



## 1. Project Data

<b>Project ID</b> P119090	<b>Project Name</b> Hospital Waste Management Support		
<b>Country</b> Vietnam	<b>Practice Area(Lead)</b> Health, Nutrition & Population		
<b>L/C/TF Number(s)</b> IDA-48990	<b>Closing Date (Original)</b> 31-Aug-2017	<b>Total Project Cost (USD)</b> 122,614,504.24	
<b>Bank Approval Date</b> 29-Mar-2011	<b>Closing Date (Actual)</b> 30-Aug-2019		
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>	
Original Commitment	150,000,000.00	0.00	
Revised Commitment	145,060,260.00	0.00	
Actual	122,354,138.45	0.00	
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## 2. Project Objectives and Components

### a. Objectives

The PDO, as stated in the project Financing Agreement (FA) is to reduce environmental degradation and potential risks for human health through improving management of healthcare waste in the Recipient's hospitals. The PDO articulated in the PAD is consistent with this statement.

### b. Were the project objectives/key associated outcome targets revised during implementation?



Yes

**Did the Board approve the revised objectives/key associated outcome targets?**

Yes

**Date of Board Approval**

03-Jun-2016

**c. Will a split evaluation be undertaken?**

Yes

**d. Components**

The project supported three components. Actual costs by component after project completion were not provided. The ICR (text Table 4 and Annex 3) presented the original estimates by component (totaling US\$150 million). However, the "actual costs" by component presented in these tables are really the revised estimates made at the time of the 3rd restructuring in August 2019 (totaling US\$145 million). The breakdown by component of the actual costs (US\$122.6 million) was not provided. Moreover, these component cost tables provided data on IDA financing only, excluding government counterpart funding.

**Component 1: Policy and Institutional Environment Strengthening (US\$9 million)** had three subcomponents:

- **1.A: Streamlining the policy and regulatory framework for healthcare and waste management (US\$1.5 million)**, supporting: the production and updating of policies and regulatory instruments, environmental standards and guidelines for healthcare waste management; and strengthening of the health sector's Executive Committee for Environmental Protection as an institutional platform for dialogue and knowledge dissemination;
- **1.B: Strengthening capacities for healthcare waste management (US\$1.1 million)**, supporting the equipment of institutions responsible for implementing, operating, regulating and monitoring healthcare waste management with adequate skills and knowledge;
- **1.C: Strengthening monitoring and surveillance systems for healthcare waste management (US\$6.4 million)**, supporting the enhancement of systems and capacities for improved monitoring and enforcement and improving capacities and infrastructure at central and provincial levels to monitor pollutant environmental standards and practices;

**Component 2: Hospital Waste Management Improvement Facility (US\$134 million)** was to provide grants to finance healthcare waste management subprojects in eligible central and provincial hospitals, prioritizing those highlighted in the Provincial Healthcare Waste Management Plans and using results-based financing (RBF) instruments. Grants financed construction and equipment for waste treatment and management; strengthening of institutional capacity (hospital infection control committees and staff training); and supplies and consumables for healthcare waste management and treatment in hospitals. Four independent verification agencies (listed in Section 4, Objective 1 outputs) were to verify results, which were also monitored through Government's regular systems and agencies (Health, Natural Resources and Environment and Environment Police/Ministry of Public Security). Support was divided into two subcomponents: **2.A: Financing for central hospitals (US\$40 million)**; and **2.B: Financing for provincial hospitals (US\$94 million)**.



**Component 3: Project Implementation Support and Coordination (US\$7 million)** supported the establishment in Ministry of Health of the central project management unit, its coordination with other concerned ministries and agencies, consulting services for technical issues and project management and implementation, staff training, office equipment, vehicles and operations costs for central and provincial project management units and independent verification agencies.

**e. Comments on Project Cost, Financing, Borrower Contribution, and Dates**

The total estimated cost of the project at appraisal was US\$155 million of which US\$150 million financed by IDA (SDR 96.1 million equivalent) and US\$5 million in counterpart funds from the central and local governments for salaries of the central and provincial project management units and other related implementation expenses. Actual IDA financing is reported in ICR tables 4 and Annex 3 is estimated at US\$145 million, and an amount of US\$5 million was reported to be unused and cancelled. But these are data drawn from the 2019 restructuring, not end-of-project data that the ICR should have collected. A lower estimate of total disbursements (US\$130 million) is reported on page 2 of the ICR. The distribution of actual resources across the three components (also drawn from the 2019 restructuring) was roughly the same as in the original design, each component costing slightly less than planned. As of May 27, 2020, the Bank's system reports a cumulative withdrawn amount of US\$122.6 million. In SDR, an amount of 86.48 million (or 90 percent of the original loan amount of 96.1 million) was disbursed, and an amount of 9.82 million was cancelled. The shortfall in disbursements could be attributed in part to constraints in the government budget allocation for the project, a problem affecting most Bank projects in Vietnam. The actual counterpart provided by central and provincial governments was US\$8 million, exceeding the original estimate of US\$5 million. This increment is due to increases in expenditures on the preparation of investments in provincial and district hospitals.

The project underwent three restructurings. The first (June 5, 2016), part of a broader restructuring of 13 projects and at the request of the State Bank of Vietnam, removed the project's results framework from the Financing Agreement to the project's Operations Manual to limit the need for future amendments to adjust monitoring indicators. The second (July 21, 2017) extended the closing date by two years from August 31, 2017 to August 30, 2019 and slightly refined the project description in the Financing Agreement for clarification purposes. The third restructuring (August 23, 2019) cancelled an amount of SDR 3.6 million (US\$5 million equivalent), and slightly revised component costs and distribution of funds across disbursement categories.

### 3. Relevance of Objectives

#### Rationale

The PDO is relevant to Vietnam's context, where neglect of or inadequate treatment of healthcare wastewater from hospitals increases the risks of infections, diseases and chemical contamination that affect human health. Moreover, burning technologies for hospital waste in Vietnam creates atmospheric pollution, increasing the risks for respiratory diseases and adversely affecting the health of the population living near hospitals using this practice. The PDO is also highly relevant to Vietnam's current laws, policies and strategies related to waste management. The recently approved National Strategy on Management of Solid



Waste (through 2025) and amendments to this strategy (through 2050) establish that by 2025 the solid waste management system should have waste segregated at source, collected, recycled and effectively managed with appropriate and advanced technologies, encouraging healthcare waste management by cluster models. Article 72 of the Environmental Protection Law requires hospitals and health facilities to segregate healthcare waste from the sources, collect, store and manage solid waste following technical standards. Decision No. 1930/QD-TTg-2009 provided guidance for drainage in urban areas and industrial zones for 2025 and the vision to 2050, including the requirement that, by 2015, all wastewater from hospitals must be treated and meet the approved national standards before disposal into the general drainage systems in urban areas. The PDO remained relevant to the Bank's Country Partnership Framework 2018-2022, at project closing. Two of the three focus areas of this CPF are worth noting in this regard. Focus Area 2, "Invest in People and Knowledge," includes an objective to improve access to quality public and private health services. Focus Area 3, "Ensure Environmental Sustainability and Resilience," includes three objectives to: promote low carbon energy generation; increase climate resilience and strengthen disaster risk management; and strengthen natural resource management.

## Rating

Substantial

## 4. Achievement of Objectives (Efficacy)

### OBJECTIVE 1

#### Objective

Reduce environmental degradation from hospital healthcare waste

#### Rationale

##### Theory of change

The project was designed to improve the life of Vietnamese people by reducing adverse environmental impact and potential risks for human health caused by inadequate healthcare waste management in selected central- and provincial-level hospitals. In support of the PDO, the project financed three major interventions: (i) streamlining the policy and regulatory framework for health care waste management through the updating of relevant standards and instruments and the strengthening of the health sector's Executive Committee for Environmental Protection (supported under component 1.A); (ii) improving hospital capacities for healthcare waste management through key inputs and supports for regulatory and oversight institutions and grants to central and provincial hospitals for construction, equipment, capacity building and supplies and consumables (supported under component 1.B) a and 2); and (iii) strengthening monitoring and surveillance systems for healthcare waste management (supported under components 1.C and 3), through a system of independent verification of results and the Government's regular monitoring systems (MoH monitoring and technical inspections by enforcement agencies (provincial Department of Natural Resources and Environment, Ministry of Natural Resources and Environment, and Environment Policy/Ministry of Public Security). These three major interventions are synergistic and plausibly expected to culminate in the proper functioning of new,



improved hospital waste management facilities for central and provincial hospitals supported under the project in accordance with improved policies and regulations.

## **Outputs and intermediate results**

### ***Policy and institutional environment strengthening:***

- A total of 15 new or revised policies, regulatory documents were adopted, published and disseminated, exceeding the target of 13. The 15 include: five policy and administrative documents (exceeding the target of four); 3 technical regulations (achieving the target); and seven technical guidance manuals (exceeding the target of five). Technical regulations are drafted and submitted to the authority agency for appraisal and approval.
- A total of 6,994 key health personnel improved their knowledge and skills in healthcare waste management standards and practices, as evidenced by their having received training and passing the final test, exceeding the original target of 5,463 and the revised target of 6,663. The breakdown includes the following staff, all of whom received training and passed the final test of that training:
  - 310 trainers, exceeding original and revised targets of 276 and 290, respectively;
  - 2,398 leaders of health, Department of Natural Resources and Environment, Environment Police and other agencies, exceeding the (unchanged) target of 2,545;
  - 2,752 healthcare waste management administrators in provincial departments of health, health care facilities, and preventive health centers, exceeding the (unchanged) target of 2,332;
  - 292 technical staff in environment monitoring agency, falling short of the (unchanged) target of 310; and
  - 1,242 healthcare waste treatment system operators, slightly exceeding the (unchanged) target of 1,200.
- Forty project hospitals were taken off the blacklist of seriously polluted institutions issued in Decision 1788 by the Prime Minister, exceeding the (unchanged) target of 32 hospitals. These hospitals were removed from the black list after results verification, having completed investments in waste management under the project.
- Four scientific institutes/regional reference labs were created and operated satisfactorily.

### ***Hospital waste management improvement facility:***

- Seventy-two healthcare waste management plans were approved by the regulatory authority, exceeding the original and revised targets of 60 and 68, respectively. No new plan was approved and recorded after 2017, as the project had identified all the hospitals and provinces participating in the project.
- A total of 225 hospital grants were approved, exceeding the original target of 150 and the revised target of 198. Within this total of 225 grants there were eight hospitals, which received two grants and there was one grant for a centralized treatment system. The total number of beneficiaries was thus 218, including 217 hospitals and one central treatment system.
- A total of 122 hospitals met wastewater standards, falling short of the original target of 140, but exceeding the revised target of 110.
- A total of 141 hospitals met solid waste treatment standards, meeting the original target of 140 and exceeding the revised target of 114.



- A total of 218 hospitals met healthcare waste management practice standards, exceeding the original and revised targets of 140 and 185, respectively.

***Improved monitoring and surveillance systems for health care waste management:***

- As a part of project monitoring, every year hospital grant beneficiaries were asked to fill out a questionnaire about the services and support they received from the central project management unit and technical assistant group. Eighty-nine percent of these questions received a favorable/satisfactory response, falling slightly short of the initial target of 100 percent and exceeding the revised target of 80 percent.
- Central and provincial hospitals received scheduled environmental monitoring visits, as part of regularly project implementation activities.
- Up-to-date and transparent information about the status of healthcare waste management was regularly produced by hospitals and regularly collected by the Vietnam Health Environmental Management Agency, the four independent verification agencies and provincial health centers and received by the central project management unit.
- Monitoring and surveillance systems for healthcare waste management were strengthened. Four independent verification agencies identified during project implementation undertake regular verification based on a set of M&E instruments: guidelines/manuals for independent verification, balanced scorecards, and verification questionnaires, fine-tuned as they were applied during implementation. These four agencies are: the National Institute of Occupational and Environmental Health, Institute of Hygiene and Public Health, Nha Trang Pasteur Institute, and Institute of Epidemiology.
- Based on independent verifications and hospital reports, central databases grouping information produced by each provincial/hospital project waste management unit were created.
- A set of indicators about the quality of the healthcare waste management system and results of opinion surveys about the quality of the environmental outputs of these hospitals were systematically produced, processed, evaluated and disseminated by the central project management unit.
- A follow-up exchange with the task team (June 1, 2020) confirmed that monitoring and surveillance systems for healthcare waste management were sustained post-project. The national legal framework and guidelines for the monitoring and surveillance for healthcare waste management were developed under the project, applied countrywide and have remained valid since then. Independent verifications were specific to the project's results-based financing design. Each beneficiary hospital was verified twice, before and after investments, on the basis of prior agreed scorecards and considered final only when all committed results were achieved (August 13, 2020 exchange with task team).

**Outcomes**

- The share of beneficiary hospitals' wastewater meeting the environmental standards increased from a baseline of 0 to 30.3 percent, falling short of the original target of 40 percent (estimated as incremental contribution of project to environmentally safe discharge of hospital wastewater). The denominator is the published volume of healthcare wastewater for 2017 [MoH statistical yearbook] and the numerator is healthcare wastewater treated by the project hospitals (average 0.65m<sup>3</sup>/day/bed) [project data].



- One hundred percent of hospitals that underwent the independent verification in the reviewing year earned the satisfaction of adjacent communities with their improved management of healthcare waste, exceeding the (unchanged) target of 90 percent (independent verification checks).

## Rating

Substantial

## OBJECTIVE 1 REVISION 1

### Revised Objective

Reduce environmental degradation from hospital healthcare waste (revised outcome targets)

### Revised Rationale

#### Outputs and intermediate results against revised targets

**Policy and institutional environment strengthening achievements** are the same as those itemized under the original Objective #1, with one exception:

- Under the revised objective, the target for the number of trainers receiving training, revised upward from 276 to 290, was exceeded (as was the original target).

**Hospital waste management improvement facility targets were all revised and exceeded**, including:

- The approval of 72 healthcare waste management plans by the regulatory authority (against a revised target of 68);
- The approval of 225 hospital grants (against a revised target of 150);
- A total of 122 hospitals meeting wastewater standards (against a revised target of 110);
- A total of 141 hospitals meeting solid waste treatment standards (against a revised target of 114); and
- A total of 218 hospitals meeting healthcare waste management practice standards (against a revised target of 185).

**Monitoring and surveillance systems for healthcare waste management and project management achievements** are the same as those itemized under the original Objective #1, with one exception:

- The revised target of 80 percent of beneficiary questionnaires receiving a satisfactory response about the services and support received from the project management unit and technical assistance group was exceeded, with an 89 percent of questionnaires receiving a satisfactory response.

#### Outcomes against revised outcome targets:

- The share of beneficiary hospitals' wastewater meeting the environmental standards increased from a baseline of 0 to 30.3 percent, exceeding the formally revised target of 23 percent.



- One hundred percent of hospitals that underwent the independent verification in the reviewing year earned the satisfaction of adjacent communities with their improved management of healthcare waste, exceeding the (unchanged) target of 90 percent (independent verification checks).

### Revised Rating

High

## OBJECTIVE 2

### Objective

Reduce risks for human health from hospital healthcare waste

### Rationale

The **theory of change** outlined under Objective #1 above also applies to this objective.

### Outputs and intermediate results

Outputs and intermediate results for this objective are the same as those presented under Objective #1 above.

### Outcomes

- The share of beneficiary hospitals with properly segregated and treated infectious healthcare waste increased from a baseline of 0 to 33 percent, falling short of the original target of 40 percent (estimated as incremental contribution of the project to environmentally safe treatment of hazardous solid waste). The denominator is the published volume of healthcare solid waste for 2017 (MoH statistical yearbook) and the numerator is health care waste treated by project hospitals (0.2 kg/day/bed).
- The share of health care staff following correct occupational safety practices, including usage of personal protective equipment increased from a baseline of 0 to 100 percent, exceeding the (unchanged) target of 90 percent. This outcome is documented by the independent verification of grant hospital results, a process and capacity developed under the project and considered to be well established and credible (see intermediate outcomes on monitoring and surveillance capacity above and Section 9 on M&E). The hospitals are considered to have passed the final verification when 70 percent of their staff pass independent verification test in rapid surveys.

### Rating

Substantial

## OBJECTIVE 2 REVISION 1





### **Revised Objective**

Reduce risks for human health from hospital healthcare waste (revised outcome targets)

### **Revised Rationale**

**Outputs and intermediate results** for this objective (with its revised outcome targets) are the same as those presented under Objective #1

### **Outcomes against revised outcome targets:**

- The share of beneficiary hospitals' properly segregated and treated infectious healthcare waste increased from a baseline of 0 to 33 percent, exceeding the formally revised target of 28 percent.
- The share of health care staff following correct occupational safety practices, including usage of personal protective equipment, increased from a baseline of 0 to 100 percent, exceeding the (unchanged) target of 90 percent.

### **Revised Rating**

High

## **OVERALL EFFICACY**

### **Rationale**

Achievement of the PDO, as measured against the original outcome targets, was substantial overall. The project substantially achieved two of four outcome targets (with 76 and 83 percent achievements for, respectively, hospitals' waste water meeting environmental standards, and share of properly segregated and treated infectious solid waste) and exceeded the other two targets each by 111 percent (healthcare staff's improved occupational safety practices and improved satisfaction of communities).

### **Overall Efficacy Rating**

Substantial

## **OVERALL EFFICACY REVISION 1**

### **Overall Efficacy Revision 1 Rationale**

Achievement of the PDO, as measured against the revised set of outcome targets (which reduced target values for two outcome indicators and made no change in target values for the remaining two) was high, with all four targets surpassed. The ICR provided reasonable evidence that the activities and outputs supported by the project were linked to or supported the outcomes achieved.



## Overall Efficacy Revision 1 Rating

High

### 5. Efficiency

The original design of the economic analysis in the PAD estimated the potential benefits of the project. This analysis was not possible to replicate at the end of the project because its design did not include some of the impact indicators to calculate these benefits. The final project evaluation included a survey of 34 beneficiary hospitals, providing evidence of project efficiency. Moreover, some indicators systematically measured health workers' use of protection equipment and behavior changes that assure substantial risk reduction. Community surveys conducted during 2014-2019 evaluated project benefits in the hospital environment among communities and health workers. Drawing on all of these sources, Annex 4 of the ICR undertakes a credible assessment the project's technical and allocative efficiency, implementation efficiency and other dimensions of project efficiency, whose findings are summarized here.

The project was found to have produced substantial technical and allocative efficiency gains. Project development goals were achieved with lower unit investment costs per hospital; and substantially more hospitals benefited from the project than originally estimated (218 versus the 150 planned). The costs per kg of solid waste treated were lower, after the project intervention, than pre-project costs. Additionally, the volume of wastewater ultimately treated as a result of the project was higher than projected in the project appraisal document's economic analysis: 67 cubic meters per bed versus 65. Added to this and most significant is the quality of the outcomes achieved: environment protection and reduced risks for human life.

The technology acquired under the project culminated in lower costs of solid waste self-treatment, compared with the costs of contracting out. Top wastewater management technologies acquired under the project save hospital physical space and are cheaper than other technologies and adhere to the technical standards applied in Vietnam. Hazardous solid waste treatment using non-burning technology had lower investment and recurrent costs, compared with the pre-project burning technology used by beneficiary hospitals. Non-burning technologies are also less costly than fees paid to private companies for solid waste treatment in the beneficiary hospitals. However, they could be more expensive than burning technologies in satellite hospitals, given the additional costs of segregation and transportation of waste to central hospitals. Project investments are leading to positive effects in occupational safety of health staff and patients' health and are also reducing associated costs of treating hospital infections. The project's support is estimated to have reduced staff hospital infections by 12 percent and the number of patients treated by antibiotics due to hospital infections by 50 percent, compared to pre-project levels, indicating substantial savings for both patients and hospitals. Ninety-five percent of project hospitals received positive feedback in community opinion polls on the performance of their systems and activities and their contribution to healthier lives. Sales of recycled healthcare waste has brought in additional income and it is expected that sales can increase over time and partially cover the cost of sustainable operations of the systems.

There were some shortcomings in the efficiency of implementation. First, performance during the first three years of implementation was inefficient. Second, budget caps set by the Government were set lower than minimum needs, precipitating a two-year extension in order to meet project targets. This is a common issue, which affects other projects in the Vietnam portfolio.



## Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

\* Refers to percent of total project cost for which ERR/FRR was calculated.

## 6. Outcome

Project objectives were relevant to country conditions and to the country’s policies, standards and regulations for hospital waste management, and to the Bank’s Country Partnership Strategy FY18-FY22 at project closing. Project efficacy was rated substantial under the original objectives/outcome targets, as the project almost fully achieved its stated objectives, and was rated high with fully achieved objectives under the revised objectives/outcome targets. Efficiency was assessed as substantial in view of technical and allocative efficiencies, improved occupational safety of staff and in patients’ health, and the support and good outcomes of substantially more beneficiary hospitals than initially planned, all within the envelope. Overall outcome is rated satisfactory under both original and revised outcome targets.

Rating Dimension	Achievement of Original Targets	Achievement of Revised Targets (reflected in 2016 restructuring)
<b>Relevance of Objectives</b>	<b>Substantial</b>	
<b>Efficacy</b>	<b>Substantial</b>	<b>High</b>
<b>Efficiency</b>	<b>Substantial</b>	
<b>Outcome Rating</b>	<b>Satisfactory</b>	<b>Satisfactory</b>
Outcome Rating Value	5	5
Amount Disbursed (US\$m) June 5, 2016 restructuring	65.68	56.93 (for a total of: \$122.61 million)
	54%	46%
Weight value 2016 (ISR 4-16)	5 x 54% = 2.7	5x 46% = 2.3
Total weights	5	
Overall outcome rating	Satisfactory (5.0)	



**a. Outcome Rating**

Satisfactory

## **7. Risk to Development Outcome**

Financial sustainability is strong. Project funding supported the establishment and use of new technologies for wastewater and solid waste treatment for one third of hospitals in Vietnam. The Government aimed to complete coverage of other hospitals by 2020 using its own funds and other funding sources. Financing was indeed provided by other donors and by domestic funds – central and local, private and public – such as the Environment Protection Fund. Still other sources (retained revenues of hospitals and public-private partnerships) also finance improvement of hospitals' environmental sustainability. Currently about 90 percent of hospitals/facilities in Vietnam have proper healthcare waste management systems financed from different sources. At the project's closing 92 percent of beneficiary hospitals had funded budget plans for maintenance of infrastructure and equipment, acquired under the project. Social sustainability is also strong, given that safe and effective hospital waste management has become ingrained in the consciences and culture of hospital personnel and communities.

Technical sustainability is promising with some remaining challenges. The ICR (para. 93) states that, using the framework created by the project, 90 percent of hospitals/facilities in Vietnam had proper healthcare waste management systems financed from different sources. Moreover, 92 percent of beneficiary hospitals under the project have funded budget plans for maintenance of infrastructure and equipment supported by the project. In addition, the project positively influenced awareness, competencies and policies that have become part of consciences and culture of hospitals and communities. But the government needs to do a survey to assess what technologies are implemented by the remaining hospitals and whether they adhere to Ministry of Natural Resources and Environment and Ministry of Health guidelines. Some hospitals (not direct beneficiaries of the project) still prefer to contract out the treatment of healthcare solid waste instead of having it treated by project-financed systems. Many environmental and waste treatment companies have been established in the last few years, mainly using burning technology or burial. Their bigger scales provide for lower treatment prices, although their technologies/methods are not recommended. This was not anticipated at the design stage. Moreover, the increase of hospital financial autonomy provides incentive to opt for low-cost solutions, despite awareness of the advantages of the (more expensive) non-burning technologies that the project promoted. New and more reliable technologies established under the project are more costly and complex but produce higher benefits to the population. To preserve and sustain these technologies, the project supported: agreements for provincial development plans; guidelines for selecting appropriate waste management technologies; mandatory appraisal by MoH for investments in central hospital waste management; establishment of an advisory group for technical support to hospitals; improved capacity to evaluate technologies; and communication and advocacy.

## **8. Assessment of Bank Performance**

**a. Quality-at-Entry**

Project preparation was technically sound, drawing on comprehensive background and global references about hospital solid waste and wastewater management. It also drew on lessons learned from



international experience. National expertise was also an important element of the sound technical aspects of project preparation, especially its work detailing the benefits of the new waste management technologies that would be used in beneficiary hospitals. A new legal framework, regulations and institutions (such as the Vietnam Health Environmental Management Agency), all supportive of hospital waste management, provided an enabling environment for preparation, in which the Bank effectively worked. This paved the way for the project's fit with the national policy and institutional framework thus building ownership and institutional sustainability of the project at central and provincial levels. There were, however, moderate shortcomings in quality at entry. The full list of beneficiary hospitals had not been fully established during preparation. The M&E design was not ready at the start of implementation, lacking baselines, targets and protocols. The RBF approach to project management and implementation was new to Government and exceeded existing capacities, especially at the local/hospital levels. Capacities to implement this approach were not sufficiently developed to ensure readiness for implementation. These shortcomings contributed to the issues and delays encountered during the early implementation years.

**Quality-at-Entry Rating**  
Moderately Satisfactory

**b. Quality of supervision**

The Bank devoted significant effort and resources to project supervision, delivering 18 supervision missions during the project's eight-year implementation period, slightly more than two per year. Bank supervision focused on the identification of problems and their solutions all with a view to accelerate implementation and to achieve the intended development outcome. The Borrower's evaluation report notes that Bank supervision made 103 recommendations to address issues and ensure the achievement of development objectives. In the early years, the Bank's recommendations contributed to: (a) the creation of a full-time task team at the central project management unit to strengthen its coordination with provinces and beneficiary hospitals; and (b) the establishment of a technical advisory group to assist and train project staff on RBF mechanisms. These actions were crucial to complete the list of beneficiary hospitals and for RBF implementation. The Bank also reviewed and improved M&E design, basing itself on more reliable data to set more realistic targets. Close and constructive Bank supervision culminated in the resolution of most implementation issues by 2015 creating the needed momentum to successfully complete implementation and achieve results. The new phase of accelerated implementation benefited from the Bank's support, especially: (a) its review of technical specifications and supporting the preparation of investment proposals for hospital grants; (b) its support of project restructuring, including refinements to the RBF content in the Project Operations Manual; and (c) its support to the preparation of hospital procurement plans with the proper technical specifications. In short, close and supportive supervision helped overcome project design constraints and delays during the first years of implementation.

**Quality of Supervision Rating**  
Satisfactory

**Overall Bank Performance Rating**



Moderately Satisfactory

## **9. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

The project's results framework was grounded in an extensive review of international literature and discussion with specialists and government authorities. However, relevant evidence and databases were lacking thus undermining the establishment of baselines and targets at project design. The original M&E design did not include indicator protocols or baselines. Further challenging a sound M&E design at the outset was the fact that a list of beneficiary hospitals had not yet been established, as most targets would be linked to the baseline performances of project hospitals. The indicators were appropriate for tracking outcomes.

### **b. M&E Implementation**

The first project restructuring (June 2016) revised the indicators' definitions, metrics and targets and moved the results framework from the Financing Agreement to the Operations Manual for more flexibility. A complete list of beneficiary hospitals in 2016 allowed the establishment of a database for each beneficiary hospital, as well as surveys, scorecards and systematic evaluations by the independent verification agents to ensure accuracy of the indicators. Indicators were precisely defined. Opinion surveys were initiated to assess beneficiaries' perceptions and independent verification reports were also produced systematically. This allowed continued project monitoring and systematic update of the results framework from 2015 to project closing. Hospital scorecards used by independent verification agents followed up on the quality of the wastewater and solid waste treatment processes and detailed databases to record and follow up the environmental standards measured by periodic verifications in each hospital. The central project management unit contracted a consulting firm to implement an in-depth evaluation of project impact using a sample of project hospitals. Drawing on project data and interviews, this evaluation focused on several aspects of the project not captured by the results framework, such as impact of the project on hospital workers and inpatients' safety and health.

### **c. M&E Utilization**

A follow-up interview with the task team (June 1, 2020) confirmed that monitoring and surveillance systems for healthcare waste management, including the independent verifications, were institutionalized and sustained post-project, and have since been applied countrywide. After the first project restructuring and review of the project indicators, a functional results framework allowed the central and provincial project management units to consistently use the results framework databases for project management purposes. Individual databases for each hospital grant helped identify shortcomings, redirect investments and coordinate action plans to improve implementation. Local governments and hospitals used hospital scorecards to monitor and plan improvements of environmental performance. The ICR (page 61) noted that effective use of the project results framework worked as a control panel to alert and orient project interventions and precipitated most of the improvements in project performance and outcomes after 2015. However, it did not provide specific examples of project adjustments.



## M&E Quality Rating

Substantial

## 10. Other Issues

### a. Safeguards

Compliance with the legal requirements and environmental safeguards were at the center of the project development objective and responsibilities. While not explicitly stated in the ICR, an exchange with the task team (August 13, 2020) confirmed that the project complied with all requirements of OP 4.01 on Environmental Assessment, triggered by the project's Category B classification. No environmental safeguard violations were found throughout the project life. Of 217 hospitals and one centralized treatment system financed by the project, 212 completed the Environmental Impact Assessment or Environmental Mitigation Plan by project closing. The remaining five hospitals had completed assessments/plans within six months of project closing. Of the 123 hospitals investing in wastewater treatment systems, 90 got the discharge permits, 27 had submitted documentation to the proper authorities for review and approval and 6 had initiated the documentation by the project's closing. At the time the ICR was prepared (early 2020) 84 percent of project hospitals' healthcare waste systems were either certified by the environmental authorities or had submitted the required documentation for certification.

Follow-up exchange with the task team also confirmed that all project hospitals included the appropriate treatment and disposal of healthcare waste management related to infectious waste and sharps; chemical and pharmaceutical waste; cytotoxic waste; and (where relevant) radioactive waste. Hospitals also implemented the operational manual guidelines related to water, soil and air environments through a range of practices, itemized in the team's response to IEG (August 13, 2020).

While no specific social safeguards (such as OP 4.10 on Indigenous People or OP 4.12 on Involuntary Settlement) were triggered under this project, applied research on social perceptions on healthcare waste informed project preparation. Moreover, systematic surveys conducted during implementation tracked perceptions of populations living near the hospitals, revealing their appreciation of improvements and benefits brought by the project.

### b. Fiduciary Compliance

**Financial Management.** The ICR reported on a project indicator that documents that audit reports were submitted with satisfactory quality and in a timely manner, but the ICR did not indicate whether any of these reports were qualified or recommendations sufficiently implemented. It also noted that the project complied with all planned external audits of the project financial statements, including the last for 2018, which was also submitted (on time) on June 30, 2019. The project disbursement process was affected by the requirement for obtaining yearly budget allocation in the government budget plan every year. No disbursement was allowed if the budget was not allocated. This has generated cumulative delays in the disbursement of investment projects in Vietnam, and, for this project, a reason behind the two-year



extension of the closing date. The ICR did not assess the adequacy of financial management arrangements, reporting and accounting provisions, internal control procedures, or compliance with financial covenants. While not specified in the ICR, a follow-up exchange with the task team (June 1, 2020) confirmed that: no external audit report was qualified; auditor’s recommendations were properly followed up; financial management arrangements at central and provincial level (staffing, accounting software; operation manual) were adequate; and all financial management covenants in the financing agreement were fully complied with.

**Procurement.** While not explicitly stated in the ICR, the task team confirmed in a follow-up exchange (August 13, 2020) that procurement under the project was in compliance with the Bank procurement guidelines. Prior and post reviews were regularly held for all project implementation units at the central and provincial levels; and no incidences of mis-procurement were found. Procurement activities got off to a slow start and faced challenges in the early years of the project, but performance significantly improved during the second half of project implementation. Procurement implementation was highly decentralized (taking place in 55 provinces/cities), conducted by more than 70 agencies, with a disbursed amount of nearly US\$100 million. With their increasing autonomy, hospitals assumed responsibility for procurement under grant activities. By mid-2018, all 450 contracts were awarded and all 444 decentralized contracts were completed and liquidated with full payment six months before project closing. Independent verification for all the decentralized contracts was undertaken in the context of the project’s results-based financing scheme. Key constraints to early procurement performance included: (a) inexperience in procurement of environment-related goods; (b) poor understanding and application of Bank guidelines; (c) provincial-level inexperience in Bank practices and heavy reliance on external agencies with no Bank procurement experience; (d) inconsistencies between Bank and country systems which delayed approval of provincial procurement plans; (e) lack of clear responsibilities at the local level; and (f) inability of the central project management units to provide adequate training and assistance to the provincial units. There was also a lack of capacity for contract monitoring and administration.

Procurement capacity gradually improved with on-time identification of problems during supervision missions and Bank ex-post reviews. Lessons were shared across implementation agencies. Recommendations for solving procurement problems were duly implemented by provincial and central hospitals. Regular and ad-hoc trainings, hands-on support at provincial requests, and timely review of procurement documents all contributed to significant improvements in procurement capacity at the provincial level.

**c. Unintended impacts (Positive or Negative)**

None noted.

**d. Other**

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**11. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
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Outcome	Satisfactory	Satisfactory	
Bank Performance	Satisfactory	Moderately Satisfactory	There is no disagreement on the subratings (Moderately Satisfactory for Quality at Entry; and Satisfactory for Quality of Supervision). In line with OPCS Guidelines, the aggregation of these two subratings culminates in a Moderately Satisfactory rating for overall Bank Performance.
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

## 12. Lessons

The following lessons were derived from the lessons presented in the ICR.

**Aligning project investment plans with provincial plans, preparing them up-front, and having them reviewed by multiple provincial stakeholders increases provincial ownership.** This project based its investments on the provincial plans for facility investment and then applied additional filters to ensure the efficiency and equity of the subset of project facilities. The project also highlighted the effectiveness of using the provincial project management units under the provincial Departments of Health for project coordination.

**Coordination between the Ministry of Health, environmental agencies, and provinces enhances collaboration and implementation efficiency.** Public environmental agencies, consulted during design and construction, supervised, monitored and inspected treatment systems as a condition to issue permits for waste discharge; and they advised provincial people’s committees in plan approval and promulgation for collecting, transporting and handling hazardous waste and coordinating with all actors and stakeholders on plan implementation.

**Targeting the more visible problems and engaging people living close to the hospitals right from the outset are effective approaches for informing and involving the public, and for achieving results.** The project invested in 40 health care waste management systems that were included in the Prime Minister’s blacklist of seriously polluted institutions (mentioned in Section 4 under “Policy and institutional environment strengthening”). These hospitals met the national environmental standards and were removed from the blacklist. Trained hospital staff had improved capacities to reach out to the communities. Early engagement of surrounding populations from the project’s outset incited their involvement in monitoring the implementation and operations of the systems; and surveys of their opinions provided timely feedback to hospitals on the performance of these systems.

**Results-based financing takes time for concerned agencies and staff to understand and implement, especially in a highly decentralized context.** Lack of experience and skills in results-



based financing at the outset was an important reason for the implementation delays during the early years of the project. In retrospect, more intensive, up-front capacity building for project management, through training and recruitment of qualified staff and the careful design of institutional arrangements, may have alleviated implementation issues and delays.

### 13. Assessment Recommended?

Yes

Please Explain

As environmental issues become more prominent and in the face of the COVID pandemic, this project may provide lessons and good practices for other countries on healthcare waste management and use of personal protective equipment by providers.

### 14. Comments on Quality of ICR

The ICR provided an evidence-based overview of the project experience, although it could have been more concise. The analysis was well developed, candid, and based on the evidence, which in turn provided the necessary information to assess the results chain and links between inputs, outputs, and outcomes. The theory of change was well presented both in narrative and in graphic form. Reporting on data was systematic and properly cited. The lessons emanate from the evidence and analysis and are insightful and constructive.

The ICR followed the Bank's guidelines, with the following exceptions:

- Tables presenting planned vs. actual costs by component (text Table 4 and Annex 3) showed an actual cost of US\$145 million. But data is limited to IDA funding and did not include government counterpart funds. Moreover, what these tables presented as actual costs are really the revised estimated costs at the time of restructuring (August 2019) and not the final costs that should have been assessed after the project's completion.
- The ICR assessed outcomes without applying a split rating. It did not offer a strong rationale for not undertaking a split evaluation given that two of four associated outcome targets were substantially reduced in 2016 – a few years into the project.
- The ICR's coverage of financial management was not complete. It reported on the on-time submissions of external audit reports, but did not mention whether any of the reports were qualified or whether audit recommendations were sufficiently addressed. The ICR did not report on the adequacy of financial management arrangements, reporting and accounting provisions, internal control procedures, any project financial management and accounting staffing issues, or compliance with financial covenants. A follow-up exchange with the task team (June 1, 2020) provided all of the necessary information and is reflected in Section 10.b of this ICR Review.



**a. Quality of ICR Rating**  
Substantial