

RESULTS BASED FINANCING IN DISASTER RISK MANAGEMENT AND CLIMATE RESILIENCE BY THE EXAMPLE OF OUTPUT-BASED AID EXECUTIVE SUMMARY

Scope

This note explores the opportunities and challenges that arise when applying results-based financing (RBF) approaches, in particular Output-Based Aid (OBA), to the sectors of disaster risk management and climate resilience. For the purposes of this discussion, climate resilience is considered within the framework of disaster risk management (DRM)¹. The note was developed by the Global Partnership on Output-Based Aid (GPOBA) through its initiative on Climate Change. GPOBA is a World Bank-administered program with a mandate to fund, design, demonstrate, and document RBF approaches to improve the delivery of basic services to the poor and marginalized households in developing countries.

Development Context

It is well documented that disasters can induce poverty and affect the poor disproportionately, therewith poor people are more vulnerable to disaster impact, as summarized in the *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*² report. Since 1970 disaster losses have already increased tenfold, and in the context of climate change shocks, growing population and high urbanization there is an imperative for investments that will strengthen the resilience of the poorest households³.

International disaster assistance is growing⁴ along with the growing recognition of how disasters can affect development and alleviation of poverty, yet resources to answer the increasing needs are limited. This opens a question on how to reach the intended results in the most effective way and increase the impact of the available resources.

¹ As climate-related disaster risks, their management and actions to increase resilience to climate-induced disasters.

² Hallegatte, Stephane; Vogt-Schilb, Adrien; Bangalore, Mook; Rozenberg, Julie. 2017. *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters. Climate Change and Development*, Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/25335>

³ The GFDRR, *The Making of A Riskier Future: How Our Decisions Are Shaping Future Disaster Risk*, 2016, <https://www.gfdr.org/sites/default/files/publication/Riskier%20Future.pdf>

⁴ GFDRR, Disaster Aid Tracker, <http://gfdr.aiddata.org/dashboard#>

The Paris Declaration of 2005 placed focus on results as one way of increasing effectiveness of the interventions. The World Bank has demonstrated support for the results-based financing agenda by introducing the Program-for-Results (PforR) instrument in 2012, supporting the establishment of GPOBA in 2003, as well as supporting other results-based initiatives.

Findings of the Analysis

The report demonstrates the opportunity for RBF schemes in DRM and Climate Resilience in the context of OBA and PforR operations. OBA and PforR can complement each other as their scale of intervention, targeting, and implementation mechanisms are different. PforR offers broader support and seeks to ensure that public programs function well; it helps to improve institutions and ensure that safeguards are respected in programs across an entire country. OBA, on the other hand, works on a smaller scale and directly reaches affected households:

- *OBA offers targeted support*, helping to deliver basic services to poor and marginalized people;
- *It focuses on specific outputs* (such as number of connections made to the power grid in a remote village) that are linked to broader outcomes;
- *It disburses through subsidy-type of payments when outputs are verified*, with explicit agreements on the purpose and level of payment, who will receive it, and against what outputs.

Both instruments help to shift the development dialogue to a focus on results – placing questions about aims and desired achievements, and the best means of reaching them, at the project design stage.

RBF approaches place great emphasis on project design and preparation. For instance, preparing an OBA project requires: (i) understanding country priorities and setting clear targets; (ii) understanding capacity of the implementing agency and the service provider; (iii) choosing the appropriate outputs and payment mechanism; and, (iv) ensuring independent verification of the results.

OBA brings specific benefits to interventions: (i) by disbursing only against verified outputs, it ensures *quality and timeliness of service delivery*; (ii) every program is *focused on the poor and marginalized*; (iii) because users are responsible for a portion of service costs, *OBA increases ownership of results*; (iv) by shifting performance risk, *OBA increases accountability* of implementing agencies and service providers for what they deliver.

There is potential for the DRM sector to increase its use of RBF mechanisms, including OBA, in order for projects to have some of these benefits. With regards to PforR, DRM had its first such program in 2016 in Morocco.

OBA has not yet been used in the sector, but has strong potential because:

1. **Subsidies have been already used in DRM**, mainly in risk reduction and recovery, with less frequent use in risk identification and financial protection. Such programs have been used both in developed and developing countries and development institutions, including the World Bank, have also been involved. Among the identified cases of subsidies in DRM, only one program

has explicitly focused on poor, with several other targeting disaster-affected and internally displaced people, groups that do not explicitly include the poor, but are characterized by vulnerability. In most of the cases, subsidies in DRM were provided without regards to the income-level to target vulnerable population (e.g. when it was necessary to reduce vulnerability of households by retrofitting their homes).

2. **The OBA and DRM agenda has strong focus on applying pro-poor considerations.** Disaster risk management is a cross-cutting issue and complements the focus of OBA in basic services – such as water, electricity, health, and education – by addressing the safety and livelihoods of communities.

Moving Forward

Addressing the limited documented knowledge in the use of subsidy schemes in DRM operations; while the note provides a preliminary analysis of subsidy and RBF schemes across the five pillars of DRM operations (Risk Identification, Risk Reduction, Preparedness, Financial Protection, and Resilient Recovery) it would be useful to develop operational partnerships that could:

- Strengthen the focus on the most vulnerable households and communities
- Analyze the value of independent verification, in mobilizing funding for DRM and climate resilience operations
- Address the role of results-based approaches in mobilizing private sector investments in DRM and resilience operations

The portfolio of experiences that were analyzed indicates two immediate areas where pilot partnerships could focus in the context of RBF schemes:

- Housing retrofits through results-based grant subsidies to vulnerable and low-income households
- Financial protection through targeted subsidies in insurance premiums for vulnerable and low-income households.

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INTRODUCTION

In 2015, losses from disasters around the globe totaled US\$95 billion⁵. Since 1970, losses have increased tenfold⁶. The impact of natural disasters has steadily intensified due to population growth, urbanization, and increased socioeconomic activity. Average population affected each year has also grown from around 60 million people to over 170 million⁷. With higher temperatures and extreme weather conditions, climate change further exacerbates both the threat and the impact of disasters. Climate change has already caused more intensive glacier melting, change in rainfall patterns, and growing number of weather-related hazards, such as floods and droughts. Although economic losses are often larger in developed countries, developing countries tend to suffer more due to the lack of coping capacities, the high vulnerability of their economies, buildings and homes not designed to withstand natural disasters, population density, and low resilience.

Moreover, the poor are disproportionately affected by disasters, and the total quantitative financial impact on a region or country fails to capture this fact. Poor people have fewer assets, a consumption level close to subsistence level, and little or no savings, factors which together result in their health, education, and welfare being hit harder and their lives and livelihoods requiring more time for recovery and reconstruction. Under such conditions, even a single event whose effect may be negligible for the whole country⁸ can be devastating for the poor. Moreover, disasters can throw people into poverty destroying their assets and livelihoods, causing long-lasting damage.

The international community of donors and development partners has recognized the threat that disasters pose to sustainable development and the alleviation of poverty. Between 1990 and 2010, global assistance in disaster risk management has grown from nearly US\$700 million to US\$13 billion (both data points are in constant 2000 US\$)⁹. This growth is evidence of the seriousness with which development partners are taking disaster risk management across the world. However, resources are limited, and the international community must determine how resources can be used to reach the greatest effect and to ensure that the impact of interventions is maximized and long-lasting.

World Bank Results-Based Financing Solutions

Different solutions have been developed within the World Bank Group to try to achieve greater, more cost-efficient impact, and instruments have been continuously improved over the years and lessons

⁵ The World Bank Group, *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*, 2016

⁶ The GFDRR, *The Making of A Riskier Future: How Our Decisions Are Shaping Future Disaster Risk*, 2016, <https://www.gfdr.org/sites/default/files/publication/Riskier%20Future.pdf>

⁷ The same

⁸ The World Bank Group, *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*, 2016

⁹ GFDRR, Disaster Aid Tracker, <http://gfdr.aiddata.org/dashboard#>

learned. Among these instruments, results-based financing (RBF) schemes – which tie disbursement of aid to achievement of pre-agreed results – have gained significant attention¹⁰.

Among an array of the World Bank RBF schemes, this analysis primarily considers Output-Based Aid (OBA) and also briefly looks at the Program-for-Results (PforR) financing. PforR was created in 2012. As of 2016, there have been 52 approved PforR operations totalling US\$12.9 billion of Bank financing and supporting US\$60.1 billion of government programs¹¹.

OBA is an approach that combines the RBF modality and subsidies in a form of performance-based grants. Within the World Bank, it is administered by Global Partnership on Output-Based Aid (GPOBA) established in 2003. As of April 2017, GPOBA's cumulative subsidy portfolio consisted of 48 grant agreements totaling \$239 million. These grants have targeted six sectors: education, energy, health, telecoms, water/sanitation, and solid waste management. To date, GPOBA projects have supported more than 9 million people in accessing basic services¹².

RBF and Subsidies in DRM

The disaster risk management (DRM) sector, as is true of other development sectors, seeks to increase the efficiency and impact of interventions. Financing based on results and subsidies linked to performance can help to achieve this goal.

Within the World Bank Group, RBF has not been yet extensively used in DRM. PforR has only recently been applied in this sector, piloted for the first time to support Morocco's preparedness to respond to natural disasters. Started in 2016, this PforR project supports the development of a national resilience fund and catastrophe insurance program. The project is focused particularly on the most vulnerable people.

In turn, OBA has not yet been applied in the DRM sector from within the World Bank Group. In spite of this fact, the DRM sector has used subsidies that are disbursed independent of results. Subsidy programs have been used both in developed and developing countries mainly in risk reduction and recovery, with less frequent use in risk identification and financial protection. The Japanese government, for example, has often used subsidies in DRM, introducing such programs as subsidies for school retrofitting, private housing strengthening or rebuilding, identifying vulnerabilities to disasters, and helping in post-disaster rehabilitation of infrastructure.

¹⁰ Results-based financing has gained a broad international attention. For instance, with the Paris Declaration on Aid Effectiveness, issued in 2005

¹¹ The World Bank, *Program-for-Results Financing (PforR)*, 2017, <http://www.worldbank.org/en/programs/program-for-results-financing#1>

¹² GPOBA, *Annual Report*, 2016, <http://www.gpoba.org/2016ar/>

Goal and Findings of This Note

This note aims to identify the opportunities and challenges linked to the use of RBF schemes, specifically OBA, for DRM. Preparation of the note involved a thorough review of the OBA mechanism and overview of the PforR financing (which OBA can complement), projects that use subsidy modalities in the relevant sectors, and potential benefits of using OBA in DRM.

The note's findings suggest that OBA can benefit DRM and climate resilience interventions through:

1. **Targeting specific sectors, such as risk reduction, and explicitly focusing interventions on the poor or vulnerable.** OBA provides incentives for increased investment in such sectors as risk reduction, for instance, where population is sparse, low-income or marginalized and needs disaster protection, but often disregarded in a public policy for such reasons as, for example, economic inefficiency of the investments. OBA approach targets the poor. However, in case of DRM, it can also support targeting vulnerable population through explicit subsidy targeting and payments disbursed only upon achievement of the verified results.
2. **Like for other development sectors, OBA can benefit DRM through increased probability of achieving quality and timely results and increased effectiveness of resources invested.** Since results (outputs) and disbursements are pre-agreed in the contract at a project's outset, OBA increases the probability of achieving results and targets. At the same time, because subsidy amounts are fixed and partial, OBA provides incentives for operators to achieve results efficiently, using innovative approaches appropriate to local contexts and increase ownership of the achieved results. Further, since service provider pre-finance the activities, OBA approach increases accountability of the counterparts for what is delivered. In addition, independent verification, which is part of every OBA project, helps to mitigate issues of misprocurement.

OBA has clear benefits, but it also entails also some challenges. Clear goals and targets must be set from the outset, and a capable implementing agency and service provider(s) are a must. Although some capacity building and financial support are possible, it is critical that partners in-country are able to fulfill the agreed terms of the project. Working in countries where local service providers and implementing agencies have low capacities puts additional pressure on project preparation, but such preparation, if it involves measures for increasing the capacity of the institutions involved, can benefit country systems. External risks should be carefully considered in the project design and reasonable flexibility built in. An OBA project also requires capable, independent verification of the achieved results.

Other challenges arise from the fact that OBA uses the subsidy mechanism, and the appropriate subsidy mechanism must be carefully selected for the project to succeed, taking into account both the period over which the subsidy will be disbursed and the ability of local users to pay their share of services. Poorly designed subsidies might not reach the targeted population, or could cause market distortions or lead to wrong incentives; they may also cause difficulties when subsidy support is phased out. Subsidy

programs also need a capable implementing agency to be involved in the disbursement and strong monitoring of it. Such programs might require an initial investment in an expert assessment of the program potential, its results, and possible adverse effects.

All of the above are reasons OBA places such emphasis on project design and preparation. To mitigate the above challenges, an OBA project requires:

1. Understanding priorities and setting clear targets;
2. Understanding capacity of the implementing agency and the service provider;
3. Choosing the right subsidy mechanism;
4. Ensuring independent verification of the results.

With these elements in place, OBA - within the array of RBF approaches - have the potential to complement existing project portfolios, helping to bridge the affordability gap for the poor (or the vulnerable), while building capacity of local institutions and maximizing the impact of money spent. To ensure effectiveness of OBA projects, GPOBA provides support in project design, preparation, and implementation. It offers its experience in selecting goals and outputs, evaluating implementing agencies and obtaining sound verification of results. In turn, the World Bank Group, through OBA, has an opportunity to contribute its expertise and knowledge in: (i) developing well-designed programs; (ii) improving ongoing or planned programs of government; and, (iii) increasing investments in DRM.

This note describes RBF mechanisms in the World Bank Group, using as example OBA and briefly looking at PforR, speaking separately about subsidies in DRM, and explores possible projects to discuss with task teams.

RESULTS-BASED FINANCING IN DISASTER RISK MANAGEMENT

Basic Principles

Results-based financing (RBF) is an approach that links payments to results achieved. It is different from expenditure or input-based financing, in which the relationship between payments and results is indirect – for instance, in RBF, payments could be tied to the number of houses retrofitted versus the amount of retrofitting materials purchased in the traditional input-based financing.

In the World Bank, there are a number of RBF instruments, among them are Program-for-Results (PforR) financing and Output-Based Aid (OBA) supported by GPOBA. OBA and PforR are both results-based, but differ in their scale, targeting, and mechanism. PforR offers broader support and seeks to ensure that public programs function well. It helps to improve institutions and ensure safeguards are respected in programs across an entire country. It focuses on the big picture of development (aimed at significant results such as decreasing the amount of non-immunized children in a country). OBA, in contrast, offers targeted support, supporting delivery of basic services to poor and marginalized people. It focuses on more specific outputs (such as the number of connections to the power grid made in a remote village) that are linked to broader outcomes. PforR financing and OBA emphasize determining at project design stage what can be achieved and what it will take to achieve it, and both mechanisms have helped to change the conversation – within governments and within the Bank – to a focus on results.

While PforR provides broad support to a program, OBA targets more specific investments focusing on the poor; this is true for OBA within any governmental program or World Bank lending operation it supports, or when it works as a stand-alone greenfield project. In comparison to the larger and broader financing of development such as is provided by PforR, OBA is narrowly focused and small-scale. Despite its scale, it plays an important part in supporting development by: (i) helping to ensure quality and timeliness of results delivered; (ii) helping to focus programs of any financing mechanism on poor and marginalized people; (iii) increasing ownership of results through having service users be responsible for some part of the service cost; and, (iv) increasing accountability of the implementing agencies and service providers with regard to services delivered.

Program for Results

To address the growing demand for programs that help deliver sustainable results and build institutions, the World Bank developed the PforR financing instrument¹³. Its features include linking disbursement of funds to the achievement of specific program results, and supporting clients in enhancing the effectiveness and efficiency of their development programs to achieve tangible and sustainable results.

¹³ The World Bank, *Program-for-Results, A New Approach to World Bank Financing*, <http://pubdocs.worldbank.org/en/904551435264587829/PforR-brochure.pdf>

PforR Financing aims to promote sustainable development and improve the efficiency and effectiveness of expenditures by:

- Financing the expenditures of specific development programs;
- Disbursing on the basis of the achievement of key results (including prior results) under such programs;
- Using and, as appropriate, strengthening the program systems to provide assurance that program funds are used appropriately and that environmental and social impacts are adequately addressed by such programs; and
- Strengthening, where appropriate, the institutional capacity necessary for such programs to achieve their intended results.

The programs supported by PforR may be: (a) new or already under implementation; (b) national, subnational, multi-sectoral, sectoral, or sub-sectoral in scope; (c) part of broader, longer term, or geographically larger programs; and/or (d) carried out by governmental and/or nongovernmental parties.

The Bank's assessment of a proposed program is based on various country and program specific strategic, technical, and risk considerations. These include the program's strategic relevance, technical soundness, expenditure analysis, economic rationale, results framework, fiduciary and environmental and social systems and risks. The assessments evaluate the relevant risks and the scope for improvements and managing such risks, including proposed institution strengthening activities to be undertaken before, if deemed appropriate, and during the program implementation¹⁴.

The technical assessment focuses on the strategic relevance and technical soundness of the program and its expenditure framework, the results framework, and the monitoring and evaluation arrangements. **The fiduciary assessment**, covering the procurement and financial management arrangements, seeks to make sure that program funds are used appropriately. **The environmental and social systems assessment** seeks to make sure that the potential environmental and social impacts and risks are adequately addressed (*see* further information on the assessments in the Operations Policy¹⁵). These assessments will identify measures to enhance performance, build capacity, and mitigate key risks, and will be reflected in an **integrated risk assessment**. The resulting action plan will be reflected in the legal agreement between the Bank and the government¹⁶.

The integrated risk assessment provides a key input into the Bank's decision to provide the financing. This decision takes into account country/sector/multisector-specific circumstances, potential benefits of

¹⁴ The World Bank, *A New Instrument to Advance Development Effectiveness: Program-For-Results Financing*, Operations Policy and Country Services December 29, 2011, <http://documents.worldbank.org/curated/en/687711468325286151/pdf/661930BR0R201100282.pdf>

¹⁵ The same

¹⁶ The same

the program, the needs and capacity of the borrower, and the degree to which the financing and implementation support will contribute to the overall program objectives and results.

The borrower is responsible for preparing and implementing a PforR-supported program. The program's scope and objectives and the borrower's contractual obligations to the Bank are set out in the legal agreements with the Bank. These obligations include the requirement to carry out the program with due diligence, and to maintain appropriate monitoring and evaluation arrangements (including credible disbursement-linked indicator verification protocols), fiduciary and environmental and social program systems, and governance arrangements. The borrower is expected to deal in a timely and effective manner with actual or alleged problems or violations (individual or systemic) in these areas. The Bank provides implementation support to the borrower by reviewing implementation progress, achievement of the Program results and disbursement-linked indicators, and associated program risks. The Bank monitors the borrower's compliance with its contractual obligations, including actions to strengthen institutional capacity¹⁷.

Since approval of PforR financing instrument in 2012, more than 50 PforR operations have been undertaken in over 30 countries.

In DRM, PforR was applied for the first time within the Integrated Disaster Risk Management and Resilience Program-for-Results Project that will be implemented over five years from April 2016 (US\$ 200 million).

This PforR aims to improve the institutional framework for financing disaster risk reduction activities and strengthen financial resilience to natural disasters for targeted populations in the program area in Morocco. The project supports the existing program of the government, which combines elements of institutional reform with risk reduction investments and risk insurance to ensure that residual risks that cannot be cost-effectively mitigated are efficiently financed¹⁸.

The project includes the following activities:

- **Subprogram One:** Promoting Institutional Reform and Capacity Building;
- **Subprogram Two:** Scaling up Disaster Risk Reduction Activities;
- **Subprogram Three:** Improving Disaster Risk Financing and Insurance.

The PforR in Morocco excludes reconstruction projects after a disaster event and those that do not meet World Bank policies for eligibility for PforR financing. Specifically, the project does not include any activities assessed to have significant adverse impacts on the environment and/or affected people, as defined in the Bank Policy and Directive on PforR Financing, nor procurement of works, goods, and services under high-value contracts above the Operations Procurement Review Committee thresholds.

¹⁷ The World Bank, *Bank Policy: Program-For-Results Financing*, July 10, 2015, <https://policies.worldbank.org/sites/ppf3/PPFDocuments/Forms/DispPage.aspx?docid=3684&ver=current>

¹⁸ The World Bank, *Project Appraisal Document: Integrated Disaster Risk Management and Resilience Program-for-Results Project*, 2016, <http://documents.worldbank.org/curated/en/854461467993509113/Morocco-Integrated-Disaster-Risk-Management-and-Resilience-Program-for-Results-Project>

Disbursement Linked Indicators of the project are as following:

- **PDO Indicator 1:** The *Fund for the Fight against the Impacts of Natural Disasters* strategic orientation and governance structure are redesigned with a focus on disaster risk reduction;
- **PDO Indicator 2:** Cumulative number of beneficiaries from eligible risk reduction subprojects (% women);
- **PDO Indicator 3:** Minimum number of people in the Program Area insured for bodily injury against catastrophic events;
- **PDO Indicator 4:** Establishment and operationalization of the *Solidarity Fund* to protect the uninsured.

Disbursement under this project is made at the request of the borrower upon achievement of Disbursement Linked Indicators conditional on the arrangements made in the verification protocol. The verification of progress toward the achievement of the Program's objectives will be carried out every year by an Independent Verification Agent (IVA). The Indicators will be verified through both desk review and, if needed, physical inspection of a sample of projects. This independent verification of results will accompany any disbursement request to the World Bank.

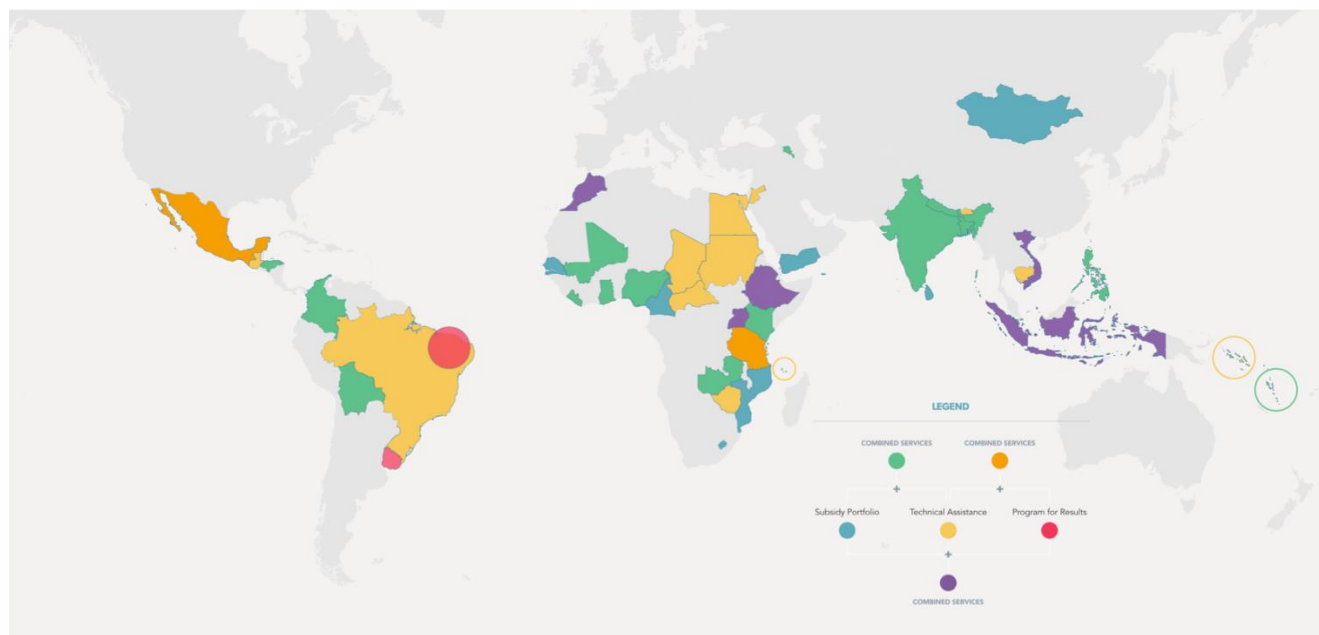
The PforR has been identified in Morocco as the most appropriate lending instrument for a number of reasons. First, the PforR is an effective instrument to ensure that the Bank's assistance provides incentives for achievement of concrete results by directly linking Bank disbursements to intended results. In addition, the instrument allows for targeting Bank implementation support, including through the mobilization of technical assistance, toward the achievement of these results. Second, the PforR is well suited to support a government program that aims to improve the strategic management of an existing expenditure framework, including through more transparent investment selection processes and better monitoring and evaluation. Third, the PforR enables the borrower to use its own systems and focus Bank support on improving their efficiency and effectiveness, including on fiduciary and social and environmental issues¹⁹.

Output-Based Aid

Output-Based Aid (OBA) is a form of RBF that ties the disbursement of subsidies to the provision of basic services for the poor and marginalized communities. Established in 2003, the Global Partnership on Output-Based Aid (GPOBA) funds, designs, demonstrates, and documents OBA approaches. It is housed within the World Bank's Social, Urban, Rural and Resilience Global Practice, which aims to create more sustainable, inclusive, and resilient communities. Through support of its donors, and in collaboration with 18 governments and 34 implementing partners, GPOBA has built a portfolio of 48 subsidy projects in seven sectors totalling US\$239 million; these projects have disbursed US\$132.9 million and enabled over nine million people in 28 countries to access basic services. In addition,

¹⁹ The World Bank, *Project Appraisal Document: Integrated Disaster Risk Management and Resilience Program-for-Results Project*, 2016, <http://documents.worldbank.org/curated/en/854461467993509113/Morocco-Integrated-Disaster-Risk-Management-and-Resilience-Program-for-Results-Project>

GPOBA has a solid portfolio of technical assistance and knowledge activities totalling US\$ 32.6 million²⁰.



Picture 1. GPOBA projects around the world.

Using the OBA Approach

OBA can be used in a range of contexts. Projects may be stand-alone or work as part of much larger schemes that use other forms of results-based financing or traditional aid. They have been implemented in urban, peri-urban, and rural areas, and have delivered results in a range of environments, including those facing challenges arising from conflict or natural disaster. OBA projects have used public and private operators, non-governmental organizations (NGOs), and community organizations as implementing agencies and service providers, and have worked within successful public-private partnerships. Over half of GPOBA's activities to date are in the energy and water sectors, though it works across six sectors and is actively testing new sectors for OBA/RBF interventions. Project results have demonstrated that OBA can be one mechanism in a range of important innovative financing instruments that contribute to real development solutions for the world's poor and marginalized.

²⁰ <http://www.gpoba.org/2016ar/>

Structure of a Typical OBA Project

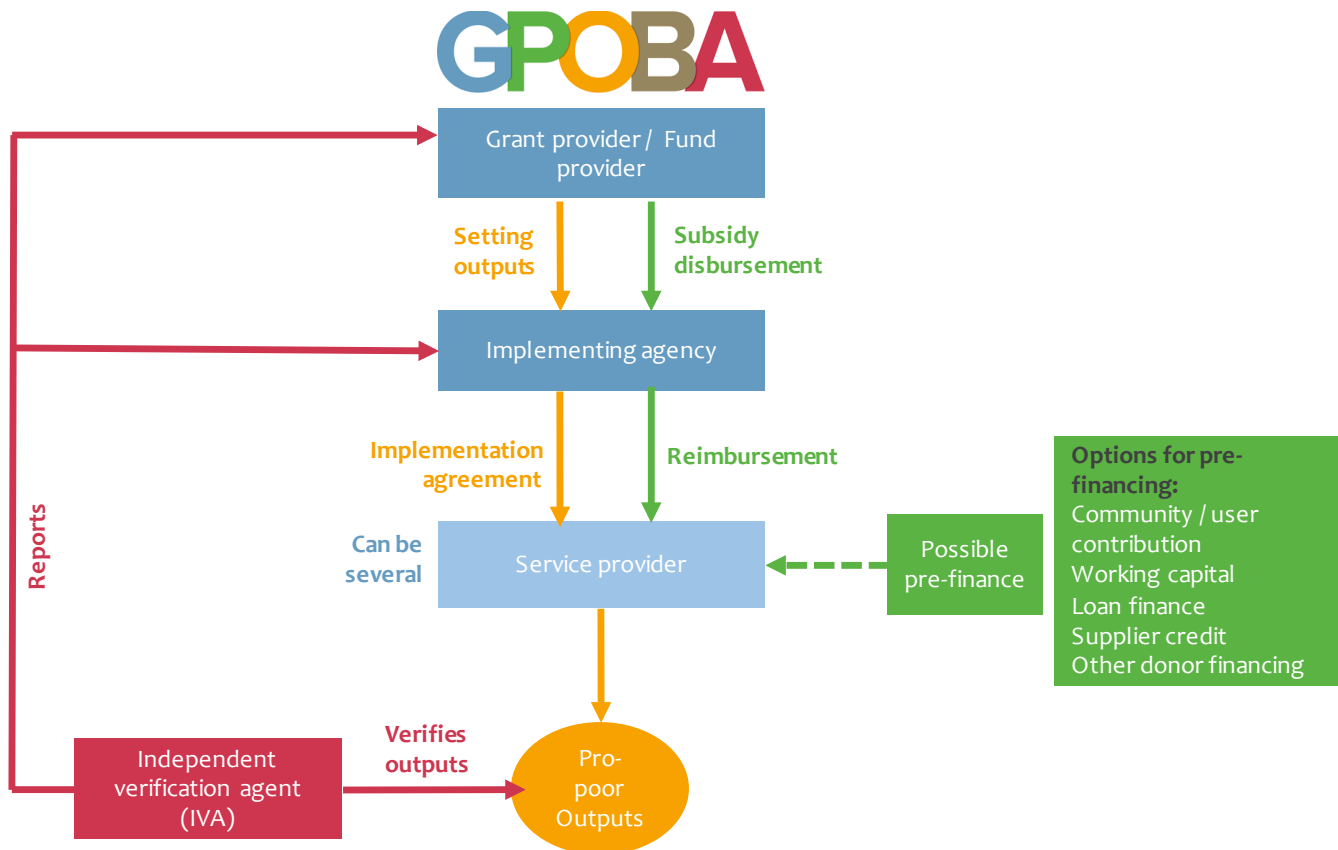


Figure 1. OBA implementation arrangements

An indicative disbursement arrangement (illustrated in figure 1) could be as the below:

1. A service provider (public, private or public-private partnership scheme) self-finances and delivers pre-defined outputs;
2. To receive these subsidy payments, the results must be verified. First, the service provider reports on the outputs it has delivered to an Independent verification agent (IVA);
3. The IVA reports back to the funding bodies on the actual quantity of outputs delivered. IVA checks may be scheduled over a number of months to ensure sustainability of outcomes;
4. Based on the verification reports, the fund providers release funds to the implementing agency;
5. The implementing agency then releases these funds as subsidy payments to the service provider;
6. The project may also provide incentives to service providers in the form of low-cost refinancing of credit. In these cases, an international finance institution can provide a low-cost loan to the implementing agency;
7. The implementing agency, then, uses these loans to offer low-cost loans to the service providers. These loans are typically used to finance household credit, the profits of which are used to finance service providers' working capital;
8. The IVA gathers information on output delivery throughout the course of the project and delivers an ex-post evaluation review to the funding bodies at its close.

According to the OBA scheme, the service provider pre-finances the project and is reimbursed only after the outputs delivered have been verified by an Independent verification agent. Therefore, under such a scheme a performance risk is shifted from the funding agency to the service provider, who pre-finances the activities. At the same time, government entities who are responsible for running an OBA project, can also contract an implementing agency, who will oversee the project implementation and to whom independent verification agent will report. Due to the above structure, several important steps are required in preparation for an OBA scheme in order to mitigate possible risks:

1. Understanding priorities and setting clear targets

For the best chance of success, OBA project aims should align with the sector priorities of the national government, while the government, for its part, should be motivated to support the scheme; if these conditions are in place, the results of the project are more likely to be sustainable. A clear understanding of project aims and of how the project will reach and benefit the poor is critical for the OBA approach. An OBA scheme must carefully determine which outputs subsidy payments will be linked to; in OBA, outputs are defined as closely as possible to the desired outcome or impact as is contractually feasible. For example, an output might be the installation of a functioning household connection to the electricity network. The intended outcome of such a scheme might be to reduce indoor air pollution or increase opportunities for education through better lighting. The intended development impact could include a reduction in morbidity or increased lifetime earnings²¹.

Are there other development partners willing to support the project?	What are the priorities of the country with regard to disaster risk management?	How does the project help address the needs of poor, marginalized, or vulnerable people?	Are there any investment projects of the World Bank or other partners that the project can support, or is it a stand-alone operation?
What is the aim of the project?	Are the stakeholders willing to implement the project?	Against which outputs will the payments be disbursed?	

Figure 2. Matrix of consideration

2. Understanding the capacity of the implementing agency and the service provider

The OBA scheme is flexible and can be structured so that the implementing agency and the service provider are a public or private agency or utility, an NGO, or a community organization. The capacity of both should be carefully assessed during project preparation. For the implementing agency, the capacity to disburse subsidies, manage the project, and monitor and evaluate the results must be determined. For the service provider, the capacity to pre-finance project activities and complete the project as per the agreed conditions are necessary. The preliminary assessment is usually performed to

²¹ The World Bank, *Output-Based Aid: Lessons Learned and Best Practices*, 2010

understand the capacities both statically (e.g., the agency's level of debt and human resources) and dynamically (how project implementation can influence the capacity of the agency).

OBA has been used in
 Armenia, Bangladesh, Bolivia, Cameroon, Colombia, Ethiopia, Ghana, Honduras, India, Indonesia, Kenya, Lesotho, Liberia, Mali, Mongolia, Morocco, Mozambique, Nepal, Nigeria, Philippines, Senegal, Sri Lanka, Uganda, Vanuatu, Vietnam, West Bank, Yemen, Zambia

Activities to strengthen institutions can be included in an OBA project, including capacity-building for monitoring and evaluation. Further, it is possible to address cost of the pre-financing risk through other donors financing, low-cost loans, community or user contribution, etc. In addition, payment of subsidies can be structured as milestone-based payments over the project lifetime²².

Is there a need to build capacity of the implementing agency and/or service provider?	Will the results achieved be sustainable? Will the government/service provider/households be able to sustain the results?
Are there enough financial, technical, and managerial capacities within the implementing agency and the service providers?	What are the pre-financing options if the implementing agency/service provider do not have enough financial capacity?

Figure 3. Matrix of considerations.

3. Choosing the appropriate subsidy mechanism

A well designed OBA scheme has a subsidy with a clear aim and purpose, as well as a clear understanding of who will provide the subsidy and who will receive it, and what activity or service is being subsidized. Structuring subsidies in a way that the program has sustainable results and effective targeting is a challenge inherent in any subsidy mechanism. In addition, since OBA subsidies are performance-based, project preparation must determine, as far as possible, any external risks to the project (e.g., rapid growth in input prices) that could significantly affect implementation.

Once the above issues have been understood and addressed, the OBA scheme can be designed in one of three ways: with *one-off*, *transitional*, or *ongoing* subsidies. A *one-off* subsidy payment is a subsidy, which can disburse over the time frame of an investment project cycle tied to a single output, such as connection subsidy, or it could be a subsidy for house retrofitting for households that cannot afford the whole cost of the work. *Transitional* subsidies are used to ease the transition from subsidized to full-cost tariffs. *Ongoing* subsidies are linked to a sustainable source of funding, such as general tax revenues, earmarked tax revenues, or explicit cross-subsidies. Both transitional and ongoing subsidies

²² For instance, 10% of the subsidy amount is paid upon achieving the first milestone, 20% upon achieving the second one, etc.

generally require longer disbursement periods. OBA projects tend to use *one-off* subsidies both because of the small size of projects and their limited durations.

An OBA subsidy scheme requires a service user to cover some part of the cost of the service. Therefore, in-country affordability must be determined if the appropriate subsidy level is to be set. To do this, it is necessary to conduct a preparatory assessment that will estimate the amount of the service cost that users or other stakeholders could cover – for instance, how much a household is able to pay for retrofitting the house, or how much a service provider or government can cover? OBA will cover only the remaining portion.

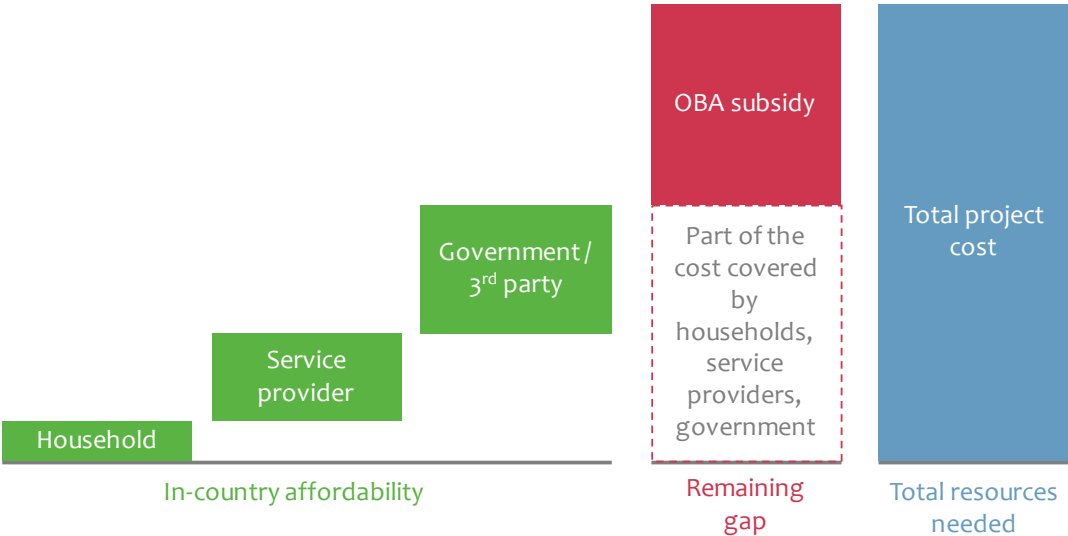


Figure 4. What OBA subsidies cover

Who will benefit from the subsidies?	What performance incentives does the project provide?	What is being subsidized?	What are the risks to project implementation? How will costs increase over the lifetime of the project?
How will the subsidy mechanism help to achieve the results?	What is the level of the subsidy as against the contribution from the user, service provider, or government?	Which subsidy design is most appropriate?	

Figure 5. Matrix of considerations.

4. Ensuring independent verification of results

Independent verification of results is another core element of the OBA approach. It is carried out by an Independent verification agent, who is selected according to general procurement rules, either by the implementing agency or, if the agency lacks the necessary capacity, by the World Bank team²³.

Upon verification of results, the subsidy payments can be made in two ways²⁴:

- *After the service provider presents an output report and the invoice is verified and approved for payment by the government's monitoring unit or independent verification agent.* This method has the advantage of ensuring that only verified outputs are paid to service providers. Depending upon the sector, verification may have to be physically inspected in the field by qualified technicians or engineers and can take 30 - 60 days.
- *Upon presentation of the output report and invoice without prior verification of outputs.* Outputs are verified subsequently by the government's monitoring unit or an independent verification agent and adjustments, if any, are made to future payments. This method has the advantage of speeding up payments to the service provider and provides reasonable control over adjustments, provided the billing periods (and therefore adjustment of previously paid invoices) are not too far apart, and the verification of outputs is carried out in a systematic manner.

In summary, a significant amount of work should be done prior to starting the project, including:

1. Understanding priorities and setting clear targets;
2. Understanding the capacity of the implementing agency and the service provider;
3. Choosing the appropriate subsidy mechanism;
4. Ensuring independent verification of results.

Resources for Project Preparation

Recognizing the challenges involved in preparing OBA projects, GPOBA has resources available to help partners in-country, including technical assistance, as well as expertise on targeting, verification of the results, and assessment of capacity of the implementing agency and the service provider.

How OBA Helps Achieve Results

Along with the responsibility that task teams have in preparing OBA projects, there are some significant benefits with using the OBA approach:

1. **Reduction of operational risks** – the OBA structure provides incentives to deliver measurable results, while avoiding cost overruns;

²³ Guide for the Terms of Reference for the IVA for water sector:

https://www.gpoba.org/sites/gpoba/files/TOR_Water_and_Sanitation.pdf

²⁴ The World Bank Group, *Structuring Output-Based Aid (OBA) Approaches in World Bank Group Operations Guidance Note for Staff*, http://www-esd.worldbank.org/pbc_resource_guide/Docs-latest%20edition/cases-and-pdfs/OBAGuidanceNoteFinalNov162005.pdf

2. **Optimal costs** can be achieved through determining least-cost subsidy;
3. **Motivation for innovation, quality, and timely delivery for contractors** – contractors are motivated to reduce costs, while reaching the agreed outputs in a shortest time possible;
4. **Promoting ownership of the results** through putting some responsibility on local agents (often households);
5. **Increased efficiency of targeting** – with the performance-based subsidy mechanism explicitly defined from the outset of the program, it is possible to target selected populations more efficiently.

OBA and PforR

OBA mechanism can be used in stand-alone operations, but it also can complement other operations, such as Investment Project Financing. In particular, it can complement Program-for-Results - both, as described above, differ in their methodology to reach the objectives, but are similar in their result-oriented approach (*see the summary table of the instruments below*). While PforR offers broad program support, OBA offers support of small-scale investments, helping to focus on the poor and marginalized, in a well-defined and accountable manner applying independent verification schemes. At the same time, both approaches share the intention to shift the development discussion to focus on results. For the purpose of this discussion, only OBA would be carefully considered in regards to its use for DRM.

Program-for-Results	Output-Based Aid
Instrument: lending instrument Modality: supporting new or existing programs of a government or non-government parties Disbursement: against achievement of verified results specified as disbursement-linked indicators Project preparation: borrower is responsible for project preparation. An advance for project preparation can support the preparation phase Necessary ex-ante steps: program's strategic relevance, technical soundness, expenditure analysis, economic rationale, results framework, fiduciary and environmental and social systems and risks Implementation agency: government or non-governmental organizations Monitoring and control: the task team of the Bank Operational Features: focuses on institutional strengthening	Instrument: grant Modality: stand-alone or embedded in ongoing investment projects Disbursement: through grant subsidies against verified results (such as # of households that gained access to electricity) Project preparation: task team of the Bank is responsible for project preparation. A technical assistance from GPOBA is used for project preparation Necessary ex-ante steps: strategic relevance, assessment of capacity of the implementing agency and the service provider, selecting subsidy mechanism and assessing its relevance, ensuring capacity of independent verification agent Implementing agency: public agency or utility, private service provider, non-government organization, community-based organization Monitoring and control: independent verification agent Operational features: specifically targets poor households or marginalized communities

Figure 6. Comparison between Program-for-Results and Output-Based Aid

Forms of Subsidies in DRM

Subsidies are not new in DRM. Within 17 cases identified in a desk review (*see Annex 1 for the detailed table*)²⁵, they have been used mainly in risk reduction and recovery, with less frequent use in risk identification and financial protection.

Subsidy programs have been used both in developed and developing countries. The World Bank Group has been involved in some of these programs, including post-disaster recovery of settlements in Colombia and Pakistan and providing disaster information to insurance companies in Mongolia.

Most subsidies identified have targeted households, supporting house retrofitting or reconstruction, resettlement, or rental support. Some programs focused on municipalities, providing subsidies for retrofitting schools, reconstructing public infrastructure, and increasing urban resilience. One of the identified programs helped businesses to recover and another provided subsidy for development of the insurance market. Subsidies have also supported risk diagnostics and collection of disaster risk information.

Among the 17 case studies, only one has explicitly targeted the poor; several targeted disaster-affected and internally displaced people, groups that do not explicitly include the poor. Most subsidies were given without regard as to income level to retrofit private houses, increase overall urban resilience, and help affected populations.

The Japanese experience with subsidies in DRM

The Japanese government has used subsidies extensively in DRM. Among its programs are: (i) reinforcement of schools against earthquakes; (ii) identification of housing vulnerability to disasters and subsequent support to house retrofitting; (iii) reducing disaster risk through targeted subsidies related to a particular problem – e.g., concrete fences causing casualties in earthquakes; (iv) in-kind help and results-based subsidy after retrofitting a private house (with a compensation from the government to a household if the house retrofitted through this program was damaged nevertheless); (v) post-disaster subsidies for reconstructing damaged infrastructure for municipalities.

Thailand's experience with subsidies for reducing disaster risk for low-income households

The Thai government developed two subsidy programs. One supported small-to-medium enterprises recovering from disaster by providing employment subsidies. The second was divided in two parts (both seeking to provide housing to low-income householders exposed to disasters): (i) managed by communities, which designed and implemented improvements; (ii) managed directly by the government to build ready-to-occupy flats and houses for lower-income households who could afford “rent-to-own” payments.

²⁵ The cases kept for this study focused mainly on one-off subsidy programs.

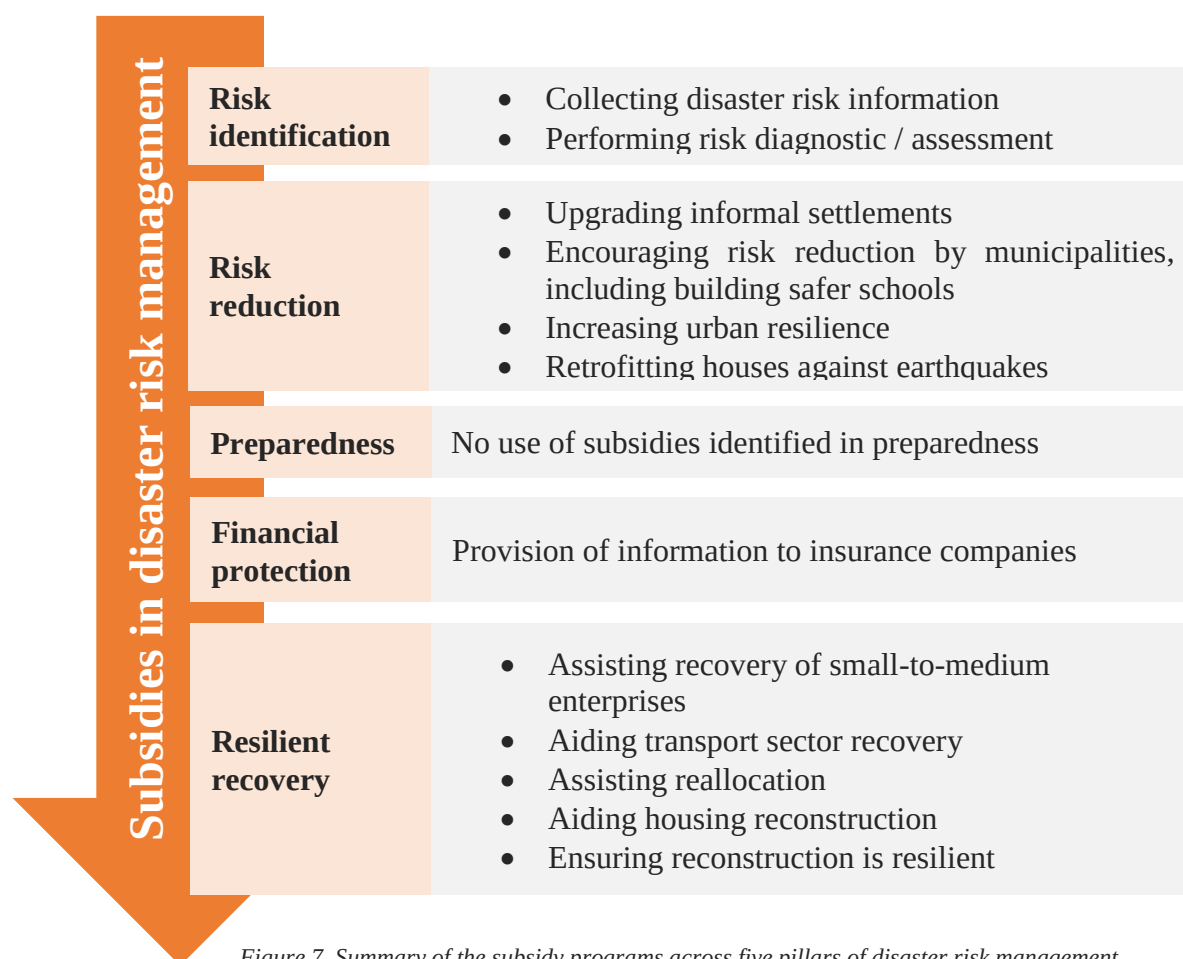


Figure 7. Summary of the subsidy programs across five pillars of disaster risk management

OPPORTUNITIES FOR RESULTS-BASED FINANCING, SPECIFICALLY OUTPUT-BASED AID, IN DISASTER RISK MANAGEMENT

Although OBA has never been used in DRM, approaching the financing of interventions from an OBA perspective can bring considerable benefits to DRM – by keeping the focus on the poor, and staying cognizant of the relationship between poverty, disasters, and disaster impact.

The World Bank's recent report *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*²⁶ has highlighted the relationship between disasters and poverty. The poor are disproportionately affected by disasters; they have fewer assets, and their livelihoods (such as agriculture) and consumption patterns are often more vulnerable. But disasters can also push people into poverty. At the same time, poor people are significantly affected by smaller-scale recurrent disasters, which tend to get less attention from public authorities. The report also notes that disaster risk reduction often targets relatively wealthier areas rather than poorer neighborhoods, partly due to economic estimations, which project higher avoided damage in areas that are better off. However, the report also finds that disasters affect much more significantly the well-being of the poor than they do wealthier people, something general cost-benefit estimates fail to capture. When it comes to recovery, according to the *Unbreakable* report, post-disaster support also tends to focus more on wealthier people, as the poor are excluded from governance and therefore do not have a voice when it comes to the distribution of post-disaster assistance.

OBA helps to keep the focus on poor and marginalized communities, both by expanding existing programs to reach poorer populations, and by targeting new investments to areas that have not been yet addressed by interventions. Although, from a DRM perspective, vulnerable people are not only the poor, but all those who are susceptible to disaster impacts. Such susceptibility can be caused by things other than poverty, including age or gender, remoteness of a settlement, inadequate disaster protection measures (like river dikes), limited actions of the government in ensuring preparedness and fast response, harmful land use practices, and etc. In a DRM context, OBA's current focus on the poor and marginalized might not capture the range of people who are most vulnerable.

Despite this difference, by improving the safety of vulnerable populations and safeguarding their livelihoods, DRM becomes a cross-cutting issues across the traditional OBA sectors of basic services, such as electricity, water/sanitation, health, and education. The World Bank adopted DRM as a priority at the Sendai Dialogue in Tokyo in 2012, recognizing that DRM is directly linked to reaching the goals of ending extreme poverty and boosting shared prosperity. At the same time, DRM activities are rarely affordable for the vulnerable populations themselves and require publically coordinated programs to address issues such as flood protection, seismic safety of public buildings, and many others. OBA can

²⁶ *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*,
<https://openknowledge.worldbank.org/handle/10986/25335>

provide the important benefit of including poor populations while addressing the affordability gap through subsidies. It can be used when traditional programs that address poverty / vulnerability do not reach the intended targets. For instance, in cases where the program needs to reach the remote or low-income areas.

Furthermore, OBA addresses efficiency issues through carefully prepared subsidy programs that are performance-based, which helps, in turn, to ensure optimal costing of the operation and ensure that the desired results are produced. The OBA approach also helps increase the probability of achieving quality and timely results and ensuring ownership of what was achieved, which is important for all development sectors. In DRM, this might mean involving households in risk reduction or reconstruction through in-kind or monetary contributions. Further, since financing is disbursed upon results, the OBA approach ensures that resources are used where needed and that the implementing agency and service provider(s) are accountable for the results they deliver.

OBA approach in DRM projects

How can performance-based subsidies actually help to more effectively achieve results in DRM? As discussed above, subsidies have been used in disaster risk management in both developed and developing countries. The task now is to understand in what areas the OBA approach could provide the best results.

Hypothetical Case Studies: RBF Interventions for Further Discussion

Risk Reduction

Challenge Household vulnerability in disasters (e.g., floods, landslides, earthquakes) and affordability of retrofitting for households	What we want to achieve A targeted and sustainable approach to retrofitting houses
Target of the subsidy Construction agency with an in-kind or monetary participation of the eligible households	Some preparation issues (1) How to ensure effective targeting? (e.g., by involving communities in selecting the poor households); (2) How to ensure participation of the households? (3) How much can a household afford to contribute? (4) Is the construction agency able to pre-finance the works? (5) Is the government willing to support the

program?

Benefits of using RBF

RBF increases ownership of achieved results. In the above scenario, OBA subsidies can complement some part of the cost that will be covered by households (in-kind or material). At the same time, subsidies would be disbursed only upon construction being completed. Basic retrofitting measures could be performed within smaller projects, such as OBA interventions, but could reach remote areas that previously have not been considered by the public authority.

Financial Protection

Challenge

Insurance companies cannot access the market and/or disaster insurance coverage is expensive

What we want to achieve

Affordable collection of disaster information, and possibility of providing more affordable premiums due to reduced price of data collection and less uncertainties about risks

Target of the subsidy

Insurance company (or a government agency that collects and provides free disaster information to the company)

Preparation issues

- (1) Set targets with regard to collection of information;
- (2) Decide how to deal with information sharing if subsidizing the company;
- (3) Avoid adverse impact on the insurance market;
- (4) Decide on how to avoid difficulties with phasing out of subsidy support.

Benefits of using RBF

Since actors involved are paying part of the cost of information, it increases their ownership of it. Correct setting of the outputs and results-based payments could also help ensuring quality of the

collected information.

Resilient Recovery

Challenge

Cost for post-disaster reconstruction and affordability for poor households

What we want to achieve

Reconstruction of housing that adheres to disaster-protection norms

Target of the subsidy

Housing construction agency or the local government, with in-kind participation of local population

Preparation issues

- (1) Criteria for selecting the affected households and method on how to avoid false claims;
- (2) Subsidy mechanism that reduces payment risk issue;
- (3) Ensuring participation of the local population;
- (4) A risk assessment is required prior to organizing the new settlement or constructing the disaster-resilient houses;
- (5) Independent verification may be needed throughout the reconstruction process to help achieve the desired results.

Benefits of using RBF

OBA can support investment projects on reconstruction of the affected area through provision of performance-based subsidies. Using results-based financing approach can help to ensure effective targeting and that the resource reach the desired beneficiaries. Involvement of local people creates jobs and increases ownership, even as people are being trained in new skills. Since OBA also allows for the payment of subsidies in several instalments (e.g., payments upon educating the population, selecting the site, constructing the foundation, etc.), it can help reaching the results and lower pre-financing risk for the other actors.

Annex 1. Indicative Table of Subsidy Programs in Disaster Risk Management

Table 1. Indicative list of subsidy programs in DRM (cases highlighted in green include involvement of the World Bank or other development partners)

DRM PILLAR	COUNTRY/ PROJECT NAME	CHALLENGE	TYPE OF SUBSIDY	DESCRIPTION
Risk identification / Risk reduction	Japan Subsidizing disaster risk diagnostics and following seismic retrofitting	Vulnerability of private houses to earthquakes	Ongoing subsidy from government to households	The government subsidized a diagnostic of homes by experts, making the evaluation free of charge for householders, with these expenses covered by national (1/2), prefectural (3/8) and municipal (1/8) governments. In addition, the government introduced two different subsidies: to strengthen wooden houses and to rebuild houses. Houses that obtained less than 0.7 points by the expert diagnostic were eligible to receive the subsidy for strengthening houses. Shizuoka Prefecture provided 300,000 yen (~US\$ 2,700) to the municipalities to strengthen every house so that it could exceed 1.0 in the evaluation. Instead, houses that obtained less than 0.7 points were eligible to receive the rebuilding subsidy. In the latter case, low-cost loans were provided from private financial institutions to the eligible households. This program started in 2002. In 2003, already over 2,000 households were supported from the budget ²⁷ .
Risk identification / Risk reduction	USA Supporting disaster risk assessment of private housing and further reinforcement	Vulnerability to disasters of unreinforced masonry buildings	One-off subsidy from regional government to households and specific loans	The program provided owners of unreinforced masonry buildings with 2 sources of assistance: a subsidy to pay for engineering analysis and a source of long-term financing to pay for retrofit construction ²⁸ .
Risk	Mongolia	Low	Ongoing subsidy	With support from the World Bank, in 2005 Mongolia set up a public-private

²⁷ Masatoshi Kondou et al., *Tokai Earthquake Preparedness Program "Tokai-Zero" In Shizuoka Prefecture, Japan, 2004*, http://www.iitk.ac.in/nicee/wcee/article/13_1866.pdf

²⁸ FEMA, *Seismic Retrofit Incentive Programs: A Handbook for Local Governments*, 1994, https://www.fema.gov/media-library-data/20130726-1452-20490-2219/fema_254.pdf

identification / Financial protection	Supporting agricultural insurance	penetration of disaster insurance for agriculture	from government to insurance companies (provided information)	partnership with domestic insurance companies to offer affordable and cost-effective insurance coverage to herders. Since 2005, 16% of approximately 1 million herders were insured under the program. To aid the insurance company, instead of subsidizing premiums, the government of Mongolia pays for collection of all data used in the insurance scheme, and provides it to accredited insurance companies. The government also acts as a reinsurer at no additional cost in case of infrequent catastrophic losses. In this way, the commercial insurance covers only frequent disasters, while herders are also covered from severe disasters ²⁹ .
Risk reduction	Thailand Two programs for upgrading informal settlements	High disaster risk in informal low-income settlements	One-off subsidies from government to community organizations and from government to lower-income households	In January 2003, the Thai government announced two programs, which together sought to provide secure housing to 1 million low-income urban households. The first is the <i>Baan Mankong</i> program, which channels government funds (in the form of infrastructure subsidies and soft housing and land loans) directly to urban poor community organizations, which plan and carry out improvements to their land, housing, environment and basic services. This program was implemented by Community Organizations Development Institute (CODI). The second is the <i>Baan Ua Arthorn</i> program, in which the National Housing Authority designs, constructs and sells ready-to-occupy flats and houses at subsidised rates to lower-income households who can afford the “rent-to-own” payments of US\$ 25–37 per month. The <i>Baan Mankong</i> program was specifically set up to support upgrading processes that are designed and managed by existing low-income communities and networks. These communities and networks work with local governments, professionals, universities and NGOs in their city to survey the poor communities and then to plan an upgrading programme which will resolve the land and housing problems covering all urban poor communities in that city, in three or four years. Once these upgrading plans have been finalised, CODI channels the infrastructure subsidies and housing loans directly to the communities, who do all the work themselves. The per-household infrastructure subsidy in the <i>Baan Mankong</i> program has a ceiling of 25,000 Baht (US\$ 625) per family for communities upgrading or reconstructing their houses, and a ceiling of 65,000 Baht (US\$ 1,625) per family for communities relocating to new land. These per-

²⁹The World Bank, GFDRR, MoFA, USAID, *The Role of the Public Sector in Agricultural Insurance PPPs*, 2015, https://blogs.worldbank.org/psd/files/agricultural-insurance-public-sector-policy-note_15sept2015.pdf

				family infrastructure subsidies are then multiplied by the number of households in a community to determine the maximum subsidy available for upgrading the community's infrastructure. These simple subsidy calculations allow community members to collectively start discussing, planning and budgeting all the aspects of their comprehensive upgrading projects. Through CODI, the <i>Baan Mankong</i> program also provides soft loans for purchasing land or building houses to those who need them. The program also offers each community a grant equal to 5% of the total infrastructure subsidy to help fund their local management costs and support their organisational process and networking ³⁰ .
Risk reduction	Sweden Reducing disaster risk of municipalities	High disaster risk in built-up urban areas	One-off subsidies from government to municipality	For built-up areas, in which the consequences of natural disasters can be especially serious, the government allocates 40 million Swedish kronor per year for preventive measures. Municipalities carrying out preventive measures can apply for a subsidy from these allocated funds. Flood prevention can include embankments and dykes, pumping equipment or shutting-down devices for water supply and sewage systems. Landslide prevention can entail slope stabilisation measures ³¹ .
Risk reduction	Japan Mitigating the consequences of earthquakes	High death-rate caused by concrete block fences	One-off subsidies from regional government to households	Since many people have been killed under concrete block fences that fall during earthquakes, the Shizuoka Prefecture provides a subsidy to replace or improve concrete block fences ³² .
Risk reduction	Japan Private housing seismic retrofitting	Vulnerability of private houses to earthquakes	One-off and transitional subsidies from government to households, plus low-interest loans	For seismic reinforcement for private houses, the Hyogo Prefecture has been providing citizens with subsidies for their seismic renovation and actual work costs under its Seismic Retrofitting to My House Program. Interest subsidies have also been provided to any citizen carrying out seismic renovation work through a bank loan. Moreover, the Hyogo Small and Medium Sized Corporation Loan System has been providing low-interest loans to businesses conducting disaster

³⁰ Somsook Boonyabancha, CODI, *How Upgrading of Thailand's Informal Settlements is Spear Heading a Community-Driven, City-Wide, Integrated Social Development Process*, 2005, <http://www.codi.or.th/downloads/english/Somsook5-23-06.pdf>

³¹ MSB, *Disaster Risk Reduction in Sweden*, <https://www.msb.se/en/Prevention/Natural-Disaster-Risk-Reduction-in-Sweden/>

³² Taiki Saito, *Disaster Management of Local Government in Japan*, <http://www.uncrd.or.jp/hyogo/hesi/pdf/peru/saito.pdf>

			to businesses	prevention-related programmes such as more earthquake resistant building renovations ³³ .
Risk reduction	Japan Making schools safe	Vulnerability of schools to earthquakes	One-off subsidies from government to municipalities	The Japanese government subsidized retrofitting of schools through local governments, reaching its target of 100% of schools being retrofitted. In this system, the local governments leading retrofitting contributed only 10% of the total cost of retrofitting with the remainder being subsidized ³⁴ .
Risk reduction	Nepal Two-step incentive system for house retrofitting	Vulnerability of non-engineered masonry construction to earthquakes	In-kind and monetary one-off subsidy from government to households and second subsidy from government to households if the retrofitted house suffered damage during earthquake	Meguro Lab, Tokyo University has proposed several systems for subsidizing seismic retrofits including the “two-step incentive system” and “new earthquake micro-insurance system”. In the proposed two-step incentive system, house owners are encouraged to retrofit their homes by receiving the necessary materials and a subsidy upon satisfactorily carrying out the work. If the retrofitted houses are damaged in an earthquake, the owners then receive twice the compensation that house owners who did not retrofit would receive. To investigate the practical issues of implementation, a pilot scheme was conducted in a seismically active region of the Kathmandu Valley, Nepal. Material costs for the retrofit were initially estimated at around US\$30 and went as high as US\$250. The pilot implementation included a training course for rural masons and public shake-table demonstration ³⁵ .
Risk reduction	Trinidad and Tobago House improvement subsidies	Vulnerability of private houses to earthquakes	One-off subsidies from government to households	With support from Inter-American Development Bank, the government introduced a series of subsidies for house improvement. Under this program, the Ministry of Housing and the Environment provided up to US\$20,000 to successful applicants as long as the applicant could contribute a matching or greater amount through cash, materials on site, or a percentage of the labor costs. The total household income of the applicant could not exceed US\$4,500 per month ³⁶ .

³³ WCDRR, *Seismic Resistance Enhancement Programs for Buildings*, <http://wp.preventionweb.net/wcdrr/seismic-resistance-enhancement-programs-for-buildings/>

³⁴ GFDRR, *School Safety at Scale: Lessons from Japan*, 2016, <https://www.gfdr.org/school-safety-at-scale-lessons-from-japan>

³⁵ *Seismic Retrofit of Housing in Post-Disaster Situations – Basic Engineering Principles for Development Professionals*, <http://buildchange.org/pdfs/usaidprimers/Appendix%20-%20-%20Case%20Studies%20-%20Nepal%20and%20Peru.pdf>

³⁶ Government of Republic of Trinidad and Tobago, Office of Disaster Preparedness and Management, <http://www.odpm.gov.tt/node/73>

Risk reduction	Invercargill, New Zealand Resilient flood recovery	Increasing urban resilience	From government to municipality	The National Water and Soil Conservation Authority (NWSCA) took a fresh approach to flood mitigation by developing a cooperative arrangement with the city focused on long-range planning, rather than taking the traditional approach of structural mitigation that supports floodplain redevelopment. The arrangement involved NWSCA providing recovery subsidies to the city in return for city adoption of a long-term-risk planning approach ³⁷ .
Resilient recovery	Thailand Support for small-to-medium enterprise recovery	Slow recovery and subsequent increasing losses of small-to-medium enterprises	One-off as employment support from government to businesses / workers	The 2011 floods affected around 990,000 workers, of whom 500,000 were re-employed or returned to their previous workplaces. To assist flood-hit workers and maintain employment, the Ministry of Labour provided a subsidy of THB 2,000 (~US\$ 57) for each employee for a certain period, providing participating workplaces maintained at least 75 percent of each employee's normal salary. As of January 2012, 347 manufacturers, covering 210,150 workers, had participated in the programme. The government also provided a skills development scheme: participating workers received a food allowance of THB 120 (~US\$ 3) per day for a period of 10 days. In case of lay-offs, the affected workers received compensation in line with the labour protection law ³⁸ .
Resilient recovery	Japan Subsidies in transport sector	Speeding up infrastructure recovery after disaster	Ongoing subsidies from government to municipality	In Japan, local governments report their infrastructure damage to the national government within ten days of a disaster and immediately request a national subsidy. Local governments can begin implementing their projects even before applying for the subsidy ³⁹ .
Resilient recovery	Haiti Rental support subsidies	Supporting housing for internally displaced populations	One-off subsidies from government to tenants	Rental Support Cash Grants provided US\$500 for one year's rent and other incentives such as moving expenses and an extra cash transfer 6-8 weeks after the move, to encourage continued occupancy of the rental unit. A support team was involved in each step and grievance and appeal mechanisms were created. Tenants negotiated their own rents with landlords, and if the rent was lower than

³⁷ Facing Hazards and Disasters: Understanding Human Dimensions, 2006, <https://www.nap.edu/read/11671/chapter/8#237>

³⁸ UN ESCAP, *Building Resilience to Natural Disasters and Major Economic Crises*, 2013, <https://www.unescap.org/sites/default/files/ThemeStudy2013-full2.pdf>

³⁹ The World Bank Group, *Disaster Risk Management in the Transport Sector*, 2015, <http://documentos.bancomundial.org/curated/es/524081468188378328/pdf/98202-WP-P126896-Box391506B-PUBLIC-DRM-Final.pdf>

		after disaster		the subsidy, the tenant was allowed to “keep the change.” As of March 2016, 82,000 subsidies had helped 276,000 internally displaced persons leave camps, which was well over half of those who did not leave spontaneously. The World Bank financed 14,021 of the rental subsidies, using part of an existing grant originally designed for housing reconstruction. ⁴⁰
Resilient recovery	Tajikistan Assisting affected populations to reallocate	People inhabiting high disaster risk areas	From government to households	In 2003 assistance to affected populations included 3,000 Somoni (US\$830) as a subsidized loan for resettlement to a safe area with a free allocation of a land plot to build housing ⁴¹ .
Resilient recovery	Pakistan Housing reconstruction subsidies	Supporting resilient housing reconstruction of affected populations	From government to households	The government of Pakistan rolled out a public subsidy program for housing reconstruction which provided households with both technical and financial support. Having a clear stake in the rehabilitation or rebuilding of their homes, the affected households ensured that the new construction was earthquake-safe. Over 400,000 homes were rebuilt – 90% of which were in compliance with the new seismic codes, better preparing the region for future earthquakes ⁴² .
Resilient recovery	Colombia Housing reconstruction subsidies	Supporting housing reconstruction of affected populations	From government to people in need of houses	In 2000, a World Bank project was implemented in Colombia aimed at subsidizing the housing needs of 76,000 people (out of total 90,000 people affected) affected by floods ⁴³ .

⁴⁰ Charles A. Setchell, *Key Trends & Challenges - and an Emerging Paradigm Shift - in the Provision of Humanitarian Shelter in Urban Areas*, 2016, <http://pubdocs.worldbank.org/en/88511464879255917/housing-finance-conference2016-session-7-presentations.pdf>

⁴¹ The World Bank, ISDR, CAREC, *Mitigating the Adverse Financial Effects of Natural Hazards on the Economies of Central Asia*, https://www.wmo.int/pages/prog/dra/vcp/documents/7607_MitigatingtheAdverseFinancialEffects.pdf

⁴² The World Bank, *How to Develop Effective Disaster Recovery Programs – Lessons from Vulnerable Countries*, Feature Story, 2014, <http://www.worldbank.org/en/news/feature/2014/09/10/lessons-in-effective-disaster-recovery-from-vulnerable-countries>

⁴³ The World Bank, *Project Appraisal Document: Earthquake Recovery Project, the Republic of Colombia*, 2000, [https://www.gfdrr.org/sites/default/files/publication/Earthquake%20Recovery%20Project%20\(Colombia\)%20PAD.pdf](https://www.gfdrr.org/sites/default/files/publication/Earthquake%20Recovery%20Project%20(Colombia)%20PAD.pdf)

