopia is the only African country to have issued the bonds, and both efforts have been unsuccessful.

## CATASTROPHE BONDS

Catastrophe bonds are a hybrid between bonds and insurance. Governments or insurance companies issue bonds, and when weather-related or other kinds of catastrophes occur, investors lose the principal on the bonds, which is used to pay for recovery. When there is no disaster within the term of the bond, investors receive substantial returns. They can be particularly attractive to investors because their returns are relatively high and their risks are uncorrelated with other investments. Over \$40 billion in catastrophe bonds have been issued in the last decade, and there is now approximately \$25 billion outstanding, up from \$4 billion in 2004.<sup>15</sup>

Catastrophe bonds have been primarily used in developed countries, but their use in developing countries is increasing. One of the advances that have made cat bonds more viable is the proliferation of parametric measures that obviate the need to make qualitative judgements about whether any given event meets the trigger requirements for payments. But models of the probability of catastrophes occurring and the expected losses are still needed to determine how the bonds should be priced.

Sucharita Mukherjee, CEO of IFMR Holdings, says that assembling the necessary data is a primary obstacle to the use of cat bonds in India, something she is eager to see introduced.

Despite this obstacle, several variants of catastrophe bonds are in various stages of development. The African Risk Capacity, a sovereign risk pool developed to protect participating African countries against drought (see description under *Guarantees and Insurance*) is currently developing the Extreme Climate Facility, a mechanism that would rely on private investors to purchase catastrophe bonds that would provide funds to participating countries in the event of floods, cyclones, intense heat, drought and other weather events. Coupon payments for the bonds would be covered by donors.

The World Bank and the African Risk Capacity are also looking into the feasibility of using cat bonds to provide funds to ensure that outbreaks of disease do not turn into epidemics.

## RESILIENCE BOND

A further innovation to the cat bond is the resilience bond, now being explored as part of the Urban Resilience Infrastructure project by re:focus partners with funding from The Rockefeller Foundation. Resilience bonds differ from cat bonds in that they are designed to finance projects that would increase the resiliency of the entity seeking protection from catastrophe. Such projects would be financed through rebates from premiums for the cat bond, arising from the projected lower risks resulting from the resilience-enhancing project. For example, the Metropolitan Transit Authority in New York City could use anticipated savings on premiums for an MTA storm surge cat bond to finance the construction of a sea wall that lowers the risk to the MTA in a storm surge.

## MICROFINANCE

Microfinance is an innovation that is now several decades old. Despite serious problems that have arisen with some borrowers becoming deeply indebted, it remains an important source of financing for development and continues to be a locus of innovation.

Currently, more than \$80 billion in microloans to 100 million borrowers worldwide are made annually, according to Keohane.<sup>16</sup>

Since its inception in the 1970s, microfinance has also expanded from small business loans to the provision of other financial services, including bank accounts and insurance, to people who have been excluded from the

# Sucharita Mukherjee and MOSEC

## THE POWER OF FRUSTRATION

Sucharita Mukherjee and several of her colleagues at IFMR were deeply frustrated.

Six months earlier, in June 2008, IFMR Capital, a non-bank financial company based in Chennai, India, had opened its doors with the express purpose of providing access to the financial markets to the millions of Indians who lacked it. But, the small- and medium-sized originators who were making loans to the population that IFMR Capital wanted to serve were constrained by the sizes of their businesses.

IFMR had been trying to persuade investors to buy some of the debt of these small microfinance institutions so they could make more loans. But investors were wary. They feared the risk from loans from a single small originator from just one area of the country that was possibly subject to the same natural disasters.

"They were very high quality originators, but they were very small. They were not ready to go to the capital markets," says Mukherjee, who was CEO of IFMR Capital at the time and is now CEO of IFMR Holdings.

Finally, Mukherjee, deliberating with her colleagues, blurted out, "Why don't we just pool?" What she was suggesting, securitizing the loans of small- and medium-sized microfinance institutions, originators with portfolios as small as \$500,000, had never been tried.

In January 2010, a little more than a year after Mukherjee asked the question, IFMR issued its first multi-originator securitization (MOSEC, now trademarked), a \$6.5 million issue bundling some 42,000 microloans, with an average size of \$200, from four originators. To date, IFMR has issued 89 MOSECs for microloans worth more than \$675 million, representing some 3.7 million loans securitized.

Using a similar model, it has done another \$2 billion of MOSECs of affordable housing, small business and agricultural

loans. The securitizations give the microfinance institutions access to low-cost capital at a price some 200 to 250 basis points lower than what they'd had previously, and to a new group of investors, including mutual funds, private banks and high-net-worth individuals.

Crucial to turning the idea into action was the special combination of people around the table at IFMR, says Mukherjee. Besides herself, with years of experience in structured finance at Morgan Stanley and Deutsche Bank, was Kshama Fernandes, then chief risk officer of IFMR Capital and now CEO of IFMR Capital, who had deep experience in Indian banking and was a well-known figure who provided credibility to their at-the-time unknown institution; Bindu Arinth, the president of IFMR Trust, whose idealism was essential to making the group press on and tackle problems rather than being discouraged by obstacles; and Gaurav Kumar, the head of origination, who intimately knew the individual lenders and the details of their business and could vouch for their creditworthiness.

"There was nothing in the law that actually prevented it. It was an innovation waiting to happen," says Mukherjee. "At the end of the day, you apply the same tools and principles of diversification (you've done in the past). What we did was contribute to the learning in developing our own underwriting standards for microfinance and small business lenders. What we brought was discipline, expertise, and we became the expression for self-confidence for these asset classes."

The securitizations have now become so commonplace that they are no longer considered innovative. However, IFMR remains alone in both structuring the deals and retaining a portion of the debt on its own books, says Mukherjee. That way, IFMR ensures that interests are aligned and that the deals are designed for long-term profitability and sustainability, she says.

banking system. One of the most significant challenges for the expansion of microfinance is to ensure that the mechanism remains in the best interests of those it is intended to serve, particularly as for-profit institutions have entered the field. That is a challenge that Mukherjee and her colleagues at IFMR Capital in Chennai, India, have taken on.

In addition to there being tension between efforts to make microfinance available to greater numbers of people and ensuring that the products remain in the best interests of the people they were intended to serve, there is also a question of whether the products can reach the poorest people.

There is a great deal of interest in providing microfinance products to people earning less than \$10 a day, but there are still billions of people earning less than \$1.25 per day, says Keohane. Leapfrog, a private equity firm for impact with investments predominantly in companies providing financial services to populations in developing countries, primarily serves the under \$10-per-day group. The lowest income group that IFMR Holdings provides microfinance to includes individuals who have incomes of about \$5 per day.

"Maybe philanthropy and government need to address the people at the bottom of the bottom of the pyramid," Keohane says.

## AGRICULTURAL VALUE CHAIN FINANCING

Agricultural value chain financing is a strategy related to microfinance in that it aims to provide credit to populations that have lacked access to credit, in this case smallholder farmers. The concept of value-chain financing has been around for a long time, but it was recently applied for the first time to smallholder farmers in Nigeria, says Masumbuko of the African Development Bank.

The basic strategy is to provide smallholder farmers the financing they need for production and the access they need to all the steps along the value chain – from storage and milling to transport, distribution and marketing. Ensuring that their products are sold means they are able to repay their loans and have sustainable agricultural businesses. This is achieved through the sharing of risks along the value chain. The financing design, in combination with the burgeoning use of cellphones, is making it possible for farmers to make their needs known.

## FOREST FOUNDATION FUND

The Forest Foundation Fund, currently under development, aims to increase significantly the scale of funds available to arrest deforestation, a major source of the carbon emissions causing climate change. The strategy would take advantage of existing markets and investor practices to produce new funds to pay governments of tropical forest nations (TFNs) not to deforest.

The strategy calls for institutional investors directing a portion of their money market allocation to the Forest Foundation Fund. These investments would be guaranteed by highly creditworthy sponsoring governments in the same way that such governments insure bank deposits. The Forest Foundation Fund would then borrow the same amount in the money markets, which in turn would be invested in higher risk investments. The difference in the

returns between the interest rate for the borrowed funds and the riskier investments would be used to pay TFNs not to deforest. If 15 to 20 countries guaranteeing \$5 billion were to participate, a fund of \$100 billion could be raised that could generate \$500 billion for payments to TFNs, dwarfing existing resources to stem deforestation, says Michelle de Nevers, a senior associate at the Center for Global Development, who is working with Kenneth Lay, former treasurer of the World Bank, and others to develop the fund.

One of the issues to be addressed in arranging the fund is how the arrested deforestation, on which payments to TFNs would be based, could be reliably verified. Although satellite verification has been used for direct donor payments to TFNs, the technique is not foolproof and needs to be refined, says Lay.

## IMPACT INVESTING

A concept coined in 2007 but extant for much longer, impact investing has caught hold and is attaining scale. In 2015, the global market was roughly \$60 billion, according to the Global Impact Investing Network (GIIN). While definitions vary, impact investing is essentially investing for the purpose of both deriving financial returns and producing social impact, or impact returns. Such investments may be made in a variety of asset classes, sectors and regions. Many of the investors who participate in the mechanisms discussed in this report could fall into the category of impact investors.

One of the frequently mentioned constraints on the growth of impact investing is the limited size of the investments. For institutional investors to get involved on a large scale, they need sufficiently large investments for the efficiency of their operations. ■



## IV. Innovations and Their Origins – Part 2

**THE AFRICAN RISK CAPACITY IS ONE OF A NUMBER** of innovative mechanisms that make use of insurance. Other mechanisms in this category include microinsurance, the R4Rural Resilience Initiative and the Resilient Urban Infrastructure Project.

Insurance on the national level as well as the individual level is especially critical in developing countries because in places where resources are already severely constrained, the consequences of a prolonged drought or other disaster are generally worse than in developed countries. For a developing country, it may mean drawing on resources dedicated to other critical needs, and for individual farmers, it may mean having to sell the very assets, such as farm animals, that their livelihoods depend on and taking children out of school.

The African Risk Capacity relies on an innovation that plays a critical role in a number of insurance-related mechanisms: index insurance or parametric covers that reduce the cost of insurance. Instead of having to assess the specific losses in every given incident, insurance providers base their payments on parametric measures such as wind speeds, rainfall or storm surge levels reached in a hurricane. The development of satellite monitoring to take these measures has also been crucial to their use.

In addition to bringing countries together to reduce climate risks, the ARC is innovative in that it is a “south-south” initiative, one that relies on the resources of the developing countries that are the beneficiaries.

The basic mechanism of the ARC is being considered as a model for other applications. The ARC is now looking into whether a comparable mechanism could be developed to provide funding to stop outbreaks of disease before they become epidemics. And a feasibility study is underway for a mechanism, also on the ARC model, that would provide long-term funding for education, occupational training and employment in refugee settlements, says Wilcox.

### MICROINSURANCE

Although the lack of life, property, health, crop and many other forms of insurance can mean selling assets vital for maintaining an income, withdrawing children from school and making other dire choices, millions of low-income people do not have insurance because of its prohibitive cost.

Tackling the issue of affordability was a key motivation for the development of the R4 Rural Resilience Initiative. Under the initiative, small farmers in Senegal, Ethiopia, Malawi and Zambia can pay for crop insurance (weather risk insurance) with their own labor on climate adaptation efforts. Gradually, no longer prey to adverse weather conditions that can wipe out their assets because of the insurance, farmers are expected to be able to increase their savings and ultimately be able to pay for their own insurance.

Howard Kunreuther, a Wharton professor and co-director of the Wharton Risk Management and Decision Processes Center, and colleague Carolyn Kousky, a fellow at Resources for the Future, have proposed combining a mechanism analogous to that of the Urban Resilience Infrastructure project (See Resilience Bonds under Loans and Bonds) with a strategy that addresses the challenge of providing insurance to those who can least afford it.

Kunreuther says that as well-meaning as it may be to try to reduce the cost of insurance to make it affordable, doing so is harmful because it undermines the crucial role insurance pricing plays in indicating the true level of risks. To avoid such distortion, he proposes providing vouchers to low-income people to enable them to buy flood insurance, for example, while also giving them low-interest loans to pay for mitigation measures to lessen the damage flooding may inflict. In a case study, Kunreuther and Kousky have determined that the reduction in insurance premiums resulting from the undertaking of mitigation measures

# Richard Wilcox and the African Risk Capacity

## DISMAY AS A PRELUDE TO INNOVATION

When Richard Wilcox joined the World Food Programme of the United Nations in 2001, he was dismayed by the lack of sophistication in the oversight of the organization's finances and by the level of waste in the delivery of emergency aid to prevent starvation in drought-plagued areas.

"It's a \$6 billion organization, but financially, it is run like a mom-and-pop store," Wilcox says. "We buy stuff and we deliver it."

Year after year, for example, the European Union made its allocation for aid in June while South Sudan routinely suffered droughts from January to March, requiring massive relief efforts. But, year after year, the European Union delivered its aid when funds became available, in Sudan's rainy season, meaning that the aid had to be flown rather than trucked in, enormously escalating the cost.

Wilcox thought if only the money that the World Food Programme knew was coming could be spent when it was most efficient to do so, on the promise that the aid was in the pipeline, a huge amount of money could be saved. After considerable bureaucratic adjustments, a working capital facility was created that provided this flexibility.

Still, the delivery of aid hinged on not entirely predictable donor support in response to emergencies once they happened. It then dawned on Wilcox that the way the developed world deals with the challenge of having emergency funds available when they're most needed is through insurance, which led him to buy a primer on insurance and risk management.

That sparked thoughts about the possibility of a country buying weather insurance. (He'd ruled out agricultural insurance, commonly used in developed countries, as a solution because the

economics of developed-country agriculture, heavily dependent on subsidies, was not applicable to the developing world.) The notion of weather insurance gained promise as he learned of ski resorts buying insurance against snowless winters and construction companies buying insurance against adverse weather conditions that held up their operations.

On the strength of two years of strong results with the working capital facility, Wilcox proposed and received approval to try a pilot weather insurance program for Ethiopia. The insurance was a success, but there was resistance from the WFP and its member states to continue the program because of discomfort about contracting with the private sector.

Meanwhile, Wilcox had collaborated with Joanna Syroka, then a consultant for the World Bank, and had written a paper proposing an insurance policy for all of Africa, underpinned by the fact that the weather systems of different regions of Africa were either uncorrelated or negatively correlated. That made the continent the perfect candidate for insurance.

But the WFP was not happy with the idea, not least because derivatives seemed then (2008-2009) to be proving to be the "weapons of mass destruction" that American business magnate Warren Buffett had warned they could be. Weather insurance is, in fact, a derivative.

The African Union, however, was open to the idea, thanks largely to its deputy head, Erastus Mwencha, who had created an agency to insure trade against political risk within the union.

"Without Mwencha, it wouldn't have happened," says Wilcox.

Some modeling showed that if all African countries relied on cash aid for drought

relief, it would need \$6 billion in minimal assistance. But if they pooled their risk, they would need only half of that.

Wilcox spent the next two years trying to sell the idea to finance ministers and budget directors to persuade them to put money into such an insurance pool. He and his associates even invented a board game to illustrate the benefits of such a pool.

With several countries buying in, a new entity was created that could own a private company, the African Risk Capacity. This entity, in turn, created its own mutual insurance company funded by contributions from the participating countries.

After 10 years of planning, the ARC is now in its third year of operation. Ten countries are participating, and \$60 million to \$70 million has been raised. The first payout of \$25 million in early 2015, in response to drought in the Sahel, was released the day the U.N. launched its appeal, the beginning of a process that customarily takes six to nine months before relief actually reaches those in need, says Wilcox. The payment was to Niger, Mauritania and Senegal, which collectively had paid \$8 million in premiums.

The ARC is self-insured for the first \$10 million; the next \$60 million is put out to reinsurers, and above that amount it is again self-insured. The ARC does not reinsurance the full amount in order to maintain control over pricing. With \$200 million of its own reserves, it can say no to private insurers if it doesn't like the price it's offered for reinsurance, says Wilcox.

In order to receive funds, insured countries must have detailed plans for responding to weather-related emergencies, a requirement that helps optimize the use of the insurance payouts.

# PEPTV and Robert Filipp

## SERENDIPITY AND INNOVATION

Sometimes, innovation occurs by serendipity, or at least it gets a big boost from it.

Serendipity, in turn, certainly gets an assist when it falls on someone like Robert Filipp who, as president of the Innovative Finance Foundation, spends his life dreaming up and executing innovative finance mechanisms.

One of his latest innovations got its start unexpectedly as he was strolling with a Canadian filmmaker who'd been hired to do a spot on one of Filipp's most widely known innovations, UNITLIFE, the levy on extractive industries. It is modeled on the UNITAID airline ticket levy, and the proceeds are to be used to reduce childhood malnutrition.

The filmmaker, Guy Bonnier, who had been following Filipp around for a week to gather footage for the spot, was remarking on what a great idea the UNITLIFE levy was. He also noted that while several industries are now being tapped for a portion of revenues that go to social causes, the entertainment industry had not been tapped in this way. He then mentioned that he was in the process of developing a new TV channel.

From that casual encounter, the idea of creating a humanitarian web-tv channel, PEPTV for "People, Earth and Planet," was conceived. The channel is expected to launch in fall 2016, a collaboration of the Innovative Finance Foundation and Courage Entertainment. Thirty percent of the profits of the station will be used to support humanitarian and social organizations, and it is projected that it could raise \$1 billion for social causes by 2022, Filipp says.

"It's a win-win," he says. "I can help generate revenue for social good, and for them it's a unique differentiator in a market where there are already so many platforms of this type."

could be greater than the cost of loans for mitigation measures. Kunreuther sees this as a mechanism that could have application well beyond the U.S.

## GUARANTEES

Guarantees are not an innovative mechanism in themselves, but they have been employed in novel contexts to bring private capital to issues for which it had not previously been available. The advanced market commitment (AMC) for pneumococcal vaccines developed by Gavi, a nonprofit founded by the Gates Foundation, is a prime example. In this instance, guarantees provided by five countries and the Gates Foundation lay the groundwork for the creation of a market for vaccines where there had not been one. Under the AMC, donations of \$1.5 billion in 2009 guaranteed payment for up to 2 billion doses of a vaccine to be specially developed for the strains of pneumonia most common in Africa and elsewhere in the global south. That commitment led to two manufacturers developing the required vaccines and the vaccinations of more than 13 million children in Africa, Asia and Latin America through 2013. According to the AMC agreement, once the 2 billion doses are dispensed, the drug companies will keep the price of their drugs below a specified level to ensure their continued affordability.<sup>17</sup>

Advanced market commitments for other purposes have been contemplated but have not yet been launched.

Pledge Guarantee for Health uses guarantees from government donors to accelerate the use of donor aid through bank loans to service providers. On the basis of the guarantees, commercial lenders make short-term, low-cost loans to aid recipients so that pledged money can be used much sooner than when the donations are actually received. The acceleration of the availability of funding for the purchase of 1.6 million bed nets to protect against malaria in Zambia in 2011 alone is thought to have saved thousands of children's lives. The mechanism has also been used to reduce the cost of drugs and speed the delivery of contraceptive devices. PGH currently has \$1 billion in lending capacity annually and has so far been used in 26 countries.<sup>18</sup>

## LEVIES, DEBT SWAPS AND BRANDS FOR IMPACT

Pep.TV falls in a category of innovative financing that includes what are arguably not financial instruments at all. The group also includes what have come to be called solidarity levies, donor payments with no expectation of return, such as Reduction in Emissions from Deforestation and Forest Degradation (REDD), and debt swaps.

Solidarity levies and donor payments are methods of channeling private capital to address the SDGs for issues for which there appears to be no way to attract private capital through returns.

They are "for certain market failures that are so large that they can't be addressed with private capital," says Lorenzo Bernasconi of The Rockefeller Foundation.

One of the most appealing aspects of PEPTV and levies such as UNITAID, a tax on airline tickets to provide drugs in developing

countries, and UNITLIFE is that they provide a predictable income stream. As Masumbuko points out, governments that have committed funds for certain purposes can shift priorities, leaving those expecting funds for certain projects high and dry.

UNTAID, launched in 2006 and widely attributed to Philippe Douste-Blazy, special adviser to the United Nations on innovative financing for development, was the first of several levies in development to raise funds for social causes. By imposing a small fee on airline tickets purchased in 10 participating countries, some \$2.5 billion has been raised to provide drugs at affordable prices for the prevention, treatment and diagnosis of HIV/AIDS, tuberculosis and malaria.

UNITLIFE was launched in fall 2015, with four African countries committing to impose small taxes on their extractive industries. The Republic of Congo will begin collecting a 10-cent tax per barrel of oil, and Mali will impose a 10-cent tax on each gram of gold it sells beginning in 2017. Guinea and Niger have also committed to taxing their extractive industries, but they have not determined which industries and the size of the taxes, according to the UN.

The money collected will be put in a fund managed by UNICEF for food supplements for children. The creators of UNITLIFE project say it will raise about \$300 million annually to reduce childhood malnutrition.<sup>19</sup> With wide global participation, revenues could be as much as \$1.6 billion.

A levy on data is also under study, and a financial transactions tax has been discussed.

While microlevies can be dependable, continuing sources of funds for development, there are not an unlimited number of industries that can be so taxed. To be a candidate, an industry has to be large enough to generate significant revenues, and it has to be one for which even a small tax would not discourage sales or be regressive, hurting those living on the most limited incomes.

REDD, essentially a donation, is innovative because the funds are targeted at arresting deforestation and because payment of the donation is contingent on the realization of specific goals. A sort of pay-for-performance mechanism, REDD is a U.N. program through which donors agree to pay tropical forest nations (TPN) not to deforest. Payment is based on satellite monitoring verification of agreed upon targets. When originally conceived, the program was to produce offsets that could be traded. However, that facet of the mechanism has not been developed. And that, according to Arthur van Benthem, assistant professor of business economics and public policy at Wharton, is a good thing.

Offsets are fraught with problems, including the possibility that the purchase of offsets may lead to an increase in emissions overall and the possibility of leakage – i.e., that while deforestation may be arrested in one area through the mechanism, those cutting trees may simply move their operations to different areas. Their efficacy is also questionable because of the difficulty of proving whether the arrested deforestation would have happened without the offset mechanism, and the possibility of fraud. In van Benthem's view, REDD-type mechanisms, especially on a bilateral basis, are preferable though still far from ideal. For example, in a bilateral agreement in 2008 in which Norway agreed to pay Brazil \$1 billion if it slowed deforestation at specified

## Data Levy – Richard Wilcox

### GOING AFTER SCALE

In 2014, Richard Wilcox, who was in Switzerland to give a presentation on the African Risk Capacity during the annual World Economic Forum meeting, was browsing bulletin boards.

He noticed a poster on data and the digital revolution, and he was struck by the concept that big data was the engine of the digital revolution. Kind of like coal and other extractive industries for the industrial revolution, he thought.

That led him to thinking about big data as a natural resource. Cognizant of the discomfort, particularly in Europe, with the oceans of data being collected about individuals and the resulting loss of privacy, he thought maybe people ought to be compensated for this thing of value that they were effectively giving away. That made him think perhaps a levy could be imposed on big data that could be used for the common good – i.e., development and emergency relief. It could be similar to the levy on airline tickets that has funded UNTAID.

Thanks to Wilcox's efforts, there is now a feasibility study underway.

Such a levy is particularly appealing because it could produce quite substantial funds unlike, say, a tax on sports tickets, Wilcox says.

"If you're serious about ending poverty in our lifetime, a tax on sports tickets is like having a bake sale," he says. "Data gets at the heart of the new economy."

rates, emissions will not be increased elsewhere and leakage is less likely, van Benthem says.

Concerns remain about whether the REDD mechanism achieves its goals, and its use is limited by how many and to what degree donor countries are willing to contribute.

Debt swaps generated \$1.4 billion in new financing for development between 2000 and 2013, and they are projected to grow to generate \$600 million annually by 2024, according to Dalberg, a global development advisory firm.

Under Debt2Health, creditor countries forgive a portion of a debtor country's debts in exchange for the debtors committing to invest the funds freed up from debt relief in their national health programs through grants they make to the Global Fund to Fight AIDS, Tuberculosis and Malaria.

When the mechanism was launched in 2007, the goal was to arrange some \$260 million in debt relief and additional funding for the Global Fund.<sup>20</sup>

In a variation of that strategy, the impact investor NatureVest, a part of the Nature Conservancy, is investing

\$23 million, and philanthropists are contributing another \$7 million to provide the Seychelles \$30 million in debt relief. In exchange for that relief, the island nation is committing to depositing its debt payments in a trust fund to be used for marine conservation and climate adaptation measures.

There are many other innovative mechanisms that are channeling private capital toward the SDGs. Clearly, there is a wealth of creativity, passion and expertise being mobilized to develop innovative mechanisms to steer capital towards the SDGs. Still, a most liberal accounting of the mechanisms outlined above yields hundreds of billions of dollars in annual financing, still well short of the \$2.5 trillion projected to be needed.

As much as has been done, a lot more innovation is required. Those who have innovated point to a number of contributing factors that were indispensable for their breakthroughs. Several factors were mentioned repeatedly, including the need to take risks, to be bold, to be optimistic and passionate, and to be surrounded by people with different viewpoints and diverse expertise. If innovation can be concocted, these would be the ingredients one might be advised to stir in. ■



## V. Ingredients for Innovation

**EVEN THOUGH INNOVATIONS THAT COULD**  
produce hundreds of billions of dollars in new funding  
have been devised for achieving the SDGs, innovative  
mechanisms that can produce hundreds of billions of  
additional dollars are still needed.

Every innovation described in this report arose in different circumstances, but there are a number of factors in common that innovators cite as critical for their achievements.

"There are very different conditions. There's no XYZ formula," says Saadia Madsbjerg, a managing director of The Rockefeller Foundation and leader of its work on innovation.

She lists as key elements the importance of collaboration, risk-taking, someone who knows finance well enough to come up with ideas, intellectual curiosity, frustration with the inefficiencies of existing systems, passion and a conviction that what seems impossible is possible.

Innovators repeatedly speak of the importance of assembling a group of people representing a variety of disciplines to address a challenge. It is when a group representing a diversity of views and backgrounds comes together to collaborate that innovation is likely to occur, says Malango Mughogho, senior technical adviser in the office of the president of the African Development Bank.

"While innovation is sometimes hampered at MDBs, it often takes place all the same because two of the ingredients for innovation exist in abundance: a common goal and ability, finance, convening power, knowledge and a collaborative mind-set," Mughogho says.

Shahnaz, Mukherjee and others say the same. The common belief that such an assemblage is most apt to produce new ideas is reflected in the fact that several labs developed

expressly to produce financial innovation are designed accordingly.

The Milken Institute's Financial Innovations Lab conducts multidisciplinary workshops bringing together investors, industry experts, public officials, NGOs, philanthropists, scientists, academics and others to come up with innovative solutions. In its one- or two-day labs, groups have worked on devising financial mechanisms to address a wide range of challenges from global natural resources conservation and alleviating childhood malnutrition to the restoration and development of historic and archeological sites.

The Finance Innovation Lab, a London-based nonprofit founded to "change the financial system so it serves people and planet," and the Geneva-based Innovative Finance Foundation operate on similar premises.

"The cross-fertilization of expertise" is a key element of innovation, says John McArthur, a senior fellow in the Global Economy and Development program at The Brookings Institution. "The IFF, for example, brings together political expertise, public policy expertise and financial markets expertise."

Within these groups, it's critical to have at least one person with deep financial knowledge, Madsbjerg and others say. As shown by the experiences of Christopher Egerton-Warburton, creator of the IFFIm, and Richard Wilcox, creator of the African Risk Capacity, knowledge of special, arcane areas of finance can make the difference between coming up with a viable plan, and not.

"It helps to meet up with a quant," Wilcox observed, referring to his collaboration with Joanna Syroka, who provided the pivotal insight that weather in different regions of Africa was uncorrelated or negatively correlated, crucial for the development of the African Risk Capacity.

# Impact Exchange – Durreen Shahnaz

When Durreen Shahnaz was growing up in Bangladesh in the 1970s and ‘80s, she constantly heard adults talking grimly about how their country was entirely dependent on foreign aid and servile to those providing the aid. In retrospect, Shahnaz felt a little of the same way on a personal level in a culture where girls especially did what they were told and were not expected to do much of anything besides please others.

That, Shahnaz says, kindled the blaze that has led her to develop multiple financial innovations to empower poor people everywhere, and women in particular.

A series of steps that thwarted expectations — beginning with coming to the United States for college against her parent’s wishes, working on Wall Street instead of for a nongovernmental organization after graduation, then returning to Bangladesh and working with the at-the-time fledgling Grameen Bank — provided experiences that shaped the trajectory of her innovations.

They began when she started her own business — OneNest — to help the poor women she’d encountered through work at Grameen get their goods to market. After selling OneNest, Shahnaz realized that despite all her hard work in creating the business, it wasn’t going to change the world. She wanted to make seismic change, and it had to be a catalyst for further change.

In college she studied economics, including one of the earliest exchanges for coffee in Belgium in the 15th century and the role of whaling in the colonial New England economy. It gave her a visceral sense of the importance of markets, and exchanges in particular, as the heart of capitalist economies. She decided she had to create a stock exchange for social enterprises.

“I knew nothing about exchanges,” she says.

Gathering together key collaborators — her husband, an investment banker and a close friend who had extensive experience working in the U.S. State Department — and with help from several students at Lee Kuan Yew School of Public Policy at the National University of Singapore, where she taught in 2007, Shahnaz began to figure it out. After being turned down by every major stock exchange in Asia, Shahnaz launched Impact Investment Exchange (IIXAsia) in 2013 with the stock exchange of Mauritius.

“They embraced the whole thing — the risk, the sustainability, the south-south idea,” she says of the Mauritius exchange.

“It’s surreal. After seven years, we have an exchange and an entire capital raising value chain,” she says, referring to several others of her endeavors that help enterprises not large enough to trade on an exchange raise capital.

She overcame the hurdles that creating an exchange entailed, however, only to find that there were no entities large enough to trade on her exchange.

“I either had to wait for a market and twiddle my thumbs or decide if the market won’t come to me, I’ll make it,” says Shahnaz.

The first security of several she intends to create, a Women’s Livelihood Bond, will begin trading on her exchange this spring, she says. It is designed to transform the lives of a half-million women by providing capital for businesses that create jobs for women.

“I’m hoping others will imitate the exchange,” she says.

Diverse experience within each member of the group also adds to the chances that a novel solution will be found.

In his book *Good Derivatives*, Richard Sandor, developer of the Chicago Climate Exchange and numerous other innovations, describes a welter of interests he had throughout his life, including a passion for gambling and playing chess, that were critical to his string of breakthroughs. Somewhat similarly, Egerton-Warburton’s passion for biochemistry early in life, as well as the diverse types of deals he had worked on at Goldman, were indispensable for his devising the IFFIm.

A group of people devoted to solving a single challenge also raises the chances of success.

“We had a roomful of people deeply unhappy who wanted something to happen,” and that was decisive in the development of MOSEC, says Mukherjee, recalling her determination, and that of her colleagues, to figure out a way to increase the lending capacity of microfinance institutions. “If we’d had a hundred other things to do, we wouldn’t have gotten this done.”

A deep frustration, even pain, was a vital motivator that set several innovators off on their quests and sustained them through all the difficulties they encountered in realizing their objectives.

That was the case for Lindsay Beck. She co-founded NPX, a for-profit company to provide access to capital for nonprofits, and developed a soon to-be-issued social

impact security. The impetus for these latest initiatives came after Beck founded a nonprofit called Fertile Hope and had seen firsthand the difficulties of fundraising for nonprofits.

"I felt the pain of fundraising inefficiencies, the inverse relationship between impact achieved and capital raised," she says.

The impetus, too, for Richard Wilcox's quest to establish African Risk Capacity was deep frustration and dismay at the inefficiencies he saw at the World Food Programme.

Whether working alone or with others, innovators also repeatedly mentioned optimism and persistence as critical traits.

Mukherjee credits her collaborator, Bindu Arinth, the president of IFMR Trust, for keeping up the spirits and optimism of her group.

"He helps to make all the problems disappear one by one," she says.

Madsbjerg observes that Mukherjee herself seems to be infused with this spirit.

"Sucharita just says, 'We can do this!' even if it seems very doubtful and others are very skeptical."

Optimism and perseverance were indispensable for keeping the hopes of the IFMR group alive for the eight months it took to develop the MOSEC, and as much or more so for the realization of the IFFIm and African Risk Capacity. It took four years from the time the U.K. Treasury issued its request in 2002 to U.K. investment banks to devise a mechanism to accelerate the availability of aid promised in the future to the launch of IFFIm in 2006, Egerton-Warburton says. The African Risk Capacity, meanwhile, was 10 years in the making.

Innovators also need to be willing to be bold, take risks and, if necessary, to fail, says Andrea Phillips, former head of the social impact fund and social impact bond investing at Goldman Sachs.

She cites Goldman Sachs' participation in one of the first social impact bonds, to

# NPX

## THE DESIRE TO DISRUPT

Lindsay Beck felt the pain of nonprofit fundraising inefficiencies very personally when potential funders lavished praise on the nonprofit she had started in 2001, Fertile Hope, then told her they wouldn't fund it because it was too successful. They wanted to give to nonprofits that needed their help more.

After surviving cancer, Beck had started Fertile Hope to help change the practice of medicine to preserve the fertility of others with cancer.

"There's an inverse relationship between impact and capital raised," Beck says. She goes on to cite statistics of the inefficiencies throughout the sector. "There's a 20-25 percent cost of capital in the nonprofit world, compared to 5-10 percent in the for-profit world. If you do an event, the cost of capital can be even higher, sometimes 50 percent or more."

The fact that impact investing was taking off at the time added to her frustrations. As a nonprofit, Fertile Hope was not eligible for impact investments.

"That seem wrong given that nonprofits are huge drivers of social change," she says.

She'd watch her husband, an equity derivatives sales trader, tapping away on his Bloomberg and would hear him on earnings calls.

"I'd say, 'I want those same tools!'" she recalls.

The frustration led to selling her business and then going to business school, where she wondered aloud why there couldn't be a stock exchange for nonprofits.

In 2014, a year after graduating, she co-founded NPX with Catarina Schwab, and they are poised to launch their first security, which they hope will eventually be traded on their NPX exchange.

The security solves the problem of the inverse relationship between impact and funding, Beck says. The financial value of the security moves in sync with the impact of the strategy being funded by investors.

The security will be an SEC-exempt debt security available to unaccredited as well as accredited investors.

"We're creating a whole new world for the nonprofit sector," says Schwab.

"The scale is limitless," adds Beck. "More than \$500 billion is given out in government grants annually by the U.S. alone. There's approximately \$370 billion given out by private donors in the U.S. annually, and there's hundreds of millions in grants globally (from supranational entities, individuals and governments). So, if this becomes a new way to structure that funding, some estimate that there's upwards of a trillion-dollar potential."

For innovation, "it helps to have an insatiable desire to disrupt the status quo," says Beck.

reduce recidivism at Riker's Island in New York City, as the kind of fall innovators must be willing to take if they are to develop significant new mechanisms. Although the program did not reach its targets and Goldman lost part of its investment, the undertaking was a success because the mechanism worked just as it was supposed to and the government did not pay anything for the unsuccessful intervention, according to Phillips.

"The way to spur innovation is to be comfortable with failure," she says.

For a great new idea to emerge from a room of collaborators, it is also critical to have connections to a variety of institutions that can help to realize the ideas, says Madsbjerg.

"Just having a great idea isn't enough. If you want to really have impact, you need smooth partnerships, collaboration, not just a financial mechanism."

As for Shahnaz, it helps to have collaborators – in her case, the stock exchange of Mauritius – who are also willing to take risks. Similarly, Wilcox says he couldn't have devised the African Risk Capacity without Erastus Mwencha, deputy head of the African Union, who did not shy away from using the derivative instrument Wilcox was proposing.

Yet another vital element for following through on an innovative idea is the existence of political momentum. In the development of the IFFIm, for example, the challenge issued by the U.K. Treasury and the mere three months to accomplish it, provided vital momentum, says Egerton-Warburton.

Similarly, the May 2016 World Humanitarian Summit in Istanbul was a spur to Filipp and his collaborators to devise a mechanism to increase the humanitarian aid available through the U.N.'s Central Emergency Response Fund from the current level of \$450 million to \$1 billion. Within months of getting a request from the German government to come up with a solution, Filipp devised a concept for a mechanism that would add to the funds by means of a global weather insurance policy.

For Kenneth Lay, the former treasurer of the World Bank, the Copenhagen Climate Conference in 2009 was a compelling deadline to complete planning for his Forest Foundation Fund. When that meeting did not lead to substantive agreements on arresting deforestation, the idea was set aside and has only recently been revived.

Supportive institutions can also be critical.

Egerton-Warburton says Goldman Sachs has an especially innovative culture and not many institutions would have given him the opportunity to spend the time he did on devising the IFFIm.

"None of the other banks to which the U.K. Treasury had issued its appeal showed up to present to (former U.S. Federal Reserve Chairman Alan) Greenspan," he says.

Last but not least, Mughogho says that time to sit back and think is a vital ingredient to producing innovation.

"We're all moving quickly," she observes, "but not necessarily moving forward." ■

- 1 Keohane, Georgia Levenson, *Capital and the Common Good: How Innovative Finance Is Tackling Some of the World's Most Urgent Problems* (New York: Columbia University Press, forthcoming) and Bellagio 2015 Report: *Bringing Innovation Back to Innovative Finance*.
- 2 UNCTAD. *World Investment Report, 2014: Investing in the SDGs: An Action Plan*.
- 3 <http://www.cgdev.org/blog/addis-getting-beyond-aid>
- 4 [http://siteresources.worldbank.org/DEVCOMMINT/Documentation/23659446/DC2015-0002\(E\)FinancingforDevelopment.pdf](http://siteresources.worldbank.org/DEVCOMMINT/Documentation/23659446/DC2015-0002(E)FinancingforDevelopment.pdf)
- 5 IMF, World Bank, *From Billions to Trillions: Transforming Development Finance; Post-2015 Financing for Development: Multilateral Development Finance*.
- 6 Innovative Finance Foundation, *Innovative Financing for Global Education*, 2013. No. 58.
- 7 UNCTAD, *World Investment Report, 2014: Investing in the SDGs: An Action Plan*.
- 8 Bellagio 2015 Report: *Bringing Innovation Back to Innovative Finance*.
- 9 Dalberg, *Innovative Financing for Development: Scalable Business Models that Produce Economic, Social, and Environmental Outcomes*, 2014.
- 10 <https://ciff.org/grant-portfolio/education-development-impact-bond/> and <http://www.cgdev.org/blog/first-development-impact-bond-launched>
- 11 <http://cbey.yale.edu/our-impact/environmental-impact-bonds-pay-performance> and <http://www.blueforestconservation.com/projectslive/>
- 12 <http://time.com/4225542/pay-for-success/>
- 13 <https://www.brookings.edu/research/the-potential-and-limitations-of-impact-bonds-lessons-from-the-first-five-years-of-experience-worldwide/>
- 14 NEPAD, *Mobilizing Domestic Financial Resources for Implementing NEPAD National and Regional Programmes & Projects*, 2014.
- 15 Keohane.
- 16 Keohane.
- 17 <http://www.who.int/bulletin/volumes/89/12/11-087700/en/>
- 18 Keohane.
- 19 Keohane.
- 20 <http://www.brookings.edu/~media/Projects/global-health/debtconversion.PDF>

## Special Report

# Innovative Finance: Mobilizing Capital for Maximum Impact

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