



IEG
INDEPENDENT
EVALUATION GROUP

WORLD BANK GROUP
World Bank • IFC • MIGA

PROJECT PERFORMANCE ASSESSMENT REPORT



JAMAICA

Hurricane Dean Emergency Recovery Loan

Report No. 153672

NOVEMBER 24, 2020

© 2020 International Bank for Reconstruction and Development / The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

Attribution—Please cite the work as follows:
World Bank. 2020. Jamaica— Hurricane Dean Emergency Recovery Loan. Independent Evaluation Group, Project Performance Assessment Report 153672. Washington, DC: World Bank.

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

RIGHTS AND PERMISSIONS

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.



IEG
INDEPENDENT
EVALUATION GROUP

WORLD BANK GROUP
World Bank • IFC • MIGA

Report No.: 153672

PROJECT PERFORMANCE ASSESSMENT REPORT

JAMAICA

**HURRICANE DEAN EMERGENCY RECOVERY LOAN
(IBRD-L4878)**

November 24, 2020

Financial, Private Sector, and Sustainable Development

Independent Evaluation Group

Currency Equivalents (annual averages)

Currency Unit = Jamaican Dollar (J\$)

2007	\$1.00	J\$69.04	2013	\$1.00	J\$100.89
2008	\$1.00	J\$72.91	2014	\$1.00	J\$111.30
2009	\$1.00	J\$88.28	2015	\$1.00	J\$117.31
2010	\$1.00	J\$87.33	2016	\$1.00	J\$125.14
2011	\$1.00	J\$86.08	2017	\$1.00	J\$128.36
2012	\$1.00	J\$88.80	2018	\$1.00	J\$129.72

Abbreviations

CAS	Country Assistance Strategy
CPS	Country Partnership Strategy
FY	fiscal year
HDERL	Hurricane Dean emergency recovery loan
ICR	Implementation Completion and Results Report
IEG	Independent Evaluation Group
JSIF	Jamaica Social Investment Fund
M&E	monitoring and evaluation
MoE	Ministry of Education
MoH	Ministry of Health
ODPEM	Office of Disaster Preparedness and Emergency Management
OP/BP	Operational Policy / Bank Procedure
PDO	project development objective
PIOJ	Planning Institute of Jamaica
PPAR	Project Performance Assessment Report

All dollar amounts are US dollars unless otherwise indicated.

Fiscal Year

Government: April 1–March 31

IEG Management and PPAR Team

Director-General, Independent Evaluation	Ms. Alison Evans
Director, Financial, Private Sector, and Sustainable Development	Mr. José C. Carbajo Martínez
Manager, Sustainable Development	Mr. Christopher Nelson
Task Manager	Mr. Victor M. Vergara

This report was prepared by Victor Vergara who assessed the project in April 2018. David Colbert assessed the capacity building component in a subsequent mission held in October 2019. The report was peer reviewed by George Matovu and panel reviewed by Stephen Hutton. Romyne Pereira and Vibhuti Narang Khanna provided administrative support.

Contents

Data.....	v
Preface	vi
Summary	vii
1. Background and Context	1
Objectives and Design	2
2. Relevance of Objectives	2
Project Design	4
Components	4
Implementation Arrangements	6
3. Implementation	7
Implementation Experience.....	7
Safeguard Compliance.....	7
Financial Management and Procurement	8
4. Achievement of the Objectives.....	9
Objectives, Outputs, and Outcomes.....	9
Objective 1: Restore Levels of Service in Selected Community Infrastructure to Pre–Hurricane Dean Levels	9
Objective 2: Increase the Government’s Ability to Respond to Natural Hazards.....	11
5. Efficiency	15
6. Ratings	15
Bank Performance	16
Quality of Supervision	17
Government Performance.....	17
Implementing Agency Performance.....	18
Monitoring and Evaluation	19
Design of Monitoring and Evaluation.....	19
Implementation of Monitoring and Evaluation	19
Use of Monitoring and Evaluation	20
7. Lessons.....	20
Bibliography.....	23

Tables

Table 4.1. Objective 1 Outcomes.....	10
Table 4.2. Objective 1 Outcomes: Beneficiary Survey	11

Appendixes

Appendix A. Basic Data Sheet.....	25
Appendix B. Projects and Sites	28
Appendix C. List of Persons Met.....	35

Data

Principal Ratings

Indicator	ICR	ICR Review	PPAR
Outcome	Satisfactory	Moderately satisfactory	Moderately satisfactory
Risk to development outcome	Moderate	Significant	Moderate
Bank performance	Satisfactory	Moderately satisfactory	Moderately satisfactory
Borrower performance	Satisfactory	Satisfactory	Satisfactory

Note: The Implementation Completion and Results Report (ICR) is a self-evaluation by the responsible Global Practice. The ICR Review is an intermediate Independent Evaluation Group product that seeks to independently validate the findings of the ICR. PPAR = Project Performance Assessment Report.

Key Staff Responsible

Management	Appraisal	Completion
Project Team Leader	Abhas K. Jha	Angelica Nunez del Campo
Sector Manager or Practice Manager	Jaime Biderman	Sameh Whaba Tadros
Sector Director or Senior Global Practice Manager	Laura Tuck	Guang Zhe Chen
Country Director	Yvonne M. Tsikata	Françoise Clottes

Preface

This is a Project Performance Assessment Report for the Hurricane Dean emergency recovery loan (P109575) in Jamaica. The project was chosen to provide inputs into an Independent Evaluation Group (IEG) evaluation on building urban resilience.

This report presents its findings and conclusions on the basis of several sources of evidence. IEG interviewed relevant World Bank staff based in Washington, DC, involved in all project stages. Additionally, IEG undertook two missions to Jamaica—the first in April 2018, the second in October 2019—where it (i) interviewed officials of the government of Jamaica involved in the design and implementation of the HDERL and leaders of civil society organizations (benevolent societies) that implemented the project in the field (see appendix C) and (ii) conducted several site visits to view the project’s infrastructure reconstruction in the field. In addition, the IEG team carried out focus group discussions with project beneficiaries. The assessment carried out a desk review of relevant documentation: appraisal, supervision, midterm reviews, and completion reports produced by the World Bank, as well as impact assessments and strategy documents developed by the government of Jamaica.

IEG wishes to thank the current and former government of Jamaica officials and World Bank staff involved in the Hurricane Dean emergency recovery loan for sharing their experience in designing, implementing, and self-evaluating the project. IEG also thanks members of the Jamaican benevolent societies who implemented the project for facilitating the fieldwork and for the time and attention devoted to this review. IEG also received excellent administrative and coordination support from the World Bank country office in Kingston.

Following standard IEG procedures, a copy of the draft report was sent to the relevant government officials and agencies for their review and feedback, but no comments were received.

Summary

Jamaica is highly exposed to natural disasters. The country's location on the Atlantic hurricane belt and its low-lying coastal zones make the island extremely vulnerable to hurricanes and tropical storms. The negative impacts on economic development and social well-being are exacerbated as approximately 82 percent of Jamaica's population lives within 5 kilometers of the coast, increasing the relative vulnerability of residents, major infrastructure, and the housing stock.

Hurricane Dean made landfall in Jamaica on August 19, 2007, causing economic losses of roughly \$329 million. Six fatalities were reported as a consequence of the hurricane. Approximately 6.7 percent of the total population, approximately 180,000 people from 169 communities, were directly affected by the natural disaster. The hurricane resulted in significant and extensive damage to primary and early childhood schools, community-based health clinics, and parochial and agricultural feeder roads in directly impacted parishes.

In the aftermath of the hurricane, Jamaica's Ministry of Finance confirmed that the recovery would require financial support from multiple sources, both national and international. In that context, the government of Jamaica approached the World Bank to support reconstruction works in poor communities affected by Hurricane Dean. The general aim was the reestablishment of prehurricane living conditions in these communities through the implementation of specific local infrastructure projects that would directly improve the conditions of the most vulnerable populations. Given the ongoing emergency, the World Bank and the government of Jamaica agreed to sign an emergency recovery loan to expedite the disbursement of resources. Additionally, the World Bank and the government of Jamaica agreed that the Jamaica Social Investment Fund (JSIF) would be the implementing agency.

The project development objective for the Hurricane Dean emergency recovery loan (HDERL) was "to restore levels of service in selected community infrastructure specifically—basic, primary and all-age schools, health clinics and critical feeder roads—at a minimum to prehurricane levels and to increase the government's ability to respond to natural hazards." The project design had three components: (i) repair and reconstruction of basic infrastructure in the poorest communities, including restoration of early childhood, primary, and all-age school infrastructure; restoration of community health clinics; and restoration of feeder and secondary (parish-level) roads, selected on the basis of access to productive infrastructure and to health and educational facilities; (ii) capacity building for hazard risk reduction, including training on disaster preparedness and mitigation for local government and relevant stakeholders as well as

studies and hazard mapping activities to strengthen local capacity to respond to natural hazards, considering lessons of experience from past events; and (iii) project management, including consultant services, staffing, and operating costs for the in-house project management and administration by JSIF.

After an initial delay in its effectiveness, project implementation proceeded reasonably well for an emergency recovery project. Project implementation was facilitated by an experienced team in the implementing agency, who were able to perform project procurement, financial management, and monitoring and evaluation functions efficiently. Implementation was rated satisfactory throughout the life of the project, except during the initial phase owing to disbursement delays. The midterm review conducted in 2009 found the project advancing satisfactorily. The project closed as planned in 2011, having fully disbursed its funds and completed the bulk of its planned outputs in terms of infrastructure civil works, community training for disaster preparedness and infrastructure maintenance, vulnerability studies, and coastal hazard mapping. When the project closed in 2011, the HDERL had disbursed \$9.99 million of its original \$10.0 million commitment and had largely achieved its project development objective with respect to the restoration of targeted community services (schools, health clinics, and feeder roads) and partially achieved its project development objective with respect to increasing government ability to respond to natural hazards.

The relevance of the project's objective is rated **substantial**. Although the goal of restoring levels of service in selected community infrastructure was very relevant to the government's priorities and the World Bank's country strategies, the goal to increase the government's ability to respond to future natural hazards was less relevant because it was overly ambitious and did not include risk reduction as indicated in Global Facility for Disaster Reduction and Recovery principles and the Hyogo Framework for Action. Similarly, the relevance of the project's design is rated **modest**. The project's design for repair and reconstruction of the schools, health clinics, and feeder roads was sound. However, the capacity building activities were not sufficient to significantly improve government ability to respond to future natural hazards.

The project was successful in rehabilitating infrastructure and restoring services to prehurricane levels, so the efficacy for the first component is rated **substantial**. The project financed 71 community infrastructure subprojects in 13 parishes, comprising 9 basic schools, 28 primary and all-age schools, 19 community health clinics, and 15 feeder roads. These infrastructure subprojects were in communities targeted because of their high poverty levels and benefited more than 400,000 people. For the second component, the capacity building activities provided real benefits to the communities targeted in terms of disaster preparedness and emergency response. But these activities hardly amount to an increase in the government's response ability, as suggested by the

objective, so efficacy here is rated **modest**. Because the project closed on time and showed significant rates of return on its civil works, the project's efficiency is rated **substantial**. These individual ratings lead to an overall outcome rating of **moderately satisfactory**. Despite the country's continuing vulnerability to natural hazards, the achievements of the project in improved construction techniques for community infrastructure, increased community disaster preparedness, and expanded coastal hazard planning have reduced the risk to development outcome to **moderate**.

Bank performance is rated **moderately satisfactory**. The World Bank prepared the project rapidly, responding to an urgent request from the government. Preparation was largely based on the government's comprehensive damage assessment and relied on the implementing agency's experience in similar reconstruction projects. During project preparation, the World Bank tried to incorporate lessons of experience from similar emergency recovery operations and community-based infrastructure projects (for example, avoiding overly ambitious objectives and setting reasonably high standards for the reconstruction works). The capacity building component, however, was hastily designed and was not part of a strategic vision for building the capacity of the government to respond to natural hazards. For these reasons, quality at entry is rated **moderately satisfactory**. The World Bank's supervision of the project was uneven. The infrastructure reconstruction activities were consistently supervised by World Bank missions, but the capacity building activities were not as closely overseen. The World Bank conducted nine supervision missions, recording progress with a few minor problems during the reconstruction of affected facilities. There was a change in task team leader during implementation, but this did not appear to disrupt the continuity of project progress. The World Bank team was proactive in identifying problems and providing solutions during project implementation, but its supervision of the capacity building activities was not as thorough as it was for the infrastructure component. For these reasons, World Bank supervision is rated **moderately satisfactory**.

Overall, borrower performance is rated **satisfactory**. The government requested the project on an emergency basis and remained committed to its implementation until project closure. Given the emergency nature of the operation, the government took administrative measures with respect to procurement and financial management to facilitate project implementation at the national and local levels. government performance is rated **satisfactory**. Multiple agencies worked together to ensure effective implementation of the project. Overall project implementation was carried out by JSIF, with assistance in areas of expertise from the Planning Institute of Jamaica and the Office of Disaster Preparedness and Emergency Management. With these institutions, the project used proven implementation mechanisms and benefited from extensive World Bank project implementation experience. In addition, the line ministries (Education,

Health) and the Early Childhood Commission all took ownership of their respective parts of the operation at the community level. Implementing agency performance is rated **satisfactory**.

Monitoring and evaluation (M&E) is rated **modest**. The M&E for the first project component (repair and reconstruction of basic infrastructure) was well designed and implemented. The indicators for that component—which were (i) restored levels of service to pre-Hurricane Dean standards in target facilities (attendance at schools, patients at health clinics) and (ii) beneficiary satisfaction with the works completed—were clear and measurable. However, the M&E for the second project component (capacity building for disaster preparedness) was flawed. The only indicators provided were for outputs (knowledge products and dissemination efforts). There were no outcome indicators for the component. As a result, M&E implementation presented a challenge throughout the life of the project, and its use was limited to tracking project progress.

Lessons:

- **Using existing agencies with a proven track record can be an effective approach for implementing emergency response projects.** Given the urgency for expedient and effective implementation inherent in emergency recovery loans, to the extent possible, emergency recovery projects can capitalize on the comparative advantage of using counterpart institutions that have proven implementation capacities and ability to work well with other institutions. For the HDERL, JSIF was particularly well suited to undertake implementation of the project, having had extensive experience with similar community infrastructure operations and firsthand knowledge of World Bank requirements for procurement, financial management, and M&E functions.
- **When designing rehabilitation works, close consultation with users can ensure the provision of better services.** The inclusion of key stakeholders in the planning process and the incorporation of their suggestions, needs, and general inputs has proved useful in many subprojects. In the case of the HDERL, the facilities that improved the most were those for which suggestions from users were incorporated.
- **Expectations need to be managed as there are limits to how much progress can be made on disaster risk reduction or emergency preparedness under an emergency operation.** In many contexts, the occurrence of a natural disaster provides a window of opportunity and political support to undertake efforts for improving disaster risk reduction. In the case of the HDERL, the project objective included support for improving government response capacity, but this came

late in the design process, and the activities for supporting government response capacity and risk reduction were relatively minor and not at a scale necessary to achieve significant impact.

José Cándido Carbajo Martínez
Director, Financial, Private Sector, and Sustainable Development
Independent Evaluation Group

1. Background and Context

1.1 Jamaica is extremely prone to natural disasters, especially hurricanes. From 2000 to 2010, Jamaica suffered eight major hurricanes (NLJ 2013). Approximately 82 percent of Jamaica's population lives within 5 kilometers of the coast, exacerbating the vulnerability of residents, major infrastructure, and the housing stock.

1.2 Hurricane Dean struck Jamaica on August 19, 2007, inflicting economic losses of approximately \$329 million. The Ministry of Health confirmed six deaths due to the hurricane, and hospitals reported 628 injuries. The social costs of the hurricane were substantial. Approximately 6.7 percent of the total population, 179,552 persons from 169 communities, were directly affected by the natural disaster. At the peak of the event, 213 shelters were opened across all parishes, housing 5,169 persons. Buildings and infrastructure suffered extensive damage. An assessment of the damage was published by the Planning Institute of Jamaica (PIOJ) in October 2007 (PIOJ 2007). Social subsectors suffered the most from the hurricane and needed immediate assistance.¹ The most damage was done to housing, education facilities, health centers, and feeder roads in the poorest communities. Damage to the education sector was particularly significant. Reports from the Ministry of Education (MoE) indicate that 518 schools and public educational institutions sustained damage and losses, totaling \$10 million. Damage and losses to the health sector totaled \$4 million. Several clinics were closed. Critical facilities with structural damage were identified by Jamaica Social Investment Fund (JSIF) and the Social Development Commission. Although direct damage to road infrastructure was relatively small, estimates suggested \$15 million would be needed to reopen and repair the infrastructure to minimize long-term disruption of social and economic activities.

1.3 In the aftermath of the hurricane, the Ministry of Finance concluded that the recovery would require financial resources from multiple sources, including multilateral, bilateral, and local grants, as well as multilateral loans. In that context, the government of Jamaica approached the World Bank to support the repair and reconstruction works in the poorest communities affected by Hurricane Dean; this led to the development of the Hurricane Dean emergency recovery loan (HDERL). The general aim of the recovery loan was the reestablishment of predisaster living conditions in these communities through the implementation of specific infrastructure reconstruction

¹ The Planning Institute of Jamaica considers the social sector to include the following subsectors: housing, education and culture, health, correctional facilities, and heritage sites.

projects that would reestablish services for the most vulnerable populations living in the poorest communities (World Bank 2007b).

1.4 Given the need for rapid response and reconstruction, the World Bank and the government of Jamaica agreed to sign an emergency recovery loan to expedite the disbursement of resources. The government turned to the World Bank because of its prior experience in financing posthurricane community reconstruction projects under the National Community Development Project, as was done after Hurricane Ivan in 2004.

1.5 The World Bank and the government of Jamaica agreed that JSIF would be the implementing agency for the HDERL owing to its experience in implementing World Bank-financed projects, particularly the National Community Development Project. The use of JSIF was seen as a rapid way to channel resources and to implement the project during the aftermath of the hurricane.

Objectives and Design

1.6 The project development objective (PDO) for the HDERL comprised two separate objectives: “to restore levels of service in selected community infrastructure specifically—basic, primary and all-age schools, health clinics and critical feeder roads—at a minimum to prehurricane levels and to increase the government’s ability to respond to natural hazards” (World Bank 2007b, 6). These objectives were not revised during the project implementation and are considered individually in this Project Performance Assessment Report (PPAR).

2. Relevance of Objectives

2.1 After Hurricane Dean devastated portions of the island, the government of Jamaica determined that there was an urgent need to rebuild basic infrastructure in the poorest communities affected by the hurricane. To meet that need, the government worked with the World Bank to prepare an emergency recovery project to obtain financial help for repair and reconstruction of schools, clinics, and feeder roads damaged by the disaster. The government considered the reconstruction of this basic community infrastructure an urgent priority because it directly affected the living conditions of the poorest populations in the affected communities. To this extent, the objectives of the HDERL met the government’s priorities, and the government’s experience with JSIF in implementing similar World Bank projects gave it confidence that the JSIF would be able to provide a rapid response with the implementation of the HDERL.

2.2 In terms of World Bank priorities, the two objectives within the PDO were in line with the World Bank strategies at the time of the loan approval (December 2007). The World Bank's Country Assistance Strategy (CAS) for fiscal years (FY)06–09 cited the environmental risks faced by the country and the costs associated with Hurricane Ivan (8 percent of the gross domestic product), which made landfall in Jamaica in 2004 (World Bank 2005). The CAS underlined the vulnerable condition of the island as a small open economy with high propensity to suffer from natural disasters and indicated that the World Bank's program would provide "support for disaster prevention and mitigation" (World Bank 2005, 3). Additionally, the primary pillars of the CAS stressed the importance of "Ensuring Environmental Sustainability including through improved national and local capacity for hazard risk management" as an overall policy goal (World Bank 2005, 39).

2.3 At project closure, the objectives of the PDO continued to be relevant to the World Bank's priorities, as expressed in the new Country Partnership Strategy (CPS) FY10–13 (World Bank 2010b). The CPS laid out the need for disaster prevention and mitigation measures in its second pillar (promoting inclusive growth). The CPS also stated that the previous CAS "was remiss in not recognizing and addressing such threats more proactively (for example, through greater realism in target-setting and contingency planning)." Furthermore, the subsequent CPS FY14–17 documented the high economic and poverty impacts that natural disasters periodically imposed on the country and described the government's Vision 2030 Jamaica plan, which includes three outcomes related to natural disaster adaptation and mitigation.² These are in line with one outcome of the third area of engagement proposed in the CPS: "improved institutional capacity to plan and respond to climate change events and natural disasters" (World Bank 2014, 15). Independent Evaluation Group (IEG) conversations with task team leaders of previous and current projects related to risk reduction recognize that the World Bank should be more proactive in such matters. Currently, there are two projects related to natural disaster risk adaptation and mitigation. The first, Improving Climate Data and Information Management (P129633), is a grant that seeks "to improve the quality and use of climate related data and information for effective planning and action at local and national levels" (World Bank 2015, 4).³ The

² These outcomes are (i) sustainable management and use of natural and environmental resources, (ii) hazard risk reduction and adaptation to climate change, and (iii) sustainable urban and rural development (World Bank 2014, 12).

³ Improving Climate Data and Information Management, \$7.5 million, July 2015–April 2021.

second, the Jamaica Disaster Vulnerability Reduction Project (P146965), aims to “enhance Jamaica’s resilience to disaster and climate risk” (World Bank 2016, iii).⁴

2.4 For the second objective of the PDO, the relevance is less clear. The language of the objective is vague (increasing the government’s ability to respond to natural hazards), and the intermediate outcome identified in the results framework is poorly defined (increase the government’s ability to respond). To complicate matters further, the intermediate outcome indicators are largely inappropriate (risk preparedness studies, risk reduction training, and so on), focusing more on the government’s risk management capabilities than on its ability to respond to natural hazards. Framing this objective as something more general—improving the government’s disaster risk management framework or something similar—might have better captured the mix of activities actually included, though even then the synergies among activities were not clear and they may have been insufficiently focused to achieve a significant result. In discussions with officials at JSIF, the IEG mission was told that the second objective was hurriedly added to the first late in project preparation, with little or no preparatory work done to identify the gaps in government response capacity the objective was intended to address, which might explain why it was not well conceived and lacks clarity of purpose. That the CAS emphasized Jamaica’s vulnerability to natural hazards and recognized the need for hazard risk management, coupled with the activities provided under the second component (hazard risk reduction), suggests that the objective should have included language on reducing disaster risk vulnerability rather than just ability to respond to natural hazards.

2.5 Given the strengths of the first objective and the weaknesses of the second objective, the overall relevance of objectives is rated as **substantial**.

Project Design

2.6 The project comprised three components: (i) repair and reconstruction of basic infrastructure, (ii) capacity building for hazard risk reduction, and (iii) project management. A description of these components follows.

Components

2.7 **Component 1:** Repair and reconstruction of basic infrastructure (\$7.34 million at appraisal; \$7.99 million actual).

⁴ Jamaica Disaster Vulnerability Reduction Project, \$30 million, February 2016–June 2022.

2.8 **Basic schools:** \$1.635 million (actual). This subcomponent financed the restoration of early childhood school infrastructure. Targeted schools were those built under the National Community Development Project and those located in the poorest communities.

- **Primary and all-age schools:** \$2.6 million (actual). This subcomponent financed the restoration of primary and all-age school infrastructure. Priority was given to those schools that were built under the National Community Development Project and those located in the poorest communities.
- **Community health clinics:** \$1.0 million (actual). This subcomponent financed the restoration of community clinics, including type 1, 2, and 3 facilities.⁵
- **Parochial or feeder roads:** \$2.1 million (actual). This subcomponent financed the restoration of feeder roads. Secondary (parish-level) roads were selected on the basis of (i) access to productive infrastructure and (ii) access to health and educational facilities.

2.9 **Component 2:** Capacity building for hazard risk reduction (\$0.58 million at appraisal; \$0.97 million actual).

- **Training:** \$0.18 million at appraisal. This subcomponent financed training on disaster preparedness and mitigation for local government and relevant stakeholders.
- **Studies and technical assistance:** \$0.4 million at appraisal. This subcomponent financed studies and activities to strengthen the capacity to respond to natural hazards, considering lessons learned from past events.

2.10 **Component 3:** Project management (\$1.00 million at appraisal; \$1.03 million actual). This component supported contracted consultant services and staffing, plus operating costs for the in-house project management and administration by JSIF.

2.11 The main modifications that occurred relate to the allocation of loan proceeds among project components and among infrastructure subcategories.

2.12 Parallel financing was mobilized for both rehabilitation and capacity building activities. The European Commission provided €1.92 million (\$2.57 million) through a

⁵ Classification of health centers in Jamaica's decentralized health system: Type 1 health centers are the smallest or simplest health units; type 2 and 3 health centers are referral units for patients from type 1 health centers.

grant from the Global Facility for Disaster Reduction and Recovery and through the Tropical Storm Gustav Recovery Grant. JSIF also administered these funds.

Implementation Arrangements

2.13 The HDERL project was implemented through JSIF, which managed implementation of the infrastructure repair and reconstruction works carried out by local organizations. Much of the capacity building and training works were carried out by the Office of Disaster Preparedness and Emergency Management (ODPEM), while the PIOJ oversaw the vulnerability studies and coastal hazard mapping activities.

2.14 The implementation arrangements were built on the preexisting arrangements of the Inner-City Basic Services for the Poor Project (P091299), under implementation at the time. The World Bank considered that JSIF had developed the core competences in safeguard policies, financial management, and procurement procedures to successfully implement the project. Under the project, the selection of infrastructure would be done by government institutions instead of through the community demand-driven approach typically followed by JSIF.

2.15 **Relevance of the design.** The project's design with respect to restoring levels of service in selected community infrastructure to prehurricane levels appears to be sound to the extent that repair and reconstruction of the schools, health clinics, and feeder roads can reasonably be expected to facilitate the return of educational, health, and transportation facilities to their pre-Hurricane Dean levels. Of course, the disruption in educational and health services caused by the hurricane may require more than reconstruction of the infrastructure to overcome, but there is no evidence of other constraints to restoration of services.

2.16 However, the project's design with respect to increasing the government's ability to respond to natural hazards is less clear. Although the training, studies, and technical assistance provided by the second component delivered value in terms of disaster preparedness and risk reduction, this preparedness at the community level does not improve response capacity as suggested by the objective. The hazard mapping and vulnerability studies may improve the government's risk management framework, but they do not increase the government's ability to respond to future natural hazards. A greater investment and longer-term effort than the project design can provide would be needed to achieve that objective. This was confirmed in IEG mission discussions with officials in JSIF, who concluded that the capacity building activities were not sufficient to increase the government's ability to respond (attributing this largely to the World Bank's project design). This conclusion was reaffirmed by subsequent approval by the World

Bank of a larger follow-on project with similar capacity building activities, the Disaster Vulnerability Reduction Project, shortly after the HDERL closed in 2011.

2.17 Therefore, given the insufficient support in the project design for the building government response capacity objective of the PDO, the relevance of the project design is rated as **modest**.

3. Implementation

3.1 **Planned versus actual expenditure.** According to the emergency project paper, the overall project cost at appraisal was expected to be \$10 million. Actual costs were \$9.99 million, divided among three subcomponents as follows: (i) repair and reconstruction of basic infrastructure: \$7.34 million at appraisal, \$7.99 million at closure; (ii) capacity building for disaster preparedness: \$0.58 million at appraisal, \$0.97 million at closure; and (iii) project management \$1.00 million at appraisal, \$1.03 million at closure.

Implementation Experience

3.2 The project was approved in December 2007 (FY08). However, there was a delay in project implementation. The project did not become effective until five months later, on May 27, 2008. The project documentation does not explain the reasons for the delay. Interviews with staff from JSIF suggest that internal changes within JSIF's administrative processes partially explain the delays. The project closed, as planned, in June 2011 (FY11).

Safeguard Compliance

3.3 The project was a World Bank pilot for using country systems for safeguards and so relied on JSIF's Environmental Management Framework and on the Land Acquisition and Resettlement Policy Frameworks as environmental and social safeguards. Such frameworks were established in conjunction with the World Bank in 2006 for the Inner Cities Basic Services for the Poor Project. Therefore, the World Bank's task team leaders were familiar with the frameworks in advance, and the frameworks had already been used and tested in a World Bank project. According to conversations with World Bank staff involved in the project, the previous knowledge of the established frameworks facilitated safeguard compliance.

3.4 The project was rated as category B, triggering three Operational Policy [OP] / Bank Procedure [BP] categories—the Environmental Assessment (OP/BP 4.01), Involuntary Resettlement (OP/BP 4.12) and Physical Cultural Resources (OP/BP 4.11)—

since all works financed under the emergency recovery loan were small and generated only minor and localized environmental impacts that were consistently identified, mitigated and managed. For the subprojects visited by the PPAR mission, there were no observable issues relating to safeguard compliance.

3.5 According to the Implementation Completion and Results Report (ICR), in addition to normal supervision missions, the World Bank conducted specific supervision missions related to the use of country systems, which involved the entire JSIF portfolio. Those supervision missions and their findings are documented in the project documentation and confirm the compliance with World Bank safeguard policies.

3.6 JSIF obtained International Organization for Standardization 14001 certification (the most stringent environmental standards) in January 2009. According to the information provided by JSIF officers during the PPAR mission, this provides assurance that there is a reliable mechanism to ensure the sustainability of quality implementation on the environmental aspect of operations that are required to maintain the certification.⁶

Financial Management and Procurement

3.7 Apart from some delays, according to the project documentation, procurement processes ran without other major issues. The prevalence of small contracts helped facilitate procurement by increasing the number of bidders who were able to qualify. Additionally, the government approved a streamlined procurement process (relative to the national legislation) for the first year of the project owing to the emergency nature of the operation. No cases of improper procurement were detected.

3.8 According to World Bank staff, JSIF had a strong procurement team with experience working with international organizations. Additionally, the government allowed for efficient and expedited procedures that it would not have otherwise allowed in a nonemergency operation.

⁶ The Jamaica Social Investment Fund became the first organization in the English-speaking Caribbean to receive an International Organization for Standardization 14001:2004 certification and, in 2013, was named winner of the 2013 Jamaica Environmental Action Award in the waste management category.

4. Achievement of the Objectives

Objectives, Outputs, and Outcomes

4.1 As noted above, the HDERL's PDO comprised two objectives: (i) restoring service in selected community infrastructure to prehurricane levels and (ii) increasing the government's ability to respond to future natural hazards. This PPAR assesses the efficacy of the project in achieving each of these objectives separately.

Objective 1: Restore Levels of Service in Selected Community Infrastructure to Pre-Hurricane Dean Levels

4.2 The HDERL financed 71 community infrastructure subprojects in 13 parishes, comprising 9 basic schools, 28 primary and all-age schools, 19 community health clinics, and 15 feeder roads. The selection of these infrastructure subprojects focused on facilities damaged by Hurricane Dean, which were located in communities targeted on the basis of high poverty levels. JSIF estimated the total number of beneficiaries of these community infrastructure subprojects at over 400,000 people in the target communities, including 56,540 direct beneficiaries (students attending the schools, patients using the health clinics) and 344,071 indirect beneficiaries (the population of the target communities benefiting from basic infrastructure improvements). The bulk of HDERL funds (65 percent) were allocated to infrastructure subprojects in the four parishes most affected by Hurricane Dean.

4.3 The rehabilitation works for schools and health centers used new design standards based on a revised building code. The repair and reconstruction efforts used a "build back better" approach to build infrastructure designed to resist hurricanes of a higher category than Dean. The MoE and the Ministry of Health (MoH) developed such codes for schools and for health centers, respectively. During interviews conducted in the PPAR mission, the implementing agency stated that all the facilities financed by the project had been able to withstand subsequent disasters (such as Tropical Storm Nicole in 2010) without suffering much damage. The sample of projects reviewed during the ICR preparation site visits showed that the buildings were able to withstand subsequent natural events without suffering disruptions. The IEG mission visited the same sites to corroborate the findings reported in the ICR. The mission found that the facilities were being reasonably well maintained.

4.4 In terms of outcomes, JSIF collected data on attendance rates for the schools and usage of the health clinics reconstructed under the HDERL. The pattern of attendance and usage shown in table 4.1 indicates some success in achieving this objective, as service would have dropped substantially after the hurricane, and data from the 2008

and 2011 periods show improving service levels over time as the project was implemented. The project documentation is cautious in claiming complete attribution, acknowledging that changes in school attendance and clinic usage rates cannot be explained entirely by the project-supported repair and rehabilitation works. However, during the IEG mission for this PPAR, the team conducted several interviews with school officials and health clinic staff. The educational and health staff attribute the increase in usage and attendance rates to the reconstruction. For the community health clinics, the staff stated that the local population no longer needed to travel to other localities to receive medical attention and that the refurbished buildings attracted more patients. The education staff explained that destroyed or severely damaged schools had made attendance very difficult and that once reconstruction took place, they were able to serve more students.

Table 4.1. Objective 1 Outcomes

Outcomes	Prehurricane Baseline	2008	2011
Average attendance (<i>percent</i>)			
All schools	85.5	74	85
Early childhood	95	69	79
Primary and all-age	80	78	90
Percentage changes in usage of health clinics	n.a.	27% increase vs. baseline	25% increase vs. baseline

Source: World Bank 2011; JSIF data.

Note: There were no outcome indicators for the project's road reconstruction activities. n.a. = not applicable; vs. = versus.

4.5 Satisfaction surveys were carried out to determine beneficiary satisfaction with the rehabilitated infrastructure. JSIF measured the satisfaction of project beneficiaries twice during the life of the project; in all cases, overall beneficiary satisfaction surpassed the target values. Thirty-eight facilities (54 percent of the total number of subprojects) were sampled. The surveyed population included students, teachers, parents, staff, patients, and randomly selected passersby for roads. The survey questionnaire and the methodology for selecting the target population were designed by JSIF. The questionnaire captured beneficiary satisfaction with the timeliness of the intervention, the quality of the works financed, the scope of the works carried out, and the general perception of the rehabilitation. Table 4.2 shows the results for the satisfaction survey indicators.

4.6 During the fieldwork conducted for this PPAR, the evaluation team interviewed staff from the schools and clinics reconstructed during the project. At each of the visited sites, staff were certain that the reconstruction directly allowed for the reestablishment of services to both students and patients. In general, facilities visited by IEG were in good condition, but there was room for improvement in the reconstruction, and some

deterioration was reported by the staff. (For details on the site visits and findings, see appendix B).

Table 4.2. Objective 1 Outcomes: Beneficiary Survey (percent)

Outcomes	2009 (Y1)		2011 (Y2)	
	Target value	Actual value	Target value	Actual value
Beneficiaries satisfied or very satisfied with rehabilitation of target early childhood facilities	60	None evaluated	75	96
Beneficiaries satisfied or very satisfied with rehabilitation of target primary and all-age schools	60	90	75	82
Beneficiaries satisfied or very satisfied with rehabilitation of target health clinics	60	93	75	88
Beneficiaries satisfied or very satisfied with rehabilitation of target roads	60	85	75	71

Source: World Bank 2011; JSIF data.

4.7 Project documentation, field visits, and interviews show that the rehabilitated infrastructure has achieved, at least, the same levels of services as prehurricane. Additionally, as documented in tables 4.1 and 4.2, service provision improved. Outcomes surpassed the intended goal, and users and staff both reported better provision of services as a direct result of the project activities. Therefore, the achievement of this objective is rated **substantial**.

Objective 2: Increase the Government’s Ability to Respond to Natural Hazards

4.8 The project supported capacity building through two strategies. A community-based training strategy sought to (i) raise community disaster preparedness and maintenance capabilities by training community members and students on infrastructure maintenance and community disaster management and (ii) create and institutionalize local maintenance committees to oversee maintenance of community infrastructure (for example, schools, health clinics, and roads). A knowledge production and dissemination strategy sought to support the training program (i) by creating and disseminating training materials on maintaining community infrastructure and disaster preparedness and management and (ii) by funding studies intended to document vulnerable areas and promote good construction practices.

4.9 Training materials for community infrastructure maintenance and disaster preparedness were prepared. JSIF and ODPEM collaborated in producing a number of training materials for the community-level training: (i) *Maintenance and Disaster*

Management Training for Communities (JSIF and ODPEM 2011), a manual for a three-day training program on disaster management for communities (day 1), operational and routine maintenance of community infrastructure (day 2), and local maintenance committees (day 3) and (ii) *Disaster Management for Communities* (JSIF and ODPEM n.d.), a training guide on disaster management (addressing prevention, mitigation, preparedness, alerts, response, rehabilitation, and reconstruction), with modules on hurricanes, floods, earthquakes and landslides, fires, shelter management, radio operations, and community hazard mapping. The IEG mission obtained and reviewed these training materials and determined them to be of good quality for the community training in infrastructure maintenance and disaster preparedness.

4.10 Model house and simulation software training tools were also used. As part of its community training program under the HDERL, JSIF developed a portable model house to demonstrate the dos and don'ts of sound construction for housing in hazard-prone rural areas. Used in islandwide training sessions, the model was designed to increase awareness of good and bad practices in timber frame and concrete block construction and thus attempt to reduce vulnerabilities in hazard-prone communities. The IEG mission learned that the model house is currently in a JSIF storage facility and continues to be used in community training sessions, including those for the World Bank's Disaster Vulnerability Reduction Project. A second training tool that JSIF developed under the HDERL was a computer-engineered simulation software that visually depicted the effects of natural hazards (hurricanes, earthquakes, floods, and landslides) on community infrastructure. The software, which was created by the Mona GeoInformatics Institute at the University of the West Indies, was used during integrated maintenance, environmental, and disaster management training in communities islandwide. The IEG mission learned that the simulation software has become outdated and is no longer in use. The partnership between GeoInformatics and JSIF, however, has led to other three-dimensional modeling work, such as simulation of the effects of sea level rise on downtown Kingston.

4.11 **Training program.** In 2009, JSIF partnered with ODPEM and local fire departments to provide community training to 397 community members from more than 170 communities islandwide. The training on infrastructure maintenance, disaster management, and community response was based on the previously identified training materials and the Community Facilities Maintenance Handbook (JSIF 2006). The outputs from the training were (i) community maintenance plans and (ii) community hazard mapping, identifying vulnerable areas, constructed or natural, within the community. In addition, ODPEM identified two watershed areas (Ocho Rios and Bull Bay) for procurement of flood warning systems (consisting of rain gauges and streamflow gauges). The IEG mission learned that the community training program initiated under

the HDERL continues to the present time. The Workshop for Communities on Maintenance and Disaster Risk Reduction took place in December 2018. Also, in 2009, the ODPEM trained 272 students in secondary schools to form a National Emergency Preparedness and Response Corps. The student brigade was trained to attend to first aid needs, support damage assessment and victim registration, participate in emergency shelter preparation, and assist the elderly and people with disabilities during adverse conditions. The students were assigned duties within their own communities, where they were familiar with the conditions; they were linked to the parish disaster management committees and, by extension, to operations at the national level. They were provided with uniforms, basic safety and emergency equipment, and operational insurance. According to information obtained by the IEG mission from background documents and reports provided by JSIF, the mission found the community training program effective in reaching a large number of community members and in building their capacities for infrastructure maintenance and disaster preparedness.

4.12 Local maintenance committees. Once trained in preventive maintenance of community infrastructure, the participants formed local maintenance committees to assume responsibility for the maintenance of community facilities. Seventy-one maintenance committees were formed and carried out the following actions: (i) developed a maintenance plan, (ii) assigned responsibilities, (iii) established a budget, and (iv) raised community awareness with respect to facility maintenance and disaster management. Community facilities under the purview of the local maintenance committees included buildings, equipment, roads, and community-based water systems. The community maintenance program had a particular focus on hurricane preparation, using checklists to facilitate periodic inspections of the facilities. JSIF staff informed the IEG mission that the local maintenance committees continue to function in most of the targeted communities, but previous IEG field visits to six parishes were unable to find evidence that these committees still existed.

4.13 Vulnerability studies and coastal hazard mapping. The HDERL conducted vulnerability assessment studies and coastal hazard mapping for three communities in parishes adversely impacted by Hurricane Ivan in 2004 and later by Hurricane Dean in 2007: Portland Cottage in Clarendon, Morant Bay in St. Thomas and Manchioneal in Portland. Although Jamaica already had hazard maps at the national level, the PIOJ recognized a need to develop hazard maps at the community level to identify areas of high exposure and guide community planning and disaster risk management initiatives. To address this need, the project provided the PIOJ with technical assistance to (i) complete multihazard assessments and develop multihazard maps, (ii) conduct vulnerability and risk assessments, and (iii) produce disaster and risk management plans. The IEG mission obtained and reviewed a copy of the vulnerability assessments

and hazard mapping for the three communities and found the thorough assessments and mapping very well done.⁷ They detail the effort's findings and recommendations, including early warning systems, evacuation routes, mapping to inform planning, proper construction methods, and infrastructure maintenance. The vulnerability assessments and mapping exercises were designed to help the communities develop adaptation strategies based on integrated community planning and improve their capacity to manage the impacts of natural hazards (seismic, landslides) and severe weather events (storm surge, wind). The IEG mission, however, was unable to find any evidence that the communities used them for those purposes.

4.14 PIOJ reported that these vulnerability assessments and mapping exercises served as pilots for later work taken up by ODPEM. Since the HDRERL, ODPEM has performed vulnerability assessments for an additional 15 communities, adopted measures to standardize the hazard maps, and developed an additional 62 hazard maps islandwide. The mapping was also shared within the government to inform the National Works Agency's construction and maintenance of roads and bridges in hazard-prone areas, to contribute to the preparation of Jamaica's National Spatial Plan, and to be reflected in Jamaica's Vision 2030 National Development Plan (outcome 14: hazard risk reduction and adaptation to climate change) (PLOJ 2009).

4.15 The second objective is difficult to assess, because the objective was not framed in a way to fully capture many of the activities (which were about vulnerability reduction and not improving preparedness) and because the scale of the supported activities was insufficient to meaningfully achieve the objective. However, the community training activities, vulnerability assessments, and hazard mapping provided real benefits to the communities targeted in terms of disaster preparedness and emergency response. These activities have provided the foundation for ongoing activities in training and hazard mapping conducted by JSIF, PIOJ, and ODPEM. But the questions about the effectiveness of the local maintenance committees and the scattershot nature of the other activities hardly amounts to an increase in the government's response ability suggested by the objective. For these reasons, the efficacy rating for this objective is **modest**.

4.16 The efficacy in achieving the first objective is rated substantial and in achieving the second objective is rated **modest**.

⁷ Coastal Multi-Hazard Mapping and Vulnerability Assessments Towards Integrated Planning and Reduction of Vulnerability for Portland Cottage, Morant Bay and Manchioneal, Jamaica (2010).

5. Efficiency

5.1 Analysis at appraisal. An economic analysis of the operation at appraisal was not possible since the investments to be financed were unknown.

5.2 A review of the costs and expected benefits of a sample of 15 projects, 13 financed by the World Bank loan and 2 by the Tropical Storm Gustav Recovery Grant (six schools, four health centers, and five roads), was conducted as part of the ICR preparation. The economic rates of return were 13.6 percent for the six schools, 28.5 percent for the four health centers, and 49.0 percent for the five roads. However, the calculations had methodological flaws leading to gaps on both the cost and benefit sides. The flaws included (i) the absence of reference data to estimate the lack of accessibility due to damage to roads and (ii) the lack of data to capture the incremental impact of the rehabilitation works, such as reduced maintenance costs and greater durability. The sample reviewed represents only 18 percent of World Bank–financed projects, and the sampling approach is not specified.

5.3 The ICR contains no alternative measures of efficiency, such as unit cost comparisons with similar subprojects in Jamaica and elsewhere. However, as the Implementation Completion and Results Report Review points out, the project closed on schedule, so there were no time overruns. The World Bank loan funded 71 subprojects (\$140,845 per subproject), against an original list of 110 (\$90,909 per subproject), although this was partly owing to the availability of other sources of financing. Preparation and supervision costs represented 3.6 percent of disbursements. Therefore, this PPAR rates efficiency as substantial.

6. Ratings

6.1 **Outcome.** The HDERL’s objectives were **substantially relevant** to Jamaica’s priorities in the aftermath of Hurricane Dean, when an emergency intervention was needed. The project’s design was only **modest** in terms of enabling the project to achieve its two objectives. The project substantially succeeded in achieving its objective of reconstructing and rehabilitating an important part of the infrastructure damaged and destroyed by Hurricane Dean. But the capacity building activities financed by component 2 were not sufficient to “increase the government’s ability to respond to natural hazards” (World Bank 2007b, 6). The project was intended to address the emergency situation after Hurricane Dean, but the second part of the PDO was overly ambitious for an emergency recovery project, which should have been limited to initial stages of building capacity for longer-term disaster risk management and risk reduction. With the relevance of the objectives rated **substantial**, the design rated **modest**, the

efficacy ratings mixed (**substantial** for the first objective, **modest** for the second), and efficiency rated **substantial**, the overall project outcome is rated **moderately satisfactory**.

6.2 **Risk to development outcome.** The HDERL made significant achievements in restoring services in schools, health clinics, and roads to prehurricane levels, and the services are very likely to be sustained given the current use and strengthened maintenance of the reconstructed infrastructure. Furthermore, the community capacity enhanced by the training, studies, and technical assistance is likely to be sustained, based on the evidence of community ownership in these areas.

6.3 Overall, the risk to development outcome is rated **moderate**.

Bank Performance

6.4 **Quality at entry.** The World Bank's performance in ensuring quality at entry was moderately satisfactory. The decision to use an emergency recovery loan as the vehicle to respond to the posthurricane restoration of services was correct. However, the project was approved in December 2007 but did not become effective until five months later, on May 27, 2008. One reason for this time lag was that time was taken by discussions about subsidiary legal agreements.

6.5 Project preparation was based on the government's comprehensive damage assessment. The World Bank chose to rely on JSIF's experience in similar community infrastructure projects and in applying World Bank fiduciary and safeguard policies. Particularly relevant was the knowledge JSIF obtained from implementing the emergency recovery after Hurricane Ivan in 2004. Implementation, fiduciary, and safeguards arrangements from earlier operations, some involving JSIF, were also used. For environmental and social safeguards, the project relied on JSIF's Environmental Management Framework and on the Land Acquisition and Resettlement Policy Frameworks, all of which were established in 2006 for the Inner Cities Basic Services for the Poor Project.

6.6 During project preparation, important lessons learned from similar emergency recovery operations and community-based infrastructure projects were incorporated, including the need to (i) avoid overly ambitious objectives by responding to the reconstruction and rehabilitation demands from a specific event; (ii) set reasonably high standards for the reconstruction works through a "build back better" philosophy, in particular for school buildings, which would comply with the newly established MoE building codes; (iii) include provisions to incorporate a three-year maintenance period

into the construction contracts for all facilities (except roads);⁸ and (iv) establish local maintenance committees and provide them with training to coordinate maintenance works.

Quality of Supervision

6.7 The World Bank team conducted nine supervision missions, with an understandable focus on the infrastructure reconstruction activities. Each aide-mémoire records progress and a few minor problems during the reconstruction of affected facilities. Although there was a change in task team leader during implementation, the aide-mémoire reflected continuity in the recording of project progress. During the IEG mission, officers from JSIF indicated that the change in task team leader did not adversely affect the World Bank's coordination and involvement.

6.8 Officials from JSIF explained that World Bank staff was proactive in identifying problems and providing solutions during project implementation. For instance, the HDERL systematically incorporated feedback received by the World Bank from teachers and health professionals into the reconstruction efforts. In IEG's interviews with these professionals, they consistently stated that the resulting improvements in infrastructure enabled them to provide a better-quality service than before the hurricane.

6.9 The World Bank team reported in its aide-mémoire that the capacity building activities were completed. However, the team kept no copies of the outputs produced. This lack of information posed difficulties in evaluating the project.

6.10 Overall, Bank performance is rated moderately satisfactory.

Government Performance

6.11 The government of Jamaica provided fiscal support for the project despite the budget constraints caused by the global economic and financial crisis faced at that time. Additionally, the government streamlined country procurement procedures for contracting civil works during the first year of project implementation. Staff from the implementing agency interviewed during the PPAR mission corroborated this information.

⁸ Government of Jamaica officers indicated during interviews that maintenance is a major issue when projects are concluded. After project completion, maintenance is handed over to the agency of the government in charge of the specific subsector. Three years after project completion, school maintenance is the responsibility of the local parish and the Ministry of Education. Maintenance of health clinics is handed over to the Ministry of Health and the local parish.

6.12 On the basis of meetings with some of the relevant government officials, the IEG mission concluded that there was effective coordination among the government agencies involved in project implementation. JSIF and PIOJ officials reported that the MoE, the MoH, the Early Childhood Commission, and ODPEM all worked in coordination and took ownership of their respective parts of the operation. Certainly, the MoE and the MoH demonstrated their ownership of project infrastructure improvements by accepting responsibility, along with the relevant parishes, for infrastructure maintenance after handover from the project. The mission attempted to meet with ODPEM officials but was unable to do so during either of the two missions. However, IEG received positive feedback on ODPEM's participation in the training program and the hazard mapping activities.

6.13 Officers from JSIF explained during interviews the significance of ensuring the maintenance of community infrastructure and regarded it as a critical milestone in project implementation. Three years after project completion, school maintenance became the responsibility of the local parish and the MoE. The maintenance of the health clinics was handed over to the MoH and the local parish.

6.14 The government's performance is rated satisfactory.

Implementing Agency Performance

6.15 Implementing agency performance is rated **satisfactory**. The nine aide-mémoire and interviews conducted with World Bank staff revealed that JSIF had developed a helpful document recording system. JSIF has records of each subproject and the specific improvements and reconstruction activities conducted. Furthermore, it maintained data on school attendance and usage rates of health centers.

6.16 JSIF also has a clear idea of the activities related to component 2. Officers from JSIF provided IEG with the information listed in table 4.1. However, the fund did not keep evidence relating these activities to "improved government's capacities to respond to natural hazards."

6.17 The IEG mission learned from site visits that JSIF maintained regular communication with staff from schools and health centers during the project implementation. JSIF incorporated suggestions from educational and health care staff into the reconstruction efforts. It was also apparent that coordination and supervision at the community level were maintained.

6.18 During interviews conducted by IEG with World Bank project staff, it was clear that JSIF had a strong procurement team with experience working with international

organizations. Procurement processes ran, in general, without major issues, and no cases of improper procurement were detected.

6.19 Both project task team leaders stated that the World Bank relied on JSIF's experience in similar community infrastructure projects and in applying World Bank fiduciary and safeguard policies. They stressed the knowledge the JSIF obtained from implementing the emergency recovery after Hurricane Ivan in 2004. Implementation, fiduciary, and safeguards arrangements from earlier operations were also used. For environmental and social safeguards, the project relied on JSIF's Environmental Management Framework and on the Land Acquisition and Resettlement Policy Frameworks, all of which were established in 2006 for the Inner Cities Basic Services for the Poor Project.

6.20 Overall, borrower performance is rated satisfactory.

Monitoring and Evaluation

Design of Monitoring and Evaluation

6.21 The monitoring and evaluation (M&E) design included useful indicators for measuring service provision outcomes from rehabilitated health and educational infrastructure. Levels of service were defined as attendance rates in the case of education facilities and as number of patients served in the case of health clinics. However, the M&E design did not include a strategy to measure the usage of the road subprojects; it only included the number of roads reconstructed. The design did not contemplate effective indicators for measuring the second component of the HDERL (capacity building for disaster preparedness), and only output indicators were provided in the results framework (knowledge products and dissemination efforts).

Implementation of Monitoring and Evaluation

6.22 There were delays in data collection and a lack of standardized reporting during implementation. The sector ministries originally agreed to provide JSIF with data on attendance at schools and usage of health clinics for the target facilities, including baseline data on pre-Hurricane Dean levels. However, by mid-2008 it became clear that data collection arrangements had to be revised as no baseline data had been made available. In October 2008, the World Bank and JSIF agreed to collect the data individually at each facility (from the communities and the responsible staff at each facility). Although this solved the immediate need for data on the progress of the project, it resulted in insufficient robust information to create a baseline for service delivery. During the Mid-Term Review mission (September 2009), the World Bank team

continued to express concern regarding the delays in data collection, calculation, format, and periodicity (World Bank 2009). After the mission, a series of follow-up actions were agreed and undertaken to resolve the problems. By 2010, the project indicators were being periodically reported to the World Bank in the agreed standard format, and the main findings and trends were discussed during supervision missions and meetings.

Use of Monitoring and Evaluation

6.23 The only use of M&E was to measure the progress of the operation. The aide-mémoire regularly refer to the monitoring of outputs as a major activity during the supervision missions carried out during implementation. The task team leaders used the monitoring to ensure that the project was advancing as planned. Owing to the limitations in the data collected, there was no possibility of performing a more sophisticated assessment of the effect of the project, such as an impact evaluation.

6.24 Overall, the M&E for this project is rated **modest**.

7. Lessons

7.1 **Using existing agencies with a proven track record can be an effective approach for implementing emergency response projects.** Given the urgency for expedient and effective implementation inherent in emergency recovery loans, to the extent possible, emergency recovery projects can capitalize on the comparative advantage of using counterpart institutions with proven implementation capacities and ability to work well with other institutions. For the HDERL, JSIF was particularly well suited to undertake implementation of the project, having had extensive experience with similar community infrastructure operations and firsthand knowledge of World Bank requirements for procurement, financial management, and M&E functions.

7.2 **When designing rehabilitation works, close consultation with users can ensure the provision of better services.** The inclusion of key stakeholders in the planning process and the incorporation of their suggestions, needs, and general inputs has proved useful in many subprojects. In the case of the HDERL, the facilities that improved the most were those for which suggestions from users were incorporated.

7.3 Expectations need to be managed as there are limits to how much progress can be made on disaster risk reduction or emergency preparedness under an emergency operation. In many contexts, the occurrence of a natural disaster provides a window of opportunity and political support to undertake efforts to improve disaster risk reduction. In the case of the HDERL, the project objective included support for improving government response capacity, but this came late in the design process, and

the activities for supporting government response capacity and risk reduction were relatively minor and not at a scale necessary to achieve significant impact.

Bibliography

- Dilley, Maxx, Robert S. Chen, Uwe Deichmann, Arthur L. Lerner-Lam, and Margaret Arnold, Jonathan Agwe, Piet Buys, and Oddvar Kjekstad, Bradfield Lyon, and Gregory Yetman. 2005. "Natural Disaster Hotspots: A Global Risk Analysis." Disaster Risk Management Series 5, World Bank, Washington, DC.
- Harriott, Anthony D., and Marlyn Jones. 2016. *Crime and Violence in Jamaica*. IDB Series on Crime and Violence in the Caribbean. Washington, DC: Inter-American Development Bank.
- JSIF (Jamaica Social Investment Fund). n.d. *Operational Documentation*. Kingston: JSIF.
- JSIF. 2006. *Community Facilities Maintenance Handbook*. Kingston: JSIF.
- JSIF and ODPEM (Office of Disaster Preparedness and Emergency Management). n.d. *Disaster Management for Communities*. Kingston: JSIF.
- JSIF and ODPEM. 2011. *Maintenance and Disaster Management Training for Communities*. Kingston: JSIF.
- NLJ (National Library of Jamaica). 2013. "History of Hurricanes and Floods in Jamaica." National Library of Jamaica. <http://www.nlj.gov.jm/history-notes/History%20of%20Hurricanes%20and%20Floods%20in%20Jamaica.pdf>.
- ODPEM (Office of Disaster Preparedness and Emergency Management). 2018. "Heather Socks and Vulnerability in Jamaica."
- PLOJ (Planning Institute of Jamaica). 2007. *Assessment of the Socio-Economic and Environmental Impact of Hurricane Dean on Jamaica*. Kingston: PLOJ.
- PLOJ. 2009. *Vision 2030 Jamaica: National Development Plan*. Kingston: PLOJ.
- World Bank. 2005. *Jamaica—Country Assistance Strategy*. Washington, DC: World Bank.
- World Bank. 2007a. "Hurricane Dean Emergency Recovery Loan (ERL), Preparation/Appraisal Mission." Aide Mémoire, World Bank, Washington, DC.
- World Bank. 2007b. "Jamaica—Hurricane Dean Emergency Recovery Loan." Project Paper PP41552-JM, World Bank Group, Washington, DC.
- World Bank. 2008. "Hurricane Dean Emergency Recovery Loan (ERL), Supervision Mission." Aide Mémoire September, World Bank, Washington, DC.
- World Bank. 2009. "Hurricane Dean Emergency Recovery Loan (ERL), Supervision Mission, Mid Term Review Mission." Aide Mémoire September, World Bank, Washington, DC.
- World Bank. 2010a. "Hurricane Dean Emergency Recovery Loan (ERL), Supervision Mission." Aide Mémoire September, World Bank, Washington, DC.

- World Bank. 2010b. *Jamaica—Country Partnership Strategy, FY10–13*. Washington, DC: World Bank.
- World Bank. 2011. “Jamaica—Hurricane Dean Emergency Recovery Loan.” Implementation Completion and Results Report, World Bank, Washington, DC.
- World Bank. 2012. “Jamaica—Hurricane Dean Emergency Recovery Loan.” Independent Evaluation Group, Implementation Completion and Results Report Review ICRR14195, World Bank, Washington, DC.
- World Bank. 2014. *Jamaica—Country Partnership Strategy, FY14–17*. Washington, DC: World Bank.
- World Bank. 2015. “Jamaica—Improving Climate Data and Information Management.” Restructuring Paper RES36538, World Bank, Washington, DC.
- World Bank. 2016. “Jamaica—Disaster Vulnerability Reduction Project.” Project Appraisal Document PAD1233, World Bank, Washington, DC.
- World Bank. 2018. “Roadmap for a Disaster Risk Financing Strategy against Natural Disasters: Jamaica.” World Bank, Washington, DC.

Appendix A. Basic Data Sheet

Hurricane Dean Emergency Recovery Loan (IBRD-L4878)

Table A.1. Key Project Data

Components	Appraisal Estimate (\$, millions)	Actual or Latest Estimate (\$, millions)	Percentage of Appraisal
1. Repair and reconstruction	7.335	7.990	109
2. Capacity building	0.580	0.970	167
3. Project management	1.000	1.000	100
Total baseline cost	8.915	9.960	112
Physical contingencies	—	—	—
Price contingencies	—	—	—
Total project costs	9.975	9.960	100
Project preparation advance	1.060	—	—
Front-end fee (IBRD only)	0.025	0.030	120
Total financing required	10.000	9.990	100

Note: IBRD = International Bank for Reconstruction and Development.

Table A.2. Project Dates

Event	Original	Actual
Concept review	—	15–Oct–2007
Decision review	—	29–Nov–2007
Board approval	—	20–Dec–2007
First disbursement	—	22–Jul–2008
Closing date	—	31–Oct–2011

Table A.3. Staff Time and Cost

Stage of Project Cycle	Staff Time^a (weeks)	Staff Cost^{a,b} (\$, thousands)
Lending		
FY08	15.39	66.14
Total	15.39	66.14
Supervision/ICR		
FY08	10.08	23.95
FY09	28.70	94.75
FY10	19.95	108.35
FY11	7.10	39.14
FY12	4.35	29.13
Total	70.18	295.32

Source: Independent Evaluation Group.

Note: FY = fiscal year; ICR = Implementation Completion and Results Report.

a. World Bank budget only.

b. Including travel and consultant costs.

Table A.4. Task Team Members

Name	Title	Unit
Lending		
Abhas Jha	Senior Infrastructure Specialist, Task Team Leader	LCSUW
Angelica Nunez	Urban Specialist	LCSUW
Pilar Gonzalez	Senior Counsel	LEGLA
Emmanuel Njomo	Senior Financial Specialist	LCSFM
Snezana Mitrovic	Lead Procurement Specialist	LCSPT
Saman Karunaratne	Finance Analyst	LOADM
Yao Wottor	Procurement Specialist	LCSPT
Patricia de la Fuente Hoyes	Senior Finance Officer	LOAFC
Jose Janeiro	Senior Finance Officer	LOAFC
Margarita Pajaro	Consultant, Urban Specialist	LCSUW
Jessica Wurwarg	Junior Professional Associate	LCSUW
Patricia Acevedo	Language Program Assistant	LCSUW
Supervision		
Angelica Nunez	Senior Urban Specialist, Task Team Leader	LCSUW
Ellen Hamilton	Senior Urban Planner	LCSUW
Yao Wottor	Procurement Specialist	LCSPT
Mariana Orloff	Consultant, Urban Specialist	LCSUW
Beatriz Pozueta Mayo	Consultant, Disaster Management Specialist	LCSUW

Name	Title	Unit
Kimberly Vilar	Social Specialist	LCSSO
Mozammal Hoque	Financial Management Specialist	LCSFM

Appendix B. Projects and Sites

Table B.1. Projects and Sites Inspected during the IEG Project Performance Assessment Report Mission

No.	Name	Location/ Parish	Type of Work	Beneficiaries	Total Cost
1	Comfort Baptist Basic School	Clarendon	Rehabilitation of the whole school building and fence; construction of new areas; equipment provision	1,442	219,145
2	Fyffes Pen Primary School	St. Elizabeth	General building repairs and rehabilitation	501	109,582
3	Bethany All Age School	Manchester	General building repairs and rehabilitation; equipment provision	219	99,762
4	Rowlandsfield All Age School	St. Thomas	General building repairs and rehabilitation; equipment provision	1,074	99,449
5	Norman Gardens All Age School	Kingston	Rehabilitation of the whole school building and fence; construction of new areas; equipment provision	682	419,302
6	Chetolah Park Primary and Infant School	Kingston	Rehabilitation of the one whole school building and bridge	—	—
7	Aberdeen Health Center	St. Elizabeth	General building and fence repairs and rehabilitation	2,242	65,764
8	Christiana Health Center	Manchester	Building and parking lot construction	41,800	416,612
9	May Pen Health Center	Clarendon	General building and fence repairs and renovation	40,000	76,691
10	Flanker Health Center	St. James	Complete reconstruction of the building	—	—
11	Green Field Rural Feeder Road	St. Elizabeth	Road reconstruction; drainage and retaining wall construction	3,000	559,979
12	Parottee Rural Feeder Road	St. Elizabeth	Road reconstruction; drainage, swale and retaining wall construction	1,619	578,989
13	Mango Roe Road	St. Thomas	Road paving; drainage and retaining wall construction	4,000	402,908
14	Ticky Road	Manchester	Road rehabilitation and reconstruction; drainage and retaining wall construction	48,500	233,956

Note: The Independent Evaluation Group assessed the six schools, four health centers, and four feeder roads listed in the table. All sites, except for numbers 6 and 10 (Chetolah Park Primary and Infant School and Flanker Health Center, respectively) were also inspected during the Implementation Completion and Results Report mission. The goal in visiting the same places was to determine if further changes or deterioration had taken place after the Implementation Completion and Results Report, performed in 2011 (seven years before the elaboration of this Project Performance Assessment Report). The evaluation team conducted structured interviews with staff working at the clinics and schools at the time of the reconstruction works. Additionally, the team gathered testimonies of relevant stakeholders, such as parents and clinic and feeder roads users. — = not available.

General findings from the field inspections. This section provides examples of the findings gathered during the field visits conducted by the evaluation team. The examples provide a general context of the implementation experience and the improvements, failures and current conditions of the rehabilitated sites. Additionally, they detail the handover experience once the Jamaica Social Investment Fund and the World Bank finalized their participation.

Findings from interviews and site visits conducted during the PPAR mission. From sites visited, the Independent Evaluation Group team made a summary of relevant findings from the inspected facilities, to illustrate this Project Performance Assessment Report (boxes B.1–B.3).

Box B.1. Health Centers

Professionals (nurses and health providers) working at health centers (currently and at the time of the reconstruction) provided valuable information about the rehabilitation process and present conditions. The following box contains findings from both interviews and site inspections. It presents general findings from the inspected health centers.

Upgrades and Advantages of the New Construction

Staff members described meetings with project officers from the implementing agency and architects before the clinic's reconstruction. During those meetings, the suggestions and needs expressed were incorporated into the reconstruction plans. However, not all of them were converted into final products.

Among the incorporated suggestions that resulted in upgrades, health professionals identified the following:

- The intervention was prompt and the reconstruction fast. New facilities were effectively not serving patients before the beginning of the project.
- New buildings are bigger, with more space.
- More patients are served and, generally, more comfortable.
- Health workers work with more comfort and improved performance.
- New buildings have less trouble with termites.
- Some clinics have dental services and separate areas for infectious diseases and functional pharmacies.
- Since rehabilitation, services have not been suspended because of weather.

The upgrades listed above, according to the staff, enable the provision of better services to patients and serve more users.

Disadvantages of New Construction

According to the health professionals, some of their suggestions were not incorporated into the final product, resulting in the following downsides:

- In some clinics, waiting areas are smaller than before.
- Minor termite problems are common across facilities, especially the ones with more wood.
- Some cracks in the paint are noticeable.
- Minor water leakages occur with heavy rain.
- For some clinics, there is a lack of air conditioners and no electricity generators (no backup systems). The parish has some and provides the clinic with them in times of need.

Handover Experience after Project Completion: Current Maintenance

- After the building construction was done, the Jamaica Social Investment Fund celebrated a handover of its operation to the Ministry of Health (MoH).
 - The MoH, through its regional sections, provides the operational and maintenance budget.
 - After the handover, the regional section of the MoH has been slow in improving the flaws of the new construction.
 - Occasionally, parishes provide resources to make repairs. However, it does so less often than the MoH.
 - When facing a maintenance need, the health staff sends (in paper) a form to the parish. Sometimes the system is not optimal and delays occur (the form gets lost or the authorities take a long time to respond and provide resources needed).
-

Photo B.1. Flanker Health Center



Source: Independent Evaluation Group.

Box B.2. Schools

Professionals (principals, head teachers, and teachers) working at schools (currently and at the time of the reconstruction) provided valuable information about the rehabilitation process and present conditions. This box contains findings from both interviews and site inspections. It presents general findings from the inspected schools.

Upgrades and Advantages of New Construction

The staff detailed the upgrades done under subprojects and the way they improved the services provided to students.

- The upgrades included upgrading for the kitchen areas. This allowed meals to be prepared for events and evening classes.
- Fencing installation was especially useful because it kept out intruders and stray animals.
- Subprojects provided sports facilities for students.
- Some schools now have roadways allowing taxis and cars to transport children to school in a safe way. Children coming by foot are also safer.
- Improvements in windows were funded across facilities. This stopped leaking during rain.
- Bars in windows were installed. Teachers expressed a sense of safety. Incidents of theft are now minimized (before the intervention, they used to be very common in at least two schools).
- Grass areas were updated. Students, especially the youngest ones, are able to play safely and with more comfort.
- New lighting systems improved the experience of teaching. Students are able to read, write, and see the writing on the blackboard, even during evening classes or when raining.
- Restrooms were considerably updated across sites. They were tiled, with flush toilets, sinks, and urinals.
- Separate restrooms for boys and girls were installed, increasing safety, especially for girls.
- Schools have never been since closed because of the effects of a natural event. Although some leaking occurs, the new buildings are able to withstand weather shocks.
- Schools serve as a shelter for their communities in the event of extreme weather.

Disadvantages of the New Construction

- There is a lot of leaking when it rains. The leaking is not disruptive enough to prevent classes, but teachers must clean and move children from one classroom to another. This problem was present shortly after project completion.
 - Wear-off of paint was evident. Staff members expressed that there are not resources to repaint.
-

Handover Experience after Project Completion: Current Maintenance

- According to staff members, the Ministry of Education is the only institution in charge of providing maintenance to school buildings. However, the Ministry of Education is unable to respond to the demands owing to financial constraints.
- Parent contributions are occasionally used for school maintenance. However, this is not a reliable source because parents face serious financial constraints.
- There is a maintenance grant for the principal granted by the Ministry of Education on a regular basis. However, the staff expressed that this grant is not enough.

Source:

Photo B.2. Rowlandsfield All Age School



Source: Independent Evaluation Group.

Box B.3. Feeder Roads

Feeder roads are in good condition (with the exception of Green Field Road). Listed below are the general findings from the site inspections:

- Surfaces are in good condition, except for minor asphalt deterioration.
 - Generally, drains are clean and functional.
 - Vegetation needs attention. Some mobility problems are present owing to the abundance of plants. There is a risk of vegetation falling into the drains.
-

Photo B.3. Parottee Road



Source: Independent Evaluation Group.

Photo B.4. Parottee Road



Source: Independent Evaluation Group.

Appendix C. List of Persons Met

Table C.1. List of Persons Met

World Bank Staff		
Abhas Jha	Senior Infrastructure Specialist, Task Team Leader (at project appraisal)	World Bank
Angelica Nunez	Urban Specialist, Task Team Leader (at ICR stage)	World Bank
Government		
Omar Sweeney	Managing Director	Jamaica Social Investment Fund
Loy Malcolm	General Manager, Project Management	Jamaica Social Investment Fund
Mona Sue-Ho	Social Development Manager	Jamaica Social Investment Fund
Milton Clarke	Environmental Specialist	Jamaica Social Investment Fund
Rudyard Williams	Project Manager	Jamaica Social Investment Fund
Dale Colquhoun	Project Manager	Jamaica Social Investment Fund
Kimberley Wilson	Monitoring and Evaluation Analyst	Jamaica Social Investment Fund
Barbara Scott	Director of External Cooperation and Management	Planning Institute of Jamaica
Ayanna Anderson-Brown	Project Economist	Planning Institute of Jamaica
Staff from schools and clinics		
Valrie Cole	Senior Public Health Nurse	Duncans Health Center
Anne McLeod	Senior Public Health Nurse	Duncans Health Center
Naomi Bent Moody	Community Health Aide	Duncans Health Center
Annessa Brown-Williams	Health Records Clerk	Duncans Health Center
Mary Blackwood	Principal	Chetolah Park Primary and Infant School
M. Blackword	Health Teacher	Chetolah Park Primary and Infant School
Firmin Henry	Principal	Grove Primary School
N. Osbourne	Senior Teacher	Grove Primary School
M. C. Cameron	Senior Teacher	Grove Primary School
Dawn Farquaharson,	Community Health Nurse	Aberdeen Health Center
Mordant Mitchell	Principal	Fyffes Pen Primary School
Joyce Gavin Sparks	Senior Teacher	Bethany All Age School
Julie Ann Rowe	Teacher	Bethany All Age School
Lena Edwards	Principal	Comfort Baptist Basic School
Maureen Piper	Head Teacher	Comfort Baptist Basic School
Lleila Miller-Beecher	Public Health Nurse	Christiana Health Center
Esther Hamakim	Public Health Nurse	May Pen Health Center
Millicent Willis-Valentine	Public Health Nurse	May Pen Health Center

World Bank Staff

Marcia Lawrence	Public Health Nurse	May Pen Health Center
Lexford Johnson	Principal	Norman Gardens All Age School
Janice Swaby	Teacher	Rowlandsfield All Age School

Multilateral, regional, and bilateral development partners

Camila Mejia Giraldo	Modernization of the State Specialist	Inter-American Development Bank
----------------------	------------------------------------------	---------------------------------
