In the name of God

Policies for reconstruction in Bam
1- A brief introduction to Bam and the earthquake

2- Reconstruction policies
Bam Earthquake Specifications

1- Time : Friday, Dec. 26, 2003, at 01:56:52
       Coordinated Universal Time = (UTC)
2- Duration : 12.5 seconds
3- Magnitude : 6.7 Richter scale
4- Vertical component of acceleration :
       1g in the epicenter
5- Epicenter : underneath the city
6- Depth : 7 kilometers
7- Fault type : reverse (hazardous type)
Human Casualties

- Dead: 31830
- Injured: 17500
## Parentless Children

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5204</td>
<td>34.7 times increase</td>
</tr>
<tr>
<td>150</td>
<td>2332</td>
<td></td>
</tr>
<tr>
<td>parentless</td>
<td>2871</td>
<td></td>
</tr>
<tr>
<td>fatherless</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Families Under Welfare Org.

### Homeless or Handicapped Women

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Families</td>
<td>625</td>
<td>1916</td>
</tr>
<tr>
<td>individuals</td>
<td>3750</td>
<td>9494</td>
</tr>
</tbody>
</table>
## Rehabilitation Statistics

<table>
<thead>
<tr>
<th>Type</th>
<th>before</th>
<th>after</th>
<th>ratio</th>
<th>type</th>
<th>before</th>
<th>after</th>
<th>ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal injuries</td>
<td>16</td>
<td>248</td>
<td>15.5</td>
<td>physical</td>
<td>57</td>
<td>274</td>
<td>4.8</td>
</tr>
<tr>
<td>Mental</td>
<td>533</td>
<td>873</td>
<td>1.7</td>
<td>Elderly people</td>
<td>24</td>
<td>259</td>
<td>10.4</td>
</tr>
<tr>
<td>Amputees</td>
<td>0</td>
<td>108</td>
<td>-</td>
<td>Chronic psychosis</td>
<td>38</td>
<td>84</td>
<td>2.2</td>
</tr>
<tr>
<td>Blind</td>
<td>20</td>
<td>56</td>
<td>2.8</td>
<td>Nerve breakdown</td>
<td>0</td>
<td>54</td>
<td>-</td>
</tr>
<tr>
<td>Deaf</td>
<td>10</td>
<td>41</td>
<td>4.1</td>
<td>Inmates in centres</td>
<td>0</td>
<td>116</td>
<td>-</td>
</tr>
<tr>
<td>Edu. grant</td>
<td>404</td>
<td>452</td>
<td>1.1</td>
<td>Total</td>
<td>1092</td>
<td>2558</td>
<td>2.3</td>
</tr>
</tbody>
</table>

- All these people have been covered by the Welfare and Rehabilitation Organization
Material Damages

<table>
<thead>
<tr>
<th></th>
<th>Residential urban</th>
<th>Residential rural</th>
<th>commercial</th>
<th>industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units destroyed</td>
<td>24283</td>
<td>10145</td>
<td>3326</td>
<td>-</td>
</tr>
<tr>
<td>Units Damaged</td>
<td>976</td>
<td>12252</td>
<td>524</td>
<td>141</td>
</tr>
</tbody>
</table>

- World Bank experts have estimated the total damage at one billion and five hundred thousand US dollars.
Triple Stages of Managing the Crisis

1- Relief aid, rescue operations and emergency housing
2- Stabilizing and temporary settlement
3- Permanent reconstruction

- The organization responsible for stages 1 & 2: Kerman Office of Governor General
- The Organization responsible for stage 3: Ministry of Housing and Urban Development
Policies

- Formation of conducting and policy making headquarter for reconstructing Bam
  (Supervised by the Minister of Housing and Urban Development)
  &
  Aided by 11 other ministries as well as Governor General of Kerman

- Setting a committee to determine the criteria of reconstruction based on three important principle:
  1- Identity of Bam
  2- Resistance of buildings
  3- Satisfaction of people

- Strong supervision will be done by Iran engineers organization
Resistance-Making Policies

• Replacing of heavy, local, non-resistant construction systems and materials with light-weight but resistant materials

• Careful supervision over the reconstruction processes by authorized engineers.
Reconstruction Timetable
(Approved by the Headquarter)

• Reconstructing government and public buildings assigned to their relevant organizations

• Two models for reconstructing residential houses were discussed

  1- The government should start building the foundation as well as the façade; the rest should be done by people themselves supported by government loans

  2- All the technical, engineering and standard materials should be prepared by the government and people themselves will do the reconstruction supervised by the government

The second option was approved
Reconstruction Procedures

• Establishing of the Reconstruction Headquarter in Bam
• Dividing Bam into 12 regions, each having its own headquarter accountable to the main headquarter
• Placing of the following units in each headquarter:
  1- Advisors for designs according to people’s taste
  2- Housing and civil engineering offices to approve the design and oversee the reconstruction process
  3- Municipal representatives for issuing reconstruction license and other relevant licenses
  4- Contractors for executing the plan

➢ The landlord signs a contract with the contractor
Technical and Engineering Services Provided

- Provision of the universal plan and detailed map of Bam
- Deployment of 33 groups of Iran’s best consultant engineers
- Deployment of 270 groups of Iran’s best contractors
- Deployment of 30 groups of overseeing engineers
- Launching of a technical and engineering site in an area over 7 hectares which is a permanent exhibition venue for standard construction materials.
# Government Aid

## Rural Houses (US $)

<table>
<thead>
<tr>
<th>Repairing</th>
<th>New Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan</td>
<td>Aid</td>
</tr>
<tr>
<td>1705</td>
<td>341</td>
</tr>
</tbody>
</table>

## Urban Houses (US $)

<table>
<thead>
<tr>
<th>Loan</th>
<th>Aid</th>
</tr>
</thead>
<tbody>
<tr>
<td>12500</td>
<td>6250-5114</td>
</tr>
</tbody>
</table>

- Damaged commercial units (US $)

<table>
<thead>
<tr>
<th>Loan</th>
<th>Aid</th>
</tr>
</thead>
<tbody>
<tr>
<td>148 US $ for every square meter, ceiling 6818 US $</td>
<td>1137</td>
</tr>
</tbody>
</table>

- In Bam one can very easily build a 100 square meter house with 18182 US $
Now

• More than 7 million of debris (more than 1,200,000 truck loads) In removed and the reconstruction is going on well, but a very important question remains:

• What we can do with a huge amount of nonresistant, no engineered, mud clay and ...buildings?

➢ Hope to be answered by this and these conferences
With Special Thanks and Due Respect