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The World Bank

Report No: ICR00001207

IMPLEMENTATION COMPLETION AND RESULTS REPORT  
(Loan No.: IBRD-47550)

ON A

LOAN

IN THE AMOUNT OF US\$220 MILLION

TO THE

ISLAMIC REPUBLIC OF IRAN

FOR THE

BAM EARTHQUAKE EMERGENCY RECONSTRUCTION PROJECT

July 26, 2010

Sustainable Development Department  
Middle East Country Department  
Middle East and North Africa Region

## CURRENCY EQUIVALENTS

(Exchange Rate Effective June 9, 2010)  
Currency Unit = Iranian Rial (IR)  
1.00 = US\$ 0.000104  
US\$ 1.00 = 9,600

## FISCAL YEAR

March 21 -- March 20

## ABBREVIATIONS AND ACRONYMS

|       |   |
|-------|---|
| BEERP | Bam Earthquake Emergency Reconstruction Project       |
| BGPTF | Bam Guidance and Policy Task Force                    |
| BRO   | Bam Reconstruction Office                             |
| BPTF  | Bam Provincial Task Force                             |
| DO    | Development Objective                                 |
| EERP  | Earthquake Emergency Recovery Project                 |
| ERL   | Emergency Recovery Loan                               |
| GOI   | Government of Iran                                    |
| HF    | Housing Foundation of the Islamic Revolution          |
| IBRD  | International Bank for Reconstruction and Development |
| ICHTO | Iranian Cultural Heritage and Tourism Organization    |
| ISR   | Implementation Status Report                          |
| IRCS  | Iranian Red Crescent Society                          |
| IRI   | Islamic Republic of Iran                              |
| IP    | Implementation Performance                            |
| ISA   | International Standards on Auditing                   |
| ITC   | Iran Telecommunications Company                       |
| KTC   | Kerman Telecommunications Company                     |
| MOE   | Ministry of Education                                 |
| MOEAF | Ministry of Economic Affairs and Finance              |
| MOHME | Ministry of Health and Medical Education              |
| MOI   | Ministry of Interior                                  |
| MICT  | Ministry of Information and Communications Technology |
| MORT  | Ministry of Roads and Transportation                  |
| MPO   | Management and Planning Organization                  |
| NGO   | Non-Governmental Organization                         |
| TCI   | Telecommunication Company of Iran                     |
| QAG   | Quality Assurance Group                               |
| QEA   | Quality at Entry                                      |

|                                  |
|----------------------------------|
| Vice President: Shamshad Akhtar  |
| Country Director: Hedi Larbi     |
| Sector Manager: Anna M. Bjerde   |
| Project Team Leader: Soraya Goga |
| ICR Team Leader: Soraya Goga     |

**Islamic Republic of Iran**  
**Bam Earthquake Emergency Reconstruction Project**

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MAP



| <b>A. Basic Information</b>                                |                           |                   |   |
|--|---------------------------|-------------------|---|
| Country:   | Iran, Islamic Republic of | Project Name:     | BAM EARTHQUAKE EMERGENCY RECONSTRUCTION PROJECT |
| Project ID:  | P088060                   | L/C/TF Number(s): | IBRD-47550                                      |
| ICR Date:  | 07/29/2010                | ICR Type:         | Core ICR  |
| Lending Instrument:  | ERL                       | Borrower:         | ISLAMIC REPUBLIC OF IRAN                        |
| Original Total Commitment:                                 | USD 220.0M                | Disbursed Amount: | USD 154.4M                                      |
| Revised Amount:  | USD 154.4M                |                   |   |
| <b>Environmental Category: B</b>                           |                           |                   |   |
| <b>Implementing Agencies:</b><br>Bam Reconstruction Office |                           |                   |   |
| <b>Cofinanciers and Other External Partners:</b>           |                           |                   |   |

| <b>B. Key Dates</b> |            |                   |               |                          |
|---------------------|------------|-------------------|---------------|--------------------------|
| Process             | Date       | Process           | Original Date | Revised / Actual Date(s) |
| Concept Review:     | 03/02/2004 | Effectiveness:    |               | 01/26/2005               |
| Appraisal:          | 06/18/2004 | Restructuring(s): |               |                          |
| Approval:           | 10/28/2004 | Mid-term Review:  | 03/03/2007    | 03/03/2007               |
|                     |            | Closing:          | 05/31/2009    | 05/31/2009               |

| <b>C. Ratings Summary</b>            |                           |
|--------------------------------------|---------------------------|
| <b>C.1 Performance Rating by ICR</b> |                           |
| Outcomes:                            | Moderately Unsatisfactory |
| Risk to Development Outcome:         | Moderate                  |
| Bank Performance:                    | Moderately Unsatisfactory |
| Borrower Performance:                | Moderately Satisfactory   |

| <b>C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)</b> |                           |                                      |                         |
|---|---------------------------|--------------------------------------|-------------------------|
| Bank  | Ratings                   | Borrower                             | Ratings                 |
| Quality at Entry:   | Moderately Unsatisfactory | Government:                          | Moderately Satisfactory |
| Quality of Supervision:   | Moderately Unsatisfactory | Implementing Agency/Agencies:        | Moderately Satisfactory |
| <b>Overall Bank Performance:</b>                                      | Moderately Unsatisfactory | <b>Overall Borrower Performance:</b> | Moderately Satisfactory |

| <b>C.3 Quality at Entry and Implementation Performance Indicators</b> |                   |                                 |               |
|---|-------------------|---------------------------------|---------------|
| <b>Implementation Performance</b>                                     | <b>Indicators</b> | <b>QAG Assessments (if any)</b> | <b>Rating</b> |
| Potential Problem Project at any time (Yes/No):                       | No                | Quality at Entry (QEA):         | Satisfactory  |
| Problem Project at any time (Yes/No):                                 | No                | Quality of Supervision (QSA):   | None          |
| DO rating before Closing/Inactive status:                             | Satisfactory      |                                 |               |

| <b>D. Sector and Theme Codes</b>                  |                 |               |
|---|-----------------|---------------|
|   | <b>Original</b> | <b>Actual</b> |
| <b>Sector Code (as % of total Bank financing)</b> |                 |               |
| Aviation  | 2               | 2             |
| Housing construction                              | 82              | 82            |
| Roads and highways                                | 10              | 10            |
| Telecommunications                                | 6               | 6             |
| <b>Theme Code (as % of total Bank financing)</b>  |                 |               |
| Access to urban services and housing              | 33              | 33            |
| Natural disaster management                       | 33              | 33            |
| Other urban development                           | 17              | 17            |
| Rural services and infrastructure                 | 17              | 17            |

| <b>E. Bank Staff</b> |                 |                         |
|----------------------|-----------------|-------------------------|
| <b>Positions</b>     | <b>At ICR</b>   | <b>At Approval</b>      |
| Vice President:      | Shamshad Akhtar | Christiaan J. Poortman  |
| Country Director:    | Hedi Larbi      | Joseph P. Saba          |
| Sector Manager:      | Anna M. Bjerde  | Hedi Larbi              |
| Project Team Leader: | Soraya Goga     | Sateh Chafic El-Arnaout |
| ICR Team Leader:     | Soraya Goga     |                         |
| ICR Primary Author:  | Richard James   |                         |

## **F. Results Framework Analysis**

### **Project Development Objectives (from Project Appraisal Document)**

The project objectives are: (a) to restore the living conditions of the communities affected by the earthquake; (b) to improve emergency preparedness in the Province of Kerman

and the city of Bam; and (c) to strengthen the planning and management capacity under the reconstruction program.

**Revised Project Development Objectives (as approved by original approving authority)**

**(a) PDO Indicator(s)**

| Indicator                          | Baseline Value  | Original Target Values (from approval documents)  | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years  |
|------------------------------------|---|---|--------------------------------|--|
| <b>Indicator 1 :</b>               | Housing Reconstruction Work (through procurement of essential construction material)  |   |                                |  |
| Value quantitative or Qualitative) | 85% of houses destroyed: (i) 22,100 urban units; (ii) 22,800 rural units; and (iii) 3000 commercial units   | The project to go beyond the intended scope. Completion of about 60,000 houses in the earthquake zone (more than 30% of initial target) |                                | 35,866 urban units; 29,594 rural units; and 5,250 commercial units   |
| Date achieved                      | 12/26/2003  | 05/31/2009  |                                | 10/25/2009   |
| Comments (incl. % achievement)     | 160% achievement in urban housing units; 130% achievement in rural housing units; and 175% achievement in commercial units. Higher achievement was possible because the government took a decision to include partially damaged buildings |   |                                |  |
| <b>Indicator 2 :</b>               | Procurement of Construction Equipment   |   |                                |  |
| Value quantitative or Qualitative) | (i) No. of Construction Equipment procured (out of 440 units); (ii) Laboratory Equipment delivered (out of 115 units)   | The number of unit purchased under the loan likely to be 40% higher than initially planned.   |                                | wheel loaders 36<br>dump trucks (6x4) 235<br>dump trucks (4x2) 110<br>transit mixers 36<br>wheel excavators 15<br>motor graders 40<br>pickup trucks 0<br>stone crushing plant 0<br>concrete batch plant 0<br>testing equipment 115<br>crawler dozers 6<br>vibratory drum roller 30 |

|                                    |   |   |  |  |
|------------------------------------|---|---|--|--|
| Date achieved                      | 11/16/2004  | 05/31/2009  |  | 10/25/2009   |
| Comments (incl. % achievement)     | 115% achieved for dump trucks; 124% for transit mixers; 136% for wheel excavators; 571% for motor graders.  |   |  |  |
| <b>Indicator 3 :</b>               | Repair of the Transport Infrastructure: % length of highway rehabilitated   |   |  |  |
| Value quantitative or Qualitative) | 0% at the initial stage (of 190km)  | Full implementation of this component would require a 2 year extension of the closing date. |  | 70 km rehabilitated  |
| Date achieved                      | 11/16/2004  | 05/31/2009  |  | 10/25/2009   |
| Comments (incl. % achievement)     | 37% achieved. Full implementation of this activity required extension of project closing date which was requested by the government but not granted.  |   |  |  |
| <b>Indicator 4 :</b>               | Repair of the Transport Infrastructure: % of works completed on the Bam Airport   |   |  |  |
| Value quantitative or Qualitative) | NA Activity dropped at the request of the gvt   | NA Activity dropped at the request of the gvt   |  | 0% achieved  |
| Date achieved                      | 11/16/2004  | 05/31/2009  |  | 05/31/2009   |
| Comments (incl. % achievement)     | The activity was dropped from Bank financing mainly because special security clearances were not provided to the international contractors and supervision consultants to enter into airport facilities. The activity was dropped from Bank financing |   |  |  |
| <b>Indicator 5 :</b>               | Repair of the Transport Infrastructure: % length of village streets rehabilitated   |   |  |  |
| Value quantitative or Qualitative) | 0% initially (of 20 km)   | 100% at end of implementation   |  | 137 km completed through government funds                                  |
| Date achieved                      | 11/16/2004  | 05/31/2009  |  | 05/31/2009   |
| Comments (incl. % achievement)     | Due to the emergency nature of work and the readily available work force, the Housing Foundation requested the Bank to authorize use of force account to rehabilitate these streets. In order to save time the HF proceeded with its own funds.       |   |  |  |
| <b>Indicator 6 :</b>               | Repair of Telecommunications Infrastructure: % completion of key building reconstruction  |   |  |  |
| Value quantitative or Qualitative) | 0% initially (of 3 main buildings)  | 100% at end of implementation   | Except for cable and radio transmission networks and switching sites in Bam and Baravsat, all other activities got dropped from Bank financing at government#s | Cable and radio transmission networks and switching sites 100% operational |



|                                    |  |   |            |            |
|------------------------------------|--|---|------------|------------|
|                                    |  |   | request.   |            |
| Date achieved                      | 11/16/2004   | 05/31/2009  | 03/03/2007 | 05/31/2009 |
| Comments (incl. % achievement)     | Difficulties encountered led gov't to drop 3 of 4 activities (telecom specialist, NGN system, permits from IGOs). The government is presently considering carrying out these activities using own resources. |   |            |            |
| <b>Indicator 7 :</b>               | Repair of Telecommunications Infrastructure: % completion of telecom equipment installation  |   |            |            |
| Value quantitative or Qualitative) | 0% initially (of 3 main buildings)   | 100% at end of implementation   |            |            |
| Date achieved                      | 11/16/2004   | 05/31/2009  |            |            |
| Comments (incl. % achievement)     |  |   |            |            |
| <b>Indicator 8 :</b>               | Improve emergency preparedness in the earthquake area: % disbursement of retrofitting works in Kerman province   |   |            |            |
| Value quantitative or Qualitative) | 0% initially (of 10 key buildings)   | Full implementation of this component would require an extension of the closing date. |            |            |
| Date achieved                      | 11/16/2004   | 05/31/2009  |            |            |
| Comments (incl. % achievement)     |  |   |            |            |
| <b>Indicator 9 :</b>               | Improve emergency preparedness in the earthquake area: % of emergency response vehicles delivered to Bam District  |   |            |            |
| Value quantitative or Qualitative) | 0% initially (of 3 main buildings)   | NA Activity cancelled at the request of the government.                               |            |            |
| Date achieved                      | 11/16/2004   | 05/31/2009  |            |            |
| Comments (incl. % achievement)     |  |   |            |            |
| <b>Indicator 10 :</b>              | Strengthen the planning & management capacity under the reconstruction program   |   |            |            |
| Value quantitative or Qualitative) | % of overall disbursement and % of TA resources  | Full disbursement of the loan would require an extension of the closing date.         |            |            |
| Date achieved                      | 01/26/2005   | 05/31/2009  |            |            |
| Comments (incl. % achievement)     |  |   |            |            |

**(b) Intermediate Outcome Indicator(s)**

| Indicator                           | Baseline Value  | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|-------------------------------------|---|--|--------------------------------|---|
| <b>Indicator 1 :</b>                | Restore living conditions of the communities affected by the earthquake   |  |                                |   |
| Value (quantitative or Qualitative) | Provision of construction material and equipment on an emergency basis  | Not specified                                    |                                | Fully achieved                                      |
| Date achieved                       | 12/26/2003  | 05/31/2009                                       |                                | 05/31/2010  |
| Comments (incl. % achievement)      | Confirmed through beneficiary assessments   |  |                                |   |
| <b>Indicator 2 :</b>                | Improve emergency preparedness in Kerman Province and City of Bam   |  |                                |   |
| Value (quantitative or Qualitative) | Completion of complex procurement procedures is a prerequisite to achieving the PDO   | Not specified                                    |                                | Not fully achieved due to project closing           |
| Date achieved                       | 11/16/2004  | 05/31/2009                                       |                                | 05/31/2009  |
| Comments (incl. % achievement)      | Limited capacity at the local implementing agency at Kerman Province led to long delays in starting this activity. Also, full implementation required extension of project closing date which was not granted.  |  |                                |   |
| <b>Indicator 3 :</b>                | Strengthen the planning & management capacity under the reconstruction program  |  |                                |   |
| Value (quantitative or Qualitative) | BRO to perform well   | Not specified                                    |                                | Significantly achieved                              |
| Date achieved                       | 11/16/2004  | 05/31/2009                                       |                                | 05/31/2009  |
| Comments (incl. % achievement)      | With a total project amount committed to about 80% of the loan amount, BRO significantly achieved its development objectives despite challenges, mainly related to the change in project currency, replacement of commercial bank acct among other issues |  |                                |   |

**G. Ratings of Project Performance in ISRs**

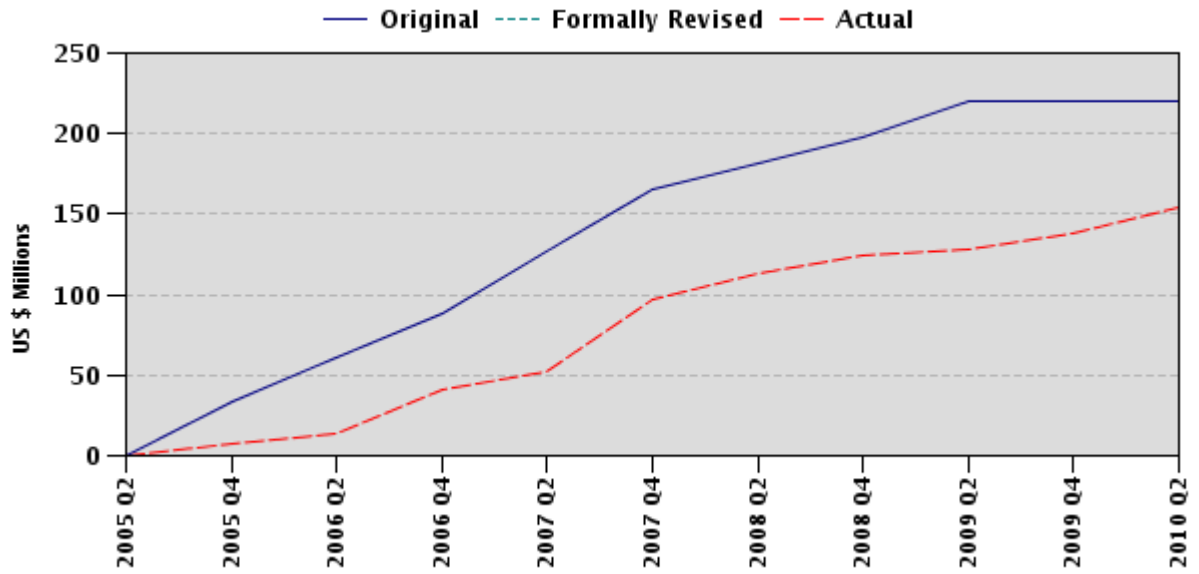
| No. | Date ISR Archived | DO           | IP           | Actual Disbursements (USD millions) |
|-----|-------------------|--------------|--------------|-------------------------------------|
| 1   | 11/11/2004        | Satisfactory | Satisfactory | 0.00                                |
| 2   | 04/01/2005        | Satisfactory | Satisfactory | 1.10                                |
| 3   | 11/14/2005        | Satisfactory | Satisfactory | 10.79                               |
| 4   | 05/30/2006        | Satisfactory | Satisfactory | 28.75                               |
| 5   | 12/19/2006        | Satisfactory | Satisfactory | 52.13                               |
| 6   | 06/27/2007        | Satisfactory | Satisfactory | 97.21                               |
| 7   | 12/13/2007        | Satisfactory | Satisfactory | 107.40                              |
| 8   | 06/24/2008        | Satisfactory | Satisfactory | 124.21                              |

|   |            |              |              |        |
|---|------------|--------------|--------------|--------|
| 9 | 12/26/2008 | Satisfactory | Satisfactory | 128.10 |
|---|------------|--------------|--------------|--------|

**H. Restructuring (if any)**

Not Applicable

**I. Disbursement Profile**





## 1. Project Context, Development Objectives and Design

### 1.1 Context at Appraisal

On December 26, 2003, a major earthquake registering 6.5 on the Richter scale devastated the Bam District, killing 26,000 people, leaving 30,000 injured and 80,000 homeless. Most severely hit was the city of Bam located in Kerman province in the southeastern part of the country and its 92,000 inhabitants. A substantial number of professional and managerial staff from local civil service perished, considerably undermining the local emergency response capacity. The earthquake destroyed 85% of the buildings and severely affected infrastructure networks. The rich cultural heritage of Bam, including the 2,500 years old Arg-e-Bam Citadel, and the traditional underground irrigation systems (*Qanats*) vital for the production of dates<sup>1</sup> suffered significant damage. Based on the available figures, damages were estimated to be equal to US\$1.5 billion.

**Government's emergency response in the aftermath of the earthquake:** Search and rescue efforts were immediately mobilized by the Government of Iran (GOI). Recognizing the need for coordination between government, donor agencies, and non-governmental agencies (NGOs), the GOI, almost immediately, established a National Committee for Reduction of Natural Disasters' Impacts (NCRNDI), under the Ministry of Interior (MOI) and the Iranian Red Crescent Society (ICRS). The latter mobilized more than 8,500 relief workers and volunteers and launched large-scale rescue, evacuation, and relief operations. The affected district was divided into fourteen zones and relief and humanitarian assistance in each zone was assigned to a Provincial Government in the country.

**Donor response:** Most United Nations (UN) agencies and donor countries mobilized emergency relief support to the victims. The UN issued a joint flash appeal on January 13, 2004 soliciting US\$31 million to address urgent relief and rehabilitation needs during the first ninety days. By January 28 2004, donors had pledged over US\$15 million for urgent relief. The Gulf Cooperation Council (GCC) also pledged US\$400 million in soft loans to GOI for the reconstruction work.

While the financing of the reconstruction program relied primarily on the GOI's funds, the International Bank for Reconstruction and Development (the World Bank) was requested to provide emergency assistance valued at US\$220 million and to apply its global post-disaster emergency reconstruction experience as well as significant country-experience to promote strategic approaches to disaster risk management. In addition to pledges from other donors (mainly, the Japan Bank for International Cooperation, the Islamic Development Bank and countries from the Persian Gulf and Europe), the World Bank on October 28, 2004 committed to finance key elements of the comprehensive reconstruction program through the Bam Earthquake Emergency Reconstruction Project (BEERP). The Loan Agreement was signed between GOI and the World Bank on November 16, 2004 and the loan became effective on January 26, 2005.

### 1.2 Original Project Development Objectives and Key Indicators (*as approved*)

The objectives of the project were to: (a) restore the living conditions of the communities affected by the earthquake; (b) improve emergency preparedness in the Province of Kerman and the city

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<sup>1</sup> *Bam's local economy mainly relies on the date market for its survival. Following Iran's earthquake, Bam struggled to pick itself up and reconstruct what it had worked over three thousand years to build.*

of Bam and; (c) strengthen the planning and management capacity under the reconstruction program<sup>2</sup>. The key performance indicators, for each component, as agreed during the Loan Negotiations<sup>3</sup> were:

*Component A: provision of construction material and equipment for housing and commercial buildings:* (i) percent number of urban and rural housing units reconstructed; (ii) percent number of commercial units rebuilt; and (iii) percent number of construction equipment procured.

*Component B: repair of the transport infrastructure:* (i) percent length of Kerman-Bam highway rehabilitated out of 190 km; (ii) percent physical completion of the rehabilitation and reconstruction of Bam airport; (iii) percent physical completion of the construction and navigation equipment for the Bam airport; and (iv) percent length of village streets rehabilitated out of 20 km.

*Component C: repair of the telecommunications infrastructure:* (i) percent physical completion of the technical building for new switching, transmission and power supply facilities; (ii) percent physical completion of the repair of the principal switching center at Etemadi; (iii) percent physical completion of the repair of Baravat telephone center building; (iv) percent physical completion of the reconstruction of the cable and radio transmission networks and switching sites in the District of Bam and Bavarat; and (v) percent physical completion of the expansion of GSM mobile network to surrounding rural areas.

*Component D: improved emergency preparedness in the province of Kerman and the District of Bam:* (i) percent completion of retrofitting works in Kerman; (ii) percent number of emergency response vehicles procured for the District of Bam.

*Component E: project management and technical assistance:* no indicators were specified.

### **1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification**

The PDOs were not revised. However, during the Quality at Entry Assessment review<sup>4</sup>, the panel recommended introducing outcome indicators but<sup>5</sup> heeding the recommendation was not a requirement due to the emergency nature of operation.

### **1.4 Main Beneficiaries**

The intended beneficiaries of the project were a population of about 93,000 people, living in the city of Bam located in Kerman province in the southeastern part of the country. The project's direct beneficiaries included: (i) home owners whose homes were destroyed by the earthquake; (ii) road users; (iii) communities who improved their disaster preparedness capacity; (iv) government staff at the Housing Foundation (HF) and (v) general offices of Kerman<sup>6</sup>. There were also several indirect beneficiaries such as skilled and un-skilled workers who acquired on-the-job construction skills and the local builders who benefited through learning improved building standards and techniques. The provision of construction components had a positive

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<sup>2</sup> The project was expected to be implemented over a four year period.

<sup>3</sup> Schedule 7, Loan Agreement Document No. 4755-IRN, dated November 16, 2004.

<sup>4</sup> Seventh QEA (QEA7), assessment date, September 21, 2005.

<sup>5</sup> To provide OP reference showing outcome indicators are not necessary (only output indicators are) for emergency projects.

<sup>6</sup> Ministry of Roads and Transport and Bam Reconstruction Office in Tehran and Bam.

impact in developing small and medium consulting and construction firms as well as local job creation.

### 1.5 Original Components *(as approved)*

The project objectives were expected to be met through five components described below:

**Component A: Provision of construction material and equipment for housing and commercial buildings** (estimated cost at appraisal: US\$150 million; actual cost: US\$138.17 million<sup>7</sup>). This component financed procurement of: (i) construction material (steel bars, steel for frames and Portland cement) for rural and urban housing units and commercial buildings; (ii) construction equipment (dump trucks, wheel loaders, quality control and testing equipments); and (iii) design and supervision activities. The component constituted around 68% of the total project cost.

**Component B: Repair of transport infrastructure** (estimated cost: US\$22.35 million; actual cost: US\$6.12 million). The component financed: (i) rehabilitation and preventive works for the main highway linking Bam with the provincial capital of Kerman; and (ii) design and supervision activities. The rehabilitation and reconstruction of Bam Airport facilities and the paving of village streets were taken out of the project at GOI's request and are being funded by government's own resources. The component constituted around 10% of the total project cost.

**Component C: Repair of telecommunications infrastructure** (estimated cost: US\$11.45 million; actual cost: \$6.31million). The component financed: (i) repair of telecommunication center buildings; (ii) repair of transmission networks; (iii) expansion of mobile and data services; and (iv) related design and supervision activities. The component constituted 5.20% of the total project cost.

**Component D: Improved emergency preparedness in the Province of Kerman and Bam** (estimated cost: US\$8.39 million; actual cost: US\$0.31million). This component financed: (i) retrofitting work of emergency response buildings in Kerman; and (ii) risk assessment, design and supervision activities. The provision of emergency response vehicles (fire trucks, ambulances) was removed from the project at the GOI's request. The component constituted 3.81% of the total project cost.

**Component E: Project management and technical assistance** (estimated cost: US\$5.85 million; actual cost: US\$1.98 million). This component supported (i) establishment of the Bam Reconstruction Office (BRO); and (ii) technical assistance to improve project management capacity through procurement of consulting firms for 'procurement advisory services'; 'monitoring advisory services' and the recruitment of consulting firms and individuals for 'technical advisory services'. The component constituted 2.66% of the total project cost.

**Project Costs:** At appraisal, the total project cost was estimated at US\$235 million of which US\$15 million was to be financed by the GOI. Details are as follows:

| <b>Component</b>   | <b>Project Cost<br/>(US\$ million)</b> | <b>Bank Financed<br/>(US\$ million)</b> |
|--|--|---|
| Component-A: Provision of Equipment and Construction Material for Housing and Commercial Buildings | 150.00                                 | 150.00                                  |

<sup>7</sup> Actual amount financed/disbursed under the Loan.

|  |               |               |
|--|---------------|---------------|
| Component-B: Repair of Transport Infrastructure <sup>8</sup>   | 29.32         | 22.35         |
| Component-C: Telecommunication Infrastructure <sup>9</sup>   | 12.10         | 11.45         |
| Component-D: Improved Emergency Preparedness in the Province of Kerman and the District of Bam <sup>10</sup> | 10.00         | 8.39          |
| Component-E: Project Management & Technical Assistance   | 7.80          | 5.85          |
| Physical and Price Contingencies   | 24.68         | 20.86         |
| Financing Charges  | 1.10          | 1.10          |
| <b>Total Project Cost</b>  | <b>235.00</b> | <b>220.00</b> |

## 1.6 Revised Components

No component was formally revised however the scope of work was changed during implementation, and out of US\$42.19 million budgeted for three out of the five components, US\$29.45 million of the proceeds were cancelled as discussed below.

### **Component A - Provision of construction material and equipment for housing and commercial buildings:**

The component was not revised.

### **Component B - Repair of Transportation Infrastructure**

- (i) Rehabilitation of Bam Airport: The necessary security clearances were not provided to the international contractors, supervision consultants and the laborers to enter into the airport facilities, in spite of repeated requests. Consequently the activity was dropped with the understanding that the government will use its own funds to complete this task. The activity constituted US\$3.15 million or 1.4% of the total project cost;
- (ii) Repair of village streets: Due to the emergency nature of work and the readily available work force, the Housing Foundation (implementing agency for this component) requested the Bank to authorize use of force account to rehabilitate these streets. The Bank agreed in principle and asked for an official request as it required amending the Loan Agreement. However, to save time, the HF proceeded with rehabilitating the streets using its own funds but was not able to forward the formal request for the use of force account. This activity (repair of village streets) constituted US\$1.91 or less than 1% of total project cost.

### **Component C - Repair of Telecommunications Infrastructure:**

The complexity of importing modern electronic equipment i.e.: the New Generation Network (NGN) system, the difficulties encountered in the preparation of tender documents, and the

<sup>8</sup> Under this component US\$16.23million was cancelled, the amount allocated for the repair of Bam airport and the repair of village streets

<sup>9</sup> Under this component US\$5.14 was cancelled, amount allocated for reconstruction of technical building for new switching, transmission and power supply facilities; principal switching center at Etemadi; Baravat telephone building; and radio transmission networks and switching sites in Bam and Baravat.

<sup>10</sup> Under this component US\$8.08 was cancelled, amount allocated for retrofitting works in Kerman and procurement of emergency vehicles

<sup>11</sup> NGN is a broad term to describe some key architectural evolutions in telecommunication access networks that would be deployed over the next 5–10 years. The NGN would be the one network that would transport all information and services (voice, data, and all sorts of media such as video) by encapsulating these into packets, like it is on the Internet



challenges of obtaining permits from the Atomic Energy Organization and from the Department of Frequency Control Departments led the government to drop from Bank financing three out of the four activities under this component. The activities constituted less than 2% of the total project cost.

#### **Component D - Improved earthquake preparedness in Kerman and Bam:**

Lack of ownership and difficulty in correctly understanding the retrofitting approach by the implementing agencies resulted in substantial delays. Upon the government's request, this activity was dropped from the Bank financing. The procurement of emergency vehicles was also removed from the project with the agreement that the government will use its own resources to complete this task. The two cancelled activities constituted US\$5.75 million or 2.61% of the total project cost.

#### **Component E – Project Management and Technical Assistance:**

The component was not revised and all activities were successfully completed. However, only US\$1.98 million or 34% of the allocated funds were utilized with a saving of US\$3.87 million.

### **1.7 Other significant changes**

*Amendment to Loan Agreement:* The US financial sanctions on Iran prevented funds denominated in US Dollars from being transferred to the Special Accounts, and this necessitated an amendment of the Loan Agreement.<sup>14</sup> The Loan amendment provided the GOI flexibility to open and maintain special deposit accounts in Euros.

## **2.0 Key Factors Affecting Implementation and Outcomes**

### **2.1 Project Preparation, Design and Quality at Entry**

Ad-Hoc Committee Review: Nine months after project effectiveness, on September 21, 2005, an ad-Hoc Committee, from within the Bank was established for the project, consisting of members with prior experience in disaster reconstruction operations. The advice provided by the committee was considered useful to the Bank's project preparation team. The panel endorsed the project's design and acknowledged its alignment with the government's reconstruction strategy, sector priorities, institutional arrangements and its financial needs. For future operations, the panel recommended the inclusion of expertise (from outside the Bank) – from government disaster agencies with earthquake reconstruction experience – on the Ad-Hoc Committee.

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<sup>12</sup> (i) Reconstruction of new switching, transmission and power supply facilities; (ii) repair of principal switching center at Etemadi; and (iii) repair of Baravat telephone center building.

<sup>13</sup> Because of shortage of telecom specialists within the Bank, at the time, it was also difficult to engage an expert in this field for supervision missions. As per the ISR (Date or number) a Sr. telecom specialist (CITPO), based in Kenya, was able to visit the country only once, and only during supervision, due to a variety of factors, including difficulties in obtaining a visa. There was no telecom. Specialist as part of the Bank's preparation team

<sup>14</sup> Dated June 15, 2007, Schedule 6, Section 2.02 (b)

<sup>15</sup> Osman S. Ahmed, Hadi Abushakra, Christoph Pusch, Eric N. Peterson, Nezam Motabar, Antonio J. Cittati, Aloysius Uche Ordu, Alfred H. Nickesen, A. Amir Al-Khafaji, Sateh Chafic El-Aranout, David J. Marsden, Hocine Chalal, Reidar Kvam, John Keith Rennie, Carlos Silva-Jauregui, Samia Masdek.

Nonetheless, the project design was complex involving several agencies with limited implementing capacity. Because of implementation delays, specifically on the components related to economic recovery and capacity building, the Bank's intervention may have been more effective if these had been separated into two projects, namely an ERL primarily made up of the reconstruction portion and a follow up project to stimulate economic recovery and to build capacity on disaster management activities, both, at the local and national levels.

**Project Design and Collaboration with Government Task Force:** Moving away from the usual practice of assigning the Ministry of Interior for post-disaster reconstruction, as was the case of the on-going, at the time, Earthquake Emergency Recovery Project (EERP), the government agreed to create the Bam Guidance and Policy Task Force (BGPTF) with ultimate responsibility to select investments in priority sectors, allocate necessary resources, approve urban development Master Plan, issue implementation policy guidelines, and plan and supervise all earthquake reconstruction efforts. The Iranian President personally designated the Head of the Housing Foundation to be responsible for the reconstruction and planning of Bam reconstruction work. Upon World Bank's recommendations, the Bam Reconstruction Office (BRO) was established with qualified staff to coordinate all project management activities. The Bank's project preparation team worked closely with each member of the Task Force and with the Head of the BRO in designing this project. The project design was somewhat complex but responsive to the country's needs of restoring living conditions of the communities.

**Focus on restoring living conditions:** The decision to focus on restoring living conditions through housing reconstruction was a strong feature in this emergency project. In particular, the decision to exclude components for cultural heritage, economic recovery, and water and sewerage – despite strong government interest in having them as part of the project scope – was a wise one. At the same time, the inclusion of a component to improve the main highway and a telecommunication component, albeit small, was not directly related to the earthquake reconstruction and resulted in delaying the overall implementation progress due to lack of readiness of the implementing agencies. For example, procurement was the responsibility of the participating implementing agencies while processing of all payments was done centrally at the Financial Management Unit at the Housing Foundation. At first this process seemed appropriate as it gave implementing agencies the authority to select consultants and contractors, however, in practical terms the necessary capacity of handling procurement in accordance with the World Bank's guidelines (at implementing agencies' level other than HF) was never developed causing major delays.

**Lessons learned** from other projects that supported post disaster reconstruction were incorporated in the project's design. These were: ensuring close coordination among government agencies and entrusting local project management to an efficient organization with similar previous experience in disaster management activities (in this case the Housing Foundation).

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<sup>16</sup> Complexity of the project in regard to designing a New Generation System compatible to the existing telecommunication system of Bam

<sup>17</sup> Comprising the Minister of Housing and Urban development (chairman), the head of the Management and Planning Organization (MPO), three representatives of the President, the Minister of Interior, the Minister of Economic Affairs and Finance, the Minister of Culture and Islamic Guidance, the President of the Iranian Red Crescent Society, and the President of the Housing Foundation.

<sup>18</sup> By way of a decree on May 1, 2004

**Conditionality** was minimal and limited to essential project management and fiduciary appointments for implementation. As a result, the project was effective in just three months after Board approval.

**Quality at Entry (QAE):** Quality at Entry was formally assessed through the QAE7 process by the Quality Assurance Group (QAG) . The QAG provided a ‘satisfactory’ rating of ‘2’ on a 6-point scale. All project aspects were rated satisfactory except for the fiduciary aspects which were rated moderately satisfactory because of delays in appointing independent financial controller (IFC) and installing the Financial Management system. It was panel’s judgment that while technical, financial and economic aspects had some weak areas, the strong rating for technical soundness (because of new, seismically sound housing designs) far offset these weaknesses given the emergency nature of the project.

**Strong Aspects:** The strong features of the operation were the following (i) good quality damage assessment taken early during project preparation which provided a sound basis for design; (ii) the adoption of a simple and pragmatic approach to select project components focused mainly on housing reconstruction; (iii) the introduction of seismically sound housing designs that could withstand future earthquakes; (iv) the piloting of new construction standards that are expected to benefit other regions of the country; (v) the reliance on an existing institution with adequate capacity to implement the main housing construction component (HF); (vi) the establishment of a dedicated project management unit (Bam Reconstruction Office) with offices in Tehran and in the field; and (vii) the recruitment of an international Procurement Advisory Consultant at onset of the project. All of these features proved critical for the implementation.

## 2.2 Implementation

Several factors affected the implementation of the project, for example: (i) due to the imposition of financial sanctions by the US, Special Accounts denominated in US\$ had to be switched to Euros which resulted in delays in disbursements and limited the ability of local firms to submit bid securities; (ii) multiple UN sanctions discouraged potential bidders from outside Iran, thereby limiting the pool of competitive bids leading to increased project costs - because of the heavy reliance on local bidders, the quality and timeliness of many of the works also suffered; (iii) because of UN sanctions, the Bank put in place additional system to screen purchase of equipment (specifications had to be reviewed against a list of prohibited items and entities identified by the relevant UN Resolutions) thus adding another layer of clearance contributing to delays when this process was first introduced; (iv) decision by the Bank not to extend the closing date of the project left some activities incomplete and under-funded, and as a result the government had to approach other donors (i.e. Islamic Development Bank) to fill in this gap; (v) the inability and reluctance of airport authority to allow contractors and workers to enter into the airport premises due to security reasons caused delays that ultimately resulted in dropping from Bank financing activities related to the Bam airport; and (vi) because of an acute shortage of telecommunication specialists in the Bank, at the time, difficulties were encountered in preparing tender documents to import complex modern electronic equipment (New Generation Network) system.

*Mid Term Review (MTR):* The MTR was carried out during March 3-16, 2007. The MTR rated the project ‘satisfactory’ on both, the achievement of development objectives as well as on the results from implementation. The MTR did however highlight the delays encountered in the supply of steel due to a global increase in its prices, and the reluctance of the contractors to

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<sup>19</sup> Assessment date: 9/21/2005.

provide it at the agreed contractual (old) prices. The MTR recommended rebidding the contract with a possibility of adding a price escalation clause or cancelling the corresponding loan amount. In order not to cause further delays, the HF used its own strategic stock-pile of steel which was later returned when steel prices eased somewhat.

*Performance of Implementing Agencies:* Overall, the performance of the HF in executing the largest and the most important component (provision of construction material and equipment - Component A) and in modernizing its construction equipment fleet, was excellent. Notwithstanding many problems it encountered during implementation, for example, delays in receiving proper home ownership documents lost due to the earthquake; inability to start urban reconstruction work due to delays in the preparation of second Master Plan; and delays by Bam municipalities in issuing construction permits, the HF nevertheless delivered the required construction material and equipment and thus fully achieved its objectives US\$138.17 million out of US\$150 million (92%).

In contrast, the project witnessed a much weaker performance in carrying out sector related activities (around 30% of project costs) implemented by other agencies i.e.: General Office and the Bam Airport Authority (under component B they executed US\$6.2 million out of US\$22.35 million expected); Telecommunication Company of Iran (under component C executed US\$6.31 million out of US\$11.45 million); and the Provincial Government of Kerman (under component D executed US\$0.31 million out of US\$8.39 million). Despite these shortcomings the project was able to disburse around US\$154.43 million out of the total US\$220 million (70%) at the time the project was closed. The overall implementation achievement is therefore rated as Moderately Unsatisfactory.

*Project at Risk Status:* The Bank's project preparation teams adequately highlighted the main risks to the reconstruction activities i.e. project management risk given the limited experience in implementing a citywide reconstruction program. Satisfactory steps were taken to mitigate such risks that included hiring of an international Procurement Advisor at the BRO ; hiring of a Monitoring and Evaluation Advisor; the use of steel frames in housing reconstruction (to mitigate technical risks); and the establishment of a dedicated monitoring unit (BRO). Risks that could not be easily mitigated were the need for collaboration amongst a large number of government ministries that impeded the efficiency of reconstruction effort.

### **2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization**

#### **M&E Implementation and Utilization**

The Bank's project preparation team went beyond the normal requirement of an emergency operation and included an adequate budget to engage an M&E Advisor within the BRO to suitably identify and evaluate the project's social and economic impacts. Because of difficulties in finding a specialist willing to be stationed in Iran, hiring did not take place until two years after effectiveness (in February 2007). Despite this delay, the advisor was able to successfully design a robust M&E system using Monitoring Information System software and the necessary contract management reports required by the World Bank and the government. Timely recruitment of the advisor could have provided the BRO with early warning signs when the implementing agencies (other than HF) had started falling behind their agreed schedules of work plan, either because of

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<sup>20</sup> However, no provision was made to recruit procurement advisors at agencies that were responsible to implement other four components.

capacity issues or because of difficulties in preparing the World Bank required procurement documents.

## **2.4 Safeguard and Fiduciary Compliance**

### **Environmental Safeguard:**

Most of the sub-projects were of category 'C' nature with the exception of rehabilitation of Kerman-Bam highway which fell under category 'B' requiring preparation of Environmental Assessment (EA) under OP 04.01. However, being an emergency operation, no formal EA or consultations were undertaken. Only a limited EA was undertaken for sub-projects with the potential for adverse impact. The environmental aspects of the Social and Environmental Screening and Assessment Framework (SESAF) prepared by the Borrower<sup>21</sup> covered issues appropriately and clearly identified activities ineligible for financing. An Environment Officer in the Bam Reconstruction Office ensured that environmental codes of practice were included in all bidding documents. A negative list of activities ineligible for project financing was also prepared. SESAF was translated into Farsi and was made available in several locations in the project area.

### **Social Safeguards:**

Given the comprehensive nature of the emergency reconstruction program, the project documents highlighted the possibility of triggering two safeguard policies i.e.: Cultural Property (OPN. 11.03); and Involuntary Resettlement (OP/BP 4.12), neither of which got triggered. A senior social specialist in the BRO as well as from the Bank<sup>22</sup> regularly monitored all safeguard aspects of the project.

***Cultural Property (OPN. 11.03):*** The project did not finance works related to the cultural heritage sites and exercised extreme caution not to disturb any cultural sites. The SESAF clearly included guidelines for civil works contracts, to guide contractors in the event they came upon culturally significant items during the reconstruction.

***Involuntary Resettlement (OP/BP 4.12):*** The project did not directly engage in the physical reconstruction efforts but financed the provision of equipment and construction material for the reconstruction of housing and commercial buildings, and therefore OP/BP 4.12 did not get triggered. Even though there were no resettlement issues that arose, the Bank's project team was nonetheless assured by the government that they would be consulted if any relocation involving more than 25 families arose. The government had agreed to implement the principles of full compensation and livelihood restoration for any project affected person<sup>23</sup> as reflected in the project's Resettlement Action Plan.

***Indigenous People (OP 4.20):*** OP 4.20 did not apply because persons affected by the project were neither vulnerable ethnic minority nor scheduled as tribal people within the provision of Iranian law.

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<sup>21</sup> Prepared dated August 13, 2004 - the legal agreement committed the Borrower to implementing the project in accordance with this SESAF.

<sup>22</sup> Helen Z. Shahriari, Sr. Social Specialist.

<sup>23</sup> Technical Annex, page 12, paragraph 53 and page 88.

**Financial Management and Disbursement:** The Financial Management (FM) was carried out in accordance with the project's design and the legal agreement. The overall FM arrangements were considered adequate and capable of generating required quarterly Financial Management Reports (FMRs). The accounting unit continued to be staffed with a financial officer, reporting to the HF's Financial Controller; reconciled project Special Account on a monthly basis; posted project data into customized accounting system; and generated Quarterly Progress Reports that were verified and approved by the Bank's FMS. There was clear segregation of duties between the functions of initiation, authorization, disbursement, and recording. The Withdrawal Applications were issued in a timely manner.

Even though the FM system was considered satisfactory, the project faced several problems during implementation because of: (i) the US financial sanctions on Iran where funds denominated in US dollars were unable to be transferred to the Special Accounts (SA); (ii) the closure of the US\$ SAs and the opening of a Euro SAs which generated currency exchange difficulties impacting the project reporting; (iii) the management of the goods purchased with limited capacity for the inventory management systems; and (iv) the beneficiaries under the project being various ministries and entities that were institutionally independent from each other. The aforementioned issues had direct impact on the project implementation pace and caused delays, at certain instances, in issuing payments to contractors and vendors.

Despite all these hurdles, the accounting unit, with the valuable assistance from the Bank's Financial Management Specialist, successfully addressed these issues and kept the accounting system running smoothly. The Senior FM Specialist<sup>24</sup> participated in all supervision missions after the project became effective.

**Audit Arrangements:** The project's audit arrangements remained satisfactory. Overall, the FM performance was considered satisfactory because of financial management capacity at the HF and because of an experienced Financial Controller who headed the financial unit overseeing project accounts.

**Procurement:** The most important problem faced by the project was related to the low procurement capacity of the implementing agencies (other than HF) which were responsible for implementing activities that constituted around 30% of the project amount. In addition, non-performing suppliers and complex nature of procurement packages (supply and installation of New Generation Network and Wireless Local Loop system for Bam and Baravat - under component C); the geopolitical environment around the country also contributed to procurement delays. This was noticed when the international contractors (MSV in particular) were unable to bring their staff into the country because of security reasons. Considering emergency nature of project, the Bank introduced simplified procurement mechanisms allowing multi-million dollar procurement of steel to follow shopping procedure (simple procedure to contract award based on quotations only). The main difficulty however was the reluctance of the international community to participate in Iran. The decision to retain an international Procurement Advisor was appropriate in light of the high risks associated with the procurement.

## **2.5 Post-completion Operation/Next Phase**

While a lot has been achieved under this project, the agenda is essentially left unfinished at the closure of the Loan. Urgent critical actions are therefore necessary to fully capture the development benefit for the targeted population and more generally for the country's

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<sup>24</sup> Mr. Robert Bou Jaoude

development. The GOI considers completion of the outstanding work as a critical part of the country's national disaster management strategy, particularly in terms of preparedness of the Kerman Province, to cope with the high probability of future earthquakes.

Because of high awareness of the seismic risks<sup>25</sup>, the GOI is taking decisive measures to mitigate vulnerability of the population living in Kerman Province and in this context, the Ministry of Economic Affairs and Finance (MoEAF) has expressed its intention to seek complementary financing to implement some of the key activities over the next 2 year period. From the World Bank's operational perspective, such an investment is well justified and should take into consideration the following three priority activities.

- (i) First and foremost, the completion of the highway upgrading (rehabilitation and widening) would considerably improve the connections between the two largest cities on the Kerman Province. Learning from the past earthquakes and the enormous difficulties faced in conveying emergency assistance on the two lane road, the GOI has already undertaken substantial work to widen some parts of the highway (for a total length of 85 km) with its own funds. Because the work is already well advanced, it makes economic sense to finish the work on the remaining section of the road till the whole 4-lane highway becomes fully functional. While improving the main connection between the North and the South of Iran additional funds would make it possible to rapidly and reliably dispatch early rescue and relief teams and material as well as the humanitarian assistance. Improving the mobility of the population and businesses would generate major social benefits and significantly diminish the number of road accident on this major public road.
- (ii) Secondly, the provision of complementary financing would permit to complete the retrofitting of all vital public buildings mostly hospitals and other strategic facilities (fire fighting stations, telecommunication center, etc.) so that the civil authorities would be better equipped to meet any eventualities and avert situations that occurred in the past. As a pilot retrofitting program of a representative sample of vital public buildings, this activity would clearly demonstrate that there are technical alternatives and viable financial options to prevent losses of lives and assets even in a seismic risky environment. The lessons learned from the retrofitting program and its decentralized implementation modalities are absolutely crucial to defining a sustainable mitigation strategy in other provinces located in active seismic zones and devising of the longer term prevention and mitigation policy for Iran.
- (iii) Thirdly, complementary funds would allow finishing the installation of new generation network and the Wireless Local Loop (WLL) communication systems as part of the improved communication facilities. Contrary to what happened after the Bam earthquake, this would substantially improve the resilience of the communication networks (through use of assorted technologies) and would maintain the indispensable communication flows in case of a major earthquake. The fixed and mobile networks are both an integral part of an effective disaster management strategy.

### **Possible Operational Risks for a Future Project**

Building on the past operational experience, the risks induced by a follow up operation could be considered minimal for the following main reasons:

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<sup>25</sup> *With two major seismic belts, Iran is known to be among the most earthquake prone countries in the world.*

- To-date, the road rehabilitation work is progressing well, with a 30% completion rate. More importantly, all the feasibility studies of the highway widening are completed and the contractor has been selected through a procurement process cleared by the World Bank. The design and supervision teams are also in place and could ensure the quality of the works. Therefore, as soon as the funds are secured the contract could be signed and the contractor could start immediately thus avoiding significant administrative delays generally associated with such investments.
- The retrofitting work is also well underway and the expert resources in charge of the technical designs are already under contract. With the technical investigations and the costing for five key sites finalized, the retrofitting work could start in the near term. The selection of the contractors could start immediately and does not present any difficulty considering the construction sector capacity in Kerman. Moreover, the extension of the program to additional building should be straightforward as it will follow technical procedures which have already been well tested during the initial implementation phase.
- With the Fiber Optic Cable in the ground and the networks commissioned there is much less uncertainty. The technical specification have been updated and agreed. Once the funds become available, the shipment could take place and the installation could follow as soon as the goods reach Bam. The company which is supplying and installing the telecommunication equipment is already under contract and has demonstrated adequate capacity to deliver quality work.

### **3.0 Assessment of Outcomes**

#### **3.1 Relevance of Objectives, Design and Implementation**

Although somewhat complex in nature, project components were relevant to the project objective of restoring the normal functioning of communities damaged by the earthquake, and strengthening national preparedness for future disasters. As an emergency operation, the project responded in a timely way to complement government's efforts to rapidly rebuild the social and economic infrastructure of the earthquake-damaged area. The government requested Bank's support in financing technical advice and implementation and essentially designed the project with Bank's help.

*Link with Country Assistance Strategy:* The project was developed as an emergency project upon government's request at which time Iran's April 2001 Interim Assistance Strategy (2001-2004, Report No. 220050 IRN) contained little reference to disaster mitigation.

#### **3.2 Achievement of Project Development Objectives**

During appraisal, the Bank's project preparation teams highlighted the limited exposure of the implementing agencies to the Bank's procurement processes, for which the team appropriately made provisions to recruit an international Procurement Advisor to provide support to the implementing agencies. Nonetheless, several other factors contributed to the implementation delays and the cancellation of some of the activities under components B, C, and D, such as: lengthy feasibility studies; technical complexity of the sectors; attracting suitable international consultants/contractors to work in Iran; inability of Bank to attract telecommunication specialist; and increasingly difficult working conditions due to the enforcement of the United Nations



restriction on commercial transactions with Iran. The change in project currency (from US dollars to Euros) just 18 months before project closing date; and difficulties in opening L/Cs further complicated this situation. Above all, the main reason for delays and cancellation was the limited authority of HF over the line ministries' decisions and insufficient influence in resolving pending, often financial issues.

In spite of all these constraints, the project was successful in committing US\$154.43 million of the loan amount (70%) at the time of project closing. Noteworthy is the timely achievement of the program under which the physical reconstruction efforts went far beyond the level estimated during appraisal (component A) .

Following is the status of activities that contributed to the achievement of the project's main PDO under each component:

**Component A (provision of construction material and equipment for urban and rural housing and commercial buildings):**

It is important to highlight that Bank was not directly involved in the construction of housing or commercial units but instead the project only supplied construction materials (steel and cement) to facilitate a massive emergency reconstruction while preserving the permanent strategic material stock always kept by the Housing Foundation to respond to other possible recurrent catastrophic events. It is equally important to recognize that the construction material required to address the reconstruction needs considerably increased over the implementation period, with the government total response to the housing sector needs being much larger than the Bank share. In this regard the project supplied 350,000 metric tons of Type II cement<sup>27</sup> and 112,500 metric tons of steel. During implementation, the construction material globally experienced a significant price increase as a result the main steel supplier was unable to meet its contractual obligations even contract was extended by three years. Finally the HF was able to overcome this difficulty by utilizing its own strategic stockpile of construction material which was later returned when the prices went down.

In terms of procurement of essential construction material, this component performed beyond expectations (160% achievement in urban housing units; 130% achievement in rural housing units; and 175% achievement in commercial units). Several factors explain the increase in quantities over the life of the project: i.e. (i) the initial damage assessment of the housing units was based on the number of buildings totally collapsed (and the corresponding quantities of cement and steel) immediately after the earthquake. However, overtime, the government decided that buildings severely damaged and rated unsafe would also be included in the reconstruction program. This was in line with the government disaster mitigation strategy to progressively provide safer houses to the all households in this high risk area; (ii) the government had inaccurate information about the Bam population and even less data about the people living in the remote villages; (iii) initially the benefit was restricted to couples married before March 2004 but gradually during the reconstruction phase the authorities facilitated access to this benefit and launched a special housing program for newly married couple with subsidized housing loans (after the earthquake); (iv) according to the local authorities poor records of ownership rights and lack of accurate plan of the properties at the time of earthquake significantly contributed to

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<sup>26</sup> 35,866 urban housing units (vs 22,100 envisaged during appraisal), 29,594 of rural housing units (vs. 22,800 envisaged) and 5,250 commercial units (vs 3,000 units planned) were actually reconstructed. Also, 508 construction equipments were financed vs. 440 units planned during appraisal – all within budget.

<sup>27</sup> Type II cements contains no more than 8% tri-calcium aluminates (C<sub>3</sub>A) for moderate sulfate resistance.

additional of request for houses. The HF also granted residential units to tenants who wanted to access their own house; (v) the government decided to extend the heavily subsidized housing loans far beyond the initial deadlines and kept the option open to all families willing to enter in the reconstruction schemes. The demand for housing finance support was kept high because of the promises made by high ranking officials to general population that loans may be converted to grants in case of difficulties. *The overall project development objective achieved for this component is rated as Highly Satisfactory.*

**Component B (repair of transport infrastructure):**

(i) Kerman-Bam highway (US\$15.75 or 7.15% of total cost): The transport infrastructure investments were targeted to the most urgent needs i.e. the design and implementation of physical rehabilitation of Kerman-Bam highway. Two lots were awarded to two different contractors for the rehabilitation work covering 186 km with expected completion date of October 2009 and January 2010 respectively. However, because of late start of actual work (around three years), only part of the highway was completed at the time when the project was closed. Reasons of delays were: low procurement capacity at the General Office (implementing agency) of the Ministry of Roads and Transportation (MORT); design consultant's inability to carryout recommended "Benkelman Beam Test" which was at the time uncommon in Iran and for which another international consultant had to be recruited using lengthy procurement procedures; failure of international supervision consultant to mobilize its staff for two years due to safety and security of its employees in the country; at the time of project closure 70 km of highway, vs. 190 km, was satisfactorily completed (37%). *As The project development objective achieved for this component is therefore rated as Moderately Unsatisfactory.*

(ii) Rehabilitation of Bam airport (US\$3.15 million): Low procurement capacity at the Airport Authority (implementing agency) combined with the reluctance of airport authority to allow contractors and workers to enter into the airport premises due to security reasons caused delays. The government finally requested that this activity be dropped from Bank financing and provided assurances that it remains a long term priority which it will be finance with own sources. The activity constituted 1.4% of the total cost. *The project development objective achieved for this component is rated as Unsatisfactory.*

(iii) Village street rehabilitation (US\$1.54 million or 0.7%): Due to the emergency nature of work and the readily available work force, the HF requested the Bank to authorize use of force account to rehabilitate these streets. The Bank agreed in principle and asked for an official request as it required amending the Loan Agreement. In order to save time however, the HF went ahead and rehabilitated the streets using own funds. Under the project only 20 km of the main streets were to be repaired, in reality, the HF repaired 117 additional streets based on their changing priorities thus making it a total of 137 km. *The project development objective achieved for this component is therefore rated as Highly Satisfactory.*

**Component C (repair of telecommunication infrastructure):**

This component entailed two activities: supply and installation of: (i) the New Generation Network (NGN) and (ii) the Wireless Local Loop (WLL) system for Bam and Baravat. Since the NGN was not yet tested and tried in Iran at the time, it was decided to issue the tender for NGN prior to that for the WLL. However, once the price quotations for WLL were received, it became

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<sup>28</sup> Contracts signed on June 17, 2008 ; and October 22, 2008

<sup>29</sup> The Benkelman Beam measures the deflection of a flexible pavement under moving wheel loads.

clear that project funds available for this component would not be enough. The Telecommunication Company (implementing agency) nevertheless insisted to go for the high-tech equipment and in consultation with the World Bank, dropped these activities from the project with the understanding that it will use its own resources to complete these activities. The reconstruction of the cable and radio transmission networks and switching sites in Bam and Baravat are now fully functional. *The project development objective achieved for this component is rated as Moderately Unsatisfactory.*

**Component D (improved emergency preparedness in Kerman and Bam):**

This component entailed three activities i.e.: (i) retrofitting key emergency response buildings in Kerman (US\$3.75 million); (ii) provision of emergency response vehicles for the District of Bam (US\$2.0 million); and (iii) risk assessments, engineering designs and construction supervision consultancies (US\$2.64 million). Since emergency vehicles were subsequently procured using government's own funds, this component was reduced to the retrofitting work for which an international consultant was recruited. However, as mentioned earlier, due to the weak capacity of the Technical Office in Kerman Governorate General (both in terms of technical and human resources) a local consultant was recruited to supervise the project. Unfortunately, the three-way relationship -- the local supervisory consultant with limited professional skills to manage retrofitting program; the international consultant who faced problems getting timely entry visas for supervision missions; and the weak Technical Office of the Governorate General -- did not work well. Moreover, the list of buildings for which retrofitting plans were to be developed changed several times. The personnel with whom the international consultant was to work also changed several times during the course of the exercise. The confusion over payments to the contractors and consultants also remained unresolved for two years i.e.: despite numerous meetings and countless explanations, the Governorate of Kerman never accepted that Financial Controller of the HF was the only official authorized to process the foreign currency payments (as per the Legal Agreement). It was only after the arrival of the new Governor and Deputy Governor of Kerman that allowed signing of the design contract and the appointment of supervision consultant - just 12 months before the project was to close. To avoid further delays, the Governor of Kerman finally decided to cancel this component and implementing it using its own funds. The cancelled activities constituted US\$8.08 million or 3.67% of the total project cost. The project development objective achieved for this component is rated as *Unsatisfactory*.

**Component E (project management and technical assistance):**

This component provided financing to establish BRO (management unit) and the technical assistance to BRO to put in place the Procurement Advisor, the Monitoring & Evaluation Advisor; and the Technical Advisory Services. The BRO monitored the implementation progress and extended the contract management and the procurement assistance to all participating implementing agencies, however, this required long-term capacity building which the BRO was not able to fully achieve within the project timeframe. With a total project amount committed to about US\$154.43 million (70% of the total loan amount) BRO significantly achieved its development objectives in spite of the challenging work environment.

**3.3 Efficiency**

As an emergency operation (processed under OP08.50), economic and financial analysis was not required and therefore not done at Appraisal. The economic value of infrastructure that was reconstructed and replaced by this project is nonetheless indisputable.

### 3.4 Justification of Overall Outcome Rating

#### Rating: Moderately Unsatisfactory

*The overall project outcome is rated as Moderately Unsatisfactory.*

The project indicators were not met numerically for components B through D (19% of the project cost), however the project's main objective to rehabilitate housing units and to restore living conditions of communities affected by the earthquake exceeded original targets. After a delayed start and a non performing contractor, Component B only completed 37% of the Kerman-Bam highway rehabilitation. After being dropped from Bank financing at the Government's request, components C and D were implemented and financed by the Borrower.

**Component A** supported basic construction material and equipment in the amount of US\$138.17 million (92% of the appraised amount). In terms of outcomes, the project delivered beyond the agreed targets i.e.: as per the project, it was agreed that 22,100 urban housing units and 22,800 rural housing units will be rebuilt. According to the last survey reported by Monitoring and Evaluation Consultant, the total number of units rebuilt is 35,866 (160%) and 29,594 (129%) respectively. As for the commercial units, 3000 units were to be reconstructed as per appraisal estimates while in reality this number reached 5,250 units (175%). Likewise, the construction equipment to be procured were estimated at 440 units, in contrast to the 508 units (115%) were procured. The number of quality control and testing equipment procured were 100% of the appraised value (155 units).

**Component B** (US\$22.35 million or 10% of project cost): repair of transport infrastructure (Kerman-Bam highway rehabilitation) only around 37% of work was completed due to delayed start and due to non-performance of the contractor who couldn't meet his contractual obligations because of global price increase of construction materials. Later when the prices eased up somewhat and the construction work picked up momentum, the project had reached its closing date. The government requested an extension, but this was not granted. As for Bam airport reconstruction work (US\$3.15 million or 1.4% of total cost), the activity was dropped by the government due to security reasons.

As for **Component C and D** (together US\$19.84 million or 9% of project costs), as explained earlier (in paragraph 1.6), at government's request both components were dropped from Bank financing with the understanding that all activities would be completed by the government using its own resources.

It must be highlighted here that the cumulative amount dropped from Bank financing from components C and D, and part of component B, constituted 13% of the total project cost i.e. US\$29.45 million of the total US\$220 million.<sup>30</sup>

### 3.5 Overarching Themes, Other Outcomes and Impacts

#### (a) Poverty Impacts, Gender Aspects, and Social Development

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<sup>30</sup> *It must be highlighted that the government's intention was reallocation of funds within the same category and not cancellation. This was repeatedly indicated in government's official correspondence with the Bank when requesting extension.*

Even though the project was not a poverty targeted intervention, most of the people affected by the earthquake were the poor, according to the Rapid Damage Assessment Report (RDAR)<sup>31</sup>. Moreover, as per the eligibility criteria, the HF selected only those beneficiaries who were mostly poor and without means to rebuild adequate dwelling. According to the RDAR, the earthquake left 3,685 orphans, 1,916 widows and 350 completely disabled while older people without direct caregivers totaled 1,449. Chronic mental disorders triggered by the trauma of the earthquake with symptoms of post-traumatic stress disorder were observed in the entire Bam population in various degrees. Mobilization of assistance permitted these poor and traumatized households to resume their lives and protected them from falling further into poverty. A Beneficiary Assessment Report<sup>32</sup>, prepared by the Monitoring and Evaluation Consultant at the suggestion of the World Bank, highlighted that the reconstruction process was carried out to the satisfaction of the vast majority of households impacted by the earthquake.

### **(b) Institutional Change/Strengthening**

The project's institutional development impact, which is defined in the ICR guidelines as the extent to which the project 'has improved agency's ability to make effective use of its human and financial resources' is rated as satisfactory, as evidenced by the establishment of the BRO.

The main responsibility to implement the project rested with the HF, an existing and experienced organization, while for day-to-day project management work, the project established the BRO and allocated US\$7.8 million (under component E) to develop project management capacity through consulting firms for the 'procurement advisory services'; 'monitoring advisory services'; and the recruitment of consulting firms and individuals for "technical advisory services". With this technical support, the BRO was able monitor implementation progress; liaise with all the implementing agencies, and affectively play an oversight function also ensuring adherence to the Bank's safeguard policies. By establishing BRO, the project has clearly established capacity to deal even with the most complex procurement packages<sup>33</sup>.

### **(c) Other Unintended Outcomes and Impacts (positive or negative)**

The provision of construction component had a positive impact in developing small and medium consulting and construction firms as well as local job creation. The decision to drop 'repair of telecommunication infrastructure'; and 'improved emergency preparedness in the province of Kerman and the District of Bam' components and have them built by the government using its own resources was useful in that the discussions triggered healthy debate about sustainable options for its operation and management after completion. In order for the government to be prepared to cope with possible future earthquakes, the government is entering into dialogues with other donors and international financiers.

## **3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops**

A Social Scientist was recruited on a full time basis at the BRO (under component E - monitoring advisory services) who undertook regular field visits and assessed the satisfaction levels of beneficiaries including home owners and owners of commercial establishments, providing

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<sup>31</sup> *The World Bank Rapid Damage Assessment Report dated January 28 – February 10, 2004.*

<sup>32</sup> *Research Report "A survey on public opinions on various aspects of reconstruction process in the earthquake areas" by Mehdi Montazer Ghaem, Asst. Professor, University of Tehran, dated Dec. 2006*

<sup>33</sup> *Selection of contractors for widening of Kerman-Bam highway) for a contract value of US\$51 million*

continuous and objective feedback.. In addition the World Bank supervision missions<sup>34</sup>, an independent local firm<sup>35</sup> as well as local consultant<sup>36</sup> also conducted beneficiary surveys to assess overall quality of construction, level of satisfaction, and level of cleanliness of Bam city.

Overall, most beneficiaries are of the view that assistance provided to them, to cover reconstruction of their habitats, has helped them restore their living conditions, however the construction activities have also resulted in some unintended outcomes. Summary of the such findings are: (i) some people, although small in number, still lived in camps (3.5%) mainly those without land and those who rented even before the earthquake; (ii) some shop keepers are concerned about an increase in rental values, in some cases, quadrupling of rent of the newly constructed shops (from 1.2 million IR to around 4 million IR) was anticipated. Some shopkeepers expressed concerns that once the reconstruction work is fully completed (work being executed by the government is currently underway), they may lose business because of the departure of migrant workers/laborers; (iii) the city still has an un-finished look due to over designing and late comers. This is also true because construction of related city services such as electricity, fiber optic cables and water pipes are being installed incrementally; (iv) some households are using old damaged/repared houses to keep their animals, yet others use them as warehouses - occupancy of old houses contradicts the purpose of the reconstruction efforts as it causes serious safety issues; (v) there is a perception that reconstruction has given impetus to the disappearance of the traditional ‘garden city’, as there is a trend towards apartment dwellings. For example, there used to be a gender-based spatial separation in private and public places in Bam and this was only made possible because of the ‘garden city’ nature of town and large homes. In particular, the old spatial houses allowed women to move freely without the *hijab* while the new small construction arrangements have placed more restriction on women.

#### **4.0 Assessment of Risk to Development Outcome Rating: *Moderate***

The likelihood that changes may occur that would be detrimental to the ultimate achievement of project’s outcome is considered Moderate. With the successful outcome of this project, especially under component ‘A’ which dealt with the reconstruction of housing units, the government has shown great interest in continuing this trend and has signaled HF its willingness to request even larger amounts if a new World Bank project were to be made available again. The government is presently engaged in an advanced dialogue with other donors/lenders<sup>37</sup> to secure financing to complete some additional work i.e. further widening of Bam Kerman highway and retrofitting emergency buildings etc.

### **5. Assessment of Bank and Borrower Performance**

#### **5.1 Bank Performance**

##### **(a) Bank Performance in Ensuring Quality at Entry**

**Rating: Moderately Unsatisfactory**

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<sup>34</sup> Supervision mission dated November 8-14,2007 and November 26, 2007 (Rosanna Nitti, urban specialist and Niels Holm-Nielson, disaster risk management specialist);

<sup>35</sup> Research Report “A survey on public opinions on various aspects of reconstruction process in the earthquake areas” by Mehdi Montazer Ghaem, Asst. Professor, University of Tehran, dated Dec. 2006

<sup>36</sup> Dr. Pooya Alaedini, Beneficiary Assessment, Stakeholder Analysis, & Lessons Learned, dated Mar. 2010.

<sup>37</sup> Islamic Development Bank, among others

The overall Bank's performance in the identification, preparation and appraisal of the project is considered *moderately unsatisfactory*. A damage assessment exercise was undertaken which provided sound grounds to prepare this project. A World Bank ad-hoc committee, with a panel having prior experience in disaster reconstruction, provided useful advice to the Bank's teams during project preparation phase. A formal Quality at Entry Assessment (QEA7) carried out by the Quality Assurance Group considered that the Bank team had prepared the project in a 'satisfactory' manner. The Bank moved quickly by carrying out two preparation missions, adequately staffed<sup>38</sup> with the specialists needed to support design of the project that was somewhat complex but responsive to the country's needs of restoring living conditions of the communities. The Project was prepared in a collaborative manner with the government's Task Force including all the line ministries and special agencies.

Assessment of the implementing agencies' readiness was however somewhat optimistic. For example, there were substantial delays in signing the Framework Agreement<sup>39</sup> by the Management and Planning Organization (MPO) as it could not sign the agreement until the Economic Council had provided its clearance first. As a result, the counterpart funds could not be allocated on time. The clearance by the Economic Council was finally provided after six months of project effectiveness, while as per government procedures, this approval should have been sought prior to negotiations.

#### **(b) Quality of Supervision**

**Rating: *Moderately Unsatisfactory*** The quality of Bank supervision is rated as *Moderately Unsatisfactory*. There were several shortcomings in the supervision of the project by the Bank which contribute to the rating. Firstly, the task team was unable to provide the required expert support to supervise the project adequately (e.g. not being able to mobilize a telecommunications specialist for component C). There was also a lack of candor in reporting on implementation problems as ISRs rated Implementation Progress and Development Objectives as satisfactory throughout the life of the project despite serious ongoing issues. In addition, the hand-over between TTLs when there was change in the management of the project was poor which resulted in outstanding project implementation and processing issues not reaching resolution. There were also insufficient management briefings and a vacuum in adequate sector manager supervision due to prolonged and numerous acting arrangements in the sector manager position.

Finally, it is worth noting that the Bank did not respond positively to the government's request to extend the closing date of the project and reallocate the proceeds across various disbursement categories in order to enable the completion of the Kerman-Bam highway and failed to communicate this decision clearly and with sufficient advance notice to the counterparts. This had a deleterious effect on the momentum of project implementation and on the achievement of project development objectives.

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<sup>38</sup> Amir Al-Khafaji (Lead Operations Specialist); Sateh Chafic El-Arnaout (Sr. Municipal Development Specialist); Mayumi Kato (Urban management Specialist); Antonio Cittati (Sr. Procurement Specialist); David Mardsden (Lead Social Development Specialist); Reza Aboosaidi (Information Specialist); Nuran Ercan (Infrastructure Specialist); Haluk Sucuoolu (Structural Engineer); and Takemasa Mamiya (Hydraulic Specialist).

<sup>39</sup> The loan proceeds being public funds are subject to local laws that require all payments be signed off by the Financial Controller (FC) assigned by the Ministry of Economy and Finance. This Framework Agreement needed to be signed by MPO so that counterpart funds could be released – however MPO could not sign the Framework Agreement without being clearance from the National Economic Council – hence exorbitant delays.

Having said that, the Bank supervision team worked extensively with the client to assist in the implementation of the project. The Bank team also showed flexibility. An example of this in procurement, where - with the consent of team's Procurement specialist - the loan agreement only allowed contracts of up to US\$50,000 for goods to be procured following shopping procedure, however, the supervision teams provided timely waivers on a number of occasions to procure the urgently needed steel and cement on the basis of shopping. The commitment and flexibility earned the team significant praise both among the clients and counterparts and within the region for the commitment maintained. The implementation environment was made all the more difficult after the parliamentary elections (in 2008) and after the UN imposed sanctions on Iran which made procurement and disbursement work more difficult.

Safeguard and fiduciary policies were monitored closely and were addressed on a timely basis. The project also continued to maintain a satisfactory financial management system.(c)

### **Justification of Rating for Overall Bank Performance**

**Rating: *Moderately Unsatisfactory***

Based on the performance during lending phase and supervision as discussed above, the overall Bank performance is rated as *Moderately Unsatisfactory*.

## **5.2 Borrower Performance**

### **(a) Government Performance**

**Rating: *Moderately Satisfactory***

The government's performance is considered as *Moderately Satisfactory*. During project design the government (Ministry of Housing, in particular) and the inter-ministerial committee members worked closely with Bank's preparation team in setting up project priorities. The President of the HF, hand chosen by the President to be responsible for the reconstruction work, provided all the necessary support to the preparation team in designing the project. However during implementation, support other than from the HF, almost completely faded away from all other implementing agencies.

During the MTR, the supervision team provided a unique opportunity to amend the Loan Agreement and adjust some of the procurement methods to facilitate implementation (i.e.: use of force account to build village roads; and option to purchase pickup trucks from Inter-Agency Procurement Services Organization) so there would be no delays. Unfortunately the implementing agencies could not benefit from this offer as they were too slow in submitting an official request for loan amendment.

The process of opening Letter of Credits became more cumbersome and requirement of engaging only Iranian insurance firms further complicated matter as this was contrary to the World Bank's guidelines of not being able to have freedom to competitively choose supplier. There were also frequent delays in providing counterpart funds.

The confusion on the payment modalities of the contractors and consultants remained unresolved until 2008. Despite numerous meetings, misunderstandings persisted regarding the locus of responsibility for processing foreign currency payments, and as a result, the design contract,



supervision consultant contract and the creation of the provincial coordination unit were not effected May 2008.

**(b) Implementing Agency or Agencies Performance**

**Rating: *Moderately Satisfactory***

The implementing agencies' performance was mixed and therefore rated as *Moderately Satisfactory*. The performance of the HF which was responsible for the largest and the most successful component A, was highly satisfactory while performance of the four other implementing agencies (General Office of the Ministry of Roads and Transportation, and Bam Airport Authority, responsible for component B; Telecommunication Company of Iran, responsible for component C; and Provincial Government of Kerman, responsible for component D) is rated as *Unsatisfactory*. These agencies were neither financially independent, nor accountable to each other and thus a major source of conflicts and delays. They lacked knowledge of the World Bank procurement guidelines, lacked ownership of their own component activities, and lacked dedicated technical staff – all of which resulted in long delays in implementation and cancellation of part of the project.

**(c) Justification of Rating for Overall Borrower Performance**

**Rating: *Moderately Satisfactory***

**6. The ratings for the Government and Implementing Agency were Moderately Satisfactory, therefore the rating for Overall Borrower Performance is Moderately Satisfactory. Lessons Learned**

- (1) ***Vigilance during implementation:*** For projects in countries where there has been interrupted Bank engagement or where there is uncertainty about the nature of the future engagement, the task team, SMU and the CMU should be vigilant about problems and complications as they arise, noting that the task team might require extra support from management and recognition for working in a difficult environment.
- (2) ***Need for additional capacity building:*** It is important that the Bank understands and serves the Client's needs when there has been little previous interaction by preparing upfront capacity building on Bank's processes and procedures. In the context of interrupted engagement, projects should be designed to be modular and requiring less interdependence between components, with a simple design and deliberate and thoughtful preparation. There should be a shortened project horizon rather than components/projects which require a long, steady relationship.
- (3) ***Understanding Client circumstance:*** At project preparation stage, it is very important that the Bank staff understand the unique systems, regulations, procedures and institutional characteristics of the country in order to design a viable project.
- (4) ***Simple design for emergency operations:*** When a project is to move quickly because of an emergency situation, arrangements must be made to ensure that project design is kept

simple, Borrower's key project staff are hired and familiarized with the Bank processes and procedures well before the actual start of the project.

- (5) **Seeking consensus:** Before seeking Board approval for a project, including an emergency project, the Bank must ensure consensus among all the stakeholders, including all the implementing agencies that will be involved in the proposed project.
- (6) **Local conditions:** In Iran, the loan proceeds being public funds are subject to local laws that require all payments be signed off by the Financial Controller (FC). All efforts must therefore be made to familiarize the FC with the World Bank guidelines and requirements during project preparation stage.
- (7) **Focusing on sector is key:** Future project design should avoid considering a broad range of sectors under the umbrella of a single emergency project. It is more effective to focus projects on specific sectors and activities that are directly related to the immediate reconstruction efforts.
- (8) **Measurable outcome indicators:** Even though emergency operations don't require outcome indicators, the project under review invested in an M&E consultant and a Social Auditor, practice uncommon in projects of similar nature. Future projects should continue this practice and include measurable outcome indicators so that outcomes may be quantified beyond anecdotic evidence.
- (9) **Local Bank office:** Presence of a local office in the country invariably helps resolve issues in a timely manner.
- (10) **Counterpart funds:** Because of the emergency nature of projects counterpart funds should not be a requirement. The revised guidelines for emergency projects (OP.8.0) provide flexibility to project teams not to require counterpart funds.

## **7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners**

### **(a) Borrower/implementing agencies**

No comments were raised by the Borrower/implementing agencies

### **(b) Co-financiers**

N/A

### **(c) Other partners and stakeholders**

N/A

## Annex 1. Project Costs and Financing

### (a) Project Cost by Component (in USD Million equivalent)

| Components   | Appraisal Estimate (USD millions) | Actual/Latest Estimate (USD millions) | Percentage of Appraisal |
|--|-----------------------------------|---------------------------------------|-------------------------|
| Component-1: Provision of Equipment and Construction Material for Housing and Commercial Buildings | 150.00                            | 138.17                                | 92%                     |
| Component-2: Repair of Transport Infrastructure  | 22.35                             | 6.12                                  | 27%                     |
| Component-3: Rehabilitation of Telecommunication Infrastructure                                    | 11.45                             | 6.31                                  | 55%                     |
| Component-4: Improved Emergency Preparedness in the Province of Kerman and the District of Bam     | 8.39                              | 0.31                                  | 4%                      |
| Component-5: Project Management & Technical Assistance   | 5.85                              | 1.98                                  | 34%                     |
| Physical and Price Contingencies   | 20.86                             |                                       | 0%                      |
| Currency exchange cost   |                                   | 0.46                                  |                         |
| Front end fee  | 1.1                               | 1.10                                  | 100%                    |
|  |                                   |                                       |                         |
| <b>Total Project Costs</b>   | 220.00                            | 154.43                                | 70%                     |

### (b) Financing

| Source of Funds | Type of Co-financing | Appraisal Estimate (USD millions) | Actual/Latest Estimate (USD millions) | Percentage of Appraisal |
|-----------------|----------------------|-----------------------------------|---------------------------------------|-------------------------|
| Borrower        |                      | 15.00                             | 15.00                                 | 100%                    |
| IBRD            |                      | 220.00                            | 154.43                                | 70%                     |

## Annex 2. Outputs by Component

### Component A: Provision of Construction Material and Equipment for Housing and Commercial Buildings:

(i) Procurement of Construction Material:

| No. | Construction Material Purchased | Metric Tons |
|-----|---------------------------------|-------------|
| 1   | Portland                        | 35,000      |
| 2   | Steel                           | 112,500     |

(ii) Procurement of Construction Equipment:

| No. | Equipment Purchased             | Quantity |
|-----|---------------------------------|----------|
| 1   | Wheel Loader                    | 36       |
| 2   | Dump Trucks (6x4)               | 235      |
| 3   | Dump Trucks (4x2)               | 110      |
| 4   | Transit Mixers                  | 36       |
| 5   | Wheel Excavators                | 15       |
| 6   | Motor Graders                   | 40       |
| 7   | Quality Control Test Equipments | 155      |
| 8   | Crawler Dozers                  | 6        |
| 9   | Vibratory Drum Rollers          | 30       |
|     | Total Material Procured:        | 663      |

### Component B: Repair of the Transport Structure:

Lot 1 (Repairing Mahan to Abaregh of Kerman-Bam Highway): Following outputs were achieved:

| No. | Description of Major Items        | Unit  | Total Quantity as per contract | Total Quantity achieved till date of closing |
|-----|-----------------------------------|-------|--------------------------------|--|
| 1   | Site clearance and grubbing       | Sq. M | 530,400                        | 150,000                                      |
| 2   | Earthworks in excavation          | Cu. M | 197,700                        | 27,000                                       |
| 3   | Granular sub base course          | Cu. M | 119,400                        | 21,200                                       |
| 4   | Granular base course              | Cu. M | 102,500                        | 4,600  |
| 5   | Prime coat and granular surface   | Sq. M | 256,400                        | 14,000                                       |
| 6   | Tack coat on bituminous surface   | Sq. M | 1,548,500                      | 14,100                                       |
| 7   | Asphalt concrete regulating layer | Cu. M | 29,100                         | 1,000  |

Lot 2 (Repairing section Abaregh to Rostamabad of Kerman-Bam Highway): Following outputs were achieved:

| No. | Description of major items for Lot-2 | Unit  | Total Quantity as per contract | Total Quantity achieved till date of closing |
|-----|--------------------------------------|-------|--------------------------------|--|
| 2   | Earthworks in excavation             | Cu. m | 173,100                        | 38,000                                       |
| 3   | Embankment                           | Cu. m | 60,500                         | 2,700  |
| 4   | Sub grade and earthen shoulder       | Cu. m | 2,000                          | 100  |

|    |                                      |       |           |         |
|----|--------------------------------------|-------|-----------|---------|
| 5  | Granular sub base course             | Cu. m | 98,000    | 16,000  |
| 6  | Granular base course                 | Cu. m | 90,500    | 3,300   |
| 7  | Prime coat and granular surface      | Sq. m | 245,900   | 25,000  |
| 8  | Tack coat on bituminous surface      | Sq. m | 1,681,300 | 133,250 |
| 9  | Asphalt concrete regulating layer    | Cu. m | 36,200    | 5,900   |
| 10 | Asphalt concrete binder course       | Cu. m | 12,300    | 2,000   |
| 12 | Stress absorbing membrane interlayer | Sq. m | 500,000   | 5,100   |

### **Component C: Repair of Telecommunications Infrastructure**

C1: Development of New Generation Network (NGN) System:

- (i) Procurement documents were prepared for the Design, Supply and Supervision of contracts to install NGN system.<sup>40</sup>

C2: Wireless Local Loop (WLL) System based GSM for Bam and Baravat:

- (ii) Procurement documents were prepared for the Design, Supply and Supervision of the WLL system.<sup>34</sup>

Both these activities were not fully completed at the time of project closing and are now being carried out by government's own resources.

### **Component D: Improved Emergency Preparedness in the Province of Kerman and the District of Bam:**

The following emergency vehicles were procured using government's own funds to avoid procurement delays.

- (i) Firefighting Trucks: 10
- (ii) Ambulances: 6
- (iii) Rescue Cars: 2

### **Component E Project Management and Technical Assistance:**

- (a) Bam Reconstruction Office (BRO) was established with core staff
- (b) BRO office equipment was procured (computers/furniture etc.)
- (c) Procurement Advisor (consultant) was recruited
- (d) Monitory & Evaluation Advisor (consultant) was recruited
- (e) Technical Advisor (Engineering consultant) was recruited
- (f) Financial Auditors were engaged for four years

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<sup>40</sup> with ZTE Corporation of China (October 15, 2007).

### **Annex 3. Economic and Financial Analysis**

Not carried out due to Emergency Nature of the Project

#### Annex 4. Bank Lending and Implementation Support/Supervision Processes

##### (a) Task Team members

| Names                       | Title                          | Unit  | Responsibility    |
|-----------------------------|--------------------------------|-------|-------------------|
| <b>Lending</b>              |                                |       |                   |
| Amir Al-Khafaji             | Lead Operations Officer        | MNSSD | Mission Leader    |
| Sateh Chafic El-Arnout      | Sr. Municipal Dev. Specialist  | MNSSD | TTL               |
| Mayumi Kato                 | Urban Management Specialist    | MNSSD | Co-TTL            |
| Antonio Cittati             | Sr. Procurement Specialist     | MNAPR | Procurement       |
| David Marsden               | Lead Social Dev. Specialist    |       | M&E               |
| Reza Aboosaiedi             | Information Specialist         |       | MIS               |
| Nuran Ercan                 | Infrastructure Specialist      |       | Engineering       |
| Aizad Khan                  | Agriculture Consultant         |       | Agriculture       |
| Haluk Sucuoolu              | Structural Engineer Consultant |       | Engineering       |
| Babak Pirouz                | Consultant                     |       | Project Support   |
|                             |                                |       |                   |
| <b>Supervision</b>          |                                |       |                   |
| Robert Maurer               | Lead Urban Sector Specialist   | MNSSD | TTL               |
| Rosanna Nitti               | Senior Urban Specialist        | MNSSD | Urban Mgmt        |
| Robert Bou Jaoude           | Sr. Financial Mgmt. Specialist | MNAFM | Financial Mgmt    |
| Antonio J. Cittati          | Consultant                     | AFTEN | Project Support   |
| Mouna Couzi                 | Senior Program Assistant       | MNCLB | Project Support   |
| Sepehr Fotovat Ahmadi       | Procurement Specialist         | MNAPR | Procurement       |
| Elena Gagieva-Petrova       | Program Assistant              | FPDVP | Project Support   |
| Niels B. Holm-Nielsen       | Hazard Risk Mgmt Special       | LCSUW | Hazard Mgmt       |
| Christianna Johnnides       | Urban Specialist               | FEU   | Urban             |
| Dahlia Lotayef              | Sr. Environmental Spec.        | MNSSD | Environment       |
| Balakrishna M. Parameswaran | Sr. Urban Spec.                | FEU   | Urban             |
| Thao Le Nguyen              | Senior Finance Officer         | LOAFC | Disbursement      |
| Alessandro Palmieri         | Lead Dam Specialist            | OPCQC | Dam               |
| Helen Z. Shahriari          | Sr. Social Scientist           | ECSSD | Social            |
| Hany Shalaby                | E.T. Consultant                | MNSRE | Project Support   |
| Hiba Muawyah Tahboub        | Lead Procurement Specialist    | OPCPR | Procurement       |
| Velayutham Vijayaverl       | Senior Procurement Specialist  | MNAPR | Procurement       |
| Azeb Yideru                 | Program Assistant              | MNSSD | Project Support   |
|                             |                                |       |                   |
| <b>ICR</b>                  |                                |       |                   |
| Christianna Johnnides       | Urban Specialist               | MNSSD | Acting ICR<br>TTL |
| Richard James               | Operations Consultant          | MNSSD | Primary Author    |
| Allison Cave                | Sr. Urban Dev. Specialist      | ECA   | Peer Reviewer     |
| Margaret Arnold             | Sr. Social Dev. Specialist     | SDV   | Peer Reviewer     |

**(b) Staff Time and Cost**

| Stage of Project Cycle | Staff Time and Cost (Bank Budget Only) |   |
|------------------------|--|---|
|                        | No. of staff weeks                     | USD Thousands (including travel and consultant costs) |
| <b>Lending</b>         |  |   |
| FY05                   | 5                                      | 89.00   |
| FY06                   | 6                                      | 92.00   |
| Total:                 | 11                                     | 181.00  |
| Supervision/ICR        |  |   |
| FY05                   | 19.34                                  | 129.23  |
| FY06                   | 16.90                                  | 108.89  |
| FY07                   | 21.54                                  | 123.55  |
| FY08                   | 14.90                                  | 138.26  |
| FY09                   | 18.80                                  | 76.90   |
| <b>Total:</b>          | 91.48                                  | 576.83  |



## **Annex 5. Beneficiary Survey Results**

### **Introduction**

For Component A, three groups of beneficiaries were considered – Bam and Baravat residents, rural residents, and shop owners and operators. A total of four group interviews and 10 individual interviews were conducted across the three areas of low income, medium income, and high income neighborhoods in Bam while two group interviews were organized in Baravat. Group and individual interviews were also conducted in the villages Baghchamak and Espikan (one near Bam and one far away). Furthermore, three individual interviews with the commercial unit owners/operators in the shopping centers, 7 interviews with shop owners/operators in the newly-reconstructed shopping street (Yek-Tarafeh), and 4 group interviews with members of the Bam bazaar were held. Further interviews were conducted with the head of the Bam City Council, the head of Bam Guild Union, and the executive manager of the traditional bazaar. Observations were also recorded. Finding on Component B are based on observation and the results of a separate social study commissioned by BRO.

### **General Observations**

Normal life has returned to the city, most people have their own homes, and the majority of shop owners are back to their usual business. Whereas Bam used to have a rural character, it looks more like a city now. There exist some nostalgia about the old mud brick/adobe fabric of Bam, some enthusiasm about the new built environment, and some caution about the loss of identity in a previous tourist attraction. While Bam does not appear fully reconstructed, it does not look very dissimilar to other Iranian cities – even in its half-built structures scattered around the town, its uneven sidewalks, and its lack of spatial organization. Furthermore, the achievements of reconstruction activities should be gauged in the framework of a post-disaster society with its increasing dependence on the outside help and its heightened levels of expectation, the subsidy and transfer basis of government-society relations in Iran, and the problematic urban planning process prevalent across the country. It should also be reminded that reconstruction activities in Bam have had a much wider scope than that covered by BEERP. Thus, achieving BEERP's first goal of restoring the living conditions of the communities affected by the earthquake has depended as much on non-BEERP activities as on the performance of project components.

### **Urban Homes**

All homes whose owners acted quickly to benefit from government loan-grant facilities or had the ability to pay beyond government facilities have been reconstructed. However, the loan-grant combination was only adequate for the construction of (HF standard design) homes in the initial period. Over time, the rise in prices of construction materials increased the costs beyond the affordability of many households. A part of the reason behind incomplete houses was misallocation of the received loans/grants. Some beneficiaries had spent the money on starting the construction of an unrealistically big house, on buying a car, or even on investing in Kerman's land market. Bam's former renters have also qualified for loans (not the grant) provided they purchased their own land parcels. However, many renters did not have the resources to do so or were not quick enough to benefit from the facilities before the price hikes. Some are still living in the temporary shelters provided after the earthquake (700 households in Shahraké Dusti who live in containers and claim to be former renters).

Most beneficiaries believe that buildings were reconstructed according to engineering standards and that the city has become much safer in case an earthquake strikes again. The younger

generation in particular trusts in the safety of the homes. These observations are less valid moving up across the social classes. Some doubts are expressed for the case of concrete structures. Many beneficiaries claim that their own supervision was necessary for achieving adequate results.

Despite the existence of 30 design consultants each offering several designs, many urban respondents feel that design options were limited and similar. Many respondents state that the designs are not according to their tastes while others think that considering the extent of the calamity and the need for speedy reconstruction, design similarities (typical designs) were in fact beneficial. Most urban respondents are not satisfied with the sizes (60-80 sqm) of their new dwellings. Some people also question the appropriateness of home/building designs for Bam's climatic conditions.

Most respondents are less than satisfied with the pace of bureaucracy, removing remains of collapsed buildings, and permit issue. In particular, they believe different people faced different paces depending on their haggling abilities. Overall, people believe the process was tiring and unfriendly. Construction permits were issued based on documents showing that remains of collapsed buildings had been removed. If in one place two houses were destroyed, permits were issued for two new homes and two sets of loan/grants. Yet, in some cases large extended families had lived in single large buildings and could subsequently obtain only one permit and one of set of loan/grant. In other cases, survivors were too traumatized or perhaps too unfamiliar with the procedures to benefit from the multiple-building policy.

Respondents are not satisfied with the work of contractors in the city of Bam. They believe contractors coming to Bam from all corners of Iran did not have adequate experience. While the contractors were introduced to beneficiaries by the auxiliary provincial reconstruction taskforces, there was no guarantee they would complete their tasks to the satisfaction of home owners.

### **Rural Homes**

While earthquake damages in rural areas of Bam were less severe than in the city itself (except in a few villages), rural homes had been of low quality prior to reconstruction. Households in rural areas could benefit from a loan-grant combination (at a lower level as compared to urban households) to reconstruct their homes. The reconstruction process in rural areas was much smoother and quicker including the bureaucracy, removing remains of collapsed buildings, permit issue, and actual construction. Social relations in rural areas were simpler and easier to handle while basic social capital and social cohesion were at high levels. Rural residents directly participated in reconstruction of their homes and those of their neighbors. Rural councils were also effective in clarifying ownership, resolving legal disputes and preventing delays. Furthermore, non-governmental organizations (in particular the international ones) were quite active in rural areas in reconstruction and other activities. There was little delay in initiating the reconstruction process in rural areas (in contrast to the city where the preparation of the urban detailed plan had delayed reconstruction). An early start and lack of major obstacles meant that most of the rural houses were finished before the rise in prices. Rural streets were also completed (HF used domestic funds for this purpose) and the villages do not betray signs of the past devastation or ongoing reconstruction. The reconstruction has changed the face of rural areas and has made them more city-like. Rural respondents are for the most part satisfied with the speed of reconstruction and the reconstruction process. They are happy with their new homes partly because they were more content to begin with and partly because the new houses are considered superior to what they were used to. Furthermore, the number of amenities, both public and private, has increased in the villages. Yet, dissatisfaction is expressed regarding the size of the rural houses (smaller than those of the urban areas) against the background of multiple uses made of homes in the villages. Rural residents were not consulted with regard to the designs. One

important issue is that some of damaged houses are still used in the villages despite the fact that owners have new homes next to them. These are used for storage or animal shelter but there are also cases in which an old home is rented out despite its unsafe appearance.

### **Commercial Units**

Fully or partially reconstructed commercial units can be found in the traditional bazaar (not part of BEERP), in the new bazaar (Yek-Tarafeh), and as individual shops across the city. The newly (re-) constructed Yek-Tarafeh Bazaar, built by the Housing Foundation and financed by BEERP, has become functional in the past few months and is currently considered the lively commercial heart of the city. Since shop owners are responsible for interior work and part of the façade, the bazaar does not look fully finished. It took about two years to settle land conflicts among the land owners and in a few cases the issue was only settled through the judicial system. Beneficiaries did not participate in design and execution of this bazaar, a source of dissatisfaction among them. Furthermore, in the opinion of many respondents, whereas the old structures were cooled and kept warm naturally, the new buildings require much more energy for ventilation and heating/cooling.

Other reconstructed shops scattered around the city were for the most part completed before the Yek-Tarafeh Bazaar since some of them only required minor repairs. Overall, the owners of these shops had an easier time reclaiming their businesses. Conflicts over property were minimal and the bureaucracy was straightforward. Despite this, some of the minor stores in side alleys have not been able to benefit from the reconstruction credit or may not have received reconstruction or business permits. Those claiming exclusion belong to the poorer areas of the city or are minor business owners. Damaged or half-built shops are observed in the city, used as storage spaces.

In general, shop owners in Bam are not satisfied with reconstruction. The process of reconstruction – including clarification of ownerships, creation of files, permit issue, and actual reconstruction – is said to have been too long with numerous obstacles along the way. In particular, the difficult issue of clarifying ownerships and allocating facilities has created a sense of injustice among business owners. Lack of participation of the representatives of the businesses, guilds, and unions has created an impression of powerlessness among the beneficiaries and a feeling of distrust in the quality and achievements of reconstruction.

### **Transport and Telecommunication Projects**

Beneficiaries are not particularly aware of the impact of the telecommunication projects completed for the city of Bam. While they note improvements in recent times they think the changes are on a par with upgrading in the rest of the country. In the rural areas, however, respondents report noticeable improvements.

Observations made by the research team indicate that the situation of the Kerman-Bam highway has become worse than before the repair/widening project started. Specifically, the signage has been removed. The incomplete project has had a highly negative impact on the settlements of Abaragh and Khajeh Asgar. Many residents see their hopes for project-induced investment in their settlements dashed; owners of shops located in the road's right of way do not know whether or not they have to eventually move and are highly dissatisfied; the exact right of way is not known but is thought to be in conflict with the guidance plans for the settlements (potentially affecting many residents); and there are wild rumors about reasons behind the incompleteness of the project. The section of the highway which was part of the project did not include any resettlements. For the other segments of the highway not covered under the loan it was agreed that the provincial authority of the Ministry of Road and Transport would also follow the Bank social safeguards.

## **Other Social Issues**

The economy of Bam was resuscitated back to life through the impact of post-earthquake reconstruction activities. The presence of a large number of government officials, contractors, NGOs, and social workers increased the demand for labor and services in an unprecedented way. Yet, an economic downturn set in when the major part of reconstruction came to an end starting about two years ago. The issue of Bam's economic future and employment generation needs does not seem to have been taken up by any agency as a major part of reconstruction activities. Also, many respondents interviewed for the purpose of the BA are worried about paying back their reconstruction loans against the background of a faltering economy.

A significant number of people have been disabled as a result of the earthquake in Bam. Many of them are facing serious difficulties outside their homes. Streets and sidewalks have not been fully constructed. Nor are there adequate provisions for disabled persons in the urban design and in public buildings (even the welfare organization).

An impact of the earthquake and the subsequent assistance provided by the government and other organizations seem to be the loss of self-confidence among the population, an overreliance on outside help, and some sense of injustice. This is while many of the expectations of the population are beyond the capacities of the service organizations.

## **Annex 6. Stakeholder Analysis and Workshop Report and Results**

### **Introduction**

Stakeholder mini-workshops and interviews focused on implementation achievements and problems, reasons for delays (if any), reasons for and effects of changes in project components, suggestions for future operations, and stakeholder reactions to the results of the beneficiary assessment. Summaries of discussions are organized according to project components below.<sup>41</sup>

### **Component A: Provision of Construction Material and Equipment for Housing and Commercial Buildings**

The price of construction materials rose drastically during the course of reconstruction which affected the delivery schedule and required some adjustments. Despite this, all targets were achieved under this component of the project. In fact, 20% more urban and rural housing units have been constructed while the number of commercial units constructed by the end of the project period was 90 percent more than the original plan. Funds other than those from BEERP were used to achieve these higher counts (from HF/government).

#### **Rural Housing**

Rural reconstruction went forward in a speedy manner. Most people accepted the standard design offered by the HF (mostly in 40+ and 60+ square meter configuration with bolted beam skeleton). Furthermore, people's participation in reconstruction in rural areas was at a good level which helped the outcome. In fact, streets have also been completed in the villages (Bank funds for this purpose were dropped as HF/governments funds became available). The reconstruction has in fact gone far beyond what rural households had before, according to our interviews. Overall, stakeholders interviewed for the purpose of this report are proud of their construction activities in rural areas.

#### **Urban Housing**

In the initial phases, reconstruction activities were delayed in anticipation of a revised master plan for the city of Bam. The master plan called for road widening in several areas. Yet, it was exceedingly difficult to both plan for reconstruction of buildings and have owners of remaining or damaged homes cede land for the purpose of widening -- which resulted in some compromises. Furthermore, the initial stages of reconstruction were slowed down due to cement shortages, which were alleviated after a short period. Minimal steel shortages were faced however, since HF managed to provide steel from its own sources before receiving shipments through World Bank funds.

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<sup>41</sup> The following stakeholders were engaged in the mini-workshops and interviews: Mr. Derafshi (BRO head and a Deputy of HF), Mr. Mirzadeh (BRO Senior Strategic Planning Officer), Mr. Soltanieh (Senior Technical Officer at BRO, in charge of contracts and Components B, C, D), , Mr. Keshavarz (HF Deputy for Reconstruction in Bam), Mr. Shoja'yan (Officer, Roads and Transport Organization), Mr. Espahangizi (BRO officer in charge of supervision of the road project), Mr. Fuladi (Member of the Board, Telecom Company), Mr. Qavam (Head of Engineering Development, Telecom Company), Mr. Shojai (Head of Switch Supervision, Telecom Company), Mr. Hoseyni (Head of Switch Design, Telecom Company), Mr. Shafii (Board Member, Telecom Company), Mr. Qaseminejad (NGN Officer, Telecom Company), and Mr. Ani (in charge of the Technical Office in Kerman Governorate General).

The HF offered standard housing designs (bolted beam skeleton) in several configurations of 60+, and 80+ square meters for urban areas. However, in the city of Bam, more people opted for alternative designs. Reasons included owners' desire to build larger units, as well as the incompatibility of the standard designs with the available land parcels.

Due to the impact of the earthquake, many owners could not produce any ownership documents. The HF personnel had to verify ownerships through other means in many cases and this resulted in delays.

The stakeholder interviewed believed that construction standards had been adequate. They believe the main reason for the existence of unfinished houses was that some households had been too ambitious about the size of their dwelling, were subsequently caught in the spiral of rising prices for construction materials, and/or had homes elsewhere. Since the main aim was to recreate permanent shelter for the affected population, the issue of home façades was not considered a priority.

### **Commercial Units**

Interviewed stakeholders in charge of reconstruction highlight the difficulty of clarifying ownership concerning commercial units. They not only had to deal with owners but also those with goodwill titles. In particular, they believe that finishing the Yek-Tafafeh Bazaar was an achievement considering the multitude of obstacles and conflicting claims. They also think that the design was the best they could achieve under the circumstances and the unfinished parts of the bazaar (façade, etc.) were best left to the owners. Furthermore, the dissatisfaction of shop owners was thought to be only a byproduct of the difficulty of the situation, rising expectations, and attempts by some claimants to get more than what they deserved.

### **Equipment**

A total of 508 pieces of machinery and equipments were delivered to the HF. While there were some delays and obstacles in the procurement of the items (for example due to low quality of bidders or non-participation), the achievements of this part of the project are considered very satisfactory by the interviewed stakeholders. In particular, they believe that the procured equipments has enhanced the capacity of the HF to respond to future disaster situations.

### **Component B: Repair of the Transport Infrastructure**

Overall, the fact that the Iranian line agency, contractors and consultants were not acquainted with the World Bank procedures in the initial stages of the project was an important factor causing the delays. For example, the insistence of the World Bank Senior Highway Specialist on a particular road test not available in Iran took a long time to address. At the closure of BEERP, roadside signs have been removed and pavement repairs have been completed for the original carriageway (crack-sealing, etc.), but the asphalt overlay for the repaired road is remaining. Unfortunately, without the new pavement all the repairs will be undone quickly due to the climatic conditions. Furthermore, removal of the signs has made the road less safe. Unfortunately, new funds for the completion of this project will only become available gradually and cannot cover the whole length of the highway at once. Stakeholders believe that the above delays could have been avoided if instead of insistence over the required tests and the prolonged impact study, engineering judgment and larger safety factors had been used. While this would have potentially increased the cost of pavement, in light of the high rate of inflation (as well as the high rate of accidents on the road), a quicker assessment period would have saved a great deal of money in the long run. According to them, if the project had been extended, it would have been finished in a very short period of time due to the capacity built during the course of operations.

The widening part of the project was added to Component B in observation of the high number of accidents and traffic on the original narrow highway. Subsequent project preparations went forward as planned. However, as the time extension requests were not approved, the project was not completed. This is deemed quite unfortunate since government budget for the purpose of this project will not become available in the foreseeable future. Stakeholders interviewed for this report contrast the stringent requirements for beneficiary satisfaction at the start of the project with the lack of commitment to beneficiaries to see the project completed.

### **Component C: Repair of the Telecommunications Infrastructure**

Due to high-tech requirements for the Telecom Company and limited funds, this component was reduced to the reconstruction of the cable and radio transmission networks and switching sites in Bam and Bavarat became. A main reason for certain delays, confusions, and criticisms highlighted by some of the stakeholders is most likely the unfamiliarity of responsible officers in the line agency with the World Bank procedures. In retrospect, more efforts to make sure all stakeholders were knowledgeable about the project and its procedures would have sped up the project.

### **Component D: Improved Emergency Preparedness in the Province of Kerman and the District of Bam**

This component originally entailed retrofitting works concerning vital public and emergency buildings in the province as well as the procurement of emergency response vehicles in the District of Bam. The vehicles were subsequently purchased using other funds. Due to the weakness of the Technical Office in Kerman Governorate General (in technical and human resources terms) a local consultant was hired to supervise the project. Unfortunately, the three-way relationship (international consultant, local supervisory consultant, and the Technical Office of the Governorate General) did not develop in a productive way and the component was not completed. Discussions with the stakeholders indicate that the Governorate General is a political rather than an executive agency and does not have the technical capacity to carry out such projects. Conversely, if such projects are to be carried out by the Governorate General, the required capacity needs to be created a priori.

### **Component E: Project Management**

Two problems should have been addressed prior to the start of the project. The BRO was never able to hire all the quality personnel it needed or to fill all of its positions due to salary restrictions and non-permanency of jobs. Furthermore, a few critical months were spent on the issue of who would bear the cost of cancelled steel subsidies.

In retrospect, a much more focused effort would have been required to familiarize Iranian firms with World Bank procedures and to avoid misunderstandings and delays. The need to familiarize project stakeholders with project requirements and procedures is also acute in the case of the HF management in the initiation stages of the project as well as the line agencies and financial comptrollers. The unfamiliarity of line agencies with the Bank procedures and guidelines could have been addressed with training and information dissemination on the bidding process, hiring consultants, contracts, and financial management. Yet, the case of financial comptrollers is more difficult to address since the problem comprises both unfamiliarity and lack of compatibility between Iranian and World Bank financial regulations. The lack of compatibility between Iranian and World Bank regulations also caused problems with the opening of L/Cs (which are already very time-consuming) as the Ministry of Commerce required purchase of insurance from Iranian insurance firms.

The BRO staff believes that performance targets had not been set properly at the project formulation stage. For example, mid-term performance targets for Component A of the project which included only procurement of goods were set lower as compared to those of Component B which entailed works comprising consulting, design, etc. Subprojects such as those under Component B require around two years to reach actual implementation stage – something overlooked at the formulation stage – according to BRO project staff.

Finally, whereas BEERP was formulated as an emergency project, coordination among various line agencies responsible for the implementation of different project components required long-term capacity building. Without the required authority in the Iranian context, BRO was not able to achieve this within the project timeframe in many instances. Said differently, the explicit and implicit goals of the project concerning adherence to a set emergency timetable and capacity building respectively have been in conflict, in the opinion of the interviewed stakeholders. Whereas a great deal of capacity has been built in the involved agencies over time, adherence to time tables for the more difficult components of the project was compromised.



## Annex 7. Summary of Borrower’s ICR and/or Comments on Draft ICR

### 1. Implementation Status of Project’s Components

**Component A- Reconstruction Program:** The reconstruction strategy supported by the project was based on rebuilding the housing and commercial units “in-situ” in line with the high rate of resident ownership (about 80%). The Government policy, implemented by the HF was to achieve both efficient reconstructions while securing an appropriate level of quality control. This combined objective was achieved through: (i) training of local engineers and contractors; (ii) close supervision and monitoring of the reconstruction activities by the HF and the Engineering Association of Iran; and (iii) the provision of basic construction material and equipment. As such, Component A financed: (i) the provision of basic construction material for housing and commercial buildings (*US\$110 million*); and (ii) the provision of construction equipment (*US\$40 million*).

**Procurement of construction materials and equipment:** Through five contracts BRO purchased 350,000 metric tons of Cement Type II and 112,500 metric tons of steel through 4 contracts. However, during the course of construction material experienced price variations of the exceptional amplitude all over the world. The fluctuations were especially large in the international steel markets and the quantities and the delivery schedules had to be adjusted to these very particular circumstances. The main steel supplier, Ascotec International Company, was unable to meet its contractual obligations, even after extending the initial contract by more than three years. Finally, the HF was able to overcome the difficulties by utilizing its strategic stock of construction material.

**Urban and rural housing:** As per the Technical Annex (TA) of the BEERP it was agreed that under the project 24,715 rural housing units and 24,598 of urban housing units will be totally rebuild. The total number houses reconstructed are 35,866 and 29,594 respectively as per latest survey.

**Commercial units:** As per the Technical Annex 3,346 Commercial units would be reconstructed. The actual quantity of units completed by the HF reached 5,250 units and far more than the number initially planned.

**Construction Equipment:** The constitutional mandate of the HF is to carry out emergency interventions following natural calamities (like major snow falls, floods, etc.) and reconstruction of rural and urban settlements following earthquakes. To be most responsive the HF relies on a fleet of heavy and medium construction equipment strategically distributed in the 30 provinces of Iran. At times of heavy equipment demand, for debris removal or emergency reconstruction, the fleet supplements the services provided by the private sector.

To fulfill its national responsibilities the HF operates a large fleet of about 1,015 pieces of equipment, more than half of which are dump trucks. About 90% of the equipment was more than 10 years old and more than 500 pieces are beyond their economic useful life. The World Bank had already started assisting the HF with the renewal of the equipment fleet (under another emergency operation) and agreed to finance the purchase of an additional 440 pieces of equipment. This number was later increased to 508 in response to the HF urgent needs. The main items purchased under the BEERP include wheel loaders, excavators, motor graders and crawler dozers used for debris removal. The detailed listing is summarized below.

| Type of equipment  | No. of equipment as per technical annex | No. of equipment revised during Implementation | Equipment procured | % achievement |
|--------------------|---|--|--------------------|---------------|
| Wheel loaders      | 36                                      |  | 36                 | 100           |
| Dump trucks 6x4    | 204                                     | 235  | 235                | 115           |
| Dump trucks 4x2    | 96                                      | 110  | 110                | 115           |
| Transit mixers 6x4 | 29                                      | 36   | 36                 | 124           |
| Wheel excavators   | 11                                      | 15   | 15                 | 136           |

|                                       |     |     |     |     |
|---------------------------------------|-----|-----|-----|-----|
| Motor graders                         | 7   | 40  | 40  | 571 |
| Pickup trucks                         | 54  | 0   | 0   | 0   |
| Stone crushing plant                  | 2   | 0   | 0   | 0   |
| Concrete batching plant               | 1   | 0   |     | 0   |
| Quality control and testing equipment | 155 | 155 | 155 | 100 |
| Crawler dozers                        | 0   | 6   | 6   | 100 |
| Vibratory drum rollers                | 0   | 30  | 30  | 100 |
| Truck tractors                        | 0   | 30  | 0   | 0   |
| Drilling equipment                    | 0   | 7   | 0   | 0   |

## 2. Road and Transport - Component B:

Because of the emergency nature of the BEERP, the transport infrastructure activities were restricted to the most urgent works. The top priority was given to the physical rehabilitation of the Kerman-Bam highway and the consulting services required for the detailed design and construction supervision of these works. At a later stage (Mid-Term Review) the widening of the highway was added to the scope of work as the prime investment necessary to fully implement the GOI disaster preparedness strategy and improve the country's ability to better respond to future earthquakes in one of the highest disaster risk area. From a budget perspective, the cost of this additional scope of work was partially offset by the cancelation of (i) the repair of the civil aviation airport of Bam, (ii) the rehabilitation work on damaged village roads funded respectively by the GOI and the HF, and (iii) savings from procurement of construction materials. After this adjustment the initial cost estimate went from US\$30 million to a revised amount of US\$90 million (of which US\$55 million are for the widening of the Mahan- Bam highway). Under Component B, the BEERP has funded the following contracts:

### **-Repairing the section Mahan to Abaregh of Kerman-Bam Highway (Lot 1).**

The contract was signed with Jahad Nasr Kerman Contracting Co. on June 17, 2008 for a total value of US\$12 million and the works started in July 2008. The rehabilitation works covers 102 km stretch (of which 4.6 km is a 4 lane highway) with the completion planned on October 2009. The salient features of road widening and repair undertaken under lot 1 are as follow:

| Sr.No. | Description of major items for Lot-1        | Unit   | Quantity  |
|--------|---|--------|-----------|
| 1      | Site clearance and grubbing                 | Sq. m  | 530,400   |
| 2      | Earthworks in excavation                    | Cu. m  | 197,700   |
| 3      | Embankment                                  | Cu. m  | 108,800   |
| 4      | Sub grade and earthen shoulder              | Cu. m  | 2,000     |
| 5      | Granular sub base course                    | Cu. m  | 119,400   |
| 6      | Granular base course                        | Cu. m  | 102,500   |
| 7      | Prime coat and granular surface             | Sq. m  | 256,400   |
| 8      | Tack coat on bituminous surface             | Sq. m  | 1,548,500 |
| 9      | Asphalt concrete regulating layer           | Cu. m  | 29,100    |
| 10     | Asphalt concrete binder course              | Cu. m  | 13,900    |
| 11     | Asphalt concrete wearing course             | Cu. m  | 200       |
| 12     | Stress absorbing membrane interlayer (SAMI) | Sq. m  | 659,500   |
| 13     | Stone Matrix Asphalt (SMA)                  | Cu. m  | 31,200    |
| 14     | Pavement Marking                            | Lin. m | 320,500   |

|    |                                    |        |       |
|----|------------------------------------|--------|-------|
| 15 | W section Metal Beam Crash Barrier | Lin. m | 5,100 |
|----|------------------------------------|--------|-------|

- After a slow start and clear evidence of weak management, and inadequate professional expertise of the team involved in implementation of the works, the contractor's replaced the project manager and technical staff. These measures resulted in improved performance and increased the speed of contract execution.

**- Repairing the section Abaregh to Rostamabad of Kerman-Bam Highway (Lot 2):** After re-bidding, the Lot 2 contract was finally awarded to Paz Construction Co. and signed on October 22, 2008 for a total value of US\$18 million. The construction period is 15 months and the works commenced on November 18, 2008. The scope of the works on this 87 km long section (of which 15.07 km is a 4 lane highway) and characteristics of the existing road are as follow:

| Sr.No. | Description of major items for Lot-2        | Unit   | Quantity  |
|--------|---|--------|-----------|
| 1      | Site clearance and grubbing                 | Sq. m  | 414,700   |
| 2      | Earthworks in excavation                    | Cu. m  | 173,100   |
| 3      | Embankment                                  | Cu. m  | 60,500    |
| 4      | Sub grade and earthen shoulder              | Cu. m  | 2,000     |
| 5      | Granular sub base course                    | Cu. m  | 98,000    |
| 6      | Granular base course                        | Cu. m  | 90,500    |
| 7      | Prime coat and granular surface             | Sq. m  | 245,900   |
| 8      | Tack coat on bituminous surface             | Sq. m  | 1,681,300 |
| 9      | Asphalt concrete regulating layer           | Cu. m  | 36,200    |
| 10     | Asphalt concrete binder course              | Cu. m  | 12,300    |
| 11     | Asphalt concrete wearing course             | Cu. m  | 200       |
| 12     | Stress absorbing membrane interlayer (SAMI) | Sq. m  | 500,000   |
| 13     | Stone Matrix Asphalt (SMA)                  | Cu. m  | 29,900    |
| 14     | Pavement Marking                            | Lin. m | 307,400   |
| 15     | W section Metal Beam Crash Barrier          | Lin. m | 500       |

**- Widening the section between Rayen Junction to Darzin of Kerman-Bam Highway (Segments 1 & 2):** Form early stages of the project widening of the whole stretch of the highway was paid special attention by Ministry of Road and Transportation (MORT) mainly due to increase in traffic volume that had resulted in a plethora of accidents and number of fatalities and injuries. This was brought to the attention of Bank's missions which was considered not necessary based on traffic data available at the time. Supervision consultant of Lot 1 & 2, MSV International, was assigned to conduct a feasibility study and the final report was transmitted to the Bank for further considerations and advice, meanwhile the general office of MORT in Kerman initiated steps to widen the two sections of highway from two lane to four lane, Mahan to Rayen intersection about 40Km and Darzin to Bam about 11Km. Consequently the Bank mission was convinced to consider funding of the stretch, the portion from Rayen Intersection to Darzin for widening, during the Mid Term Review provided an amendment to the loan agreement. The general office of MORT in Kerman selected a design consultant, Haraz Rah consulting engineers, thru MPO procedures right after decision was made and the consultant initiated rapid steps to conduct the design of the highway. Throughout the design period the Bank supported the project and deployed its Sr. highway engineer Mr. Wolden to perform design review and checks, at certain stages, in order to expedite the process and avoid delays which could have been occurred due to back and forth transmittal of documents. In parallel the general office of MORT in Kerman with assistance of BRO and consultant took immediate action to prequalify contractors and prepare bidding documents which was cleared by the Bank. Bids were opened for both segments on March 10<sup>th</sup> 2009 and bid evaluation reports were sent to the Bank on April 20<sup>th</sup> 2009 and the No-Objections were received on May 11<sup>th</sup> 2009 3:38 AM to award both contracts to Abadrahan

Pars Co. for Segment-1 IRR 303,444,537,030 and for Segment-2 IRR 200,898,911,700. The No-Objections were later withdrawn due to closing of the loan.

| <b>Sr. No.</b> | <b>Description of major items for Segment 1 and 2</b> | <b>Unit</b> | <b>Quantity</b> |
|----------------|---|-------------|-----------------|
| 1              | Site clearance and grubbing                           | Sq.m        | 2,000,000       |
| 2              | Earthworks in excavation                              | Cu.m        | 720,000         |
| 3              | Embankment  | Cu.m        | 1,655,000       |
| 4              | Sub grade and earthen shoulder                        | Cu.m        | 382,000         |
| 5              | Granular sub base course                              | Cu.m        | 220,000         |
| 6              | Granular base course                                  | Cu.m        | 205,000         |
| 7              | Granular base shoulders                               | Cu.m        | 20,500          |
| 8              | Prime coat and granular surface                       | Sq.m        | 1,150,000       |
| 9              | Tack coat on bituminous surface                       | Sq.m        | 2,250,000       |
| 10             | Asphalt concrete binder course                        | Cu.m        | 135,000         |
| 11             | Asphalt concrete wearing course (PMB)                 | Cu.m        | 56,000          |
| 12             | Non-Reinforce concrete                                | Cu.m        | 45,060          |
| 13             | Precast concrete                                      | Cu.m        | 13,600          |
| 14             | Furnishing steel reinforcement                        | Kg          | 1,530,000       |
| 15             | Steel frame works                                     | Sq.m        | 93,900          |
| 16             | Box culverts  | No.         | 182             |
| 17             | Small bridges   | No.         | 24              |
| 18             | Pavement Marking                                      | Lin.m       | 221,500         |
| 19             | W section Metal Beam Crash Barrier                    | Lin.m       | 21,000          |

**Note:** This sub project received much technical support by deployment of Bank's Sr. Road Engineer in three periods, to examine the design at BRO and Consulting Engineers offices in order to expedite the design process as the widening of Kerman Bam highway was considered an essential task to decrease number of accidents, save travel time and consequently be well prepared for faster relief emergency works if unforeseen calamities happen in future.

Though right decision was made by the Bank's mission during midterm review and all efforts were made by concerned parties, Bank and Government of Iran, to achieve this life-preserving goal within a reasonable time, this important task was however aborted as the Bank did not provide extension of the project closing date.

**Major reasons resulted in delays in Implementation of Component-B:** At very early stages of the project a design consultant namely Faradid Consulting Engineers (FCE) was hired by the general office of MORT in Kerman to carry out the design studies for rehabilitation of Lot 1 & 2, the design was reviewed by World Bank's Sr. road engineer on October 2005. The Sr. road engineer instructed the Benkelman test to be carried out, since this type of test was not common in the country it was assigned to an Austrian Consultant by name of Nivelte. The process of selection of Benkelman test consultant and execution of test took almost a year to be completed by September 2006 and the final outcome did not make any difference in thickness of Asphalt layer as it was expected. Therefore one year of postponement was experienced due to Benkelman test conducted.

-Supervision consultant MSV International was selected thru Bank's procedures and contract was signed on January 2007. As the design review was a part of supervision consultant's assignment, the consultant

failed to review the design and prepare the bidding documents as it was planned on Mid June 2007. Owing to the fact that MSV ceased to mobilize the staff at the beginning stage, on the pretext of safety and insecurity of its employees in Iran. Meanwhile because of MSV failure to deploy staff in timely manner, for about one year, BRO entered into negotiation with 2<sup>nd</sup> and 3<sup>rd</sup> rank evaluated supervision consultants to sign contract. Unfortunately the Ital consult express its apology for nonparticipation in negotiation due to overloading of assignments in hand and negotiations with SNC Lavalen did not emerged to a suitable consensus. In the interim BRO prompted preparation of bidding documents for lot 1 and 2 and received No-Objection on Jan. 9<sup>th</sup> 2008.

- Subsequent to failure of negotiation with SNC Lavalen MSV was asked to mobilize its team under constraints and compelling circumstances and the project suffered further delays about one year due to MSV's lack of commitment.

- Rehabilitation of Lot-1 and Lot-2 could have been accomplished if the Supervision consultant was committed enough to its obligations. –

However, considering the mentioned delays up to now the progress is satisfactory.

**Note:** BRO suggests for future Design and Supervision Contracts a performance guarantee equivalent to 20% of contract amount to be obtained prior to contract signature.

**Telecommunication Infrastructure - Component C:** Prior to the earthquake, there were 16,745 subscribers in Bam and 2,300 in Baravat. The earthquake heavily damaged the telecommunication lines in Bam (350km), Baravat (35km) and the rural area in the Bam district (70km). The damage was also considerable at the three switching centers in Bam (2) and Baravat (1) and at the microwave station in Bam. Soon after the earthquake, less than 1,500 lines were restored and the local phone services were offered free of charge by the Kerman Telecommunications Company (KTC) as part of the emergency relief to ensure essential communication systems.

Because KTC is accountable for maintenance, operation and expansion of the telecommunications networks (including fixed lines, mobile phones, microwave, fiber optic, data and any other infrastructure networks), the GOI requested financial support (for an estimated amount of US\$12.1 million) to carry out the following rehabilitation and upgrading work.

**C-1 – Development of New Generation Network (NGN) System:** The contract for supply and installation of NGN was signed with ZTE Corporation of China on October 15, 2007, consisting of two main parts namely: (i) supply and installation of NGN equipment; and (ii) providing connectivity through fiber cable. In addition to the intrinsic complexity associate to the procurement of the most advanced telecommunication technology, it took almost one year to open the Letter of Credit (L/C) to pay for the equipment. Finally the L/C was opened on August 2008 allowing for the equipment to be tested in the manufacturing premises of the supplier by a team of experts from TCK. Unfortunately, once imported from China to Bam the equipment remained under Custom custody for 6 months waiting for the availability of sufficient local counterpart funds to pay the custom duties and clear the goods.

NGN equipment is now installed on the designated sites, moreover, the designs of OCDF and ODF for all the phases have been approved by KTC and the expert consultants and the ZTE has completed the integration.

- *Installation of Fiber Optic Cable:* The installation of FOC is vital to the implementation of the telecommunication component. The phases 1, 2 and 3 (about 200 km) of laying Fiber Optic Cable (FOC) were terminated and handed over to KTC who has commissioned both (Old and new FOC) networks. For phase 3, the required FOC was purchased during winter of 2008-2009 and installation of about 60 Km has completed after overcoming last difficulties related to the geology of the area and crossing of several villages.

Despite the some momentum observed at the beginning, the commissioning of the NGN network encountered many difficulties which affected the performance of the project. In addition to the technological challenges of importing modern electronic components to Iran and the physical constraints associated to any work in Bam District, other reasons explain the slow implementation:

- *Technically*, the decision made by KTC to change the FOC specifications (moving from 72 cores to 12 and 24 cores) without adequate anticipation of the consequences of such measures has caused significant delays;
- *Financially*, Delay in L/C opening for about one year, caused by obtaining different permits from concern authorities and struggles for finding proper transaction rout due to international sanctions and the lack of timely counterpart funds considerably delayed the delivery of the goods and hindered ZTE's progress; and
- *Administratively*, inadequate planning, deficient coordination among all parties involved and delayed responses by the World Bank Telecom expert, (TCK, Expert Consultants, Contractor, BRO and the World Bank) seriously compromised the adherence to the work schedule.

Note: Even though the project received suggestions for improvement for the design and advice in regard to Separation of NGN and WLL packages from Bank's Telecom expert, the project faced a delay of seven months due to late responses and clearances. BRO sent the first Technical package of NGN on May 9 2006 and after a few follow up emails finally Bank's expert requested site and path survey for the system. On August 1 2006 a CD containing all technical design of NGN including Path survey was couriered to Bank and the clearance was received on December 20, 2006 and after two time extension of bid submissions requested by interested bidders, finally bid opening took place on May 15, 2007. On July 16, 2007 the bid evaluation report was transmitted to the Bank on no-objection for award of contract was received on July 20, 2007. Draft contract was sent after no-objection and on August 12, 2007 a two page procurement queries containing many questions in regard to evaluation were asked by Bank and the response was given on August 27, 2007. Another no-objection was received on September 11, 2007.

**C-2) Wireless Local Loop (WLL) system based on GSM for Bam and Baravat** – After a lengthy process, the Bank issued its no-objection on Sept. 03, 2008 for awarding the contract to ZTE for the bid price Euro 1,942,113 and Iranian Rials 23,237,411,888. However, as the technical specifications were prepared more than one year before the contract and the provision of Performance and Advance Payment Guarantees by ZTE took six additional months due to the international restrictions imposed on the financial transactions with Iranian banks, KTC decided to further improve the initially proposed WLL system. The intention was to procure a system entirely integrated in general telecommunication framework. Such adjustments were also warranted because in the meantime KTC had completed the upgrading of several technical installations through its own local funds. Therefore, the investments made by KTC (such as telecommunication towers, buildings and support systems including alarm control, power supplies for BTS and air-conditioning) in Bam and Baravat were deducted from ZTE's contract in exchange of high-tech equipments (such as billing and Intelligent Network systems able to provide conference calls, service charging, MMS services, prepaid calling, etc.) for an equal amount. The updates of the WLL technical specifications and the variations in the exchange rates justified an amendment to the initial contract on December 30, 2008, for an amount of Euro 3,364,660.69 and IRIs 4,795,649,699.

Opening of L/C for importation of the equipment from China has been postponed till the alternative financing arrangements of this contract is in place.

**Major reasons resulted in delays in Implementation of Component-C:** (i) Complexity of the project in regard to design a New Generation System compatible to the existing telecommunication system of Bam; (ii) Preparation of tender document for supply and installation of intricate package; (iii) Profound bureaucracy to obtaining permits from Atomic Energy Organization, Department of Frequency Control;

(iv) Delays due to obtaining permit of import from Ministry of Commerce; (v) Delays in opening L/C due to international sanctions for which the project had to find alternative route and intermediary bank; (vi) Delays in Bank's responses.

**Component D- Retrofitting Program:** The effects of the Bam earthquake and destruction of key public buildings and facilities in the district has confirmed the urgent need to retrofit and strengthen key emergency response buildings throughout Iran. This component aimed to improve the earthquake emergency preparedness in the Province of Kerman and the city of Bam through the risk assessment and retrofitting of strategically important buildings in the Province of Kerman on a pilot basis. The experience acquired from the pilot phase would then be replicated by the GOI in the remaining 30 Provinces of Iran. The total cost was estimated at US\$10.00 million, to be implemented by BRO through close coordination with the Governorate of Kerman (GOK) and concerned entities. Initially, the component also included the procurement of emergency response vehicles for the city of Bam but these expenses were canceled from the project and funded through the Governorate of Kerman's budget as the required vehicles were procured through Government funds.

Because of the intensity of the emergency work, this component was initiated in 2006. During the following two years the whole retrofitting approach was not understood correctly by the implementing agency officials. The lack of ownership resulted in substantial delays in appointing the international expert consultant indispensable for the design phase. Moreover, the nature of retrofitting was far away from the traditional development routine strongly inclined to construct new facilities. Another exacerbating factor was the absence of local experts with the advanced professional skills to manage retrofitting programs. Finally, the confusion on the payment modalities of the contractors and consultants remained unresolved for more than two years. Despite numerous meetings and countless explanations, the GOK never accepted that the Financial Controller of the HF was the only official entitled to process the foreign currency payments. It was with the arrival of the new Governor and Deputy Governor of the Kerman Province that allowed the signing of the design contract (with DRM on May 2008), the appointment of the supervision consultant (Iman Sazeh Fadak Engineering Company) and the creation of the provincial coordination unit.

Over the year of 2008, the Design Consultant organized training seminars on retrofitting in the Governorate of Kerman and submitted the preliminary assessment of the buildings in the specific Inception Reports, the as-built drawings related to the selected hospitals buildings and to the fire-fighting building. The design consultant also prepared the proposal on prioritizing the buildings and substitution of some of the buildings listed in the contract with other options and prepared the Architectural drawings for the hospitals.

Though the ongoing design phase is moving forward, the progress remains slow for the following objective reasons:

- Contrary to what was initially anticipated, there were no documents (drawings, codes used for static and seismic calculation, geotechnical parameters, etc.) or any other useful technical information (geotechnical data of the project sites, structures, foundations, etc) able to guide the consultant to find out structural and architectural details of the different buildings. As a result, the first step for retrofitting was surveying of the buildings and assessing the earthquake resistance and the structures bearing capacity through sounds and inspection of the walls, roofs, decks and foundations.
  
- Because the hospitals are running their daily business (like surgery, X-Ray, etc.) and most of the rooms are occupied by patients a very close coordination with the hospital managers becomes an absolute necessity. In some cases the restrictions for building inspections were such that it will not allow to realistically assessing the earthquake safety.

- The findings of the design consultant has led to complex alternatives (some buildings are unfit for retrofitting or strengthening costs would be excessive). The final decision often required additional information to envisage all the possible options (including the conversion of the buildings for storage) to minimize the risk and the cost.

**Major reasons and grounds resulted in delays in Implementation of Component-D:** During the contract negotiations DRM insisted on receiving the full amount of contract in USD, despite the bid data sheet indicated that all local expenditures should be stated in national currency. BRO and GOK got the feeling that DRM is trying to buy time due to its other commitments. BRO is in the opinion that a 5 months delay inflicted to the project by DRM.

-GOK took no action in preparation of TOR and RFP for a period of 5 months after submission of Bank's Guidelines and inflicted delays of 5 months in this respect.

-GOK declined to sign the contract without any reasonable grounds and after many follow ups by BRO finally signed inflicting 14 months of delay to the project

-In total 24 months of postponement of the project is on the shoulder of GOK owing to lack of knowledge of WB guidelines, uncertainty in ownership and lack of dedicated technical staff.

**Component E -Project Management:** The Project implemented by Housing Foundation. In order to speed up the reconstruction activities, the World the Bank emphasized on establishment of an office with qualified staff so that they can efficiently collaborate with the Bank, therefore on May 1, 2004, BRO (Bam Reconstruction Office), was officially established to coordinate all technical and project management aspects of project implementation. The BRO is headed by a Project Director (PD) supported by a staff of technical specialists in different disciplines, relevant to reconstruction activities, and has been operational from a central office in Tehran and a field office located in Bam.

BRO was and still is responsible for the monitoring of implementation progress as well as financial and contract management and procurement assistance to all implementation agencies involved and has played an oversight function to ensure the adherence of the implementing agencies to the safeguard policies under the project. Also BRO acted as the main counterpart to the World Bank.

This component supported BRO through the provision of consultants for Procurement, Monitoring and Technical Advisory Services. The initial cost for this Component was estimated at US\$7.80 million.

During the project BRO handled all the necessary coordination tasks required for the BEERP implementation. With a total amount committed about US\$195 Million or almost 90 percent of the total loan amount BRO, and more generally the HF, have achieved a good performance in light of the challenging work environment, mainly related to the change in project currency, replacement of commercial bank accounts, difficulties faced in opening Letters of Credit and identifying suitable intermediary banks, additional clearance processes, and delays in providing counterpart funds in due course.

The Monitoring and Evaluation Consultant of the project rated this component as one of the most successful as it achieved the main objectives defined in project documents. After 6 years, BRO has clearly demonstrated its capacity to deal even with the most complex procurement packages like the selection of the contractors for the widening of the Kerman–Bam Highway between Rayen and Darzin (for a contract value of US\$51 million).

### **Lessons Learned**

#### **Component 'A' - procurement of construction materials and construction equipment**



1. Normally, the Bank's procurement policies don't allow price adjustment formula for procurement of goods with delivery periods of less than 18 months. When prices spiraled up in the markets, either this would lead to stretching of the delivery periods or to cancellations of contracts and consequent contractual disputes with suppliers. Our project did go through these tribulations during procurement of steel for our construction activities in the light of unprecedented escalation in steel prices a few years ago and fortunately, though it elongated the delivery period and supplies were completed when market prices for these products eased a bit. In light of our experience, the Bank may consider or suggest on its own the inclusion of price adjustment formula in bidding document even the delivery period is less than 18 months in future. The procurement wing may consider eliciting some inputs on this issue from the economic analysis wing of the Bank to advise the bank funded projects.

2. According to the Bank's procurement policies, technical specifications for procurement of all equipments and materials require to be prepared in generic terms in order to provide equal opportunities to all bidders from all countries. Whereas our experience shows that these procurement procedures may be reasonable for goods that are generally available in markets of all countries but not adequate when the borrowers attempt to do with the same procedures for procurement of specialty goods such as heavy earth moving equipments. These procedures when we attempted to procure specialty equipments had steered us to end up having bidders from countries with low quality manufacturing base who quoted low prices to capture the supply orders. A few times, this resulted in procurement of low quality equipment, poor after sales services and as a result caused problems namely frequent breakdowns, multitude of repairs, and finally incurring higher life cycle costs than what was estimated at the time of procurement. Whereas procurement of equipment from reputable manufacturers may seem to be expensive in the beginning, but cost effective and highly reliable in the long run. The unique procurement requirements of projects may be given creditable considerations while finalizing the procurement plans for the emergency rehabilitation projects.

3. In case of Emergency Rehabilitation projects, with the application of existing procurement procedures that are protracted, the pressing needs of immediate construction materials might not reach the construction sites in early stages of requirement / reconstruction. In case of our project, the first delivery of construction materials procured thru the loan reached construction sites almost 18 months after the occurrence of killer earthquake. But for the foresight of the 'Housing Foundation', the nodal agency identified by Government to undertake the reconstruction activity, which had procured the steel and cement in the beginning, the reconstruction activity of housing in urban and rural areas would not have been completed on time as scheduled. It is recommended special exemption shall be considered to procure at least 25 % of overall project's needed materials thru 'Shopping' in early stages of the project that focuses in meeting emergency requirements.

#### **Component 'B': Rehabilitation of Road Infrastructure: (i) Rehabilitation of Mahan-Bam-Rostamabad highway**

In response to the suggestion of the Bank on the design submitted for rehabilitation of Mahan – Bam – Rostamabad highway, the general office of Ministry of Road Transport (MORT) in Kerman province spent seven months to locate and sign a contract with a foreign consultant to conduct Benkelman and FWD test as a prelude to firm up the design. The foreign consultant took three more months to submit its report followed by a period of four months for the local consultant to review and finalize the design that facilitated the floating of bids for rehabilitation. In parallel, the process of hiring a consultant for the supervision of rehabilitation work was undertaken. After appointment of supervision consultants, they were unable to mobilize their staff to review the detailed drawings prepared citing country's perilous conditions and the consultants inflicted another 9 months' delay on this activity.

After going through the process of pre-qualification and bidding, the contract for rehabilitation of Lot-1 of rehabilitation of highway was signed on June 17, 2008 with a contractor who delayed the project for about

5 months due to various factors. For Lot-2 of rehabilitation of highway, after going through the process of pre-qualification and re-bidding, the contract was signed on October 22, 2008 with another contractor who delayed the work for 3 months due to various factors.

Bearing in mind the following factors such as unavailability of certain test equipment or operator to perform a test, continued deterioration of the road condition because of the usage for the traffic movement and consequential road accidental casualties in the interim period, and very high inflation in the country (used to be around 24% per annum), the consideration to take up the work should have been on the basis of national economic and need analysis rather than the normal cost and benefit analysis and utilizing the local expertise available on emergency basis by shortening of lead times for procurement through national competitive bidding.

## **ii) Widening of Mahan-Bam-Rostamabad highway**

The contract was signed with an international technical consultant utilizing funds provided by the Government for feasibility impact study for undertaking widening of highway in May of 2007 and the completion and subsequent submission of report was delayed. All together, the project took almost 10 months to receive the Bank's no objection for the report and a good portion of this time period was due to the fact that the Bank had asked technical issues to be covered in the impact study at different periods. The final design was made ready within 11 months after signing the contract by another technical consultant, who was selected based on procedures of the Government of Iran (similar to QCBS of the Bank) and was cleared by the Bank. To facilitate the expedition of completion of the design of widening of highway, the Bank had deputed, at the intervention of the Task Team Leader, its senior road expert to visit Iran to check and review the design three times.

## **Component 'C': Rehabilitation of Telecommunication Infrastructure**

**i) New Generation Networks (NGN):** Though the work was initiated in beginning of 2006, a host factors namely clearances, authorizations and approvals from various government departments, and no objection from the Bank at various stages of this prior-review contract belated the completion of this important link in the telecom infrastructure. In the initial stages, the segregation of telecom comprehensive plan in two separate packages intertwining the telecom infrastructure took a considerable six months time for the project to achieve on the lines suggested by the Bank. After substantial detailed communication on the proposed technical specifications which took more than one year for the technical consultant to provide all clarifications to the Bank for its no objection. Also a significant time in 2008 was lost due to imposition of UN sanctions and regulations on banking with the country and finally the Bank issued to special commitment. The same restrictions also triggered loss of 4 months time for the supplier to provide the performance and advance payment securities and Proforma Invoice after signing the contract. Further, in order to obtain different permits and approvals from Atomic Energy organization, Radio frequency control department, and Ministry of commerce (for L/C opening), sizeable time of 7 months was expended due to excessive bureaucratic regulations within the country.

Bountiful efforts and energies were spent by the implementing agency along with Bam Reconstruction Office to arrange for the counter-part funds towards payment of custom duties which was the result of changes to custom duties in the interim period and inability of the management of implementing agency for making adequate provision for this in its budget. Further the tardiness in progress was added to the fact that the laying of cable required necessary permission and approvals from various departments of provincial government. Also failure of the implementing agency to monitor the progress and its internal squabbles added ambiguity to the implementation of the project.

The project authorities were of the opinion that had there been adequate support and assistance from the technical team of the Bank, this system would have been completed at least one year in advance even in the face of external constraints forced on the project from time-to-time, imposition of UN sanctions on

banking, and elapsed time in mobilizing counter-part funds and receiving the necessary approvals and clearances from various provincial government agencies.

**b) Wireless Local Loop (WLL) Based on GSM:** After preparing the segregation plan of NGN and GSM systems, it was decided to go ahead with implementation of NGN system first and then to take up WLL system based on GSM later. This decision delayed the implementation of the WLL system by almost a couple of years. As it happened with NGN system, a considerable time of almost 18 months at various stages of the system procurement was spent on fine tuning of the technical specifications with the comments of the Bank such as addition of high performance sub-systems, deletion of locally procurable sub-systems, and receiving the Bank's no objection on the revised technical design of the system. Further there was almost three months overdue to the fact that the Bank's no objection was received on bid evaluation report. After signing the contract, the supplier took up 3 months to provide performance, advance payment securities and Performa invoice in the light of imposition of UN sanctions on banking. Also failure of the implementing agency to monitor the progress and its internal squabbles added ambiguity to the implementation of the project. The problem faced by the implementing agency in managing the counter-part funds towards its contribution to the system procurement contributed to the non-completion of this system implementation and consequent stoppage of the work on this system.

The project authorities were of the opinion that had there been adequate support and assistance from the technical team of the Bank, this system would have been completed at least nine months in advance even in the face of external constraints forced on the project from time-to-time, imposition of UN sanctions on banking, and elapsed time in mobilizing counter-part funds and receiving the necessary approvals and clearances from various provincial government agencies.

**Component 'D': Improved Earthquake Preparedness in Kerman Province & Bam District:** The implementing agency namely Government of Kerman province didn't evince interest in this component though it was agreed initially that they would take all necessary steps to extend support. Almost there was no action on the part of the implementing agency to firm up the ToR for completion of RFP and didn't act timely on the evaluation of proposals after receipt, and these two in-actions contributed almost 10 months of delay to the implementation. Added to this there was only one response to the RFP for providing consultancy services to retro-fitting of public buildings in Kerman province and further the consultant's rigidity and inflexibility to accept the local expenditures in local currency (as per RFP) contributed another six months delay to the implementation period. The contract agreement was signed finally with the consultant by the implementing agency after a period of 14 months' holdup with continual persuasion by BRO. The design of retrofitting activity of public buildings gained momentum in December 2008 when a new deputy of civil affairs was appointed by provincial government, nevertheless the lost time of two years due to the non-cooperation of the implementing agency couldn't be salvaged.

### **Conclusions:**

1- When a project of this type is defined and designed, there should be more clarity on the overall objective of meeting the emergency requirement of the project or to increase the implementation capacity of implementing agency (ies) or both. Taking into consideration that these as a datum line, the progress achievable must have been worked in the form of a workable plan by the nodal agency identified for the project implementation in consultation with the Bank. But, however, the focus was mostly on achieving the objectives with clearly defined time lines for implementation and with fewer spotlights on organizational arrangements. Though a reconstruction office was envisaged and created for coordination with various implementing agencies, it was perceived at the end that issues of non-cooperation of implementing agencies were not addressed to meet the objectives and goals of project, and there could have been a contingency proviso in the legal agreement to take over or transfer of the implementation of components / contracts if the required cooperation was not forthcoming from the identified implementing agencies.

Instead of having many implementing agencies, a single agency with multi-disciplinary teams on deputation of specialists could have been a better option of implementing the emergency projects.

2- Considering the Bank's guidelines and procedures for procurement of goods, works and consultancy and the reasonable time required for each procurement type with the proposed organizational arrangements, a higher percentage of progress was expected for procurement of goods and lower level of progress for procurement of works that required design and consultancy as evaluated in the midterm review, and those expectations were almost achieved.

3- When the overall objective of the project was specified as making the people to return and assist them in restoration of living conditions, there was no allocation of funds in the project for making them available to restart their affected businesses.

4- However, when the ToR were being firmed up for the social and environmental assessment study of widening of highway, it was emphasized that all intruders and encroachers of public road should be treated in a humanitarian manner and be resettled in a way that their business opportunities would be at the same level as before even though everybody knew that they did set up their shops and kiosks within the limits of public road.

5- A question arose in the minds of implementing agency officials that how come that the same level of scrutiny and concern was not shown for people who traversed on the damaged road, getting killed or wounded when the decision was taken by the Bank for not extending the loan. This imperious action, according to the officials of road rehabilitation implementing agency, was not well received by the people of Kerman Province and they were dejected that the required extension was not provided for, though there was a genuine need of rehabilitation and widening of highway (a life line connecting the south- west provinces with south-east provinces of the country). Many perceived that this denial of extension was contorted due to extraneous considerations without any concern or care for views and needs of affected people who were all given high hopes with high profile visits of officials of various implementing agencies along with members of the Bank's mission to the project area in the last five years.

## **Annex 8. Comments of Co-financiers and Other Partners/Stakeholders**

## **Annex 9. List of Supporting Documents**

1. Project Technical Annex (Report No.: T7637-IR), October 5, 2004
2. Back to Office Reports and Aide-Memoires April 2004 through Oct 2009
3. Implementation Status Reports April 2005 through October 2009
4. Mid Term Review Report, March 3-16, 2007
5. Loan Agreement Report No. 4755-IRN), November 16, 2004
6. Operational Status Report, October 2009
7. Bam First Monitoring & Evaluation Report, Derakht-e-Danesh Gostar,
8. Survey on Public Opinion Various Aspects of Bam and Surrounding Villages,  
Dr. Mehdi Montazar Ghaem, PhD, December 2006

