



Schools and Clinics

Construction and Refurbishment Program

Cooperative Agreement# 306-A-00-04-00529-00



Final Report

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Table of Contents

1. Introduction	1
1.1. Executive Summary	1
2. Program Reporting	3
3. Program Implementation	3
3.1 Program Start-up	3
3.2 Modification to the Cooperative Agreement	5
3.3 Site Winterization.....	5
3.4 Program Evaluation and Revised implementation Plan	6
3.5 Preparations for the Restart of Construction Activities.....	7
3.5.1 Staffing	7
3.5.2 Building Design Modifications and Clarifications	7
3.5.3 Construction Contractors	8
3.5.4 Re-opening of Sub Offices and Sites.....	9
3.6 Construction Progress	10
3.6.1 Overall Progress (Appendix 1, Site Progress by Sub Office)	10
3.6.2 Site Specific Problems	11
3.6.3 Replacement of Contractors for Poor Performance	11
3.7 Program Management Changes	12
3.8 Program Completion Plan	12
3.9 Site Status as of 30 November 2005.....	13
3.9.1 Contract Settlements	14
3.9.2 Site Close Down	14
4. Factors Affecting Program Implementation	14
4.1 Location of Sites in Mountainous, Remote Areas	14
4.2 Limited Pool of Qualified Contractors.....	15
4.3 Skilled and Unskilled Labor Shortages.....	15
4.4 Inflation and Escalating Material, Labor and Transportation Costs.....	15
4.5 Changes in CHF Program Management	15
4.6 Building Design Changes	15
4.7 Strained Relationship with Contractors	16
4.8 Winter Shut Down, Spring Start-up and Weather-related Delays	16
4.9 Security.....	16
5. Lessons Learned	16
6. List of Appendices	17
Appendix # 1 Site Progress by Sub Office, Monthly/Cumulative	17
Appendix # 2 Site Close Down Status Report and Photos of Completed Sites	17

1. Introduction

1.1. Executive Summary

On May 6, 2004 CHF International (CHF) was awarded Cooperative Agreement No. 306-A-00-04-005290-00 to provide support for USAID's Schools and Clinics Construction and Refurbishment Program for Afghanistan by constructing and refurbishing 132 schools and clinics in three regions of Afghanistan:

- Region 4, incorporating Ghazni, Zabol and Paktyka provinces;
- Region 12, incorporating the provinces of Badakhshan and Takhar; and
- Region 14, covering Bamiyan and Dai Kundi provinces.

Under USAID's Schools and Clinics Construction and Refurbishment Program, all program implementers were charged with preparing building designs according to requirements established by USAID and the Ministries of Public Health and Education. Implementers also were encouraged to hire Afghan construction contractors under fixed priced contracts.

CHF's Schools and Clinics Program was originally envisioned as a six-month program, ending on October 31, 2004. However, the protracted design and site verification and approval processes, budget parameters, the short construction season in the central and northern region and the technical and logistical challenges of constructing reinforced concrete buildings in mountainous, remote areas of the country made the original assignment and deadline for completion of construction activities unrealistic. Through ongoing discussions, CHF and USAID modified the timeframe for completion as well as the number and location of new construction and refurbishment sites assigned to CHF through three no cost modifications to the Cooperative Agreement.

CHF's final assignment included 60 sites located throughout the provinces of Badakhshan, Takhar and Bamiyan, as well as two school sites in both Dai Kundi and Ghazni provinces. Of the 60 sites, 29 were clinic sites and 31 were school sites, including eight refurbishments. Construction activities began on/about 15 August 2004 on 59 original sites, with the exception of five school refurbishment sites, three in Takhar province and two in Badakhshan province, that were assigned in May/June 2005 as replacement sites for three cancelled sites.



In October 2004 CHF's schools and clinics program management implemented a site winterization program, halting construction activities during the winter months, to avoid problems with concrete works and ensure construction quality in the face of cold temperatures and winter weather conditions. Work on all sites was stopped, and the sites were closed down and secured by 31 October 2004, after two-and-a-half months of construction activities.

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Final Programmatic Report*

CHF used the winterization period to reevaluate and revise the program staffing and implementation plan, in consultation with USAID, in anticipation of a restart of construction activities in spring 2005. Pursuant to two no cost modifications to the Cooperative Agreement (Nov 2004, June 2005), program activities were extended through 31 August 2005.

The spring 2005 restart of construction activities was delayed by an unusually severe winter followed by spring snow melt and heavy rains which caused flooding in many areas. Most contractors had mobilized on the sites by the end of April 2005. By May 2005 construction activities had resumed on all but four sites: two schools sites in Dai Kundi province which were not accessible until June 2005 and two clinic sites in Badakhshan province which were not accessible until July.

Construction activities continued through the summer. Site progress on most sites was inconsistent and affected by problems related to site location, building design and design changes, contractor capacity, construction cost increases and changes in CHF program management. Heavy rains in July slowed progress significantly on sites in Bamiyan and parts of Takhar province. Two sites in the Waras district of Bamiyan province were affected by security-related problems.

In August 2005 USAID requested revised program completion plans from schools and clinics program implementers and extended the deadline for program completion to 30 November 2005. The plan developed by CHF's technical team projected that one site would be completed by 31 August, 21 sites by 30 September, 31 sites by 31 October, three sites by 30 November and two sites by 15 December.

The projections were overly optimistic. CHF (and the contractors) underestimated the time required to build reinforced concrete structures in remote areas and overestimated the contractors' capacity to build this type of construction in a limited time frame. Fixed price contracts, increased construction costs and budget limitations prevented contractors from hiring extra workers to speed progress. The observance of Ramadan slowed the pace of work in October, and many contractors did not return to the sites after the Eid holiday break, November 3 – 9, 2005.

By 30 November 2005, after ten-and-a-half months of construction activities over a 19-month period, CHF had completed and handed over nine sites: two new schools sites in Ghazni province, five refurbishments in Badakhshan province and two refurbishments in Takhar province. One basic health clinic in the Punjab district of Bamiyan province was in the final phase of the handover process at the end of November. Of the remaining 50 sites, 26 sites are between 94% - 100% completed, 13 sites are 84% - 93% completed, 4 sites are 70% - 83% completed and 7 sites are 40% - 69% completed.

CHF International made a concerted effort to complete all 60 sites by 30 November 2005 by investing \$269,000 of its own funds to implement a completion program and cover construction cost overruns and increased administrative costs related to the 13-month program extension. CHF further demonstrated its commitment to completing the schools and clinics assignment by submitting a proposal to complete construction and handover of unfinished sites in 2006 under a

cost extension to the Cooperative Agreement. The proposed program implementation strategy and plan was designed to overcome some of major obstacles that impeded construction progress and undermined construction activities during the 2005 construction season. USAID did not approve the proposal.

2. Program Reporting

In addition to the reporting requirements specified in the Cooperative Agreement, USAID schools and clinics program management required the submission of bi-weekly site status reports, as well as regular meetings with USAID and IRD program monitoring staff to discuss issues affecting construction activities. Beginning in January/February 2005, meetings were held on a bi-weekly basis and CHF provided an additional detailed site status report by sub office.

3. Program Implementation

3.1 Program Start-up



CHF's original Cooperative Agreement (Award No. 306-A-00-04-005290-00) included an assignment of 132 school and clinic sites, both new constructions and refurbishments, located in three regions of Afghanistan: Region 4, incorporating Ghazni, Zabol and Paktyka provinces; Region 12, incorporating the provinces of Badakhshan and Takhar; and Region 14, covering Bamiyan and Dai Kundi provinces. The program completion deadline was 31 October 2004.

CHF initiated program start-up activities immediately after receiving the award, with a program management and technical team comprising 16 CHF International staff and expatriate contractors drawn from Australia Red R. Start-up activities included:

- preparing and obtaining approval of building designs from the Ministries of Public Health and Education and USAID,
- verifying site locations, conducting site assessments,
- obtaining final site approval from the Ministries of Public Health and Education and USAID,
- hiring and training Afghan administrative and site monitoring staff,
- establishing four sub offices in the provinces of Takhar, Badakhshan and Bamiyan (two offices in Bamiyan province), and
- selecting Afghan construction contractors through an open, transparent tender process.

CHF's implementation schedule was delayed from the start, with protracted and cumbersome design, site verification and approval processes. CHF's building designs and the majority of sites were not approved until the end of July/early August 2004.

More significantly, the number and composition of CHF's original site assignment changed significantly during the site approval process, with all Afghan ministries refocusing on new

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Final Programmatic Report*

construction rather than refurbishments. The Ministries of Public Health and Education elected to reduce the number of refurbishments in favor of new constructions. The Ministry of Health eliminated all refurbishments in favor of building new basic and comprehensive clinics. The Ministry of Education reduced the total number of school refurbishments and eliminated all mud-brick refurbishments in favor of new constructions. As a result, CHF's assignment was reduced from 132 to 103 sites.

The number was further reduced to 68 sites in June 2004, when CHF's schools and clinics program management, with USAID approval, postponed indefinitely site assessment and follow-on activities on 35 of 37 sites in Region 4 due to the unpredictable and deteriorating security situation in the region. The remaining 68 sites were submitted to USAID for final approval and tenders were issued.

Reevaluation of the \$6.9 million budgeted in the cooperative agreement for construction costs and fees limited the number of sites CHF was able to contract to 59. Construction contract prices were higher than proposal estimates and did not account for the following:

- addition of (higher cost) Comprehensive Health Clinics (CHCs)
- the removal of all clinic refurbishments in favor of the construction of new basic and comprehensive health clinics at a 4:1 ratio a reduction in the number of primary school refurbishments and a corresponding increase in the number of primary school new constructions
- the inclusion of pitched roofs on all new constructions and terrazzo floor tiles in all new clinic buildings

The difference between estimated costs and actual contracted costs for new schools and clinics were as follows:

- Basic Health Clinic (BHC) – estimated cost, \$70,560; average contract price, \$87,202;
- Comprehensive Health Clinic (CHC)* – estimated cost \$70,560; average contract price, \$146,852;
- New School – estimated cost, \$130,000; average contract price, \$152,667
- School Refurbishment – estimated cost, \$25,000; average contract price, \$26,445

* USAID had instructed program implementers to use the same cost estimates for both CHCs and BHCs in their proposals

At the end of start-up activities and by mid-August 2004, CHF had commenced construction on 59 sites: 22 BHC sites (4 in Badakhshan province, 6 in Bamiyan province, 12 in Takhar province); 8 CHC sites (1 in Badakhshan province, 5 in Bamiyan province and 2 in Takhar province); 24 new school sites (3 in Badakhshan province, 10 in Bamiyan province, 7 in Takhar province, 2 in Dai Kundi province and 2 in Ghazni province); and 5 refurbishment sites in Badakhshan province.

During program start-up, Site support and monitoring activities were provided by expatriate and Afghan engineers working out of four sub offices in Faizabad, Badkahshan province; Taluqon, Takhar province; Bamiyan, Bamiyan province; and the Punjab district of Bamiyan province. The Punjab sub office was responsible for oversight of sites in the Punjab and Waras districts of

*CHF Schools and Clinics Construction and Refurbishment Program
Final Programmatic Report*

Bamiyan province, as well as two school sites in Dai Kundi province. The two school sites in Ghazni were monitored by staff from the CHF Kabul office. Each sub office included an expatriate manager and Afghan engineer/site monitors, each responsible for monitoring 2-3 sites. To encourage community support and participation, a community liaison officer was assigned to each sub office and site observers from the community hired at each location.

3.2 Modification to the Cooperative Agreement

By August 2004 it was apparent that changes in site assignments, building designs and specifications and associated costs required substantive changes to the Cooperative Agreements of program implementers.

In early August 2004 USAID requested that schools and clinics program implementers submit revised proposals reflecting changes in building priorities, designs and specifications, the cost implications of the changes and an adjusted timeline for completion of the program. Proposals were submitted on August 16, 2004. At the end of September 2004, CHF was asked to revise its submission and develop a no cost extension proposal that included only those items and specifications that were referenced in the Cooperative Agreement, excluding all design and construction specification and equipment procurement changes that were added after the signing of the Cooperative Agreement.

On October 4, 2004, CHF submitted a proposal for the completion of 66 sites by August 31, 2005. The proposal was based on two key assumptions: that the cost of the seven additional sites over and above the 59 contracted sites would be covered by reducing the price of all outstanding construction contracts by the removal of terrazzo floor tiles from clinic specifications and pitched roofs from clinic and school specifications and that the implementation would include winterization, with a close down of sites on October 31, 2004 and a resumption of construction activities in the spring 2005.



On November 1, 2004 USAID approved a no cost extension to the Cooperative Agreement through January 31, 2005, with the understanding that USAID would evaluate CHF's program performance in January 2005 in order to determine whether to approve an extension through August 31, 2005, as requested.

3.3 Site Winterization

Because of the location of CHF's sites in the central and northern regions of Afghanistan, many at higher elevations, the construction season is only six months long. Cold temperatures and winter weather conditions normally set in by late October, slowing or preventing construction activities,

*CHF Schools and Clinics Construction and Refurbishment Program
Final Programmatic Report*

adversely affecting construction quality, especially concrete works, and blocking access to sites. In response to these conditions, the CHF schools and clinics program management and technical team developed a contingency plan to close down sites during the winter months where weather conditions would limit access to sites and/or prevent or adversely affect construction activities and construction quality.

Pursuant to the plan, sites were evaluated during the last week in October by sub office technical staff according to specific criteria related to the stage of construction completed. Sites were then closed down and secured to preserve the work completed in anticipation of a resumption of construction activities in the spring. Arrangements were made with communities to provide security for the sites during the winter.

By early November 2004, construction activities on all but five sites was closed down, materials and equipment removed and the sites secured. Work continued at the two new school construction sites in Ghazni province (S090 and S091A) because of their more southern location and at three school refurbishment sites in Badakhshan province (S03A, S007 and S011A) because work was nearly completed.

Work at one comprehensive clinic site in Bamiyan province (C062A) was stopped indefinitely due to a land dispute. Work on two school refurbishment sites (S008 and S009) in Badakhshan province had also stopped; site S008 had sustained earthquake damage; site S009 was a mud brick building and therefore not eligible for refurbishment under the program. At the start of the winterization period, replacements sites were under consideration.

3.4 Program Evaluation and Revised implementation Plan

The decision to stop construction and winterize almost all construction sites by the end of October 2004 was controversial given the pressures to complete the program and, as it turned out, the relatively mild October and November temperatures. In hindsight, construction activities could have continued on some sites through November, particularly those located in Takhar province at lower elevations. The better option would have been a more selective shut down of sites, allowing construction activities to continue on less weather/temperature-affected sites for as long as possible, without jeopardizing construction quality.

The winterization period allowed CHF to reevaluate the program implementation strategy and to plan for and make much needed staffing changes. Operations and staff were significantly downsized in November 2004 and a formal program review and evaluation was undertaken in December led by an experienced team from CHF International. Among the key findings was overstaffing of administrative and support positions, poor communication between program management in Kabul and sub office management and technical teams, inadequate or unclear building designs and specifications, inadequate training of site monitoring personnel, and the need for better communication with and support to contactors. In consultation with USAID, CHF elected to change the schools and clinics program management and technical team and revise the program implementation strategy to address deficiencies and improve overall program performance.

In addition to a new program management and technical team, the revised implementation plan also included:

- A reduction in the overall number of program support staff and expatriate personnel;
- An increase in the number of Afghan site engineers and supervisors;
- Intensive training of CHF site engineers and supervisors;
- Revision of internal communication and reporting procedures;
- Modification of the roof design on school and clinic buildings;
- Revision of site plans, drawings and specifications; and
- Regular work progress meetings with contractors.

Based on the revised implementation strategy, plan and budget, CHF was granted a no cost extension of the schools and clinics Cooperative Agreement through August 31, 2005.

3.5 Preparations for the Restart of Construction Activities

3.5.1 Staffing

By mid February 2005 the new program management and technical team was in place and included an expatriate Program Manager, Program Administrator, Chief Technical Engineer and program restart consultant, as well as an Afghan Chief Inspection Engineer. By March 1, 2005 CHF had completed the hiring and training of all sub office site monitoring and administrative staff. Under the revised plan, each sub office was headed by an Afghan Supervisor/Engineer responsible for sub office operations, overseeing sub office Site-Engineers, liaising with provincial authorities and site status reporting with the support of the sub office Administrative Officer. Site-Engineers were responsible for monitoring 2-3 sites according to specific site monitoring protocols.

3.5.2 Building Design Modifications and Clarifications

The rapid program start-up and numerous changes in building priorities and specifications required by the ministries during the initial program start-up lead to gaps and inconsistencies in CHF's building designs, specifications and drawings. In an effort to fill in the gaps and clarify inconsistencies, CHF's program management and technical team, in consultation with USAID schools and clinics program management and CHF Supervisor/Engineers, updated the designs and specifications. Changes and revisions were resubmitted and approved by USAID.

Before the restart of construction activities, CHF also proposed a modification to the truss roof design for both schools and clinics. The original roof design was comprised of a pitched sheet metal roof constructed of timber rafters and battens on top of a reinforced concrete roof slab. The new design called for the removal of the pitched sheet metal roof and the addition of lightweight concrete to the roof slab to create a 5% slope and a single-ply isogum membrane to waterproof the roof.

*CHF Schools and Clinics Construction and Refurbishment Program
Final Programmatic Report*

The simplified construction system was intended to be more cost effective, reduce the risk of faulty workmanship and save construction time. With the expected cost savings from implementation of the new design, CHF proposed to refurbish or construct additional schools and clinics. CHF originally estimated that the total cost savings from implementation of the modified design on 21 schools, 7 comprehensive health clinics (CHCs) and 22 basic health clinics (BHCs) would be approximately \$246,000; an average of \$8,300 for each school; \$4,000 for each comprehensive health clinic (CHC) and \$2,000 for each basic health clinic (BHC).

In April 2005 the Ministry of Education approved the modified roof design. However, in May the Ministry of Public Health did not approve the modified design for basic and comprehensive health clinics. USAID subsequently instructed CHF to use any cost savings derived from installation of the modified roof design on new schools to purchase school furniture and furnishings. CHF anticipated savings of approximately \$174,300 on outstanding contractual obligations.

Implementation of the new design did not result in the expected cost savings. Increased materials and transportation costs eliminated any cost savings when the roofs were actually constructed.

3.5.3 Construction Contractors

During program start-up, contractors were selected through an open and transparent tender process. CHF made a concerted effort to open the process not only to Kabul-based contractors, but also to qualified regional and smaller contractors. In fact, Bamiyan provincial authorities insisted that the process include local and regional contractors. Final contractor selection included both Kabul-based and regional contractors. As it turned out, the regionally-based contractors that were selected had less capacity and did not perform as well.

When the school and clinic sites were closed down and secured at the end of October 2004, contractors were paid for the percentage of work completed on each site pursuant to the lump-sum, fixed-price contracts negotiated in July/August 2004. Contractor performance during the initial program start-up had been acceptable, but uneven; the overall site work progress percentage at winter close down was approximately 30%. Rather than terminate the contracts and re-tender the sites, CHF elected to suspend the contracts with existing contractors and amend them in the spring to reflect revised restart and completion dates. Part of the reason for maintaining the existing contracts was to lock in construction costs. All available funds for construction activities under the Cooperative Agreement had been allocated under the construction contracts, and CHF did not want to renegotiate contract prices with new contractors.



CHF's program evaluation in December highlighted the need to improve communication and support to contractors, especially those with less capacity. Toward that end, in February 2005 in preparation for the restart of construction activities, CHF met with all contractors to identify and

clarify gaps and inconsistencies in building designs, drawings and specifications. In addition, all contractors were provided with templates for the preparation of individual site mobilization plans, staffing plans and construction schedules. Construction contracts were amended to include:

- revised site restart and completion dates;
- a revised payment schedule based on work progress and percentage completion of specific works;
- revised payment procedures; incentive payments for early completion of the works;
- penalty provisions for late completion; and
- clarification of provisions related to “extra work” and site monitoring procedures and requirements.

In mid-March meetings were held with individual contractors to discuss the timetable for reopening the sites and to review site mobilization and staffing plans and construction schedules. Contractors also were presented with a set of revised designs, drawings and specifications for their sites. Contractors were instructed to mobilize on sites by the middle-end of March 2005 and contract end dates were amended to July 31, 2005, after which penalties for late completion would be assessed.

3.5.4 Re-opening of Sub Offices and Sites

The record winter snowfall of 2004-2005 in the northern and central regions of Afghanistan was followed by heavy spring rains. The snow melt and the rain combined to cause severe flooding in many provinces, washing away or closing roads and bridges. Flooding was especially severe in parts of Bamiyan, Badakhshan and Dai Kundi provinces. The weather conditions slowed or delayed the expected start of construction activities by at least one month on most sites, two months on sites located in the Punjab and Waras districts of Bamiyan province, as well as Dai Kundi and northern Badakhshan.

Sub offices were reopened and staff deployed during March and early April 2005. The Punjab sub office was not accessible until early April due to flooding in the region. Sub office site engineers reopened and assessed sites on a rolling basis as they became accessible in preparation for contractor mobilization on the site.

At the restart of construction activities, CHF had 29 school sites under assignment, including three completed refurbishment sites in Badakhshan province waiting for certificates of substantial completion (S03A; S007; and S011A); two refurbishment sites in Badakhshan (S008 and S009) for which replacement sites were later approved; and one site in the Waras district of Bamiyan province (S055A) that was recommended for cancellation, and eventually cancelled, due to technical problems associated with the site location and building orientation on a steep slope.

Thirty clinic sites also were under construction, including one comprehensive health clinic site in Yakawlang, Bamiyan province, where work was suspended in August 2004 due to a land dispute (C062A). The site was eventually cancelled (April 19, 2005) and replaced in May 2005 with three school refurbishment sites in Takhar province (S355, S360 and S361), revising CHF’s site assignment to 29 clinic sites and 31 school sites.

*CHF Schools and Clinics Construction and Refurbishment Program
Final Programmatic Report*

By late April contractors had started work on 16 schools sites: two in Badakhshan; six in Takhar; six in Bamiyan; and the two sites in Ghazni province. Work also had started on eight clinic sites: one in Badakhshan, one in Bamiyan, and six in Takhar province. By early May work had started on 20 school sites and 22 clinic sites. By the end of May work had started on all sites except for two clinic sites in Badakhshan province that reopened only in July 2005 (C002 and C004); two school sites in Dai Kundi province (S370 and S371) that reopened in June; and five replacement refurbishment sites in Badakhshan (S008 and S009) and Takhar (S355, S360 and S361) that were tendered in June and work started at the end of June 2005.

3.6 Construction Progress

3.6.1 Overall Progress (Appendix 1, Site Progress by Sub Office)

Construction progress across all sites was uneven after the restart of construction activities. In general work progress on sites located in Badakhshan and Takhar provinces was significantly better than sites located in Bamiyan province. At the end of the program, total progress of Takhar sites was 95.4%; Badakhshan sites, 89.7%; sites covered by the Punjab sub office, 84.3% and sites in Bamiyan province covered by the Bamiyan sub office, 78.1%. The two school sites located in Ghazni province were completed and handed over largely because their more southern location allowed construction activities to continue into December 2004 before being closed down for the winter. These sites also reopened earlier than the other sites.



A review of the average monthly work progress for sites indicates that the sites in Badakhshan province demonstrated better progress with a monthly average of 9.4%, this despite the delayed restart on three of eight new construction sites because of weather-related access problems. The monthly average for sites covered by the Punjab office was 8.65%, even though six of 12 sites had late restarts due to weather-related access problems. Takhar sites averaged 8.3% per month and sites covered by the Bamiyan office in Bamiyan province averaged a low 6.2% progress per month. Despite the lower

average monthly progress, Takhar sites had a greater completion percentage because the construction season in Takhar was at least one month longer. The majority of the sites in Takhar were located at lower elevations, more accessible and less affected by bad weather. Skilled labor was also more available in Takhar and materials and transportation costs were lower.

The lower work progress percentage in Bamiyan province can be explained by a number of factors including: site location and weather-related access problems; a lack of skilled labor in the region; and the lack of capacity of contractors on these sites. All sites in Bamiyan province were located at higher elevations and most in remote areas with limited access. Weather-related access problems and higher than anticipated materials, labor and transportation costs slowed construction activities throughout the construction season. In addition, Bamiyan contractors did not have

sufficient resources or capacity to overcome the challenges of constructing reinforced concrete buildings in these remote locations.

3.6.2 Site Specific Problems

Some sites encountered specific problems that slowed or stopped construction activities during the 2005 construction season. Construction did not restart on two sites after the winterization period, C062A in Bamiyan and S055A in the Waras district of Bamiyan province. Work had stopped in August 2004 on clinic site C062A due to a land dispute, and the site was eventually cancelled and replaced with three school refurbishments in Takhar. School site S055A also eventually was cancelled because of technical problems stemming from the location of the site and building on a steep slope.

School site S001A encountered technical problems due to the site and building's location on a steep slope. Work on the site stopped for more than two months while CHF and USAID agreed on an alternative design that would compensate for the slope. Work was also temporarily stopped on clinic site C355 in Takhar province from April – July 2005 because of a land dispute that was ultimately resolved through the intervention of provincial and ministry-level authorities.

Construction progress on two clinic sites in the Waras district of Bamiyan province was slowed and eventually stopped for more than two months because of security issues. An initial work stoppage occurred on sites C059 and C060 in June 2005 because the contractor had not paid local laborers and suppliers for over six months. It was discovered that the local commander was extorting money from the contractor. CHF terminated the construction contracts, paid the contractor's debts to the community and hired a new contractor to finish the sites. The replacement contractor was threatened and blocked from entering the site by the local commander and refused to return to the sites. Provincial authorities eventually intervened and new contractors were hired, but only after construction activities had been stopped for more than two months.

3.6.3 Replacement of Contractors for Poor Performance

During the 2005 construction season, CHF replaced the original contractors on eight sites for poor performance, five clinic sites (C057, C059, C060, C061 and C062) and three school sites (S090, S091 and S048). Seven of the eight sites were located in Bamiyan province, including five clinic sites, four of which were located in the remote districts of Punjab and Waras.

As noted above, two different replacement contractors were hired for sites C059 and C060 because of security-related issues, and CHF elected to use a direct-build approach for site C061 after no qualified replacement contractor could be found.

CHF replaced the contractors on the two Ghazni sites (S090 and S091) in June 2005 to address deficiencies in the truss roof construction and finishing work cited by USAID/IRD monitors. The contractor on school site S048 in Bamiyan was replaced in September 2005.

*CHF Schools and Clinics Construction and Refurbishment Program
Final Programmatic Report*

The process of terminating contracts, selecting replacement contractors and site remobilization delayed construction on these sites by 1-3 months because of the location of the sites and difficulty finding qualified replacement contractors willing to take over the sites.

3.7 Program Management Changes

In May 2005 CHF brought in a new program manager and chief technical engineer to replace CHF staff whose contractual commitments were fulfilled. The new program manager left at the end of May because of concerns for his personal security. An interim program manager was hired in June and by the end of September 2005, a new program manager with extensive Afghanistan construction experience was brought in, along with a team of three CHF International construction managers to help complete the program. The lack of program management continuity and consistent supervision of staff and systems affected program implementation and CHF's ability to establish an effective partnership with contractors to address and overcome problems related to design changes, escalating construction costs and extra work claims, which ultimately undermined program completion efforts.

3.8 Program Completion Plan

By early August 2005 it was clear that CHF, as well as other schools and clinics program implementers, would not complete construction and handover activities by August 31, 2005. On August 6, USAID informed program implementers that construction activities could continue, where feasible, through November 2005 in order to complete and handover as many sites as possible. Implementers were requested to prepare a revised program description and budget detailing how the work would be completed on the unfinished sites, including projected completion and handover dates and a site completion strategy.

CHF prepared projections based on a construction schedule of 11 weeks after the pouring of the roof slab for clinic sites and nine to ten weeks after the pouring of the roof slab for school sites. Based on this formula, CHF projected that one site would be completed by August 31; 21 sites by September 30; 31 sites by October 31; three sites by November 30; and two sites by December 15.



CHF developed a site completion strategy for each site that included increasing site supervision by CHF staff, requiring contractors to hire additional skilled labor and/or subcontractors to complete the finishing work, and replacing poor performing contractors with new contractors. Based on the program completion plan and revised budget, CHF's Cooperative Agreement was extended through November 30, 2005.

The completion strategy was not as effective as anticipated. By mid-September, it was too late to replace poor performing contractors given the time required to select and mobilize replacement

*CHF Schools and Clinics Construction and Refurbishment Program
Final Programmatic Report*

contractors on sites. Contractors were resistant to hiring additional workers or subcontractors claiming they did not have funds, and CHF did not have the capacity or financial resources to take over the sites under a direct-build strategy.

CHF also elected to waive the imposition of contractual penalty provisions for two months, until October 1, 2005. It was anticipated that the partial waiver would demonstrate good faith and motivate contractors to focus on getting the work done and applying additional resources to improve work progress. In fact, the partial waiver had little or no effect in motivating contractors and many later indicated that they would not have allowed penalty deductions from their contracts.

CHF's revised budget provided no flexibility to cover contractor construction cost overruns and factored in contractor penalties for slow performance to cover administrative costs beyond September 30, 2005. At the time of the submission of the program completion proposals, USAID indicated that additional funds would not be available and implementers were encouraged to contribute their own funds to complete the program.

In the end CHF's site completion projections were overly optimistic for a number of reasons. CHF underestimated the time required to build reinforced concrete structures in remote areas and overestimated the contractors' capacity to build this type of construction in a limited timeframe. Budget limitations and fixed price contracts provided no flexibility for providing additional incentives or resources to increase work progress. As noted above, contract incentive and penalty provisions provided little or no motivation for contractors.

The completion strategy was also affected by the observance of Ramadan (October 4 - November 2, 2005) and the Eid holidays (November 3 - 5). Work progress slowed on many sites during October. Contractors left the sites at the end of October for the Eid holiday break, and many did not remobilize on the sites after the break as expected. Work restarted only briefly on 28 sites.

Even assuming that contractors returned to the sites in November to complete the works, particularly those in Takhar province, 11 of which were more than 98% completed, the lengthy handover process would not have been completed by the end of November. The process included site inspection by IRD monitors, issuance of a punch list of items to be rectified, rectification of the punch list items by contractors, final inspection by IRD, USAID and Ministry representatives, and formal handover of the site. The time required to complete the process was 1-4 months.

3.9 Site Status as of 30 November 2005

By 30 November 2005, after ten-and-a-half months of construction activities over a 19-month program period, CHF had completed and handed over nine sites; two new schools sites in Ghazni province, five refurbishments in Badakhshan province and two refurbishments in Takhar province. One basic health clinic in the Punjab district of Bamiyan province is in the final phase of the handover process. Of the remaining 50 sites, 26 sites are between 94% - 100% completed; 13 sites are 84% - 93% completed; 4 sites are 70% - 83% completed and 7 sites are 40% - 69% completed.

3.9.1 Contract Settlements

As noted above, there was little or no construction progress on sites during the month of November, except for four sites in Bamiyan and one in Takhar. Contractors left the sites at the end of October for the Eid holiday observance (2 - 5 November) and failed to remobilize on the sites, as expected. Contractors instead demanded collective negotiations with CHF to settle a variety of extra work claims related to design changes, as well as additional payments to cover increased costs incurred for labor, materials and transportation over the 16-month contract period.

Budget limitations and fixed priced contracts allowed for little or no flexibility in meeting contract demands. Contractors lodged complaints with the Ministry of Economy and USAID and threatened to refuse to relinquish custody of sites under construction. Negotiations were protracted and continued through much of November. Ultimately CHF International provided over \$269,000 of its own funds to settle the outstanding claims. The maximum settlement for BHC sites was \$13,000; CHC sites, \$16,500; and schools sites, \$15,500.

3.9.2 Site Close Down

During the last two weeks in November CHF staff closed down and secured all unfinished sites according to a site close down plan and checklist developed by CHF and approved by USAID. The close down included meetings with provincial authorities and communities to assure them that USAID would complete the sites in 2006. CHF and USAID/IRD monitoring teams inspected all closed down sites by December 1, 2005, generating a final scope of work for each site.

Appendix #2 includes a Site Close Down Status Report for unfinished sites detailing the percentage of work completed; scope of work to be completed; and close down status.

4. Factors Affecting Program Implementation

After reviewing the implementation and results of the 2004 – 2005 schools and clinics activity, CHF has identified a number of factors and obstacles that undermined our efforts and impeded completion of the schools and clinics assignment. They are summarized below.

4.1 Location of Sites in Mountainous, Remote Areas

The majority of CHF sites are located in mountainous, remote areas. Many contractors did not anticipate the cost, time and difficulty of transporting materials and resources to the sites. Some contractors had to build temporary roads or bridges to gain access to sites.

Sites located on steep slopes required considerable extra cut and fill and stone masonry work. Although contractors were required to visit the sites before preparing and submitting their bids, most did not.

4.2 Limited Pool of Qualified Contractors

In an effort to open the tender and contractor selection process to regional and smaller contractors, CHF selected some contractors that did not have the financial and/or technical resources to do the work. This was particularly true with the contractors selected to work in Bamiyan province, most of which performed poorly. The time pressure imposed to select contractors and start construction activities quickly did not allow for adequate evaluation of contractor capacity. In addition, the original building designs requiring construction of a reinforced concrete roof slab and columns were beyond the capacity of many contractors. This type of construction requires experienced construction managers and skilled labor, as well as an additional 2 – 3 months to complete the work.

4.3 Skilled and Unskilled Labor Shortages

The lack of skilled labor available in the regions had a significant impact on the program, particularly because the building design required more skilled labor than is customary in Afghanistan construction. The lack of skilled labor affected construction quality and costs and slowed construction progress. In cases where skilled labor could be found, skilled laborers refused to work at some of the more remote sites or demanded premium pay.

4.4 Inflation and Escalating Material, Labor and Transportation Costs

During the course of program implementation, the cost of materials (particularly cement and rebar), labor and transportation increased by 50% - 100%. Many contractors did not factor in cost increases in their bids, which led to problems on the site and during contract settlement negotiations.

4.5 Changes in CHF Program Management

Finding and keeping qualified management and technical staff willing to work in the harsh and sometimes dangerous environment of Afghanistan and travel to remote sites proved extremely difficult. During the course of program implementation, CHF had a total of five program managers. Management changes affected every aspect of program implementation including building designs, construction standards, contract management and the relationship with contractors. The lack of continuity had a negative impact on staff, contractors and overall program implementation.

4.6 Building Design Changes

During the program start-up, CHF's original building designs were developed in a short period of time to meet the program's original implementation targets. As a result, ambiguities occurred in the designs that later required revision and clarification, causing confusion, construction delays and cost increases to contractors.

4.7 Strained Relationship with Contractors

During program implementation, CHF did not develop a strong and supportive working relationship with construction contractors or provide sufficient support for those contractors with limited capacity. A sense of partnership between CHF program management, the CHF site monitoring team and the contractors was lacking, creating misunderstandings and tension.

4.8 Winter Shut Down, Spring Start-up and Weather-related Delays

The site winterization program implemented at the end of October 2004 prematurely halted construction activities on some sites. Although contractors agreed to the site close down, many complained later that the close down cost them valuable time and money. Work could have continued on some sites in Takhar province, particularly those located at lower elevations.



In the provinces of Badkashan, Bamiyan and Dai Kundi, record flooding caused by snowmelt and spring rains delayed the restart of construction activities by one to two months. Roads and bridges were destroyed and some sites remained inaccessible until June or July. In some cases contractors had mobilized on sites only to have workers stranded at the sites without materials or other resources when heavy rains and flooding closed access.

4.9 Security

Security problems on two clinic sites in the Waras district of Bamiyan province, C059 and C060, prevented completion of the sites. A local commander extorted money from the construction contractor who was then unable to pay local laborers or suppliers. Members of the community blocked access to the site, demanding payment. After negotiations with the community and contractor, CHF terminated the construction contracts, paid the contractor's debts to the community and hired a new contractor to finish the sites. The local commander prevented the replacement contractor from entering the site at gun point. Provincial authorities later intervened, but two months of construction time was lost.

5. Lessons Learned

Concrete insights into implementing construction activities in the Afghanistan context can be gleaned from the factors identified in the previous section, which affected CHF's ability to complete the schools and clinics assignment by November 30, 2005.

It is vital to have complete and clear building designs from the start of construction activities. Meetings should be held with all and each contractor to ensure the designs and specifications are understood.

Secondly, the implementation plan must include a contingency for cost increases, taking into consideration the likelihood of unanticipated costs related to working in remote, weather-affected areas.

In addition, three key lessons have emerged from CHF's experience:

- 1) Maintain consistent, experienced program management;
- 2) Establish a strong and supportive partnership with Afghan contractors that have demonstrated capacity to get the job done; and
- 3) Create a culturally appropriate incentive system through a combination of financial and "reputational" carrots and sticks that will motivate partner contractors to reach required and new standards of performance and construction quality.

6. List of Appendices

Appendix # 1 Site Progress by Sub Office, Monthly/Cumulative

Appendix # 2 Site Close Down Status Report and Photos of Completed Sites

Summary of Site Progress by Sub Office 2004-2005

Province	Monthly Avg Progress 2005	Progress in 2004	Progress in 2005	Total Progress
Badakhshan	9.4	30.1	58.3	89.7
Bamiyan	6.2	29.4	48.7	78.1
Punjab	8.6	31.4	52.9	84.3
Ghazni	2.0	94.0	6.0	100.0
Takhar	8.3	30.1	65.2	95.4

Site Progress, Badakhshan Sub Office

	Project Code	Province	District	Location	Percentage of Progress								Monthly Avg Progress 2005	Progress in 2004	Progress in 2005	Total Progress
					April	May	June	July	Aug	Sept	Oct	Nov				
1	C002A	Badakhshan	Ragstan	Zeraki	--	--	--	4.2	18.5	21.1	12.8	--	14.15	27.7	56.6	84.3
2	C004A	Badakhshan	Sheghnan	Do Ab	--	--	--	4.4	14.6	23.7	18.3	--	15.25	32.3	61.0	93.3
3	C005A	Badakhshan	Yamgan	Yamgan	1.1	2.2	8.5	6.5	9.6	17.9	13.0	0.3	7.39	31.9	59.1	91.0
4	C009	Badakhshan	Jurm Khash	Sahran	3.3	5.2	10.3	7.1	10.5	15.1	4.6	0.7	7.10	41.0	56.8	97.8
5	C011A	Badakhshan	Shahri B.	Khurda Kan	--	6.7	10.0	5.3	6.3	18.6	3.0	1.9	7.40	42.2	51.8	94.0
6	S001A	Badakhshan	Argo	Chakbadel	4.9	9.3	8.9	7.5	2.8	7.5	1.2	0.15	5.29	11.2	42.3	53.5
7	S002A	Badakhshan	Baharak	N. Barahak	6.1	14.5	8.6	10.7	5.4	16.0	12.8	--	10.58	20.0	74.1	94.1
8	S003A	Badakhshan	Faizabad	Kokoca R.												100.0
9	S004A	Badakhshan	Faizabad	Zukor Chata	1.6	7.7	7.7	10.0	14.4	20.3	2.1	0.7	8.05	34.6	64.4	99.0
10	S007	Badakhshan	Kesham	G. Qul												100.0
11	S008	Badakhshan	Kesham	J. S. Baba	--	--	--	25.0	36.0	39.0	--	--	33.33	0.0	100.0	100.0
12	S009	Badakhshan	Kesham	Namaz Gah	--	--	--	25.0	20.0	55.0	--	--	33.33	0.0	100.0	100.0
13	S011A	Badakhshan	Baharak	Sari Shar												100.0

Monthly average progress for 8 sites in 2005	9.4		
Annual average progress for 8 sites, 2004 and 2005		30.1	58.3
Total average progress for 8 sites			89.7

Note:

The average does not include refurbishment sites

Note:

Work progress percentage includes the percentage of work completed on all structures on the site: main building; guard house; and lavatories. The SCP program management team revised the measurement of work progress on April 1, 2005. Previously, work progress was measured by the percentage of work completed on the main building.

Site Progress, Punjab Sub Office

	Project Code	Province	District	Location	Percentage of Progress								Monthly Average Progress 2005	Progress in 2004	Progress in 2005	Total Progress
					April	May	June	July	Aug	Sept	Oct	Nov				
1	C054	Bamiyan	Punjab	Kafsh Hub	5.2	9.7	16.3	1.9	18.9	16.2	0.36	0.1	8.58	31.3	68.7	100.0
2	C055A	Bamiyan	Punjab	Zardsang	--	0.7	1.9	7.4	18.5	9.5	22.6	0.0	8.66	34.4	60.6	95.0
3	C056	Bamiyan	Punjab	Ghurgury	--	--	5.3	10.5	11.7	17.83	12.9	0	10.59	45.9	52.9	98.8
4	C057	Bamiyan	Punjab	Mohor	--	--	--	1	5	19.6	16.2	0	8.36	23.3	41.8	65.1
5	C058	Bamiyan	Punjab	Akhzarat	5.2	3.9	13.13	2.3	5.4	27	7.4	0	8.04	32.7	64.3	97.0
6	C059	Bamiyan	Waras	Takht	1.9	6.2	5	0.1	--	6	18.8	3.7	5.96	19.3	41.7	61.0
7	C060	Bamiyan	Waras	Bandekosa	6.2	2.9	6.4	0.5	--	--	20.2	0.7	6.15	22.4	36.9	59.3
8	C061	Bamiyan	Waras	Sultan Robat	5.6	6.7	1.1	1.8	1.3	15.1	2.4	0	4.25	32.1	34.0	66.1
9	S046B	Bamiyan	Punjab	Kakrak	1.4	8.37	17.1	10.8	9.2	7.3	22.6	--	10.97	22.6	76.8	99.4
10	S047	Bamiyan	Punjab	Akhzarat	--	9.75	12.1	8.6	12.9	7.5	15.4	0	9.46	23.3	66.3	89.6
11	S055A	Bamiyan	Waras	Jawqol	--	--	--	--	--	--	--	--		6	0.0	
12	S370	Dai Kundi	Dai Kundi	Sang Takht	--	--	--	12.29	14.26	13.2	18.2	--	14.49	36.1	58.0	94.1
13	S371	Dai Kundi	Dai Kundi	Sang Mum	--	--	--	--	7.75	10.1	14.5	0.7	8.26	53.0	33.1	86.1

Monthly average progress for 12 sites in 2005	8.65			
Annual average progress for 12 sites, 2004 and 2005		31.4	52.9	
Total average progress for 12 sites				84.3

Note:

#1 Construction work was completed on C054. Final handover is in progress.

#11 Construction activities did not resume on S055A. The site was cancelled due to technical problems

Note:

Work progress percentage includes the percentage of work completed on all structures on the site: main building; guard house; and lavatories. The SCP program management team revised the measurement of work progress in April 1, 2005. Previously, work progress was measured by the percentage of work completed on the main building.

Site Progress, Takhar Sub Office

	Project Code	Province	District	Location	Percentage of Progress								Monthly Average Progress 2005	Progress in 2004	Progress in 2005	Total Progress
					April	May	June	July	Aug	Sept	Oct	Nov				
1	C352A	Takhar	Chal	Khanqa	3.1	20.4	3.4	12.4	6.8	19.3	4.5	0.0	8.74	19.0	69.9	88.9
2	C353	Takhar	Versage	Trasht	0.7	7.3	7.8	10.2	4.2	23.3	2.1	0.0	6.95	38.5	55.6	94.1
3	C354	Takhar	Versage	Mayanshar	0.8	0.9	13.9	8.7	8.1	19.8	7.2	0.0	7.43	38.6	59.4	98.0
4	C355	Takhar	M. Sokhota	M. Sokhota	0.2	--	--	5.5	16.6	26.2	15.5	0.2	10.70	20.5	64.2	84.7
5	C356	Takhar	Kan-namak	T. Khana	8.3	10.0	2.2	18.7	6.7	18.3	2.3	0.0	8.31	27.1	66.5	93.6
6	C357	Takhar	Kalaighan	Toroqe	1.4	10.7	12.6	4.5	5.6	15.6	5.4	0.0	6.98	42.2	55.8	98.0
7	C358	Takhar	Farkhar	Tuyudarrah	0.8	7.3	12.9	2.9	13.4	12.1	6.4	0.0	6.98	42.2	55.8	98.0
8	C359	Takhar	Chayab	Khalyan	1.7	10.2	11.8	1.2	15.3	15.2	4.2	0.0	7.45	40.2	59.6	99.8
9	C360	Takhar	Chayab	Samtey	9.4	1.1	0.7	11.4	11.1	5.2	19.1	0.0	7.25	33.2	58.0	91.2
10	C361	Takhar	Bengie	Saiyab	12.3	21.9	3.2	4.1	6.4	6.1	9.5	1.4	8.11	33.1	64.9	98.0
11	C362	Takhar	Khwaja Ghar	Zard Kamar	9.3	7.5	5.9	13.2	10.4	11.6	6.5	0.5	8.11	33.1	64.9	98.0
12	C363	Takhar	Yangiqala	Jelga	17.9	19.1	0.4	1.7	22.6	8.7	3.9	0.1	9.30	25.3	74.4	99.7
13	C365	Takhar	Rostaq	Abe Asiaban	12.3	10.2	12.6	4.2	11.7	15.3	3.1	0.0	8.68	28.8	69.4	98.2
14	C366	Takhar	Rostaq	Gorgan	7.8	4.7	11.1	10.1	16.5	18.1	6.5	0.0	9.35	23.2	74.8	98.0
15	S351A	Takhar	Baharak	Bibi Kan	10.0	7.0	6.3	11.0	4.8	13.1	7.9	1.8	7.74	37.6	61.9	99.5
16	S352	Takhar	Khwaja Ghar	Hazarat Aumar	12.0	15.1	5.3	11.6	8.6	12.7	4.2	0.3	8.72	23.8	69.8	93.5
17	S353	Takhar	Rostaq	Subhani	5.7	20.2	7.4	3.2	10.3	16.1	6.4	0.5	8.73	28.7	69.9	98.6
18	S354	Takhar	Farkhar	M. Jalaluden	3.8	8.0	13.0	5.7	11.8	22.9	9.9	0.0	9.39	22.2	75.1	97.3
19	S355	Takhar	Farkhar	Farkhar	--	--	--	3.0	34.0	17.0	14.2	2.0	14.05	22.6	70.2	92.8
20	S355A	Takhar	Farkhar	Samemi S.	6.0	0.6	3.1	7.7	15.4	18.9	5.9	0.6	7.28	36.9	58.2	95.1
21	S355B	Takhar	Markaz	Samemi S.	9.7	10.4	10.9	5.2	16.6	18.9	6.4	0.0	9.76	17.0	78.1	95.1
22	S358B	Takhar	Baharak	S. N. Shahid	3.3	11.8	10.7	6.1	14.6	9.7	6.2	1.8	8.03	21.7	64.2	85.9
23	S360	Takhar	Taluqan City	Saray Sang	--	--	--	7.0	49.0	44.0	--	0.0	25.00	0.0	100.0	100
24	S361	Takhar	Taluqan City	Joy Sheikh	--	--	--	8.3	24.7	67.0	--	11.0	27.75	-11.0	111.0	100

Monthly average progress for 24 sites in 2005	8.3		
Annual average progress for 24 sites, 2004 and 2005		30.1	65.2
Total average progress for 24 sites			95.4

Note:

The average does not include refurbishment sites

Note:

Work progress percentage includes the percentage of work completed on all structures on the site: main building; guard house; and lavatories. The SCP program management team revised the measurement of work progress in April 1, 2005. Previously, work progress was measured by the percentage of work completed on the main building.

Completed Sites

Refurbishment Site S360, Taluqan City - Takhar





Completed Sites

New Construction S091, Ghazni City - Ghazni





Completed Sites

New Construction S090, Ghazni City – Ghazni





Completed Sites

Refurbishment Site S011A, Baharak - Badakhshan





Completed Sites

Refurbishment Site S009, Kesham - Badakhshan





Completed Sites

Refurbishment Site S008, Keshem - Badakhshan





Complete Sites

Refurbishment Site S007, Gandom Oul- Badakhshan





Completed Sites

Refurbishment Site S003A, Faizabad - Badakhshan





Completed Sites
Refurbishment Site S361, Taluqan City - Takhar



