Evan A. Thomas *Editor*

Broken Pumps and Promises

Incentivizing Impact in Environmental Health

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Foreword

In 2007, The Rockefeller Foundation convened a group of philanthropists, social impact leaders, and finance professionals at our Bellagio Center overlooking Lake Como to find new solutions on how to mobilize private capital to solve humanity's greatest challenges.

It might seem an odd place, seemingly so far away from the problems of the real world, to discuss such consequential topics. But that's precisely the Center's power: its serene location encourages those attending the conferences within its gates to dream big. And that's exactly what this distinguished group did, coining the term "impact investing" for a field that would help investors invest with the intention of both profit and social and environmental impact.

While the idea of using private capital to help solve humanity's greatest challenges wasn't itself novel, this new approach of double-bottom-line investing would lay the groundwork for new products and processes to channel more money, more effectively, towards these goals. And it comes at a critical time for philanthropy, as global philanthropic funds, even when combined with the development or aid budgets of governments, add up to billions of dollars. Meanwhile, the cost of solving the world's most critical problems runs into the trillions, including an estimated $2.5 trillion annual funding gap needed to achieve the Sustainable Development Goals (SDGs) in developing countries alone. Private capital is urgently needed in order to fill this gap and address pressing global challenges.

Since that meeting at Bellagio, the field of impact investing has taken root with the help of new infrastructure built with $40 million funded by The Rockefeller Foundation, including the creation of the Global Impact Investing Network, the rise of B-corporations, and the establishment of the Impact Reporting and Investment Standards and GIIRS analytics, now considered the "gold standard" for measuring a company or fund's social and environmental impact.

But there is still great opportunity for growing and developing the metrics and measurement tools that enable us to evaluate what is working and what is not. For those investors who seek to align payments with performance, innovations in both technologies and organizations will be needed.

At The Rockefeller Foundation, we are working to help support many of these innovations through Zero Gap, an effort dedicated to mobilizing large pools of private capital for social good. To do this, we are identifying the next generation of innovative finance products, partnerships, and processes that have the potential to create outsized impact. Employing a venture philanthropy model, Zero Gap supports early-stage design and leans heavily on collaboration and experimentation with both private and public sector partners. Whether it is pay for performance mechanisms or new institutional investment models, the solutions we are pursuing will all require objective data, feedback loops, and incentives for demonstrating that impact is actually achieved.

In the pages that follow, contributors discuss some of the emergent innovations in measuring the impacts of investment, with a specific look at poverty reduction. Edited by Professor Evan A. Thomas, this collection will be a valuable addition to the discourse on how we can better incentivize and evaluate impact across range of issues.

As an engineer and an entrepreneur working in global health, Professor Thomas has assembled compelling examples of technology, finance, and feedback that offer intriguing opportunities to close the gap between intent and impact. For example, the high adoption of mobile phones can help to accelerate the time it takes to make data actionable, while closing gaps in distance and subjectivity. Meanwhile, crediting systems, such as energy metering or carbon finance credits, can help align payments flowing from communities, donors, and investors with performance measures.

The development of such systems will be critical to supporting shared goals of mobilizing larger amounts of private capital to have more measurable and meaningful impact. Professor Thomas has edited much of this book while overlooking the same grounds as the pioneers of impact investing suggests that the Bellagio Center has once again inspired dreams that will transform lives around the world.

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Acknowledgments

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Editor Biography

Evan A. Thomas, Ph.D., PE, MPH is an Assistant Professor and Director of the Sweet (Sustainable Water, Energy and Environmental Technologies) Laboratory, and a Faculty Fellow in the Institute for Sustainable Solutions at Portland State University. He works at the interface of engineering, environmental health, and social business, with professional experience working in government, industry, non-profits, and academia. He holds a Ph.D. in Aerospace Engineering Sciences from the University of Colorado at Boulder, is a registered Professional Engineer (P.E.) in Environmental Engineering in the State of Texas and holds a Masters in Public Health from the Oregon Health and Science University.

He is also a social business entrepreneur engaged in global health programs. Evan was a founding volunteer with Engineers Without Borders–USA in 2002, which led to co-founding Manna Energy Limited in 2007. In 2012, he co-founded SWEETSense Inc., an Oregon technology company. He also served as the Chief Operating Officer of DelAgua Health, a social enterprise partnered with the Government of Rwanda.

Prior to joining PSU, Evan worked as a civil servant at the NASA-Johnson Space Center in Houston, Texas. At NASA, he was a principal investigator and project manager in the Life Support and Habitability Systems Branch working on concepts and flight hardware for sustainable Moon and Mars spacecraft.

Chapter 1
Introduction

Evan A. Thomas

Abstract Global environmental health efforts are motivated by a sense of common responsibility and opportunity. These programs take forms large and small, from community groups to the World Bank. The methods likewise take varying, and sometimes competing forms, from watershed restoration to road building to community engagement, with funding provided by charities, loans, microfinance and big business. Once these projects are installed, typically the implementers are their own evaluators. When resources allow, some may invite external experts to visit the projects. Under the best of circumstances, funding is available to run a randomized controlled trial to rigorously evaluate if the projects are improving the intended environmental, health or other outcomes. But, usually sooner rather than later, the funding runs out for that particular project, and often organizations move on. This has resulted in sad statistics. For example, half of the water pumps installed in some African countries are broken a few years after they're installed. We propose an alternative – moving the mindset of funders toward pay-for-performance models of humanitarian and environmental interventions, backed by objective measurement tools and metrics. Instead of pushing money toward projects based on promises, pay interventions for successfully demonstrating impact that meets a stated intent.

Keywords Millennium development goals • Sustainable development goals • Impact • Intent • Pay for performance

1.1   The Intent to Impact Gap

The United Nations Sustainable Development Goals (SGDs) were announced with fanfare in September 2015. Replacing the retired Millennium Development Goals (MDGs), the 17 SDGs promise to deliver an ambitious range of impacts globally, including "End poverty in all its forms everywhere," "Ensure access to water and

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sanitation for all," "Ensure access to affordable, reliable sustainable and modern energy for all", and "Revitalize the global partnership for sustainable development" (UN 2015).

While the intent is ambitious, what is less apparent is how impact and success will be measured. At release, the United Nations provided no objective standards or statistical indicators. These standards will no doubt be informed by the favorable interpretation of the progress made with the MDGs. In many cases, the United Nations claimed that the MDG goal targets were met. For example, the UN claimed to have, "met the target of halving the proportion of people without access to improved sources of water, five years ahead of schedule," (WHO/UNICEF 2012). Unfortunately, it has become apparent that the standards and measurements used for the MGDs were in many cases insufficient to actually meet these goals. As a result, the doubling-down with SDGs may equally fall short if measurement standards are not directly aligned with the impact intended.

Only a month after the SDGs were announced, the United States Government Accountability Office (GAO) released a report examining the United States Agency for International Development (USAID) efforts in water and sanitation. The title was straightforward – "USAID has Increased Strategic Focus but Should Improve Monitoring" (GAO 2015). The report commended USAID's water and sanitation efforts, but highlighted that, even by USAID's own metrics, they were likely overstating impact.

USAID's recommended standard and custom indicators include "Number of people gaining access to an improved drinking water source", and "Number of people gaining access to an improved sanitation facility". These indicators are intended to be collected annually for programs implemented in the previous year and have no meaningful consideration of monitoring over a period of years, measurement of water quality or sanitation level, or health impact. And yet, even with these demonstrably low quality indicators, USAID failed in many cases to collect data, and, in the view of the GAO, may have overstated their impact in claiming that millions have been provided access to safe water and sanitation.

Rather than an indictment of USAID or the United Nations, these examples instead highlight the status quo in delivering well-intentioned environmental health interventions. The finite and fickle flow of funds begets incentivizing new projects, and not sustained delivery of services.

1.2   Sustaining Impact

In contrast to piped water supplies, sanitation disposal or electrical grids in countries like the United States, service provisioning in many developing countries takes the form of household water filters, community hand-driven water pumps, improved wood, charcoal or kerosene cookstoves, and pit latrines. Access to these improved drinking water, sanitation systems and clean burning stoves could benefit the billions who suffer from diarrheal disease and pneumonia, two of the leading

causes of death for children under five globally (UNICEF 2015). Billions of dollars are spent annually by governments, donors, non-profits and private sector institutions on technology interventions designed to provide these environmental services and address these public health issues.

The resilience of environmental service provisioning globally is dependent upon credible and continuous indicators of reliability, leveraged by funding agencies to incentivize performance among service providers. In the United States, these service providers are usually utilities providing access to clean water, safe sanitation, and reliable energy. However, in rural areas of developing countries, there remains a significant gap between the intent of service providers and the impacts measured over time.

This status-quo generally calls for finite funding and timelines of typically a few years to deploy, maintain and monitor such interventions. Impact is nominally evaluated by implementers directly. In some cases, funding may be available to employ health epidemiologists or development economists to run randomized controlled trials to rigorously evaluate if the projects are improving environmental, health or other outcomes. Yet, even when a positive impact is measured, the majority of these environmental service interventions are supported by implementers for only a few years. As a consequence, there is increasing evidence that much of the services provided in developing countries have failed to continue to positively deliver services.

Driving along a rural dirt road in many developing countries you see frequent evidence of this generous intent of global humanitarian aid agencies. Most tangible are hand driven water pumps that dot the landscape. These pumps are the concrete and steel outputs of a global intent to provide more clean water to more people. Thousands are installed every year, funded and implemented by organizations large and small. But, sadly, in many cases a flip of a coin may be your best judge of if the next water pump you pass will be surrounded by people, often women and children, filling their jerry cans, or if you'll see a decrepit artifact of wasted resource.

In rural sub-Saharan Africa, where hand pumps are a common technology, 10–67 % of improved water sources are non-functional at any one time, and many never get repaired (Foster 2013). While the proximate failures may be a leaky seal, a broken riser or a missing handle, these are only symptoms of the ultimate failure in how we fund, incentivize and monitor these efforts.

Presently, the impact of interventions may not always be aligned the intent originally sought. Improved regulations, standards and metrics that closely match intent, programs can be directly evaluated for compliance with those metrics and funders may incentivize and reward implementers for demonstrating impact.

Many organizations are now recognizing that a lack of objective data on program performance is contributing to a subsequent lack of accountability and misallocation of resources. Emergent tools and policy mechanisms may be able to respond to these issues. Improved and transparent feedback on the actual impact of global health and environmental programs may ensure the success of these efforts. Rather than infrequent data collection, more continuous feedback may improve community partnerships through continuous engagement and improved responsiveness. This approach seeks to raise the quality and accountability of these projects internationally

by separating project success from advocacy. Additionally, by providing monitored data on the appropriateness and success of pilot programs, investors and the public can make more informed funding decisions.

In this book, we highlight some of the challenges in the current models of global environment and health efforts, and offer case studies that leverage feedback mechanism that can ultimately prove, and improve, impact. The status-quo is critically reviewed (Chap. 2) and evaluated by leading experts in development economics (Dennis Whittle of Feedback Labs, Chap. 4) and public health (Thomas Clasen of Emory University, Chap. 5).

On institutional levels, contributions from the Rockefeller Foundation, the Yunus Social Business and the World Bank provide frameworks for performance-based payments (Forward, Chaps. 3, and 16).

Programmatically, versions of these tools are demonstrated by the Freshwater Trust leveraging clean water crediting for ecological restoration (Chap. 7), and DelAgua Health using carbon credits to provide water and air quality public health interventions in Rwanda (Chap. 8 and 9).

Technologies such as cellular sensors and mobile money payments are use by Oxford University to deliver water pump services (Chap. 6), ethnographic researchers to evaluate sanitation interventions (Chap. 13), social enterprises including Sanergy Inc. to deliver sanitation services (Chaps. 12 and 14), and numerous small enterprises to deliver energy services (Chap. 15).

Finally, new models for monitoring, modeling and monetizing health impacts of interventions such as cookstoves are presented by Kirk Smith's research group at the University of California, along with program developers at CQuest Capital and NexLeaf Analytics (Chaps. 10 and 11). As Kurt Vonnegut said, "Another flaw in the human character is that everybody wants to build and nobody wants to do maintenance." With these innovations perhaps this flaw in global environmental health may soon be addressed.

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Chapter 2
Performance Over Promises

Kristi Yuthas and Evan A. Thomas

Abstract Globally, stories of environmental health efforts are filled with good intentions and broken promises. Linking payments directly to long term social and environmental change can in some cases provide a solution. Pay for performance is now being used in a wide range of interventions and programs, but the potential of this approach is only beginning to be understood in the social sector. We explore theories that underlie pay for performance and lay the groundwork for understanding why and how this approach works. We then describe our Intent-to-Impact cycle—a four-stage model of Intent, Interventions, Evidence, and Pay for Performance that closes the loop between good intentions and impacts delivered. The challenge now is to use knowledge from this cycle to identify, explore, and learn from funding approaches that have and have not worked in important fields within the sector.

Keywords Pay for performance • Intent • Impact • Environmental health • Management theory • Global development

2.1 Pay for Performance

The common goal of nonprofits and social enterprises is to create positive social and environmental change. Yet the effectiveness of organizations in creating these changes varies greatly and the positive contributions of some organizations is debatable. In the absence of positive impact, some organizations are cost-ineffective in use of valuable resources that could be put to better use in making positive change.

When organizations fail to deliver promised impacts, donors can become skeptical and redirect their donations, taxpayers may push to reduce their governments' support of change efforts, and socially-oriented financiers may withdraw financial

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support or further emphasize financial returns. Such changes can greatly restrict the resources available to tackle devastating and persistent social problems.

2.1.1   Focus on Performance

One widely-promoted solution to this problem is increased accountability and transparency. Many funders are increasing their requirements for project monitoring and reporting and have encouraged more systematic evaluation and communication of activities and performance. These funders want evidence that their investees are doing the promised work and delivering the agreed upon outputs. But meeting these demands for accountability doesn't guarantee that the desired social changes have been achieved.

To ensure that these investments are having an impact, there has been an ongoing push toward providing hard evidence. The "gold standard" for reliable evidence comes from randomized control trials (RCTs). In this approach, measurements are taken before any action is taken, and groups are randomly assigned either to receive or not receive a funded intervention. At the end of the intervention, the organization or some external auditor measures whether the group that received the intervention is better off than the group that did not.

Although trials can be valuable, they are only useful for a fraction of investments, because they require very careful control of the intervention and they don't allow for any course corrections during the delivery of the program. This isn't possible in turbulent environments. And evidence about one intervention can rarely be generalized to another, because local conditions and populations vary so widely. This has left the sector with insufficient guidance on how to more efficiently and effectively address the needs of beneficiaries and to create the desired impacts.

Nonprofits and social enterprises in many fields are acutely aware of this challenge. As funds remain tight and problems remain massive in number and scope, the sector is looking for new ways to improve resource allocation and efficiency so that providers can do more with less. Pay for performance has begun to emerge in various forms in the social sector as organizations and their funders begin to recognize the potential for this paradigm.

At its core, pay for performance is the payment of money or other resources contingent on achievement of a performance goal. The increased recent interest in this approach results from the belief that funding can be designed to increase an organization's social performance through impacts such as improved quality of services, higher number of beneficiaries positively affected, or increased efficiency of service provision.

Donors have always cared about performance, and it has been common practice to link performance in one time period to funding in the next. However, like most ongoing funding, this performance-based funding has typically linked funding to inputs and activities rather than outcomes (Klingebiel 2012). This status quo is simplified in the following image.

Funders pay for successful performance in the delivery of services, such as the installation of solar panels or latrines. But whether these services have the intended

Fig. 2.1 The status-quo in many environmental health interventions includes linear flow of funding that does not result in continuous or reliable feedback on impact for beneficiary communities

impact on the populations they're intended to serve remains unknown. So funders and service providers alike are left with little feedback for improving their operations or for more effectively directing resources (Fig. 2.1).

2.1.2   Elements of Pay for Performance

Pay for performance provides an approach and incentives to help ensure that the question of impact will be answered and the answer will be that positive performance outcomes have been achieved. Three key elements are important when designing and managing performance-based contracts:

Performance: The agreements made between partners will include process for measuring and evaluating performance. Outcome and/or impact goals are specified and related performance indicators are identified. This forces parties to be clear about both the end conditions they seek to achieve and the path through which these conditions flow from activities and outcomes.

Incentives: In performance-based contracts, at least part of the payment is linked to performance outcomes. Financial and non-financial incentives are developed to align the risks and objectives of the parties so that when an implementer produces the desired impacts, both the funder and implementer will benefit.

Risk: Linking rewards to performance creates increased risk for implementing partners. In traditional contracts, funders select implementers based on their past and expected future performance. The only recourse funders have for poor performance is the drastic measure of terminating the contract. In pay for performance, parties have incentive to refocus and innovate to continually improve performance outcomes.

These foundational dimensions of pay for performance arrangements affect and guide the intervention process, because the compensation received is directly linked to the impacts achieved. Contracts are carefully designed and executed to maximize their benefits.

2.1.3 Current Approaches

Pay for performance approaches can be characterized based on three broad categories: performance based aid, performance based incentives, and performance based contracting. Performance based aid refers to programs that link foreign assistance to program outcomes. For example, one program funded by the World Bank's Global Partnership on Output-Based Aid reserved final payments for water service until it was shown that the service was functioning six months after it had been installed (Klingebiel 2012).

Performance based incentives are programs that incentivize behaviors. In this approach, the funder has specific behavioral expectations for the beneficiary and/or service providers that are closely linked to desired outcomes. Typically these are individual behaviors, such as patient completion of health treatments.

Performance based contracting can be defined as a contractual agreement between a funder or purchaser of goods and services and the supplier of those services. A contract ties at least part of the payment to performance. Performance based contracting has become a standard feature of management in for-profit corporations. It includes a clear set of objectives and indicators, processes for gathering and evaluating performance data, and rewards or sanctions based on performance to which the contracting parties agree.

Pay for performance is used in a wide range of interventions and programs and the potential of this approach is only beginning to be understood in the social sector. The challenge now is to identify and explore funding approaches that have and have not worked in important fields within the sector. We begin by exploring the theories that underlie pay for performance to lay the groundwork for understanding why and how this approach works.

2.2 Theoretical Foundations

Linking pay to performance has a foundation in decades of research and experience with pay for performance, both within and between organizations. Early principal-agent economic models focused on the relationships between owners (principals) and workers (agents) under circumstances in which the two groups had different goals and the worker's efforts weren't always visible to the owners. Paying workers for their output, such as for the number of items they produced, was a way of aligning the incentives of the workers and owners and overcoming problems of unequal information and the potential for shirking.

In recent years, pay for performance models have increasingly been used to understand and manage the relationships between organizations and they have been widely studied in business-to-business and business-to-government settings. Performance based contracting (PBC) is used to align the interests of partners across the entire supply chain.

Pay for performance is perhaps especially important for social sector work because it stresses beneficiary (customer) value. By using financial tools to align interests, it ensures that all supply chain partners benefit when social impact goals are achieved. Contracting partners and beneficiaries have the incentive to work together to produce results, and as a result, have the incentive to share knowledge and work together to improve processes and pursue other innovations that can improve impact.

Principal-agent models use contracts to govern relationships. The contracts are usually designed to guarantee benefits for the principals or investors when outcomes are uncertain and they lack information. These contracts can specify what agents are supposed to do, or as we propose here, they can specify what agents are expected to achieve.

Management control theory, in part, combines both of these outcomes and focuses on coordination of activities across contracting partners. Processes are monitored throughout the project which enables greater control over the outcomes produced. Process monitoring requires a clear understanding of how inputs and activities result in outputs and desired outcomes. This approach requires the investor to have a better understanding of the value chain and greater participation in monitoring throughout an intervention.

Transaction cost economic theory can also shed light on the value of pay for performance contracts. This theory considers the contracting costs and the efficiency of maintaining partnerships across contracting periods. When financial rewards are linked to outcomes, implementers may be more willing to invest in assets and processes specific to one funder or intervention, because the mechanisms through which those investments will be recouped are more clearly specified.

Experience in for-profit businesses demonstrates that pay for performance contracts can not only provide greater benefits to investors, by generating the desired performance outcomes, but they can provide a host of other benefits as well. Shared goals and greater cooperation across the supply chain can lead to knowledge sharing, collaborative innovation, and greater performance returns on investments. These benefits can also be realized in participatory development initiatives if the interests of beneficiaries are embedded into contracts.

2.3   Aligning Intent with Impact

Achieving sustained social and environmental impact requires much more than good intentions. Parties working to create the change must develop a closed-loop system that ensures that the investments they make are monitored and managed
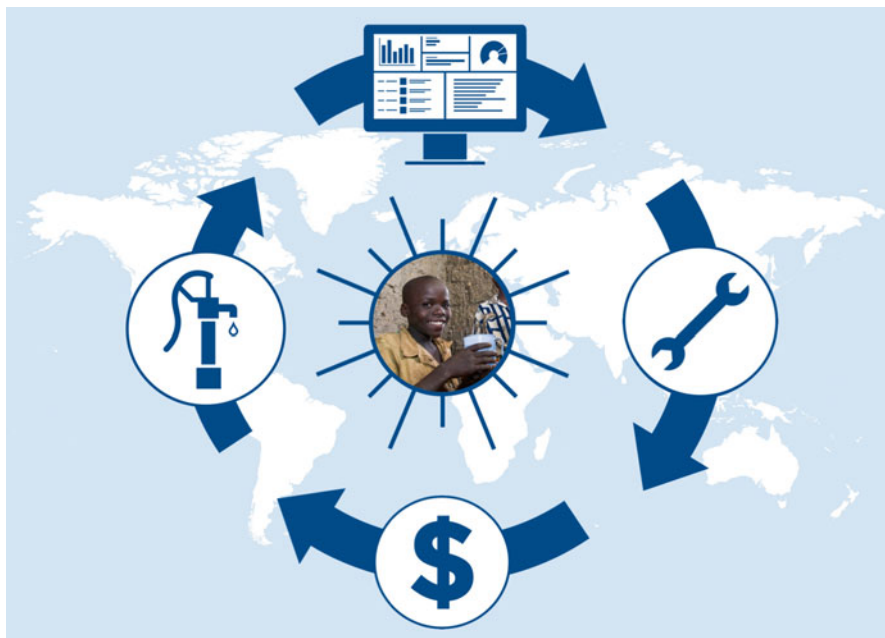
Fig. 2.2 A closed-loop pay-for-performance model aligns direct impact with funding. In this figure depicting a water pump installation project, water point functionality is monitored, maintenance activities provided, and payments generated through evidence of service delivery

such that progress toward impact is visible, course corrections can be made, and achievement of impacts is rewarded. Here, we develop a model of how pay for performance can be used to turn good intentions into lasting social and environmental change. The model presented here includes four elements, as seen in the diagram below: intent, interventions, impact evidence, and pay for performance. The cycle then loops back to intent as the cooperating partners re-define and re-imagine their intentions and interventions to create greater impact in the next round (Fig. 2.2).

The intent-to-impact cycle has four elements:

- Intent—the desired social and environmental impact goals are identified and agreed upon.
- Interventions—the implementing partners plan and execute interventions to achieve performance goals.
- Impact Evidence—measurements of performance are gathered and analyzed.
- Payment for Performance—payments are made based on evidence of impact delivered.

This cycle provides a way for funders and implementers to close the loop by linking pay to the performance of those activities that provide the social and environmental benefits both parties seek. Linking pay to impacts has many advantages over traditional approaches in which implementers are paid based on their activities

or on the delivery of products and services. Looking beyond these outputs to real, long-term impacts encourages partners to allocate resources to high-impact projects, to continuously innovate ways to achieve impacts more effectively and efficiently, and to make beneficiaries full partners in the co-production of impacts. This alignment is illustrated in the following figure.

2.3.1 Objectives of P4P

Pay for performance arrangements of all types are typically designed to achieve a similar set of objectives. First, they facilitate coordination between funders and providers to achieve end results for beneficiaries by designing incentives to ensure that goals among all three of these parties are aligned.

Second, by heightening the importance of performance outcomes and better defining the steps necessary for achieving them, pay for performance can help promote goal-oriented organizational systems. They can help create and support organizational systems in which achievement of goals isn't something attended to after completion of a project. Rather, it becomes embedded in the policies, processes, and even the culture of the organization. Third, pay-for-performance approaches promote external legitimacy. These arrangements signal that resources are being effectively managed, which can impact individuals from the parties involved but also potential future contracting partners. Because they demand accountability and transparency, at least to funders, these methods require systematization and discipline that can have numerous other organizational advantages.

Funders will typically seek to maximize the impact of any intervention and may have lofty or aspirational goals. Knowing that at least part of their payment will be determined by achievement of these goals, implementers will have the incentive to make sure that these goals are realistic, measurable and achievable.

2.3.2 Element 1: Intent

The first element, and the key to the pay-for-performance model is intent—the intended social and environmental changes that define and drive the model. In the first step in the intent-to-impact cycle, the collaborating partners establish the intent of their partnership. Before an intervention is planned, the partners need to agree on a clear set of output and impact goals. This is not the same as agreeing on expenditures, activities, or even goods or services to be delivered. For example, rather than agreeing that a certain number of water filters or malaria vaccines will be delivered, the parties will agree on the impact goals, such as disease reduction, that they want and expect to achieve. Each party must clearly define what a successful intervention would look like to them and eventually identify the kind of evidence that would convince them that long term success had been achieved.

This can lead to very different conversations than those focused on behavioral expectations. And the process can be quite enlightening, as it can reveal differences in intentions and perspectives among parties and even among members of one of the parties. For example, microfinance investors have very different intentions even as they agree on the means for achieving desired outcomes. If the focus is on short term operational goals, like granting a certain number of microloans or achieving a targeted portfolio value, the true intent of the loans may not be clear. But when intent is made visible, different perspectives will become apparent. Some investors seek to provide financial services in underserved markets. Others go further and seek poverty alleviation. Still others seek other outcomes such as women's empowerment, community cohesion, or improvements in environmental health. Clarifying the intent of an intervention can therefore help funders and operators to be more transparent about their objectives and formulate partnerships based on a better understanding of individual and mutual expectations and goals.

Voices of beneficiaries and other stakeholders affected by the proposed changes are also important in this process. The fact that interests and utility don't translate well across cultures has been well documented, and it is important to develop an understanding of whether the impact goals of funding and operating partners are consistent with the interests of their would-be beneficiaries. In one study, for example, it was shown that hungry people didn't maximize caloric intake when they had additional money to spend on food. Instead they spent part of the money on high quality food items they couldn't normally afford (Banerjee and Duflo 2012). In other studies, the poor have been shown to spend money on culturally important activities like weddings or funerals, despite having insufficient money to meet basic needs.

The advantage of using pay-for-performance approaches in such circumstances is that even if these preferences are not anticipated up front, these and other unintended consequences will quickly be identified as a result of performance monitoring, and if contracts are effectively designed, interventions can be re-designed to better achieve beneficial outcomes.

2.3.3 Element 2: Intervention

Intervention refers to the processes that will be enacted to achieve the intended long-term impacts. In traditional linear models of aid and development, the intervention comes first and impacts come second. The focus of many improved water initiatives, for example, is on how many water pumps will be installed and where they will be installed. If instead, impacts are prioritized, the focus might be on how many people will have improved health outcomes and how many cases of illness can be avoided.

Prioritizing impacts requires that each step in the intervention be designed with the goal of maximizing impacts. So a pump installation with a greater potential impact on health would be prioritized over one that reaches a greater number of people. When impact is the principal concern, related organizational structures,

Fig. 2.3 Logic model depicting the logical sequence leading up to intended impacts

systems, and processes can be designed to maximize potential for achieving intended goals. This emphasis should result in a logic model that tightly couples each element with ultimate impacts. Figure 2.3 shows a standard logic model.

A clear and well-designed logic model is essential for achieving desired impacts. Inputs include the monetary and human resources that will be devoted to achieving the desired impacts. Processes are the behaviors and actions that are to be performed. Outputs are the goods and services to be delivered by the implementers, such as immunizations delivered or cookstoves installed. Impacts are the social and environmental changes created by the interventions. They include core issues such as health, poverty, security, environmental health and resource depletion. Impacts are sometimes divided into intermediate outcomes such as changes in the behavior or attitudes of beneficiaries and longer term progress toward ultimate social goals.

Historically, the focus for the vast majority of funders and implementers has been on outputs. Under an output-oriented approach, funders specify deliverables in terms of outputs, and implementers carefully monitor and manage their achievements in delivering these outputs. Implementers are held accountable for outputs, and outputs are central to accountability and reporting activities. Far less effort is focused on the long-term impacts of these outputs and how these outputs will produce lasting social and environmental changes.

The intent-to-impact cycle requires organizations to clarify the linkages between outputs and impacts. Participants must understand why their investments and actions are expected to lead to change and how they expect this change to materialize. They must also estimate how much impact can be projected to result from the outputs to be delivered. Making this clear up front is critical because the sequence of steps in the logic model will be used to identify milestones toward achieving impacts. These milestones will be monitored and may be linked to intermediate payments in the pay-for-performance model.

2.3.4 Element 3: Impact Evidence

Gathering evidence through effective metrics and monitoring programs is the third essential element for ensuring that intended impacts are realized. When pay is linked to performance, effective systems are needed for gathering evidence regarding execution and outcomes for each step in the logic model leading to impact. And the impacts themselves must be very clearly defined and measured. This evidence is