



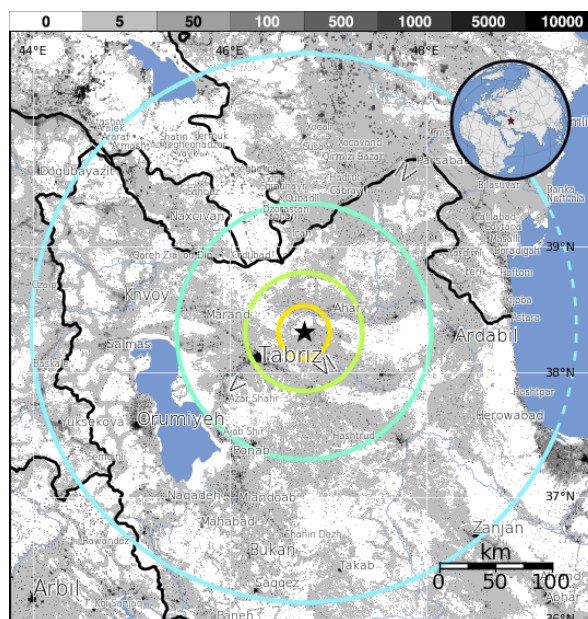
Brief introduction to Housing Foundation of Islamic Republic of Iran (HFIR)

Housing Foundation of Islamic Republic of Iran (HFIR) founded in 1979 by the order of Imam Khomeini, the founder of the Islamic Republic of Iran, aims to provide housing for the underprivileged and low-income people in rural and urban regions as well as reconstruction of areas suffering damage from natural and man-made catastrophes within the framework and policies of the government of Islamic Republic of Iran.

Having its central office in Tehran, 30 general offices in each province capital and over 364 branches in different towns throughout the country, HFIR is present all over Iran. In addition, seven affiliated executive organizations perform under the authority of HFIR, supporting it achieving its ambitious goals. HFIR perform the reconstruction work in two development and emergency contexts. In development context, HFIR is committed to building of two million rural residential units during the two Five-year Development Plans of the country (building 200,000 rural housing units annually). In emergency response context, reconstruction of rural and urban regions in five border provinces affected by Iran-Iraq war (1988), response to several natural disasters such as earthquakes of Gilan-Zanjan (1990), Aredebil (1997), Avaj Qazvin (2002), Bam (2003), Lorestan (2006), Neka flood(1999) and many more are among HFIR endeavors to eliminate the suffering of those

Highlights

- Against 9,474 above 60% damaged rural residential units, 9,319 steel frames and confined masonry structures have been erected and 5,134 roofs completed in the first 67 days¹.
- Total number of 5,493 multi-functional transitional shelters have been completed.
- Total number of 4,967 livestock shelters have been completed.



Figures

Number of damaged villages	315
Number of above 60% damaged rural residential units	9,497
Total number of above 30% damaged rural residential units	18,347
Number of urban residential units planned to be reconstructed	4,754
Total Number of urban residential units to be repaired or reconstructed	25,690

Situation Overview

On 11 August 2012 at 16:53 and 17:04 (local time), two earthquakes measuring 6.2 and 6.1 on moment magnitude scale hit 23km and 30km west of Ahaz in Azerbaijan Sharghi province north-west of Iran. An estimated 250,000 were affected by the earthquake in Ahaz, Varzaghan and Heris and their 315 villages north east of Tabriz. The earthquakes left about 300 died, 3000 injured and affected the residence of about 72,000. The time of disaster was such that minimum number of family members were at home which resulted in relatively low number of casualties. The tremors followed by 110 aftershocks Mw>3 in



¹ HFIR started reconstruction activities officially on 24 August 2012



the first 40 hours after the main shocks.

HFIR was officially assigned as the responsible organization for reconstruction of the affected areas on 24 August 2012. HFIR immediately started its activities and due to the large area affected, utilized the capacity of 11 other provincial offices of HFIR as the Auxiliary Reconstruction Headquarters (ARHs) accordingly. Then the affected area was divided into 11 zones and different zones were allocated to ARHs based on their professional capacities and experiences.

Allocation of the Rural Earthquake Affected Areas to the Auxiliary Reconstruction Headquarters												
Affected City	Ahar			Varzaghan				Heris			Tabriz	Total
Auxiliary Reconstruction Headquarters of the HFIR	Ardebil	Zanjan	Hamadan	Ghazvin	Azarbaijan Sharghi	Golestan	Esfahan	Azarbaijan Gharbi	Mazandaran	Kordestan	Azarbaijan Sharghi	
Number of Villages	19	28	65	31	37	22	3	25	20	45	20	315

* Two other ARHs from Qom and Korasan shomali provinces have been dispatched to the region for the management of multi-functional units exclusively.

A comprehensive rapid damage assessment was conducted by HFIR in the affected regions. Based on this assessment the most affected areas were amongst rural areas. A considerable number of rural houses are owned by seasonal residents who migrate to urban areas during winter. Some 25,000 urban residential units have experienced damage, about 80% of which repairable with minor damages.

Reconstruction strategy

HFIR has employed the new concept of “*Transitional sheltering*” instead of separate emergency, temporary and permanent sheltering, relying on its previous reconstruction interventions in reconstruction after Iran-Iraq war (1988), earthquakes of Gilan-Zanjan (1990), Aredebil (1997), Avaj



Figure 1 – Foundation close to 2 curved livestock units



Figure 2- Steel frame with bolted connection

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Qazvin (2002), Bam (2003), Lorestan (2006) and its international collaborations. The transitional sheltering strategy was employed as the HFIR reconstruction strategy taking into account the cold climate and early-coming winter of the affected region together with the essential need of people for permanent residence.

Transitional shelter and Durable Solutions

Based on transitional sheltering strategy, after leaving emergency shelters (tents), in short term people were provided with parts of their ultimate residence called “multi-functional units” which they could utilize urgently to shelter from the cold of winter. Other parts of their residence will be supplemented gradually parallel to guaranteeing a reliable minimum dwelling for affected households.



Figure 3 Twelve m2 multi-functional transitional shelters

In order to manage reconstruction affairs in an efficient manner, affected villages were prioritized based on their level of damage. Villages with high damage rate have been regarded as “*Especial Villages*” which benefit from some advantages in reconstruction process. According to the rapid damage assessment results, 56 villages with 3264 residential units are recognized as especial villages.

The residents of especial villages (and in many cases many other villages) are provided with a 12 square meter dwellings referred to as “**Multi-functional units**” constructed with pre-fabricated elements which is currently utilized as shelter for the affected



Figure 4- Typical rural permanent residential units

population and will be exploited as a warehouse or extra living space after reconstruction is completed.

These units include steel frame and sandwich panels as their roofing and walls. They enjoy sufficient residence against wind and seismic loads and benefit from adequate quality of noise, humidity and heat isolation.



Constructing multi-functional units is carried out through the process of purchase and transportation of pre-fabricated elements in large scales to the sites, construction of foundations and assembling the elements by respective contractors. The critical angle of this strategy is “the provision of prefabricated dwellings should not halt the process of constructing new residential units”. These two activities have to be conducted in parallel and simultaneously to achieve the goals of transitional sheltering.

The other element of transitional sheltering is one floor, 60 square meter “**Typical rural permanent residential units**” constructed as durable solution for every household whose house has experienced more than 30% irreparable damage by the earthquake. These units benefit from reinforced concrete foundations and the structures designed considering weight and seismic loads compatible with soil characteristics of the region.

Most of these units are built by prefabricated steel frames with bolted connections and a limited number by confined masonry structures.

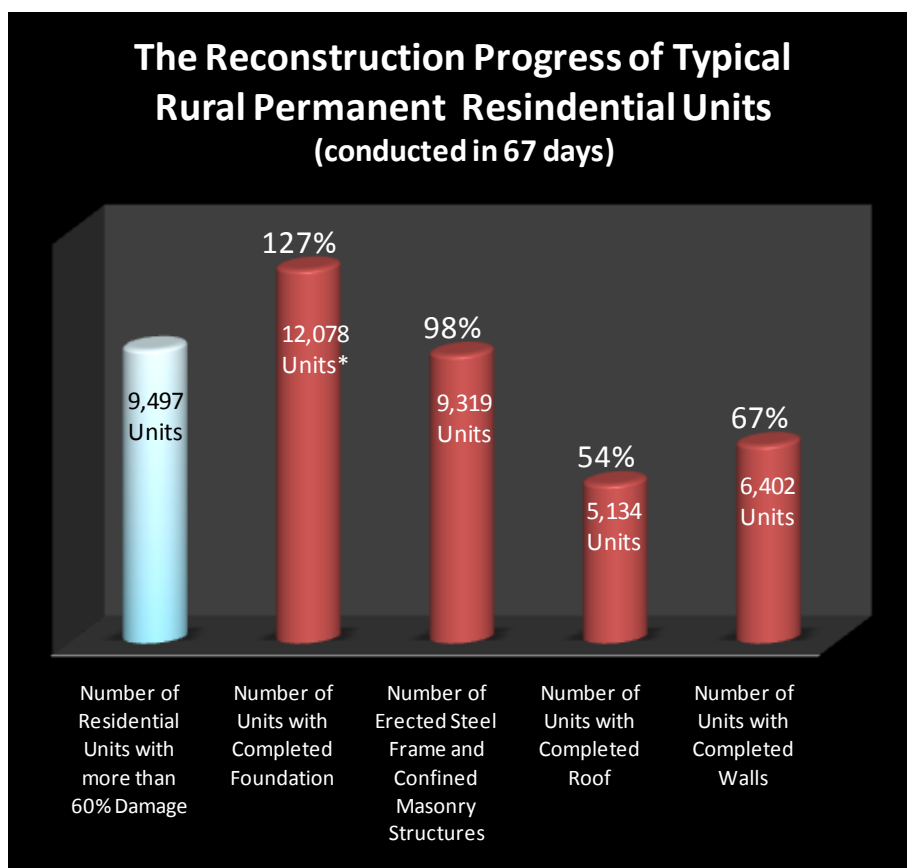
The unit roofs are constructed in two styles, “the joist slab reinforced concrete” and “galvanized gabled sloped “. The majority of the roofs are constructed through the joist slab reinforced concrete style while galvanized gabled sloped roofing is also employed to provide the opportunity of installation in cold weather when concreting is not possible. This is to eliminate the risk of halting the implementation in the freezing weather.

Work progress

The debris removal of affected areas estimated to exceed 3 million tons. HFIR managed to complete this phase in about a month with the capacity of about 1000 heavy machineries including trucks, loaders, excavators, bulldozers, etc. The machineries were provided through the HFIR capacity of other provinces, Ministry of Roads and Urban Development and private sector. Some of the machineries continued to serve in the region for the transportation of materials after debris removal phase.

The speed of the reconstruction is highly accelerated due to the risk of early winter. Steel frames or confined masonry structures of more than 98% of the above 60% damaged rural residential units have been erected. The completion of more than 1500 roofs during the last 6 days represents the determination of the HFIR management and executive body to provide the maximum roofed area for the affected people prior to first snow in the region. The work progress has amplified by the significant improvement of the participation of local communities during the last few days. The outstanding numbers of erected structures and roofs as well as the threat of the cold winter in the rural areas have raised the motivation of the local people to demonstrate more participation and contribution to the project.

The current progress of the reconstruction is illustrated in the table below:



*HFIR is not only reconstructing the 9497 above 60% damaged rural units but also determined to reconstruct all above 30% damaged rural units, many of which already under construction.

Community participation

HFIR strategy is to enhance the level of community participation in reconstruction process. Having this strategy in place, not only the executive operations accelerate, but also the psychological recovery of the affected population takes place painlessly and sooner. Community participation is undertaken in different ways. Other than following up the bureaucratic processes for reconstruction, people participate in choosing the construction site, locating the maps on their land and other activities. Moreover, in many cases families benefiting from man power offer contractors their labor force and participate in executive operations regularly. Other than positive impact it has on their psychological



Figure 5 - Community participation



recovery, the revenue out of it, can be regarded as a valuable supplementary source of income for the households.

Financial mechanisms

HFIR provides the financial support of the government to the affected households to reconstruct their residences. The financial supports include emergency grants and low interest loans. The government supports the affected population financially in different ways: it assumes the responsibility to pay back the interest of loans to the banks. The government also plays the role of guarantor for all the loan recipients. Above all, it prolongs the repayment period of previous loans the affected population received, if any. The government has also taken the responsibility for design, technical supervision, material transportation and other overhead costs of reconstruction operations.

Due to different costs for reconstruction in urban and rural areas, there are different financial supports provided by the government according to the tables below:

Table 1 - Financial supports – Rural household

No.	Item	Purpose	Max. Amount (Million Iranian Rials) for each unit	Beneficiaries
1	Low interest loan	Reconstruction of 20,000 rural house	12.5	20,000 rural affected households
2	No interest loan	Reconstruction of 20,000 rural house	15	20,000 rural affected households
3	Low interest loan	Reconstruction of 10,000 livestock shelters	50	10,000 rural affected households
4	Emergency grant	Reconstruction of 20,000 rural house	20	20,000 rural affected households
5	Low interest loan	Reconstruction of 12,000 livestock shelters and warehouse	30	12,000 rural affected households
6	Emergency livelihood grant	Responding households' emergency basic needs	10	20,000 rural affected households

Table 2 - Financial supports – Urban household

No.	Item	Purpose	Max. Amount (Million Iranian Rials)	Beneficiaries
1	Low interest loan	Reconstruction of 5,000 urban house	200	5,000 urban affected households
2	Low interest loan	Repairing of 5,000 urban house	50	5,000 urban affected households
3	Emergency grant	Reconstruction of 5,000 urban house	20	5,000 urban affected households
4	Emergency grant	Repairing of 5,000 urban house	10	5,000 urban affected households

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Livelihood recovery

The return of sustainable revenue to the affected households is one of the greatest steps towards recovery. Since livelihood of majority of rural households is dependent on livestock, provision of suitable livestock shelter units is of great importance for the effected families. HFIR constructs two types of these units: 24 square meter curved roofing and 18 square meter sloped roofing units. These units possess steel frame and roofing cover include metal sheets covered with a layer of thermal isolation, resistant against wind and earthquake.



Figure 6- 24m² livestock shelters with curved roofing

Schools

Due to short interval between the disaster and school opening time, it was agreed by HFIR and School Renovation Organization of the Ministry of Education that HFIR will finance the purchase, transportation, foundation construction and installation of 103 prefabricated classes and sanitary units in the affected areas.

Environmental considerations

HFIR has endeavored to consider environmental considerations in reconstruction operations to the extent possible. In order to leave less negative environmental footprint, the remaining of rural houses made of clay bricks are transported to farms and mixed with agriculture soil. The multi-functional units have been designed in a way they can be utilized after reconstruction completion with different application. This helps lessening the volume of scraps and wastes to the environment and results in the improvement of the activities' sustainability.



Material Procurement and Distribution

One of the outstanding operations HFIR undertook from the very beginning of the reconstruction process was to provide and distribute the critical materials based on the prospect needs of the project. This is achieved through a highly complicated and intense process carried out through the affiliated executive organizations of HFIR.

The strategy of the material provision was planned in a way that endorses the least negative impacts on local market. As an instance the steel bars are provided through the purchase of the raw bullions and delivering them to steel bar manufacturers and transporting them to the sites. The procurement of material has been conducted from local markets to the extent possible. Doors and windows, steel frames of multi-functional units and steel bars for instance are purchased from local sources.

The critical materials have been supplied by HFIR according to the following table:

Table 3 - Critical materials supplied by HFIR

The provision of the Critical Materials by 27 Oct. 2012	
-	18,500 packages of prefabricated steel frame with bolted connections (equal to 30,000 tons Steel)
-	21,500 tons of steel bars
-	70,000 tons Cement
-	750,000 tons Sand and Gravel
-	400,000 tons Bricks
-	500,000 m2 Sandwich panel (for multi-functional transitional shelters)
-	4,000 tons colored plates

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HFIR Situation Reports are available at: <http://www.bonyadmaskan.ir/EN/SitePages/Home.aspx>