

Padang Pariaman Health Facility Reconstruction Program

INDEPENDENT COMPLETION REPORT

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Acronyms and Abbreviations
AID Activity Summary
Program Locations
Executive Summary

Table of Contents

1	INTRODUCTION	1
1.1	Activity Background	1
1.2	The PPHFR Program	1
1.3	Evaluation Process	2
2	RELEVANCE	3
2.1	Objectives	3
2.2	Activity Design	3
2.3	Links to Reconstruction and Health Sector Programs	3
2.4	Links to Other Donor Reconstruction Activities	4
3	EFFECTIVENESS	4
3.1	Achievement of Objectives	4
3.2	Standard of Outputs	11
4	EFFICIENCY	13
4.1	Timeliness	13
4.2	Appropriateness	14
4.3	Value for Money	14
4.4	Implementation	16
4.5	AusAID Management and Monitoring	17
5	SUSTAINABILITY	17
5.1	Local Government Engagement	17
5.2	Puskesmas Buildings	18
5.3	Institutional Capacity	18
5.4	Future Emergency Response	18
6	CROSSCUTTING ISSUES	19
6.1	Gender and Disadvantaged Groups	19
6.2	Environmental Issues	19
6.3	Anti-corruption Measures	20
7	MONITORING AND EVALUATION	20
8	ANALYSIS AND LEARNING	20
9	CONCLUSIONS AND RECOMMENDATIONS	22
9.1	Overall Assessment	22
9.2	AusAID Key Questions	22
9.3	Recommendations for PPHFRP	25
9.4	Lessons and Good Practice	26
10	IMPLEMENTATION AND RESOURCING OF RECOMMENDATIONS	29
10.1	Recommendations on PPHFRP	29
10.2	Implementation of Recommendations on Future Disaster Reconstruction Activities	29

List of Tables

Table 1	Estimated Puskesmas Staff and Patients Pre and Post Reconstruction	5
Table 2	Participants in HIV / AIDs Awareness Training:	8
Table 3	DRR Training Participation	9
Table 4	Comparison of Implementation Times	13
Table 5	Estimated Building Costs	15
Table 6	Estimated Management Contractor Costs	15
Table 7	ICR Evaluation Assessment of PPHFRP	22

Annexes

Annex 1	Evaluation Terms of Reference
Annex 2	List of Meetings and People Consulted
Annex 3	Draft Aide Memoire
Annex 4	Guiding Questions
Annex 5	Details and Costs of Puskesmas Reconstructed
Annex 6	Infrastructure Working Paper
Annex 7	Report on DRR Training
Annex 8	Program Costs
Annex 9	List of Rectification Work and Proposed Additional Work

Acronyms and Abbreviations

ACM	Asbestos containing material
ACR	Activity completion report (prepared by the AMC)
ADF	Australian Defence Force
AIPMNH	Australia Indonesia Partnership for Maternal and Neonatal Health
AIFDR	Australia Indonesia Facility for Disaster Reduction
AMC	Australian Managing Contractor
Bappeda	Badan Perencanaan Pembangunan Daerah (District Planning and Management Agency)
BNPB	Badan Nasional Penanggulangan Bencana (National Disaster Management Agency)
CEPA	Community Education Program in Aceh (AusAID's Program)
DRR	Disaster Risk Reduction
DED	Detailed Engineering Design
Dinkes	Dinas Kesehatan (District Health Office)
DRU	Disaster Response Unit (in AusAID)
EIA/EMP	Environmental Impact Assessment / Environmental Management Plan
ETAC	Engineering technical advisory consultants (supervision consultants)
GoA	Government of Australia
GoI	Government of Indonesia
HHS	Hygiene, Health and Safety
ICR	Independent Completion Review
LOGICA 2	Local Governance Innovations for Communities in Aceh - 2 (AusAID's Program)
MC	Managing Contractor (Coffey International Development)
MDG	Millennium Development Goals
MIPP	Public Health Service Innovation Management
MNH	Maternal and Neonatal Health
MoH	(GoI) Ministry of Health
MOU	Memorandum of Understanding
M&E	Monitoring and evaluation
NGO	Non-government organisation
NRP	Nias Reconstruction Project (AusAID funded)
PHC	Primary Health Centre (Puskesmas)
PKBI	Perkumpulan Keluarga Berencana Indonesia
PPHFRP	Padang Pariaman Health Facilities Reconstruction (PPHFR) Program
Puskesmas	Pusat Kesehatan Masyarakat (Sub-district health centre)
SoS	Scope of services (part of contract)
SRP	School Reconstruction Program (AusAID funded)

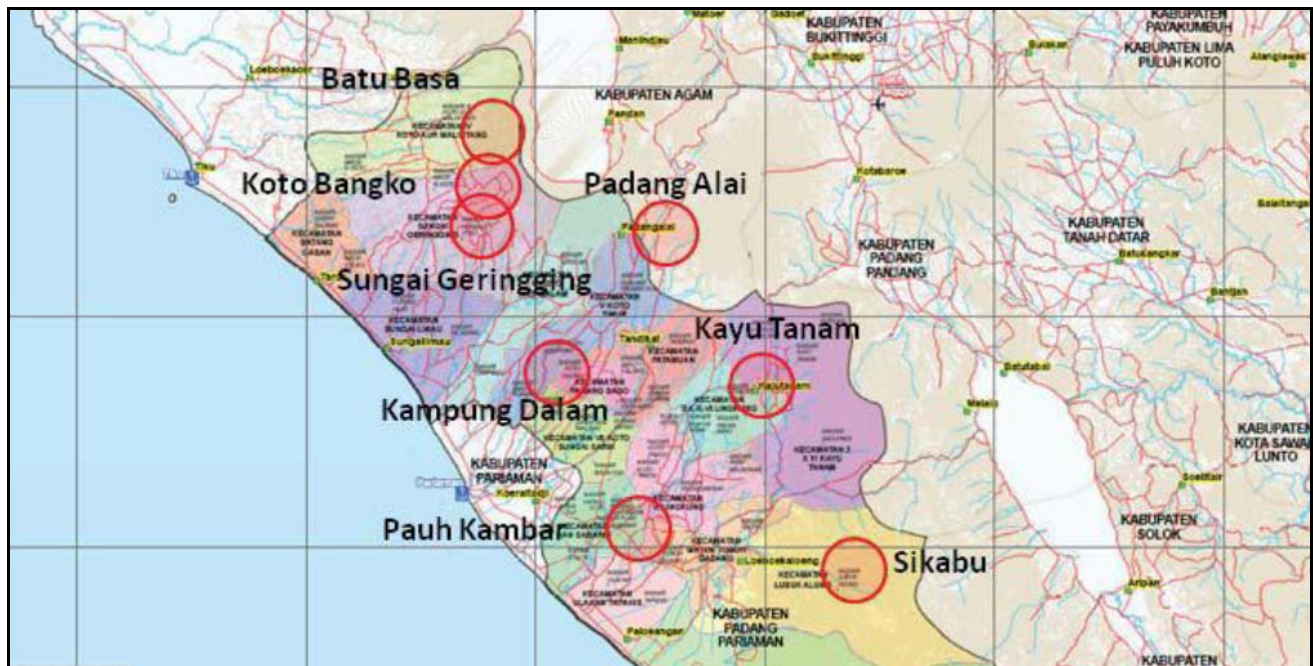
AID Activity Summary

Aid Activity Name		Padang Pariaman Health Facilities Reconstruction Program	
AidWorks initiative number:		INJ 124	
Funding Agencies:		Government of Indonesia and Government of Australia	
Commencement date:	May 2010 (AMC)	Completion date:	March 2012
Total Program Budget		A\$ 5 million	
Government of Australia		Original A\$ 4.99 million AT completion A\$ 4.5 million	
Delivery organisation(s)		Coffey International Development Pty Ltd	
Implementing Partner(s)		GoI Ministry of Health Padang Pariaman District Government	
Form of Aid		Program	
Country/Region		Indonesia	
Primary Sector		Health	

Key Dates

<i>West Sumatra earthquake</i>	30 September 2010
<i>AusAID mobilises response planning group</i>	First week of October 2011
<i>Coffey prepare proposal to implement program</i>	13 January 2010
<i>AMC contracted through contract amendment</i>	17 March 2010
<i>AMC Mobilisation Plan submitted to AusAID</i>	April 2010
<i>PPHFRP implementation team mobilized</i>	22 April 2010
<i>Detailed engineering designs</i>	4 April 2010 – 20 May 2010
<i>Construction contracts awarded</i>	1 August 2010
<i>ETAC contracted</i>	5 October 2010
<i>Construction starting date:</i>	15 October 2010 for 6 Puskesmas (Sungai Geringging, Batu Basa, Koto Bangko, Padang Alai, Sikabu, Pauh Kambar)
	15 November 2010 for 2 Puskesmas (Kampung Dalam & Kayu Tanam)
<i>First Hand Over</i>	30 June 2011 for 6 Puskesmas 30 July 2011 for 2 Puskesmas
<i>Maintenance Period:</i>	01 July 2011 to 30 December 2011 for 6 Puskesmas 01 August 2011 – 30 January 2012 for 2 Puskesmas
<i>Final Hand Over:</i>	10 January 2012 10 February 2012
<i>First Draft Activity Completion Report submitted to AusAID</i>	16 January 2012
<i>Independent Completion Review commences</i>	24 January 2012
<i>Final Activity Completion Report submitted</i>	February 2012

Program Locations West – Sumatra



Executive Summary

After a severe earthquake struck West Sumatra in the 30th September 2009, the Government of Australia (GoA), through the Australia - Indonesia Partnership (AIP), committed up to A\$5 million to support reconstruction and rehabilitation of community health facilities (Puskesmas or primary health centres (PHC)). Coffey International Development Pty. Ltd. (Coffey) was appointed the Australian managing contractor (AMC) to reconstruct eight Puskesmas that had been totally or severely damaged by the earthquake.

A. AusAID Key Questions

1. *Progress Towards Program Objectives.*

Health Care

- All stakeholders are pleased with the facilities and equipment provided
- Five of eight Puskesmas are now offering 24 hour service (depends on staff facilities)
- Evidence of increased staffing and increased patient numbers
- Working conditions have improved for staff
- Equipment provided was appropriate and is being used in Puskesmas authorised / trained to use it (exception is maternity ward equipment).

Construction

- The designs (form) are very distinctive and engender strong ownership
- The new layouts have improved some aspects of the standard MoH / Dinkes Puskesmas but have some disadvantages.
- The detailed structural drawings were clear leading to confident construction. However, the electrical designs were not detailed enough resulting in some cases to lesser quality work which had to be rectified, delaying completion.
- Construction quality is generally very good. However there are some issues with finishing.
- The unique design has increased construction costs and will be difficult to replicate.

Socialisation and Training

- Initial socialisation was extensive including stakeholders at district, subdistrict and local level with community and religious leaders.
- DRR and management training was undertaken with good response to DRR aspects.
- Construction training by the Klinik Konstruksi and from the construction engineers was valued by the contractors and contributed to improved quality. Contractors reported the workers were more receptive to training from outside specialists.
- HIV training was implemented. The service provider and Puskesmas staff who participated indicated that it was worthwhile, especially given the mix of local and migrant labour.
- The AMC provided basic training on operation of the water supply and sanitation systems, and, where necessary, on operation of the waste incinerators. However, more refresher training could have been provided after the Puskesmas were functioning to reinforce the basic training.
- There were no comments or requests from the Puskesmas staff met during the field visits for specialised health technical training on facility operation.

2. *Appropriateness of the PPHFRP modality*

- Within AusAID's procurement guidelines and consultant accessibility, and the need to respond quickly, the modality was appropriate – using a currently contracted AMC with sector technical knowledge to speed mobilisation and assist the AusAID sector program management team.
- An initial oversight led to a delay in contracting of the engineering technical advisory consultants (ETAC) to provide independent advice to AusAID. The ETAC was mobilised after

the detailed design phase contributing to construction delays as their feedback on the detailed designs were prepared and addressed.

3. Value for Money Achieved through the Contracting Approach and the Innovative Design

Construction costs. Preliminary research on unit costs indicates that the costs per square metre were comparable to other post disaster health/education infrastructure.

Design used. The distinctive design used resulted in slightly higher construction costs (10 – 15 % higher) compared with a conventional rectangular column and beam grid with gable roof construction. The more important issue is how the additional space in the building has been used, changes in functionality and problems with the ingress of rain and security.

Construction period. Data collected during the study indicates the average construction period for the eight Puskesmas was about 273 days (11.2 months). 7-8 months is considered a reasonable construction period for a two-storey structure of the relative complexity of the Puskesmas built by small local contractors.

Management contractor costs. The PPHFRP management and technical assistance costs are about 27 % of the total contract value. This is similar to costs on the SRP (28 %) which was significantly larger (USD15 million).

Performance of local sub-contractors. Advice provided to the ICR team indicated that the local construction sub-contractors worked effectively and should, with minor changes to payment schedules by used again.

Relationships with government and communities. The community engagement model used by Coffey – awareness raising, involvement in design and community awareness of the construction activity, was appropriate to the situation where construction was to be contracted out and ongoing management of the facility was the responsibility of the Dinkes, not a local management group.

As with the SRP, the District government did not meet its commitments on site clearance which had to be implemented by the managing contractor.

B. ICR Team Assessment of Program Performance

The ICR team assessment against the AusAID program performance areas are provided in the following table.

Evaluation Criteria	Rating (1-6)
Relevance	6
Effectiveness	5
Efficiency	4
Sustainability	4
Gender Equality	4
Monitoring & Evaluation	4
Analysis and Learning	3
Impact	5

Rating scale: 6 = very high quality; Below 4 = less than satisfactory 1 = very low quality.

C. Summary of Main Recommendations for Current PPHFRP

See main text for full context and listing.

There are some outstanding construction issues that need to be resolved before Coffey completes work on the Puskesmas.

Recommendations:

R#1.1 Rectification works. Coffey ensure that all rectification works identified by TTW are completed before retention monies are refunded. This work should include, inter alia, supplying non-slip matting¹ for all walkway areas that may be affected by rain, and securing all water tanks, pipes and conduits against movement in earthquakes. A detailed list of these issues has already been provided to AusAID by the ICR team with a copy provided in Annex 9.

R#1.2 Recommended additional works. As discussed in the report there are some additional works that the ICR team recommend should be undertaken. These include installation of additional earth leakage detectors in the main circuit boards in each building. At Sikabu and other Puskesmas experiencing security problems, additional doors or security gates to prevent unauthorised access to inside the building should be installed.

R#1.3 (NEW) Refresher training on water supply and waste water facilities. If the managing contractor has continuing inputs to address the slippery floor issue, Coffey should organise and implement short refresher courses on the operation and maintenance of the water supply and waste management systems.

Coffey will be responsible for implementing the recommendations under their current budget and contracting arrangements.

D. Summary of Main Lessons and Good Practice

See the main text for details and the full listing.

Lesson 1 Recovery management approaches. AusAID through the DRU has developed processes and systems to provide immediate responses to disasters in Indonesia. Systems are not yet in place to develop, implement and manage recovery and reconstruction activities.

Recommendation #LR.1 Review of AusAID disaster responses To guide the DRU and AusAID in developing systems to plan, implement and monitor disaster reconstruction activities, a desktop review of the completion reports for AusAID responses to the past five major Indonesian disasters should be undertaken to draw out common lessons learned and advise on future implementation modalities and processes. Limited field work would be required.

Recommendation #LR.2 Reconstruction tool kit Subject to the proposed review of AusAID disaster responses (Recommendation #LR.1 above), DRU consider developing a reconstruction / recovery toolkit of standard procedures, processes and documentation covering design principles, stakeholder consultation, procurement of expert services and goods, supervision, M&E, capacity building, financial systems and reporting that the selected recovery/reconstruction implementation consultant or contractor will use. The monitoring and financial reporting would link with AusAID systems. This toolkit would be developed to suit the range of contracting modalities that AusAID may use for disaster reconstruction,

The toolkit format and content could incorporate all of the following lessons.

¹ This recommendation was made based on the cost and significant disruption to ongoing use of a recommendation to replace the floor tiles with non-slip tiles. The managing contractor has advised that it is negotiating with AusAID to install non-slip tiles in major walkways which should provide a permanent improved solution.

Lesson 3 *Early access to high level technical and management advice.* At least until the AusAID sector team and DRR has finalised its contracting arrangements for implementing reconstruction/ recovery activities, the AusAID sector team needs high quality sector technical advice, particularly on reconstruction issues.

Lesson 5 *Building back the same, better.* Post disaster reconstruction should be based on, in the absence of any substantiated advice to the contrary, current GoI designs (and building sizes), built back better to meet GoI standard earthquake resistance standards plus, where appropriate, with layouts and services modified to improve functionality within the same ground footprint.

Lesson 8 *Site clearance.* Agreement on the responsibility for, and then implementation of, site clearance creates problems and delays reconstruction activities. If an affected community cannot undertake the demolition / site clearance activities with manual labour so heavy equipment is required to undertake the work as occurred with some of the PPHFRP sites, AusAID should fund and undertake site clearance through its management contractor.

Lesson 9 *Reconstruction managing contractors.* The managing contractor for reconstruction activities should have core infrastructure design and construction management and supervision expertise with Indonesian experience. They also need experience in managing the initial functional and architectural layouts and designs of specialist infrastructure. Such firms should be available at short notice on a period offer.

Lesson 10 *Community engagement.* The community engagement model used when implementing a reconstruction activity should reflect the way the community facility will be managed after the new facility is handed over to its owners.

Lesson 14 *WATSAN and electrical services.* Water and sanitation, and electrical services for health facilities are important for supporting operations. For future earthquake reconstruction activities, additional attention needs to be given to making the designs and layouts safe and resistant to future earthquakes.

Lesson 17 *Employing local construction labour.* Although the use of local workers for the PPHFRP was not totally successful, the practice achieved good results in the SRP activity and generates local income at a time when extra income is needed; strengthens links to the community and ownership; and, provides workers with additional skills useful at village level.

Lesson 18 Communities prefer that AusAID (or its contractors) manage reconstruction activities because: GoA funded reconstruction is seen to be better quality; and, AusAID management of the funds minimises community differences on how the funds should be spent and maximises the amount available for reconstruction.

E. Implementation and Resourcing of Recommendations

1. Recommendation #LR.1 Review of AusAID disaster responses

This recommendation should be implemented by the DRU and will require the contracting of an experienced consultant for a four week period to undertake a largely desktop study. After the draft review and analysis is completed, discussions should be held with the main AusAID and GOI agency stakeholders to test the conclusions reached and develop recommendations for future actions. These discussions could be held through telephone conferences after discussion notes have been shared.

2. Recommendation #LR.2 Reconstruction tool kit

This recommendation, if agreed to, should be implemented by the DRU. It will require contracting of a consultant(s) with relevant experience for a period of about six months.

1 INTRODUCTION

1.1 Activity Background

On 30th September 2009, a 7.9 Richter scale earthquake struck West Sumatra causing significant loss of life and damage to infrastructure and environment across West Sumatra Province. The Government of Indonesian (GOI) invited domestic and foreign donors to provide emergency relief and assistance for the recovery and reconstruction of the affected areas. The Government of Australia (GoA), through the Australia - Indonesia Partnership (AIP), committed up to A\$15 million to support reconstruction and rehabilitation of damaged schools and community health facilities (Puskesmas or primary health centres (PHC)) in West Sumatra. A\$5 million was committed for the reconstruction of Puskesmas in West Sumatra Province. The funds were channelled and managed through AusAID.

1.2 The PPHFR Program

To speed up the reconstruction activities and make use of extensive experience from other parts of Indonesia, AusAID engaged the managing contractor for the Australia Indonesia Partnership Maternal and Neonatal Health (AIPMNH) Program (working in Eastern Indonesia) to reconstruct eight Puskesmas in Padang Pariaman District – the Padang Pariaman Health Facilities Reconstruction (PPHFR) Program (PPHFRP or the Program).

The managing contractor, Coffey International Development Pty. Ltd. (Coffey), was the Australian managing contractor (AMC) for the Nias Reconstruction Project (NRP) which reconstructed local government infrastructure after the Nias earthquakes and tsunami and had also managed reconstruction activities in Aceh.

The Program initially planned to re-build six and renovate 2-3 of the identified badly damaged Puskesmas. However, following the technical assessments undertaken by AusAID and Coffey early in 2010, and as all the Puskesmas were located in an earthquake prone area, AusAID wanted the buildings' foundations and structures to comply with Zone 6 earthquake resistance standards. Given this, AusAID decided to rebuild rather than renovate all selected Puskesmas. Construction of the Puskesmas started in September 2010 and was to be completed by October 2011 followed by a six months rectification period, until March 2012. In practice, construction took longer than planned.

Working with the district level health office (Dinas Kesehatan - Dinkes), the Puskesmas identified for reconstruction were located in sub-districts around Padang Pariaman: Pauh Kamar, Sei Geringging, Padang Alai, Batu Basa, Koto Bangko, Sikabu, Kayu Tanam and Kampung Dalam.

The activity was developed as an urgent reconstruction activity in response to the GOI requests. Building on experience gained under AIPMNH in renovating health facilities in Nusa Tenggara Timur (NTT) Province since 2008, Coffey was responsible for all phases of the reconstruction program which include: site analysis, architectural drawings for final Puskesmas design, tendering, contracting of sub-contractors, supervision of construction contractors and maintenance of quality standards, procurement of furniture and equipment, Puskesmas fit-out and hand-over, and management of corrective/remedial work if required during the six month rectification period. The PPHFRP was managed separately to the AIPMNH with the AIPMNH Jakarta team responsible for reporting to AusAID and billing activities.

Engineering technical advisory consultants (ETAC) for civil, mechanical, electrical, plumbing and quantity surveying works were engaged by AusAID² to provide advice on quality issues and to ensure that the sub-contractors were meeting the required standards.

1.3 Evaluation Process

As part of AusAID quality processes, this independent completion evaluation / review (ICR) is to assess the achievements of the Program. The detailed terms of reference is provided in Annex 1.

1.3.1 Evaluation Objectives

The objectives of the evaluation are to:

1. Evaluate the extent to which PPHFR achieved its objectives;
2. Assess the appropriateness of the modality used for PPHFR for a post-disaster assistance project;
3. Assess the value for money achieved through the contracting approach and also innovative designs developed by the Contractor; and,
4. Provide lessons learned and recommendations that will inform and shape future post-disaster health reconstruction programs.

In addition, AusAID included several additional questions/issues (see Annex 1 for details) including: (i) 'Delays with completion of construction works.'; (ii) 'Performance of local sub-contractors...'; (iii) 'Relationships with Government and Communities...'; and, (iv) 'Resource Implication of extending current contract to undertake the program'. These questions are addressed partially in response to the evaluation objectives and in the conclusions and lessons identified.

1.3.2 Evaluation Methodology

The evaluation commenced with a desk review of program documents to formulate key issues to discuss with individual and groups of stakeholders during field visits to the eight Puskesmas. Guiding questions for the ICR field meetings are provided in Annex 4. The draft activity completion report (ACR) also informed the analysis but did not provide baseline or completion information on Puskesmas resources, staffing and patient numbers pre and post-reconstruction which was a limitation on assessing the changes in usage following the re-opening of the PHC.

Additional limitations eg. the evaluation approach included limited time available at each Puskesmas, partially due to the travel time between them; the limited time most of the new Puskesmas had been operating, in some cases with new management staff who were not involved with the reconstruction process. The ICR team found that most permanent Puskesmas staff had little knowledge or experience of the clearing and reconstruction process, even when the temporary PHC continued to operate in an adjoining area. The Dinkes also had limited knowledge to share of the reconstruction process. Overall this assessment relies on the field interview process cross-referenced with the draft ACR.

1.3.3 Implementation and Management

After initial meetings in Jakarta, the ICR Team³ visited all the program Puskesmas in West Sumatra from 24 – 31 January 2012 followed by three days of meetings in Jakarta. A listing of meetings held and people met is provided in Annex 2. The draft aide memoire is provided in Annex 3. The Disaster Response Unit (DRU) AusAID Jakarta, managed the ICR process in conjunction with the AusAID unit managing the AIPMNH Program. The DRU, with the Health Sector team, assisted by Coffey, planned the mission and accompanied the ICR team on most of its field visits.

² The engineering technical advisory consultants (ETAC) – Taylor, Thomas, Whitting International Pty Ltd (TTW) (structural design) with PT George Floth Indonesia (mechanical and electrical and plumbing (MEP) and WTP (quantity surveyors) managed and contracted by AusAID.

³ Ian Teese, M&E specialist / Team leader; Andrew Whillas, Infrastructure specialist. The essential interpreter support was very capably provided by Ms Dewi Arilaha.

The ICR Team gratefully acknowledges time given and contributions made by all stakeholders met during the visits. Any errors, misunderstandings and omissions are solely the responsibility of the ICR team.

2 RELEVANCE

The PPFHRP has been the major contributor to Puskesmas reconstruction in Padang Pariaman kabupaten in West Sumatra. The PPHFRP reconstructed eight of the nine Puskesmas known to have been reconstructed in the kabupaten to date. None of the reports reviewed by the ICR team or feedback from key informants referred to other Puskesmas reconstruction activities

2.1 Objectives

Activity objectives are not defined in the program documents. The ICR team defined the objectives as: *“Eight priority Puskesmas reconstructed to agreed earthquake resistant standards (‘built back better’) and re-equipped to provide services to their communities”* which was very relevant at the time and, at project completion, have been still shown as very relevant especially considering that only one other Puskesmas has been reconstructed to date (see below).

The Dinkes and Bupati did not indicate that other national emergency reconstruction funds had been available for reconstruction activities even though some Puskesmas in the district still need reconstruction / rehabilitation. The Bupati advised the ICR team that the District government hoped to start work on one of the priority sites in 2012 using the PPHFRP design funded using non-specified GOI sources⁴.

The main emphasis in program documentation was on implementation following ‘principles of engagement that are espoused in AusAID’s Country Strategy and the Millennium Development Goals⁵’. A disadvantage of the lack of objectives has been that limited objective information has been collected on the program outcomes and impacts⁶.

2.2 Activity Design

The activity design evolved from AusAID’s initial decision to support the school and Puskesmas reconstruction activities in West Sumatra. Initial plans were to reconstruct six badly damaged Puskesmas and rehabilitate two less damaged Puskesmas⁷ and were still referred to in the mobilisation plan submitted first in April 2010 and revised in May 2010 even though the detailed design work was still in progress.

Unlike the West Java and West Sumatra Schools Reconstruction Program (SRP), an activity goal, objectives and outcomes were not specified nor was a monitoring and evaluation (M&E) plan developed and implemented. Instead, the activity was documented through a scope of services (SoS) developed by the contractor with AusAID and then incorporated into contract amendments for the AIPMNH Program. The scope of works was elaborated in the mobilisation plan. The program staging and deliverables tables in the scope of services provided more details on outputs but there were minimal references to outcomes and no systematic approach to assessing them.

2.3 Links to Reconstruction and Health Sector Programs

The main linkage was with the AusAID AIPMNH activity based in Eastern Indonesia managed by Coffey. This was the major health sector program funded by AusAID in Indonesia. As there were construction activities in the AIPMNH and for speed and ease of contracting through a contract

⁴ The ICR team had requested a meeting with the National Ministry of Health to gain an appreciation of the wider reconstruction activities and priorities but AusAID indicated that this would not be of value. A meeting was not arranged with the provincial health office.

⁵ Page 1 of Mobilisation Plan

⁶ Coffey have produced some ‘Good News Stories’ as qualitative examples of outcomes.

⁷ See Section 1, paragraph 3 of the draft SoS submitted by Coffey as Schedule 1B.

amendment, AusAID contracted Coffey to undertake the work. Apart from small inputs⁸ early in the assessment / pre-design phase, there were limited inputs by the AIPMNHP team⁹ to PPHFRP implementation as the reconstruction activity had a different focus to that of AIPMNHP.

The more important issue with the links to the AIPMNHP was the additional workload placed on the AusAID health sector team who were managing the AIPMNHP in Jakarta who were also given responsibility for managing the PPHFRP. There was not a structured plan to link them with experienced engineering and health facility design advice. Informal links were made with engineers working on the AusAID funded Eastern Indonesia Roads Project. In addition, no additional administration resources were provided to assist the sector program team manage the design and contract administration.

Anecdotal feedback is that there was limited interaction between the PPHFRP and the Cardno managed SRP which reconstructed schools in the PPHFRP area¹⁰. The activities had a different focus with the more complex two-storey designs and building technologies used on PPHFRP being much more sophisticated so the community construction techniques used by SRP for single-storey schools was not appropriate for PPHFRP.

2.4 Links to Other Donor Reconstruction Activities

The Australian Defence Forces constructed and operated the temporary health centre at Sei Gerringing from about one week after the earthquake. This was greatly appreciated by the local Puskesmas staff and community.

The only other direct support to the health sector infrastructure in the district was by Mercy Malaysia which also constructed a Puskesmas which is understood to have been completed last year. The ICR team was unable to visit the building.

The non-government agencies¹¹ (NGO) met indicated that their main involvement in the response and recovery process was to provide basic village level support to affected families and provided some health programs in the villages.

3 EFFECTIVENESS

The approach of AusAID funding the reconstruction activities using an Australian management contractor outside the GOI budget processes has contributed to the reconstructed Puskesmas relatively quickly (compared with other GOI reconstruction activities) being able to return to service and provide the full range of patient needs¹². As indicated in feedback from several respondents, a major benefit of the Australian funded and managed activity was that all the committed financial resources were used in reconstruction. The completed Puskesmas have at least matched, and in some areas improved on, the health services available to the clients around the centres. Reinstatement of the existing services was the original intention of the activity.

3.1 Achievement of Objectives

3.1.1 Overview

Within the constraints of a disaster reconstruction activity, the PPHFRP has constructed eight high quality, earthquake resistant Puskesmas that can provide an improved service to the households in the communities serviced by the Puskesmas. Annex 5 provides details on the Puskesmas and their costs.

⁸ AusAID personal communication

⁹ Coffey personal communication. Some PPHFRP documentation was reviewed by the AIPMNHP team leader.

¹⁰ For example, SRP and PPHFRP both had activities in Sei Gerringing. The ICR team visited the reconstructed madrasah during the site visits and found it was largely in very good condition with limited maintenance issues.

¹¹ Mercy Corps and Save the Children

¹² At all sites, temporary facilities provided ongoing services while reconstruction took place.

Anecdotal feedback indicates that most of the Puskesmas are treating more patients. The following table provides information on staff levels and patient numbers pre and post the earthquake.

Table 1 Estimated Puskesmas Staff and Patients Pre and Post Reconstruction

Puskesmas	Staff			Patients (/day)		Births
	Before	After	Female	Before	After	(per month)
Pauh Kamar	30	48	44	50-60	75 -100	4 births
Sungai Geringging	22	33	30	21-25	44 – 48	4-6 births
Kota Bangko	11	25	21	Na	45	Nil births
Padang Alai	20	28	23	20	25	Na
Kayu Tanam	46	50	43	90	60	4
Batu Basa	15	21	16	20	40	6
Kampung Dalam	22	40	36	60	70	5 – 10
Sikabu	19	19	18	20-30	20-30	NA
Total	185	264	231	334	398	
Percentages	100%	143%	87%	100%	119%	-----

Source: Information collected during meetings at each Puskesmas. Note that for all interviews the head of Puskesmas was present and in most cases the Head of Administration was also present, The information has not been cross-checked with original Puskesmas records.

The data shows that staff numbers have increased significantly¹³ since construction has finished. This staff increase is probably due to the PHC being upgraded to the highest level¹⁴ (three of eight Puskesmas) which includes emergency and neonatal facilities which were not available in the five near new Puskesmas which collapsed in the earthquake.

Patient numbers have not grown by the same proportion. This may be partially due to the short time since the new Puskesmas have become fully functional but may also be due to:

- (i) Two of the Puskesmas (Sikabu and Padang Alai) not taking emergency or neo-natal cases;
- (ii) Differing approaches to handling maternity cases with greater emphasis being placed on providing upgraded services at village (pusktu) level; and,
- (iii) Ongoing improvements in communication (cell phones), public transport and ambulance services which allow patients to more easily directly access hospital services in the district centre (Padang Pariaman) without visiting the sub-district level Puskesmas. These may lead to future changes to the role of the Puskesmas¹⁵.

Discussions on the patient profile indicated that 60-70 % of patients were women, with a large number of MNH patients. General and dental patients were divided about equally between women and men.

3.1.2 Building Back Better

The ICR Team found the Program has largely achieved the objective of building back better (earthquake resistance). The designs and construction of the structures will protect them from major earthquakes. Discussions with local earthquake design specialists at the Klinik Konstruksi at Andalas University in Padang, the AusAID ETAC and the building contractors confirm the perception of earthquake resistance. Puskesmas staff and community members consistently reported that they understood and valued the much stronger and better quality construction.

¹³ Caution is needed interpreting the data collected as the Puskesmas includes a mix of government, contracted and intern staff (often referred to as volunteers).

¹⁴ Two Puskesmas (Padang Alai and Sikabu), indicated that Dinkes did not allow them to handle neo-natal cases.

¹⁵ One possible future concept may be that the Puskesmas is a large village level health centre with a focus on being a base for the ambulance service with skilled emergency support staff, provide health awareness and public health services such as immunisation programs, provide dental service.

s and dispense drugs which need special handling and storage.

The building design process started from a premise that the rebuilt Puskesmas be upgraded to the GoI standard for the highest category of Puskesmas with emergency¹⁶ and maternity facilities. This decision¹⁷ has had major implications for construction costs and timelines, and made the reconstruction process much more complex as it led to a new floor plan being developed¹⁸ and a building with a 'distinctive' form.

The detailed engineering design (DED) team used Ministry of Health guidelines as a starting point for the Puskesmas design. The team had limited experience in the design of health facilities so visited other operational Puskesmas and drew on the advice of the AIPNMHP Team Leader.

Features of the design included (more details are provided in Section 1 of the Infrastructure working paper) included:

- The building meets current Indonesian earthquake codes
- Design separates emergency and maternity patients from waiting general patients
- Sterile and non-sterile working and patient areas
- Natural air ventilation through fixed louvre vents and wide opening windows
- Layout and access to assist women and children, and disabled clients
- Rainwater harvesting to provide an alternative water source

Some of the detailed design work has not reached the same standard, both in passive earthquake protection (fixing down tanks, pipework) and in the layout of the buildings.

However, feedback to the ICR team by Puskesmas staff indicated that additional rooms were also needed for treating in-patients. The ICR Team was surprised to find that several Puskesmas¹⁹ had additional rooms in useable condition remaining in separate existing buildings adjacent to the new Puskesmas building. At Kampung Dalam and Kayu Tanam, these buildings were being given simple refits so they could be used for in-patients. At Padang Alai, a new in-patient building with four rooms had been added recently behind the new PPHFRP facility.

This feedback and observations suggest that there was a need for more planning and site assessment before reconstruction started. However to expedite the reconstruction effort, the implementation team decided to use a single standard design for the Puskesmas – one size fits all. Part of the reason for this is that there would have been very little reliable data available to the design team on the existing usage of the original 8 Puskesmas to permit the differentiation of the design on a case by case basis

The large roof area allowed collection and storage of rainwater to improve the security of supply in the event of subsequent interruption of the existing supply due to earthquake or failure of the town utility (PDAM) or the contamination of shallow or deep well sources. In Puskesmas Padang Alai, water harvesting was seen as a much-needed innovation. Situated in the rain shadow area of Padang Pariaman, Puskesmas Padang Alai suffered from low water supply which becomes virtually non-existent during the summer period. Three water tanks were installed at each Puskesmas to collect rainwater that will be used for non-sterile purposes such as toilet flushing and cleaning.

¹⁶ Consistent feedback was received from Puskesmas staff that the Bupati had stated that the District government would provide additional funding and staffing to allow 24 hour emergency services to be provided.

¹⁷ The ICR team has sought information on when and with whom this major decision was made as the decision delayed the design process compared to rebuilding using the same floor area and a similar but improved floor plan.

¹⁸ As a much larger floor area was required for the additional rooms, the single level designs normally used for the GoI 3 rd. level facilities had to be adapted to a two storey design that would fit on the same site footprint as the original GoI two storey design. In one case, Sikabu, the site was too small for the new design so the plan was 'shrunk' to fit the site.

¹⁹ Including Pauh Kamar, Kayu Tanam, Kampung Dalam and Padang Alai

3.1.3 Stakeholder participation

Excellent initial efforts were made to socialise the activity to stakeholders at district, sub-district and community level.

Design consultation. The AMC and feedback during the ICR indicated that consultations were held with each Puskesmas for the preliminary design stage by the DED team. This was followed by a District-wide stakeholders' workshop²⁰ where three options for the detailed design were presented, discussed and the preferred design endorsed by the forum.

Socialisation. Prior to the commencement of construction activities, socialisation²¹ meetings were conducted at each Puskesmas attended by relevant district government officials, representatives of the construction sub-contractor, representatives of the village communities served by the Puskesmas – including men and women – and Puskesmas staff. Stakeholders reported to the ICR team they found this worked very well.

Local government involvement. The Padang Pariaman District government were managing an extensive reconstruction programme during 2010 and 2011. Commitments by the District government²² to clear sites were only fulfilled at two sites (Sikabu and Koto Bangko) where community labour was able to remove the relatively simple single storey Puskesmas. The sites where two storey buildings had collapsed required the use of heavy equipment to break-up the concrete columns and floors before clearance.

Monitoring by stakeholders during construction stages. The draft ACR reported (page 6) reported that 'key stakeholders - including related district agencies, Puskesmas staff, and community representatives – were continually engaged in regular monitoring of the construction'. Discussions at participating Puskesmas did not highlight this activity²³.

Community participation in reconstruction activities. There are several models for community participation in construction activities. They range from a very basic level of creating awareness of what is planned through to a 'community driven' approach where the community is empowered to lead and manage all stages of design and implementation, and then take full responsibility for ongoing management and maintenance of the facility. The consultation and engagement processes need to align with the final responsibilities that the community are expected to have.

The community engagement model used by Coffey – awareness raising, involvement in design and community awareness of the construction activity, was appropriate to the situation where construction was to be contracted out and ongoing management of the facility was the responsibility of the Dinkes, not a local management group. The planned use of locally based labour did not change the level of community engagement needed as the use of the local labour was as an income generation activity rather than as a way to enhance community commitment to the ongoing maintenance and operation of the facility.

Implementation of reconstruction activities. As part of the group discussions, the ICR team asked Puskesmas staff and community members how they would allocate a possible Rp 2 billion grant from AusAID for a future reconstruction activity. An immediate response from at least three groups was that they wanted AusAID to manage the reconstruction process. Further discussions indicated this preference was due to concerns about potential community friction over fund allocations, leakage of

²⁰ The workshop was attended by key Dinas Kesehatan officials/staff, representatives of relevant district agencies (Dinas, Public Works Agency, BPPD/Disaster Management Agency, Bappeda/Planning Agency), representatives of all Puskesmas, Heads of Sub-districts (Camats), Community Leaders (Wali Nagari), and Village Health Cadres (Kader Posyandu).

²¹ The purpose of the meeting served to inform community representatives and other stakeholders about key aspects of the Puskesmas construction including: building design and construction standards; costs; engagement protocols with stakeholders during the construction processes; and endorsement for the construction

²² Re-emphasised during the ICR team meeting with the Bupati of Padang District.

²³ At one Puskesmas (Kayu Tanam), the Puskesmas staff reported they had minimal contact with the construction sub-contractor and did not know who the site engineer for Coffey was. The new Puskesmas was being built in the centre of the old buildings being used as the temporary Puskesmas on the same site.

funds from the reconstruction efforts, and reduced construction quality without close supervision by experienced engineers.

3.1.4 Capacity Building

The ICR team acknowledges that during disaster reconstruction there needs to be compromise between the reconstruction and development elements of the activities through capacity building. Five major capacity building / training activities were well received and regarded as relevant.

Construction training for local labourers with the construction sub-contractors. To improve the effectiveness of the locally employed workers, training courses were developed and delivered by the Yayasan IDEP (funded through the AusAID supported AIFDR) and the Klinik Konstruksi. This provided hands-on training on-site for new and existing local labourers as well as for the more experienced construction workers recruited from Java. (also Section 3.2.5 on local workers)

Contractors reported that the training was worthwhile as it developed skills and, anecdotally suggested, that the workers took more notice of the outside trainers than the sub-contractor or his staff. There was some negative feedback²⁴ from contractors on the work time taken for training (1-2 hours per week attended by everyone on site).

The Coffey site engineers also provided some on-site training as work progressed. The training provided has not been documented.

HIV Awareness for construction workers. The NGO, PKBI²⁵, developed and led the HIV awareness activity and training. The activity was implemented by PKBI and three Puskesmas staff at each site. PKBI reported that the activity proved more challenging than similar activities elsewhere because of the mix of local workers (often friends or family) and the migrant workers from Java and other locations. The following table shows the number of participants.

Table 2 Participants in HIV / AIDS awareness training:

Peer Educater in 8 Location	Partial Workers in 8 Location		Coffey Staff
80 workers	Batch 1	208 Workers	23 staff
	Batch 2	180 Workers (6 location)	

Source: PKBI training report

This indicates that about 65 % of the contractors' construction teams participated (estimated total construction labour force of 560 workers²⁶ - although not all were on-site at any point in time). Puskesmas staff who participated in the training reported they found the training programme challenging but useful.

Disaster risk reduction. PKBI was contracted to develop and present a disaster risk reduction (DRR) management training for the Puskesmas. The report on the training prepared by the PKBI provides a comprehensive review of the training material preparation and delivery process and is presented in Annex 7. The three day training programme included training through 16 modules covering a wider range of material than most other DRR training activities and was tailored to the needs of the Puskesmas and Dinkes. Twenty six stakeholders participated in development of the training material. The following table summarises participation in the courses.

²⁴ The ICR team suggested this time could be compensated for by less poor quality work needing additional time to rectify.

²⁵ PKBI, Perkumpulan Keluarga Berencana Indonesia, West Sumatera - the Indonesia Planned Parenthood Association – West Sumatera Chapter

²⁶ Assuming about 70 workers employed by each contractor over the construction period.

Table 3 DRR Training Participation

Puskesmas	Participants			
	Puskesmas Staff	Community	Total	Female
Pauh Kamar	23	10	33	30
Sikabu	23	10	33	29
Batu Basa	27	8	35	24
Sungai Gerringing	22	10	32	28
Koto Bangko	16	13	29	19
Kampung Dalam	12	18	30	28
Padang Alai	22	10	32	24
Kayu Tanam	19	10	29	21
	164	89	253	203

Source: Final Draft Report: DRR Management Training of Health centre in Padang Pariaman Regency. PKBI West Sumatra 2011

During the field work, staff from at least two Puskesmas reported that they found the broader based approach to DRR training including treatment of likely injuries and of fire victim's very valuable experience. This broader training could be considered for future Puskesmas reconstruction activities.

ICR team questions on knowledge gained suggest that there are still misunderstandings on the strength of the building and what to do in an emergency. Limited passive (signage, awareness posters) DRR material was observed although part of the training program had been to develop this material.

Facility maintenance and technical training for Puskesmas staff. The Puskesmas' have been constructed using good quality and durable materials (quality reinforced concrete, steel purlins, zincalume colour-bonded roof sheeting, aluminium windows, ventilation panels and doors, ceramic tiles, etc.) which should minimize maintenance work. There is an outstanding issue regarding confirmation of the quality of the paint protection of the steel purlins which is being addressed by the consultants and contractor. Most materials are able to be procured locally facilitating maintenance if required. Equipment was purchased locally and can be serviced in Indonesia.

Planning for maintenance by the consultants has been thorough with each facility being provided with a bound set of As-Built Drawings, a maintenance manual, a tool kit for small maintenance works, and two sets of scaffolding to facilitate light bulb replacement and higher level cleaning and maintenance activities. Importantly all Puskesmas reported that 2 or 3 staff members had attended two or three maintenance training sessions. Areas where additional work or training could be useful include:

Water supply system: Site specific operational training on the water supply systems, particularly the transfer of water from the ground tanks to the elevated storage tanks is inadequate. Briefing and hands-on training on the sanitation system should include desludging.

Electrical system: Site specific training on the connection and operation of the emergency generator and familiarisation with the operation and fault finding in the earth leakage system and switch boards is also considered important. It was noted during the visits that many of the circuit breakers and switches were not clearly marked and no circuit diagrams were provided in, or adjacent to the electrical switchboards, to facilitate fault finding.

Use of PVC pipe: Non-ultra violet (UV) stabilised pipe has been used in exposed locations at the rear of the building and can deteriorate if it is exposed to direct sunlight where its life can be reduced to 5 or 6 years. Consequently the pipes need to be protected from the sunlight either by enclosing in a permanent cover or using a protective paint to extend their life.

Painting of concrete rather than off-form finishes: The specifications included more expensive formwork to provide a finish on the completed columns that does not need painting which in terms of life cycle costing it is likely to result in lower overall costs. However, all exposed concrete has been painted which will create challenges in painting particularly the external structure which is up to 11.5 metres above ground level.

Emergency shelter framework: Maintenance painting will be required to protect the emergency tent frame from rusting as it is stored in an exposed location outside.

Public health facility management. An innovative capacity building activity was the introduction of the Public Health Service Innovation Management (MIPP) and HHS (Hygiene, Health and Safety Training) activity using Puskesmas staff from the LOGICA2 (L2) program in Aceh. Two trainers from L2 and two Puskesmas heads from Aceh provided a two day training program for 32 heads of Puskesmas, Puskesmas staff and three representatives from Dinkes, in MIPP and HSS. The program included presentations by the Aceh Puskesmas heads, role plays of routine Puskesmas activities and general training. Feedback from most PPHFRP Puskesmas heads was very enthusiastic. This additional health facility management training was useful to most participants.

The training programme was a worthwhile innovation to move beyond the pure disaster focused reconstruction activity with supporting training (construction skills, DRR, maintenance) to the more long term focused aspect of making best use of a reconstructed facility.

Capacity to manage and use new maternity and emergency facilities. No specific refresher or upgrading training was provided on use of new medical facilities, particularly for the maternity and emergency treatment facilities. The ICR team could not find any references in the activity preparation documentation that the upgraded Puskesmas specification (understood to be Category 3, one level up from the Puskesmas being replaced) could not be staffed and managed with the existing skills of the Puskesmas staff. There is also no indication that the project director of the AIPMNHP during his inputs to the design process recommended this specialised training be included. The Dinkes has standards for the medical and nursing skills needed to operate Puskesmas rated to provide different service levels²⁷. During the ICR team field visits, no requests were made maternity and emergency response training nor was it suggested that this advanced training should be included in future reconstruction activities.

3.1.5 Employment of local workers

An AMC initiative was to encourage employment of local workers by the construction sub-contractors (also used in the School Reconstruction Program (SRP)). This potentially provides benefits including:

- Generates local income at a time when extra income is needed
- Strengthens links to the community and ownership
- Provides workers with additional skills useful at village level

Feedback during the ICR fieldwork was that the initiative had not been completely successful because:

- Local wages for skilled and unskilled workers were 20%-30 % higher than for Javanese construction workers who were often more experienced;
- The skills needed for two storey Puskesmas construction were greater than those needed for the schools reconstruction program;
- There were high expectations on the immediate capability of the local workers after training. Comments made during the fieldwork suggests that the construction contractors thought they

²⁷ For example at Sikabau, the Puskesmas was not permitted by Dinkes to handle maternity cases.

would subsequently be able to use the trained local staff in a similar capacity as the Javanese construction workers and,

- GoI compensation funding to local families whose houses had been destroyed became available during the construction period so local workers wanted to focus on rebuilding their own houses²⁸.

Overall, the initiative was only moderately successful, but the construction contractors did not raise any major objections to it. For future reconstruction projects, particularly where wage rates for alternative employment are closer to or lower than the benchmark wages²⁹ for Javanese building workers, the concept should be considered. To support this initiative, the on-site construction supervisor should direct more training effort to new local staff. A construction orientation training package (as used by SRP) would be useful.

3.2 Standard of Outputs

The new buildings are well constructed (subject to issues noted above) and meet all required earthquake standards. The equipment supplied was of adequate standard and, again in most cases, was what was required by the Puskesmas to implement their mandated functions. The distinctive form attracted favourable comments from all stakeholders who were very proud of the new building design and were maintaining the buildings well. A more detailed analysis is provided in the Infrastructure working paper (Annex 6).

Building structure. The buildings are two-storey with a square floor plan having an area of approximately 340 sq. m of useable space on the ground/first floor and 200 sq. m on the second floor. It has a stepped skillion roof from colour-bonded roof sheeting. An architectural feature of the building is a row of raking (8⁰) columns which extend from ground level to 11.5 m to support the top of the skillion. A weakness in the design is the use of heavy masonry for the sloping walls up high at the end of the skillion in lieu of lighter stud wall construction. Stud walls in this location would have allowed installation of high level venting which would have improved the natural ventilation.

Construction quality of the main structural elements appears to be good and should have a structural life in excess of the 30 years, if properly maintained.

Building layout. The new buildings are liked by the users who value the unique design. A more complete discussion on the design aspects is included in Section 2 of the Infrastructure working paper.

Although, the DED Team had discussions with Puskesmas staff before finalising the three proposed designs, discussions with the Puskesmas staff indicates that the layout, while solving some functional problems, has created other issues. This may have come about for several reasons which are elaborated in the Infrastructure working paper including that the DED team lacked experience in health infrastructure planning and design. While the ICR team believes that DED team contracted through PET performed satisfactorily on the engineering design, some of the layout shortcomings identified by end-users and the ICR may have been avoided if, more emphasis was given to detailed architectural design (DAD) compared with the DED in the technical assessment of the potential design engineers.

Aspects of the building design most liked by the end users included: the natural lighting with bright lights for night lighting; circulation for patients and staff is good; the high ceilings on the second floor; and, being consulted in the design process.

²⁸ This issue arose on the SRP but did not cause major disruptions.

²⁹ On the SRP in West Sumatra, wages rates on the schools reconstruction activity ranged from Rps.50-65,000 per day. At one SRP school in West Java, the comparison wage for farm labourers was Rps. 25-30,000 per day which made work for SRP very attractive.

While it was expedient and sensible in a disaster situation to use one design for all new Puskesmas independent of differing requirements at the different sites (as Dinkes appears to do even in normal times), a modular design would have allowed greater flexibility in adapting the facility to the differing needs / space requirements at different sites.

Toilet facilities. The new facilities include six toilets (2 for women, 2 for men, a separate toilet of the office of the Puskesmas director and a separate disabled person toilet on the ground floor). The standard GOI Puskesmas also has six toilets plus two urinals (3 for women, 3 for men plus two urinals) but with no disabled toilet.

UK health and workplace regulations³⁰, indicate that five toilets are sufficient for 76-100 staff, so excluding the Puskesmas director's toilet, the five toilets provided for mixed use can cater for 51 - 75 staff and patients. Department of Human Services, Victoria, guidelines³¹ for hospitals one disabled toilet is sufficient for up to 120 patients. Therefore the number of toilets and disabled toilets provided in the PPHFRP facilities exceed the recommended minimum requirements for such facilities.

Building details. Other design issues raised³² with the ICR team during the visits included (a more comprehensive list is provided in the Infrastructure working paper): a lack of eaves to prevent rain falling on waiting area and stairs creating a slip hazard; a lack of cross-ventilation or the provision of ceiling fans in the downstairs offices and clinics; the inability to be able to secure the building out of hours; the immunisation room is too small; hopper type windows opening out into the corridors present a potential injury hazard; and, the need for bird-proofing of fixed louvers in some locations;

There are no eaves to prevent rainwater falling on the public access area at the front of the building and the waiting area down the side, as well as on the stairs. The problem is exacerbated by the non-use of fully non-slip resistant tiles in these areas and throughout the building. The slip problem has been addressed by the provision of rubber matting to the main client circulation areas affected. Water ingress through the vents also occurs from rain flowing down the walls because there are no brows over the windows to deflect the water away from the opening.

Puskesmas equipment. All Puskesmas' staff reported that the equipment received had been up to standard and appropriate. Observations in all Puskesmas showed that most equipment was being used³³, including the dental treatment equipment. There were minimal mismatches reported between needs and equipment supplied. The equipment has been sourced in Indonesia so parts and service can be obtained within country. A more detailed discussion on the Puskesmas equipment is provided in the Infrastructure working paper Section 3.

Although the Puskesmas had been designed to function as emergency treatment facilities, petrol or diesel generators were not included in the procurement schedules possibly because seven out of the eight Puskesmas had small petrol operated generators provided by other donors or NGOs.

Each Puskesmas was supplied with a fully equipped³⁴ new ambulance. In six cases³⁵ this has complemented relatively new ambulances supplied by GoI. The ambulances are used for transporting

³⁰ UK Health and Safety Executive, Workplace Regulations, 1992, recommend that 5 toilets are sufficient to cater for 76-100 staff and patients under mixed use.

³¹ Department of Human Services, Victoria, Design guidelines for hospitals and day procedure centres, November 2004, recommends that for a 120 bed Hospital, one disabled toilet is sufficient.

³² Note, the Puskesmas staff were specifically asked about problems with the building – the listing should be seen as areas with potential for improvement rather than negatives about the PPHFRP.

³³ The main exception was in the two Puskesmas (Sikabu and Padang Alai) which were not providing neo-natal / baby delivery services as they were not certified to provide the services.

³⁴ Radios were fitted to all ambulances but did not have base stations at the Puskesmas to allow easy communications.

³⁵ In Pauh Kamar the old ambulance is not operational. At Sikabu, the Dinkes reallocated the old ambulance to another Puskesmas.

emergency maternity and general cases, transporting new mothers and the babies back to their villages and for implementing GoI / Dinkes health awareness and prevention programs.

The AMC is complimented for changing their equipment procurement procedures after possible collusion amongst tenderers to make a very significant savings (about A\$200,000) in the equipment procurement through the change from competitive tendering.

4 EFFICIENCY

Efficiency (High Priority)

Given the disaster response situation in which the PPHFRP was planned and the constrained resources which were available in the early planning and implementation stages, the implementation modality has made effective use of time and resources to achieve the objective. The lessons learned from implementing PPHFRP should provide guidance on where changes to future disaster responses should be made. The implementation modality has been designed to optimise value for money by limiting the inclusion of development rather than recovery /reconstruction activities in implementation. The major factor impacting on value for money was the decision to upgrade the design used to a larger, higher (GOI) rated facility.

4.1 Timeliness

The field visits and discussions indicated that while the construction program was slower than desired, only one other Puskesmas (constructed by Mercy Malaysia) was constructed and completed in the same period that the eight Puskesmas have been completed. The Dinkes and District government have not reconstructed any other Puskesmas and are currently mobilising funding to start on the first priority Puskesmas. Table 4 shows the relative construction times for the three recent reconstruction activities. 7-8 months is considered a reasonable construction period for a two-storey structure of the relative complexity of the Puskesmas.

There was no criticism of PPHFRP during the field visits on the time taken to complete the construction even though some Puskesmas staff were working in difficult conditions around the building sites.

Table 4 Comparison of Implementation Times

Project and Year	Location	Description	Construction Period (Mobilisation to Practical Completion ³⁶) (days)
PPHFR	West Sumatra	Puskesmas	Mean 273 days ³⁷ Minimum 210 days Maximum 375 days
SRP AusAID & USAID 2011	West Sumatra	Construction of single level primary schools and madrasah	Mean 203 days ¹ Minimum 170 days Maximum 245 days
NRP AusAID 2008	South Nias	Construction of single level district offices	More than 200 days (est.)

Sources: Consultant analysis and ICR reports for SRP and NRP.

Factors impacting on the design and construction timeline (each issue is discussed in more detail in other parts of the report and a more detailed listing and summary table is provided in the Infrastructure working paper) included:

- A lack of construction and contracting support³⁸ to the Health sector team while the response was being designed and documented. The need for independent technical advice to the Health

³⁶ 'Practical Completion' is defined as "fit to be used for its intended purpose" ie. the Puskesmas can be used for normal operations. At practical completion the construction contractor hands control of the site back to the owner (Coffey's/ AusAID/Dinkes). Practical completion also marks the start of the defects liability period.

³⁷ The first six Puskesmas were constructed in an average of 245 days, while the last two took an average of 360 days due to problems with the construction contractors. See Infrastructure working paper (Annex 5) for further details.

Sector team finally led to the independent engineering consultants TTW (structural design) with Floth (mechanical and electrical and plumbing (MEP) and WTP (quantity surveyors) being contracted to provide these services as the ETAC.

- The decision to rebuild more substantial Puskesmas buildings (60% larger in area than the standard GoI layout they replaced) to accommodate emergency and maternity services.
- Designing the upgraded Puskesmas to fit within the available space took much longer than if designs for the Puskesmas which had collapsed had been only upgraded to ensure their safety in earthquakes and minor layout changes had been made within the existing floor plan.
- Site clearance delays due to the District government not meeting their commitments.
- The supervision/monitoring processes created some time delays when issues identified during site visits by the ETAC were not resolved with the West Sumatra engineering team on-site.

4.2 Appropriateness

AusAID have assisted GoI to rebuild important primary health care facilities in Padang Pariaman. The District government has not been able to reconstruct other damaged Puskesmas³⁹.

As outlined above, the new Puskesmas have been built to provide more services (emergency and maternity) than the old Puskesmas they have replaced. The justification and needs analysis to support the Dinkes's request to upgrade the services provided at the Puskesmas was not available to the ICR team. When considered as a development project, this could have been a worthwhile objective. However, when considered as a disaster reconstruction activity, the decision to upgrade the Puskesmas design has led to a much more complex reconstruction activity⁴⁰ which also took longer.

4.3 Value for Money

The original budget for construction and procurement was A\$ 3,766,828 (see Annex 8). To date, A\$ 3,271,927 has been spent which is A\$90,000 below the revised construction and procurement budget of \$3,271,926. This reduction has come through savings in procurement (about A\$200,000) and in construction costs.

Details of the individual contracts are provided in Annex 5. Construction costs in Australia dollars have been reduced due to the strengthening of the Australian dollar against the Indonesian rupiah over the period of the contract⁴¹. The AMC also closely monitored costs.

4.3.1 Construction costs

The following table provides a summary of construction costs for reconstruction following the 2009 earthquake. The table shows that the costs per square metre were comparable to other post disaster health/education infrastructure with a small premium⁴² (10% -15% of unit construction costs) paid for the unique building design.

As part of a review of reconstruction costs for a range of buildings affected by the earthquake, the Klinik Konstruksi at Andalas University estimated average reconstruction costs as Rps. 3.0-Rp.3.2 million per square metre, Rps. 3.45 – Rps. 3.58 million in a 15 % contractor's margin is allowed. The Puskesmas at Ulakan built to current GoI designs is reported to have a similar budget to the PPHFRP but part of these costs would have been reimbursed to Dinkes and other stakeholders.

³⁸ The AusAID Health adviser is not a structural or civil engineer.

³⁹ This is similar to the SRP where the district governments were not able to arrange funding to rebuild all the damaged schools.

⁴⁰ This may have also have been exacerbated by the decision to contract Coffey to undertake the engineering design and construction management activity, which is not their core business.

⁴¹ The exchange rate in January 2010 was about Rps. 8,400; A\$. For most of 2011, the exchange rate was over Rps.9,000:A\$.

⁴² Based on team analysis and anecdotal information.

Table 5 Estimated Building Costs¹

Project and Year	Location	Description	Estimated Cost ¹ (Rps. million)	Mean Footprint (m ²)	Mean Unit Cost (Rps. Mill./m ²)	Mean Unit Cost (AUD/m ²) ⁴³
Puskesmas AusAID 2011	West Sumatra	PPHFR New two storey Puskesmas. Contractor	2,200	542	4.10 ²	456
Puskesmas at Ulakan, PP	West Sumatra	Dinkes two storey Puskesmas 2008 ³	1,300	320	4.10 ²	456
Review of post-earthquake reconstruction	West Sumatra	Based on review of actual reconstruction costs in West Sumatra ⁴			3.0 – 3.2 (3.45 – 3.68 with contractor margins)	333 – 356 (383 – 409)
Buddha Tzi Foundation SDN, SMP school	Pangalengan West Java	Large school with 20 + rooms plus multipurpose rooms and laboratories	7,000	1,500 (est.)	4.66 ⁵	518
NRP AusAID 2008	South Nias	Construction of single level sub-district offices	1,736	750 (est.)	2.31 ²	257
SDN School JICA – 2011	West Sumatra	Construction of multi-story primary school. Contractor	2,430	550 (Est.)	4.41 ⁵	491
SRP AusAID & USAID 2011	West Sumatra	Single story primary schools and one madrasah	1,564	650	2.40 ²	267

Note: 1. Consultants estimates from a range of sources. Estimated costs are for building only – Supervision and school/office/clinic equipment cost not included
 2. Based on final contract costs and includes contractor margins.
 3. This Puskesmas was not damaged by earthquake.
 4. Undertaken by Klinik Konstruksi, Andalas University (personal communication)
 Based on information provided by SRPMC.
 5. Consultants' estimates based on anecdotal information.

4.3.2 Management contractor costs

Analysis of the Coffey contract estimates indicate that PPHFRP AMC costs are about 27 % of the total contract value. This is similar to the SRP AMC costs (28 %) for the significantly larger (USD 15 million) compared to PPHFRP A\$ 4.80 million). A comparison with other construction contracts is provided in the following table. Program costs are set out in Annex 8.

Table 6 Estimated Management Contractor Costs

Project and Year	Location	Description	Proportion of Total Costs for Management and Technical Assistance
PPHFR	West Sumatra	Eight Puskesmas	27 % ¹
SRP AusAID & USAID 2011	West Sumatra, West Java	Construction of single level primary schools and five madrasah	28 % ²
NRP AusAID 2008	South Nias	Construction of single level sub-district offices	48 % ³
SDN School JICA - 2011	West Sumatra	Construction of single level primary school	10 % ⁴

Sources: 1. Consultant estimate 2. SRP ICR. 3. Nias Reconstruction Program draft ICR 2009 4. Personal comm. Mr Kase, JICA consultant

One difference between the PPHFRP and the SRP was that the SRP was managed by a full-time expatriate team supported by an experienced senior engineer. The SRP team had been working on the

⁴³ Based on an indicative exchange rate at February 2012: A\$ 1.0 = 9000 Rps

larger AusAID funded education sector program that had a major school construction component. The senior engineer in the SRP worked closely with the field engineers and had visited most of the field sites to check the sites and progress with the work. The PPHFRP team did not have team members experienced in construction of major health related facilities. Their experience was mainly with less complex reconstruction activities in Nias and Aceh.

4.3.3 Sub-contracting Arrangements

Coffey's adopted a two-step sub-contracting approach to the implementation of the Puskesmas. The first step involved the procurement of a sub-contractor to prepare the architectural and detailed engineering design of the Puskesmas. Following a local competitive bidding exercise CV PET of Banda Aceh was selected to prepare the detailed design and contract documentation for the Puskesmas. Following the approval of the design by AusAID and the GOI a second local competitive bidding procurement exercise was undertaken to select construction sub-contractors to build the eight Puskesmas. This resulted in the selection of six Padang or Sumatra based sub-contractors, with two contractors each being awarded two Puskesmas and the other four a single Puskesmas. Site supervision of the construction sub-contractors was undertaken by engineers employed directly by Coffey.

4.3.4 Financial and Economic Analysis

The Schools Reconstruction Program commissioned an Economic Impact study on other benefits that may have come from disaster reconstruction work⁴⁴. These analyses are based on assumptions⁴⁵ on the direct and indirect benefits that come from an activity. The SRP study suggested that the total multipliers on expenditure on inputs would be just under 3, the multiplier on the incomes spent locally would be 0.67. Employment multipliers would be about 2.5 (ie. extra work created for each person employed). Based on the estimated construction and procurement budget of A\$3.8 million, this indicates the total economic benefits (across Indonesia⁴⁶) affects may have been about A\$10.4 million.

The flow-on from wages would have been much lower because most of the construction workers came from outside the district so any income above basic daily living costs would be spent outside the region. The more complex construction method used for the reconstruction required more inputs (cement, reinforcing bar, window and door fittings) from outside the district.

In all cases, the flow-on economic benefits from reconstruction would be similar whether the reconstruction was funded and implemented by GOI or funded by Australia using Indonesia based contractor. The data in Table 5 indicates that if GOI or GOA funded construction of a similar sized facility, the unit costs should be similar so the economic flow-on benefits should be similar. However, the Australian budgets would include a margin to the Australian based managing contractors, reducing the economic and financial benefits retained in Indonesia.

4.4 Implementation

The activity has been implemented efficiently within the constraints of resources that could be quickly mobilised by AusAID and the managing contractor. As highlighted earlier, the AusAID health sector team responded to the disaster quickly and started up the reconstruction activity with no additional support resources and no engineering support. This situation slowly improved with the addition of ad hoc advice and resources to assist the Health Sector team until the ETAC was contracted in October 2010.

⁴⁴ School Reconstruction Program Economic Impact Study. May 2011. Undertaken for Cardno by an unacknowledged consultant.

⁴⁵ There are differences between economists on how to interpret the assumptions.

⁴⁶ As many of the materials were brought in from Java and other parts of Sumatera.

4.5 AusAID Management and Monitoring

The response to the 2009 earthquakes provided major challenges to the Health (and other) sector teams. After initial mobilisation of the response groups to Padang, processes to manage the agreed responses evolved within a major constraint of limited specialist technical advice being available (and readily contracted) on current period offers or other contracting arrangements.

Technical and management oversight. After the initial difficulties in the preparation phase, AusAID put in place a management structure (managing contractor to manage design, construction and other capacity building, and a technical team (ETAC) to supervise the engineering aspects) that should have minimised the workload on the AusAID Health Sector team.

However, for several reasons the AusAID activity management team were drawn into disagreements between the implementation and supervision teams. This came about firstly because the ETAC team was put in place well after the managing contractor started work so that some basic differences on designs and specifications were not resolved before construction started. Secondly, and possibly partially due to this initial lag, technical issues and problems identified during field visits were not always resolved in the field during the site visits.

All of the managing contractor's site supervision staff were contracted for the duration of the project and were not permanent employees of the MC, and did not have the delegation to commit resources on behalf of the managing contractor. Consequently, any site level discussions and decisions which had contract financial implications needed approval from managing contractor management based in Jakarta. A further issue may have been that the site supervision engineers were not experienced enough for the more sophisticated building techniques.

The final structure probably provided the correct balance of management and technical oversight (and suited the level of engineering skills of the managing contractor and their field staff) but unfortunately was not put in early enough to harmonise the managing contractor and ETAC views on the detailed design and specification documents.

5 SUSTAINABILITY

5.1 Local Government Engagement

At District level, the Bupati and Dinkes were very involved in the preparation and design phases assisting with site prioritization and selection, and leading the design and socialization.

Site Clearance. In the initial discussions with AusAID, the District government had committed to clear the sites ready for construction. In practice, sites needing heavy equipment for clearance⁴⁷ were not cleared. On only two sites, community labour was organised to complete the work.

This experience with site clearance is similar to that of the SRP where site clearance was more suited to manual labour as the destroyed schools were only single level. Despite commitments from all the affected district governments in West Sumatra to clear the school sites, most districts did not clear the sites so the AusAID managing contractor had to clear the sites before work could start. In several cases in West Sumatra, the district government allowed the community to keep⁴⁸ or reuse material they recovered from the cleared sites which encouraged community efforts.

⁴⁷ These were sites where the collapsed buildings were near new two storey structures which contained large quantities of reinforced concrete columns and slabs that are difficult to break up manually.

⁴⁸ An issue that complicated the clearance issue for the SRP was the treatment of the value of the destroyed schools in the GoI accounting systems. As government budget allocations for ongoing operations and maintenance are based on the book value of the assets, destroyed assets have to be written off (and approved by government auditors).

Discussions with the Dinkes indicated that the senior management was unaware of the importance of writing off the scrapped assets and including the new buildings in the District government asset register so that full budget allocations for building maintenance could be claimed.

Recurrent Funding. Because of the high standard of the structures, there should not be major maintenance costs in the short term. The increased floor area requires additional lighting. One Puskesmas (Pauh Kamar) reported that electricity costs has increased after moving into the new facility but they have been able to renegotiate their contract with the power supply company (PLN).

Discussions with Puskesmas management indicated that currently only Rps. 2-3 million is allocated for maintenance from the Rps. 65-70 million annual operating budgets allocated by Dinkes to each Puskesmas. Dinkes has increased the operating budgets from 2011 to 2012 but there is still a very limited allowance for maintenance and paying casual or contract cleaning staff and guards.

Several innovative Puskesmas management teams (including Sei Geringging) have commenced charging for some patient transport⁴⁹ with the income being used to pay some of the ambulance operating and driver costs. After paying a 15 % - 20 % fee to Dinkes, the remainder is retained for Puskesmas maintenance costs. Other Puskesmas had small or no recovery of costs from their ambulance services. The management teams highlighted how the ambulances greatly assisted public health awareness activities at village level.

5.2 Puskesmas Buildings

The Puskesmas structures have been built using materials that will require minimal ongoing maintenance. As noted earlier, the main maintenance issues will be with the water reticulation and sanitation systems and electrical wiring which will require specialised advice to repair any problems that arise plus later painting of the main structure.

More than half of Puskesmas do not have access to telephone landlines and Internet access so cannot use MoH / Dinkes online registration systems.

5.3 Institutional Capacity

As PPHFRP was largely a reconstruction activity, development or support to institutional capacity was not a high priority for program interventions. The training programs developed (DRR management, maintenance and Puskesmas management) have provided additional knowledge and skill that will help Puskesmas staff maintain and operate the new Puskesmas. Informal assessment of the additional knowledge and skills used by the Puskesmas staff indicated that knowledge and awareness has been increased but evacuation simulation activities⁵⁰ have not been repeated.

The Program included Dinkes staff in all capacity building activities but there were few indications that Dinkes would (or had the resources to) continue capacity building activities.

5.4 Future Emergency Response

The much stronger earthquake resistant structure will provide a safe haven⁵¹ for community members after any future earthquakes which will also provide shelter from extreme weather. The DRR training

⁴⁹ It was reported that the fees were being charged for longer distance trips when a taxi or public bus was not available. This would suggest, charging may only be applied to non-emergency trip. The feedback indicated that trips such as returning mothers and newborn babies to their villages were free.

⁵⁰ In all cases, the reason given for no further exercises was that they were only recommended to take place at three month intervals and were not due yet. Anecdotal feedback from one NGO (Mercy Corps) which had been active delivering DRR training (and participated in the design of the PPHFRP DRR management training package) was that there may have been an excess of DRR training provided by a range of providers.

⁵¹ Stakeholders reported that they had much greater confidence that the building would survive a future earthquake but were still not sure if they would stay in the building or leave it.

was reported as being useful but will require ongoing emergency exercises to ensure the appropriate response actions are implemented. There was no indication at the ICR team meetings that there has been any systematic development of disaster response activities focused around the new Puskesmas.

An innovation introduced by the managing contractor was to provide portable tubular steel frames and plastic tarpaulins for providing additional temporary shelter after a disaster.

6 CROSSCUTTING ISSUES

6.1 Gender and Disadvantaged Groups

The sensitization and socialization processes for the design and construction start-up phases included a range of stakeholders including women. The design of the new Puskesmas and supporting capacity building has taken account of issues impacting on disadvantaged groups including women. The facility design incorporates easy disabled access through ramps to all areas on the ground floor and a separate disabled toilet. The first floor rooms and areas are allocated to activities which disabled patients would not normally participate in.

As one of the main functions of the Puskesmas is to support MNH services, the facilities provide rooms for all the necessary services including delivery rooms, a small nursery room with a baby incubator and an immunisation room for delivering GoI immunisation programs. There was no feedback from the predominantly women staff on any design features that created issues for women patients. However at one Puskesmas, drawable curtains had been fitted around patients' beds in the emergency and birthing wards and in the immunisation clinic to provide privacy to patients during treatment.

The HIV/AIDS awareness activities documented in Section 3.1.4 covered more than 60 % of construction workers and provided training of trainer skills to Puskesmas staff.

6.2 Environmental Issues

Most environmental issues have been effectively addressed during design and implementation. Coffey sub-contracted GHD to provide an Environmental Impact Assessment (EIA) and an Environmental Management Plans (EMP) for each Puskesmas site prior to construction to guide implementation.

Asbestos containing materials (ACM). The AMC implemented an ACM management program for the site clearing activities which were mostly undertaken by the AMC with contract labour. The processes used were well documented (see Chapter 5 Annex in draft ACR).

Use of timber No timber has been included in the finished structures with only plywood and coconut wood used during the construction phase. All the alternative materials used are available in Indonesia for use in future similar buildings, if required.

Disposal of wastes. As documented in an earlier section, all Puskesmas waste water is being treated through a septic tank system with secondary anaerobic baffled reactor to minimise risks to the environment. Issues relating to disposal of solid medical wastes are covered in the Infrastructure working paper.

Ventilation. Natural ventilation was designed into the new structures to improve airflows and reduce the need for assisted ventilation with fans. The GoI designed Puskesmas also included high level windows in all rooms to facilitate airflows through the rooms⁵².

⁵² In the Ulakan Puskesmas, it was noted that most high level windows were not opened by staff to allow cross airflows.

Conceptually the idea was admirable but in practice, the design has not removed the need for electric fans in most areas. This is possibly due to two main factors. Vents were not installed in the top of the skillion ceiling / roof on the top floor to allow warm air to naturally vent out drawing new air into the building. The inside primary patient treatment rooms and the recovery and in-patients rooms and pharmacy dispensary on the lower level do not have any cross flow as there are no vents or high level windows in the dividing walls. Respondents in at least three Puskesmas reported that some of these rooms were also damp because of the limited airflows.

As raised earlier, the external wall vents allow water into the building during windy rain events.

6.3 Anti-corruption Measures

Coffey took several approaches to implement anti-corruption measures for the Program. These are documented in Section 10 of the draft ACR and included transparent tender processes, closely monitored payment schedules to sub-contractors and on-site monitoring by staff site engineers and supervisors. The ICR team found that these processes worked effectively⁵³.

7 MONITORING AND EVALUATION

Unlike the SRP, there was no formal program objectives with agreed outputs and outcomes to be monitored and evaluated through an M&E framework⁵⁴. In the managing contractor draft ACR, it was noted (page 4) – *‘The Padang program works under the umbrella of the AIPMNH and although it was primarily a response to a disaster event, its purpose was to restore improved, functional health service delivery in a number of devastated areas in Padang Pariaman’*.

Monitoring and reporting activities focused on the planning, implementation and progress against budget of the agreed construction, procurement and training activities set out in the SoS. There were no linkages shown between the PPHFRP activities and the lower level outputs and outcomes for the AIPMNH. A series of case studies (‘success stories’) were prepared in early 2012.

Coffey implemented an intensive daily and weekly reporting system including photos from each building site to the construction and program manager. These reports and site progress were checked through site visits by the AusAID ETAC engineers who made recommendations on how construction could be improved and issues that needed improvement or rectification⁵⁵.

The SoS did not specify that any evaluation information should be collected so there is no verifiable quantitative information now available to quantify changes in patient numbers and outcomes from the improved health facility. Given that Coffey had staff on each site, supervision staff moving between sites, and organised and managed several training activities across all the sites, M&E information could have been readily collated using the experience and systems from the AIPMNH activities.

Monitoring and management arrangements by AusAID are discussed in Section 4.5.

8 ANALYSIS AND LEARNING

AusAID has responded to five major disasters across Indonesia in the past 10 years (Aceh, Nias, Yogya, Papua and West Sumatra/West Java). The scale of the disasters, reasons for the GoA involvements and level of response/reconstruction inputs have varied but now provide an extensive range of experience and learning that could be incorporated into AusAID’s processes to operationalize the DRU’s responsibilities in disaster response.

⁵³ The equipment procurement process was changed when Coffey found evidence of collusion amongst tenderers.

⁵⁴ For SRP, a comprehensive M&E framework was developed and implemented providing extensive outcome, impact and lesson learned information which was incorporated into the ACR and final ICR.

⁵⁵ This process was complicated in the electrical and mechanical areas because there were not detailed design drawings to guide the contractors.

The response by GoA and AusAID to the West Sumatra / West Java disasters is possibly the first instance where AusAID has directed its response on sectors (primary schools and primary health care) in which it had already had major development activities in progress in other parts of Indonesia. The focus has been appropriate taking account of the field conditions⁵⁶.

However, reliance on AusAID Post Sector teams to lead the reconstruction support created challenges, particularly for the Health Sector team, because the main health sector program (AIPMNHP) did not have a major construction program and was not managed by an AMC with core engineering design and construction project management experience. These challenges were reinforced by the difficulties that the Health Sector team had mobilising specialist disaster response, contracting, design and engineering support skills and also additional administration resources to manage development of the response program while continuing supervision and management of their ongoing programs.

Coffey brought their experience in supporting the Aceh and Nias reconstruction activities which allowed them to quickly mobilise engineering staff with experience in sub-district level government infrastructure construction but was not experienced in designing and constructing more complex health infrastructure. Coffey successfully drew on its experience from Nias and Aceh in managing the procurement and construction processes but had to develop new processes and systems for reporting internally and to AusAID. These processes focused on the reconstruction / recovery activities with less emphasis on the issues impacting on the transition to development and monitoring and evaluation of development related aspects of the program such as outcomes and impacts on end-users.

⁵⁶ As evidenced by the large number of damaged schools in West Sumatra that had still not been reconstructed at the time of the SRP ICR and the damaged Puskesmas remaining in West Sumatra after PPHFRP has completed its construction program.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Overall Assessment

Impact

Within the constraints of a disaster reconstruction activity, the PPHFRP has constructed eight high quality, earthquake resistant Puskesmas that can provide an improved service to the households in the communities serviced by the Puskesmas'. Anecdotal feedback indicates that most of the Puskesmas are treating more patients and numbers are expected to continue to grow as staffing and operations are firmly established. All Puskesmas have the equipment they need to fulfil their mandated role.

The activity has provided a high profile for Australia and generated much goodwill at local level.

Table 7 provides the ICR team assessment against the AusAID program performance areas.

Table 7 ICR Evaluation Assessment of PPHFRP

Evaluation Criteria	Rating (1-6)
Relevance	6
Effectiveness	5
Efficiency	4
Sustainability	4
Gender Equality	4
Monitoring & Evaluation	4
Analysis and Learning	3
Impact	5

Rating scale: 6 = very high quality; Below 4 = less than satisfactory 1 = very low quality.

9.2 AusAID Key Questions

9.2.1 Progress Towards Objectives.

Activity objectives are not defined in the program documents. The ICR team has defined the objectives as: *“Eight priority Puskesmas reconstructed to agreed earthquake resistant standards ('built back better') and re-equipped to provide services to their communities”*

Health Care

- All stakeholders are pleased with the facilities and equipment provided
- Five of eight Puskesmas are now offering 24 hour service (depends on staff facilities)
- Evidence of increased staffing and increased patient numbers
- Working conditions have improved for staff
- Equipment provided was appropriate and is being used in Puskesmas authorised / trained to use it (exception is maternity ward equipment).

Construction

- The designs (form) are very distinctive and engender strong ownership
- The new layouts have improved some aspects of the standard MoH / Dinkes Puskesmas but have some disadvantages.
- The detailed structural drawings were clear leading to confident construction. However, the electrical designs were not detailed enough resulting in some cases to lesser quality work which had to be rectified, delaying completion.

- Overall, construction quality is generally very good. However there are some issues with finishing.
- The unique design has increased construction costs and will be difficult to replicate⁵⁷.
- Contractors reported no major construction implementation issues except for the payment basis (5% increments) that may have reduced contractor performance and delivery.
- Contractors reported fewer issues with the use of local labour than feedback from Puskesmas staff and community leaders. Lack of experience and skills was the main criticism of local labour which was also more expensive than workers brought from Java.

Socialisation and Training

- Initial socialisation was extensive including stakeholders at district, subdistrict and local level with community and religious leaders. However, there is little evidence of ongoing involvement / engagement to strengthen community and Dinkes ownership of the Puskesmas.
- DRR and management training was undertaken by range of stakeholders. Good response to DRR aspects but as it was undertaken late in the construction cycle, none of the responses indicated that evacuation simulations had been replicated.
- Construction training by the Klinik Konstruksi and from the construction engineers was valued by the contractors and contributed to improved quality. Contractors reported the workers were more receptive to training from outside specialists.
- Puskesmas management training activity (by Aceh Puskesmas staff) received mixed comments with some Puskesmas seeing it as valuable and seeking more inputs.
- HIV training was implemented. The service provider and Puskesmas staff who participated indicated that it was worthwhile, especially given the mix of local and migrant labour.
- The AMC provided basic training on operation of the water supply and sanitation systems, and, where necessary, on operation of the waste incinerators. However, more refresher training could have been provided after the Puskesmas were functioning to reinforce the basic training.
- There were no comments or requests from the Puskesmas staff met during the field visits for specialised health technical training on facility operation.

9.2.2 Appropriateness of the PPHFRP modality

- Within AusAID's procurement guidelines and consultant accessibility, and the need to respond quickly, the modality was appropriate – using a currently contracted AMC with sector technical knowledge to speed mobilisation and assist the AusAID sector program management team.
- An initial oversight led to a delay in contracting of the engineering technical advisory consultants (ETAC) to provide independent advice to AusAID. The ETAC was mobilised after the detailed design phase contributing to construction delays as their feedback on the detailed designs were prepared and addressed.
- Construction was slowed down in some cases by engineering supervision issues needing to be resolved in Jakarta, rather than on-site in West Sumatra during site visits.

9.2.3 Value for Money Achieved through the Contracting Approach and the Innovative Design

Construction costs. Preliminary research on unit costs indicates that the costs per square metre were comparable to other post disaster health/education infrastructure with a small premium (10% -15%) paid for the unique architectural design of the building. Puskesmas construction costs were about Rps. 4.1 million (A\$456) per square metre.

The Klinik Konstruksi estimated average disaster reconstruction costs in West Sumatra at Rps. 3.0- Rp.3.2 million per square metre (Rps.3.45 – Rps. 3.88 million if a 15 % contractor's margin is

⁵⁷ Some aspects of the form (eg. outward sloping columns and masonry walls) will affect future replicability of the design as, although safe as constructed, these are generally not recommended in an active seismic environment.

allowed). The Ulakan Puskesmas built to current GoI designs had a similar budget cost to the PPHFRP Puskesmas.

Design used. The distinctive design used resulted in slightly higher construction costs (10 – 15 % higher) compared with a conventional rectangular column and beam grid with gable roof construction. The more important issue is how the additional space in the building has been used, changes in functionality and problems with the ingress of rain and security.

While it was expedient and sensible in a disaster situation to use one design for all Puskesmas independent of need (as Dinkes appears to do even in normal times), a modular design would have allowed adaption to the differing needs / space at different sites.

Construction Period. Data collected during the study indicates the average construction period for the eight Puskesmas was about 273 days (11.2 months). The first 6 Puskesmas were constructed in about 8.2 months and the last two took an average of 12 months to complete due to difficulties with contractor performance. 7-8 months is considered a reasonable construction period for a two-storey structure of the relative complexity of the Puskesmas built by small local contractors.

Management contractor costs. The PPHFRP management and technical assistance costs are about 27 % of the total contract value. This is similar to costs on the SRP (28 %) which was significantly larger (USD15 million).

Performance of local sub-contractors. Advice provided to the ICR team indicated that;

- The procurement process led to selection of six best available sub-contractors with appropriate experience to undertake the works. Four were local and the other two were Sumatra based.
- The contractors interviewed reported that the procurement process was fair and transparent and the contract documentation clear. Sub-contractors reported that the quality control by Coffey was thorough although one reported delays due to the engineering supervision processes.
- The sub-contract payments in 5% increments of the works completed hampered contractors with cash flow problems.

Relationships with government and communities. There appears to have been limited interaction between the District government and Dinkes and the local community after the initial socialisation. Community engagement was encouraged during the reconstruction design phase but engagement was not sustained during the construction phase as construction implementation and management was not delegated to the district or sub-district governments unlike the schools reconstruction activity.

The community engagement model used by Coffey – awareness raising, involvement in design and community awareness of the construction activity, was appropriate to the situation where construction was to be contracted out and ongoing management of the facility was the responsibility of the Dinkes, not a local management group.

The planned use of locally based labour did not change the level of community engagement needed as the use of the local labour was as an income generation activity rather than as a way to enhance community commitment to the ongoing maintenance and operation of the facility.

As with the SRP, the District government did not meet its commitments on site clearance which had to be implemented by the managing contractor.

9.2.4 Resource Implication of Extending Current Health Sector Contractor to Undertake the Program

See later lessons learned section.

9.3 Recommendations for PPHFRP

These recommendations refer to the current program.

1. Building back better

The program has achieved the objective of building back better (earthquake resistance). The buildings were made 60 % larger than the Puskesmas they replaced due to a decision to upgrade the service level of the Puskesmas to include emergency and maternity services. This created land/site issues in some situations and increased construction and ongoing operating costs.

The new layout, while solving some functional problems, has created other issues. The ICR team's investigations of the design process indicate that there was very limited experience in health facility design capacity in the DED Consultant's team and the Coffey project team.

There are some outstanding construction issues that need to be resolved before Coffey completes work on the Puskesmas.

Recommendations:

R#1.1 Rectification works. Coffey ensure that all rectification works identified by TTW are completed before retention monies are refunded. This work should include, inter alia, supplying non-slip matting⁵⁸ for all walkway areas that may be affected by rain, and securing all water tanks, pipes and conduits against movement in earthquakes. A detailed list of these issues has already been provided to AusAID by the ICR team with a copy provided in Annex 9.

R#1.2 Recommended additional works. As discussed in the report there are some additional works that the ICR team recommend should be undertaken. These include installation of additional earth leakage detectors in the main circuit boards in each building. At Sikabu and other Puskesmas experiencing security problems, additional doors or security gates to prevent unauthorised access to inside the building should be installed.

R#1.3 (NEW) Refresher training on water supply and waste water facilities. If the managing contractor has continuing inputs to address the slippery floor issue, Coffey should organise and implement short refresher courses on the operation and maintenance of the water supply and waste management systems.

2. Handover of assets

The managing contractor with AusAID has commenced the handover processes however, the GOI counterparts, particularly Dinkes, are not aware of the importance of ensuring the transferred (and destroyed) assets are correctly recorded. Future GoI maintenance budgets are based on the approved asset values.

R#2 Handover of assets AusAID ensure that handover processes are implemented by: (i) TTW as monitoring contractor (ETAC); (ii) Coffey as managing contractor and responsible for the construction sub-contractors; and, (iii) Dinkes on behalf of the district governments. Coffey should provide certification to AusAID that the Puskesmas have been designed to the relevant Indonesian codes, standards and building regulations, and have been constructed reasonably in accordance with the designs.

3. Learning

The ICR team found Puskesmas management had valuable insights on the reconstruction program, Puskesmas designs, the capacity building activities and implementation of future reconstruction

⁵⁸ This recommendation was made based on the cost and significant disruption to ongoing use of a recommendation to replace the floor tiles with non-slip tiles. The managing contractor has advised that it is negotiating with AusAID to install non-slip tiles in major walkways which should provide a permanent improved solution.

activities These insights and experience would be a valuable contribution to the design of future disaster response/recovery activities and also the ongoing sector activities.

R#3 Wrap-up workshop AusAID, through Coffey, should arrange a 1-2 day participative workshop for the management of participating Puskesmas', Dinkes and the training providers to collate feedback on the program and the Puskesmas designs as they relate to future disaster reconstruction activities. Training refresher sessions on DRR and maintenance issues would be useful additional activities at the workshop. On-site specific training of staff on maintenance and operation of the water-supply system and emergency generator could be provided.

9.4 Lessons and Good Practice

9.4.1 Disaster response stage

Lesson 1 Recovery management approaches. AusAID through the DRU has developed processes and systems to provide immediate responses to disasters in Indonesia. Systems are not yet in place to develop, implement and manage recovery and reconstruction activities. The issue of links to overall development objectives and ongoing sector programs has also not been addressed and guidelines for future disasters developed.

Recommendation #LR.1 Review of AusAID disaster responses To guide the DRU and AusAID in developing systems to plan, implement and monitor disaster reconstruction activities, a desktop review of the completion reports for AusAID responses to the past five major Indonesian disasters should be undertaken to draw out common lessons learned and advise on future implementation modalities and processes. Limited field work would be required.

Resourcing and Management. This recommendation should be implemented by the DRU and will require the contracting of an experienced consultant for a four week period to undertake a largely desktop study. After the draft review and analysis is completed, discussions should be held with the main AusAID and GOI agency stakeholders to test the conclusions reached and develop recommendations for future actions. These discussions could be held through telephone conferences after discussion notes have been shared.

Recommendation #LR.2 Reconstruction tool kit Subject to the proposed review of AusAID disaster responses (Recommendation #LR.1 above), DRU consider developing a reconstruction / recovery toolkit of standard procedures, processes and documentation covering design principles, stakeholder consultation, procurement of expert services and goods, supervision, M&E, capacity building, financial systems and reporting that the selected recovery/reconstruction implementation consultant or contractor will use. The monitoring and financial reporting would link with AusAID systems. This toolkit would be developed to suit the range of contracting modalities that AusAID may use for disaster reconstruction,

The toolkit format and content could incorporate all of the following lessons.

Resourcing and Management. This recommendation, if agreed to f should be implemented by the DRU. It will require contracting of a consultant(s) with relevant experience for a period of about three months to: (i) meet with DRU staff and the relevant section in AusAID Canberra to clarify their requirements and agree on the information and tools needed for the kit; (ii) identify previous similar toolkits prepared for other disaster response units in the United Nations system, and Australian, New Zealand and Indonesian government disaster response / recovery units. Japan may also have useful examples; (iii) draft the modules of the toolkit; (iv) circulate the draft modules for comment after a presentation to AusAID; (v) finalise the modules; and, (vi) develop and implement a training of trainers package for introducing the toolkit to potential users and managers.

Lesson 2 *Reconstruction development objectives.* Disaster reconstruction projects need a clear development objective (not just reconstruction of the physical structure) supported by implementation of a M&E framework to provide a balanced focus on reconstruction and the supporting technical assistance needed to make the facility fully functional and providing improved services to its clients (which should be assessed).

Lesson 3 *Early access to high level technical and management advice.* At least until the AusAID sector team and DRR has finalised its contracting arrangements for implementing reconstruction/ recovery activities, the AusAID sector team needs high quality sector technical advice, particularly on reconstruction issues. AusAID, through the period (standing) offer processes⁵⁹ managed centrally from Canberra and/or consultant registers such as that implemented by the Indonesia Infrastructure Initiative⁶⁰ (IndII), ensure that experienced disaster response management, sector technical specialists and reconstruction consultants (including practical economists) are available for immediate mobilisation in response to a disaster. This may require addition of relevant categories of consultants (with necessary recruitment processes) and negotiations with IndII management on management fees for accessing and managing the IndII database.

Lesson 4 AusAID's contribution to and involvement in the transition from reconstruction and recovery to ongoing development will depend on the focus of its ongoing sector programs. The current AusAID health sector focus on MNH is less relevant to disaster reconstruction activities than the school's construction program under the Education Sector program.

9.4.2 Reconstruction Design and Implementation

Lesson 5 *Building back the same, better.* Post disaster reconstruction should be based on, in the absence of any substantiated advice to the contrary, current GoI designs (and building sizes), built back better to meet GoI standard earthquake resistance standards plus, where appropriate, with layouts and services modified to improve functionality within the same ground footprint.

Lesson 6 Facility staff and users, in addition to district level management, should contribute to development of the revised designs. This process should also include identification of equipment needs.

Lesson 7 Unique facility designs need a higher level of construction capacity and/or supervision than available for GoI funded infrastructure so are much less likely to be replicated. Conventional building designs should be the starting point.

Lesson 8 *Site clearance.* Agreement on the responsibility for, and then implementation of, site clearance creates problems and delays reconstruction activities. If an affected community cannot undertake the demolition / site clearance activities with manual labour so heavy equipment is required to undertake the work as occurred with some of the PPHFRP sites, AusAID should fund and undertake site clearance through its management contractor.

Lesson 9 *Reconstruction managing contractors.* The managing contractor for reconstruction activities should have core infrastructure design and construction management and supervision expertise with Indonesian experience. They also need experience in managing the initial functional and architectural layouts and designs of specialist infrastructure. Such firms should be available at short notice on a period offer. The decision to no longer use Imprest accounts, requiring the AMC to pre-fund reconstruction costs may further reduce the pool of potential contractors. Subject to the outcomes of the review recommended in #LR.1, AusAID contract experienced infrastructure design

⁵⁹ The current process to recruit new consultants for the AusAID standing offer database includes consultants to as with DRR activities.

⁶⁰ IndII is in the process of updating their database of consultants. IndII management has informally expressed interest in undertaking this function.

(including architectural) and construction management and supervision contractors to manage future reconstruction activities. If not available through existing period offers, IndII be contracted to add the agreed capability requirements to their consulting company recruitment database.

The AMC should use technical support from sector program management contractors or individual technical specialists to support the engineering contractor in the consultation process and to provide supporting technical assistance and training. This support should include a practical project economist who can ensure that benefit: cost analysis is used to assess spending.

The scale of this sector technical input will depend on the size of the disaster. For large disasters (for example: Aceh), this could be a sector based management contractor, for small disasters (for example Nias), this could be a 1-2 technical consultants retained by the engineering contractor. If appropriate expertise cannot be sourced from current Indonesia based (IndII) or Canberra based AusAID period offers, IndII / SMEC should be asked to add this expertise to their database.

Lesson 10 *Community engagement.* The community engagement model used when implementing a reconstruction activity should reflect the way the community facility will be managed after the new facility is handed over to its owners. In situations where the GoI (or other government) systems delegates responsibility for maintenance and operations to the community (as with primary schools), more comprehensive community engagement processes such awareness raising, involvement in design and community awareness of the construction activity, community construction supervision and close involvement in managing the construction process and budget is justified. For the Puskesmas where management responsibility stays with a district level organisation, the engagement process should focus on awareness raising and inclusion the design.

Lesson 11 Provincial based construction contractors can achieve good construction quality with on-site supervision by experienced site engineers supported by more experienced supervising engineers and focused training programs.

Lesson 12 *Construction contractor payments.* The (small) equal allocation of contract payments, particularly in the early stages is a constraint on construction progress. Also, the sub-contractors cannot take full advantage of bulk purchase discounts. The payment structure for progress payments to the building sub-contractor should take account of the costs of building materials needed at different stage of construction, for example, include partial or advance payment for materials on site which will be later incorporated into the permanent works. Subject to adequate anticorruption and funds management processes, contract payment schedules should more closely follow established Indonesian and Australian construction industry norms and procedures including advance payments. This may require increased bank guarantees as part of the tender processes.

Lesson 13 When simultaneous construction activities are planned, the benefits of having a small number of contractors should be considered to minimise demands on management.

Lesson 14 *WATSAN and electrical services.* Water and sanitation, and electrical services for health facilities are important for supporting operations. For future earthquake reconstruction activities, additional attention needs to be given to making the designs and layouts safe and resistant to future earthquakes. In addition to the initial basic introductory and orientation training, refresher operation and maintenance training should be scheduled 3-6 months after the facilities become operational and before the final handover. This refresher training would also ensure that any design or operational issues are understood, and where still the responsibility of the contractor, resolved, otherwise advice could be given on how the issue is managed.

Lesson 15 *Specialised technical training.* As indicated in Lesson 6, reconstruction and re-equipment support, should, preferably, be directed to rebuilding the same facility, better. This minimises the requirements for any additional technical training as the ongoing staff should have been trained by the responsible organisation to manage the facility as designed. AusAID should avoid adding additional capability to a facility to be reconstructed (for example by agreeing to rebuild to a higher category design). Providing refresher or upgrading technical operational skills is a development activity so should not be included in the design of initial reconstruction activities.

Lesson 16 Procurement of specialised equipment for facilities needs to be adapted to the needs of each facility through consultation with the staff of each facility. It is critical that such specialised equipment can be serviced and supported in Indonesia.

Lesson 17 *Employing local construction labour.* Although the use of local workers for the PPHFRP was not totally successful, the practice achieved good results in the SRP activity and generates local income at a time when extra income is needed; strengthens links to the community and ownership; and, provides workers with additional skills useful at village level. AusAID reconstruction activities should provide local workers with opportunities to work for reconstruction contractors. The on-site construction supervisor should direct more training effort to new local staff. A construction orientation training package⁶¹ (as used by SRP) would be useful.

Lesson 18 Communities prefer that AusAID (or its contractors) manage reconstruction activities because:

- GoA funded reconstruction is seen to be better quality
- AusAID management of the funds minimises community differences on how the funds should be spent and maximises the amount available for reconstruction.

10 IMPLEMENTATION AND RESOURCING OF RECOMMENDATIONS

10.1 Recommendations on PPHFRP

Coffey will be responsible for implementing the recommendations under their current budget and contracting arrangements.

10.2 Implementation of Recommendations on Future Disaster Reconstruction Activities

1. Recommendation #LR.1 Review of AusAID disaster responses

This recommendation should be implemented by the DRU and will require the contracting of an experienced consultant for a four week period to undertake a largely desktop study. After the draft review and analysis is completed, discussions should be held with the main AusAID and GOI agency stakeholders to test the conclusions reached and develop recommendations for future actions. These discussions could be held through telephone conferences after discussion notes have been shared.

2. Recommendation #LR.2 Reconstruction tool kit

This recommendation, if agreed to, should be implemented by the DRU. It will require contracting of a consultant(s) with relevant experience for a period of about six months to: (i) meet with DRU staff and the relevant section in AusAID Canberra to clarify their requirements and agree on the information and tools needed for the kit; (ii) identify previous similar toolkits prepared for other disaster response / recovery agencies and units in the United Nations system (particularly UNHCR, IRC and WFP), and Australian, New Zealand and Indonesian government disaster response /

⁶¹ This is to show the new workers what the final building will look like, how important structural elements will be built and highlight areas where attention to detail or skilled labour inputs are needed.

recovery units. Japan may also have useful examples.(iii) draft the modules of the toolkit; (iv) circulate the draft modules for comment after a presentation to AusAID; (v) finalise the modules; and, (vi) develop and implement a training of trainers package for introducing the toolkit to potential users and managers.