



FEMA

Sharing Information
Enhancing Preparedness
Strengthening Homeland Security

**Lessons Learned
Information Sharing**
LLIS.gov

LLIS.gov Resource Compilation For Hurricane Sandy

The LLIS.gov team has compiled various resources to help support the efforts and initiatives in preparedness, response, and recovery during Hurricane Sandy. These resources are topic-specific and have been analyzed and used for deployment purposes to help provide support during the hurricane.

Real-World Disasters: Housing Techniques and Solutions

Jump to within document:

[Japan](#)

[Haiti](#)

[Additional Solutions and Programs](#)

JAPAN

- **Open Source: Japan Earthquake**
<http://www.mercycorps.org/japanearthquake>

- Providing vouchers for families moving into temporary housing, which they can use to buy much-needed food, clothing and household supplies
- Starting a bus program to help displaced survivors access stores and services
- Supporting mobile shops in Rikuzentakata, which allows people living in evacuation centers and temporary housing to buy their own fresh food for the first time since the disaster
- Boosting the capacity of local Chambers of Commerce to support local businesses

- **Open Source: Japan Earthquake and Tsunami Situation Report No.12, 23 March 2011**
<http://blog.givewell.org/attachments/ocha12.pdf>

Utilize Vacant Public and Private Apartments: The construction of temporary shelters has started in the Iwate and Fukushima Prefectures and preparations are ongoing in Miyagi, Tochigi and Chiba. In Miyagi, 1,000 temporary housing is planned initially, with more than 20,000 planned within a few years. In order to fill the gap, the prefectural government plans to make vacant public and private apartments also available.

- **Open Source: Displaced: Temporary Housing, Public Shelters**
<http://www.csmonitor.com/World/Asia-Pacific/2012/0309/Japan-One-year-after-Fukushima-nuclear-disaster-4-repercussions/Displaced-temporary-housing-public-shelters>

Japan 1 year later many still in shelters: Displaced in March 2011: 475,000; People still living in temporary housing in March 2012: 337,819; People in public shelters: 9,900; Prefab houses completed in hardest hit prefectures: 52,707.

Housing construction, moving in with families or renting on their own: Tokyo placed at least 600 evacuated families, many from Fukushima prefecture, in public housing and hundreds more in a recently closed luxury hotel. The Ministry of Land, Infrastructure, Transport and Tourism said 2,645

tract homes had been built as of April 1, and that an additional 30,000 would be completed within two months. Some evacuees have moved in with relatives or friends, or rented apartments on their own.

Relocation: In some towns, such as Rikuzentakata, hundreds of evacuees have voted to relocate en masse to neighboring municipalities in an effort to keep their communities intact.

Surveying the Displaced: A survey of nearly 500 displaced people in the three hardest-hit prefectures by national broadcaster NHK several weeks after the disaster found that of nearly 80% who wanted to return to their hometowns, about half thought they would not be able to.

- **Open Source: Japan: Eight Months after the Great East Japan Earthquake: Activity Report**
http://reliefweb.int/sites/reliefweb.int/files/resources/Full%20Report_406.pdf

Project provides needed psychosocial assistance: Winter has already arrived in the disaster-affected areas. AAR JAPAN is continuing to support the Building Healthy Communities Project, offering rehabilitation services, psychological care, and community interaction and exchange events for disaster survivors, many of whom all too easily end up spending their entire day isolated behind closed doors or stuck inside a shelter due to the cold. Also, AAR JAPAN has been distributing portable power generators for the families with persons with disabilities who use artificial respirators.

- **Open Source: Lessons from Japanese earthquake, Tsunami, and Nuclear Disaster-7**
<http://www.pkfindia.in/Value%20Adds/Lessons%20from%20the%20disasters%20in%20Japan-7.pdf>

Ex-Shipping container housing: A group led by Yasutaka Yoshimura Architects has formed the Ex-Container Project with the intention of providing old shipping containers as disaster relief housing for people displaced by the earthquake and tsunami in Japan. With shipping containers being used around the world as permanent buildings, these temporary residences are low cost and can eventually be turned into long-term residences if needed.

- **Open Source: Minimization of Socioeconomic Disruption for Displaced Populations Following Disasters**
<http://aelnash.cee.illinois.edu/journal%20article%20PDFs/112%20EI-Anwar,%20EI-Rayes.pdf>

Traditional and innovative housing options: Temporary housing quality varies significantly based on the type of assigned temporary housing, such as tent cities, travel trailers, mobile homes, apartments, leased hotels and motels, cruise ships and military bases.

HAITI

- **Open Source: Fast Facts on the U.S. Government's Work in Haiti: Shelter and Housing**
<http://www.state.gov/s/hsc/rls/199428.htm>

Emergency Shelter Provision, Transitional Shelter, and Repair Solutions: Following the emergency phase, USAID provided shelter solutions—including transitional shelters (t-shelters), repairs to damaged houses, support to host families housing people displaced after the earthquake, and rental vouchers—to more than 65,700 households. As of September 2012, USAID partners had constructed over 29,100 t-shelters, repaired more than 5,800 “yellow” structures to shelter over 8,100 households, and provided hosting support to over 27,200 households and rental vouchers to roughly 1,200 households, thereby housing more than 328,000 individuals.

Neighborhood-Based Resettlement Approach: USAID supports a neighborhood-based approach—involving extensive community participation and close coordination between and among the community members, the GOH, donors, and implementing partners—to facilitate returns to areas of origin and help re-establish pre-earthquake social and economic structures. After registering for the

program, residents chose which resettlement option was best for their family: repair of their “yellow” house, demolition of a “red” house with the construction of a t-shelter, or a one-year rental assistance grant. By providing these shelter options, USAID is helping Haitians reclaim and rebuild their lives.

The Final Phase—Core Housing: Replacing housing stock lost as a result of the earthquake and providing ownership opportunities for identified beneficiaries is the final phase of USG post-earthquake reconstruction and recovery support for housing.

ADDITIONAL SOLUTIONS AND PROGRAMS

- **Open Source: Testimony Dr. Edward J. Blakely Executive Director Office of Recovery and Development Administration City of New Orleans**

<http://archives.financialservices.house.gov/hearing110/blakely060408.pdf>

The testimony lists several housing solutions implemented after Katrina. This includes travel trailers, formaldehyde, vouchers distribution, rehabilitation of rental housing strategy, and panelized and modular construction.

- **Open Source: Relief: Transitional Housing For Victims Of Natural Disaster**

<http://scholarcommons.usf.edu/etd/21/>

This thesis describes several types of transitional housing for victims of natural disaster. This includes Portable Houses, “Plug and Play” housing systems, Modular Expandable Living Unit, and the Second-Life Iraqi Housing program.

- **Open Source: A Response to Katrina: The Making of the Largest, Most Efficient Modular Building Order in US History...**

<http://www.fas.org/programs/energy/btech/about/MEMA%20AHPP%20Article.pdf>

The Alternative Housing Pilot Program (AHPP) represents an innovative process for modular housing. AHPP was used to provide housing solutions following Hurricane Katrina. Working with the state of Mississippi under this program, the Federation of American Scientists has used an innovative approach to develop two modular housing models that are safe, energy efficient, environmentally friendly, and despite the parameters of the program, can be used as long-term permanent housing.

- **Open Source: Site Lets [You Offer a Home for Japanese Quake, Tsunami Victims](http://mashable.com/2011/03/23/sparkrelief-japan-earthquake/)**

<http://mashable.com/2011/03/23/sparkrelief-japan-earthquake/>

Couch surfing just got a whole new meaning. Sparkrelief, a new non-profit aimed at disaster relief, has built a special portal where people can offer up their homes or apartments as surrogate shelters for people displaced by the earthquake and tsunami in Japan. It's crowdsourced couch surfing for a cause.

- **Open Source: Temporary Homes for Displaced People in Japan [Accommodations]**

<http://armann.com/temporary-homes-for-displaced-people-in-japan-accommodations.html/>

The website Couchsurfing.org has set up a group for displaced Japanese people in need of a home. Members of the group are offering to provide their homes as temporary accommodation for those affected by the March 11 earthquake and tsunami crisis.

- **Open Source: Recycled Pallet House – Disaster Relief Housing**

<http://greenupgrader.com/2387/recycled-pallet-house-disaster-relief-housing/>

Over 400,000 people were left homeless by the flooding in Sri Lanka. Massive amounts of people are being displaced by natural disasters or regional conflicts every year so the demand for temporary shelters is huge. The idea of reusing shipping pallets as a building material was originally developed by I-Beam for a Transitional Housing contest aimed at housing refugees in Kosovo.

➤ **Open Source: ShelterBox Response Team**

http://www.shelterboxusa.org/deployment_details.php?id=150

ShelterBox Tents provide privacy in crowded shelters: The Japanese government has said that 8,800 temporary housing units will be built in the Iwate Prefecture. In Ofunato 1,400 are being built and it is expected to take between three to four months for them to be completed. As such, ShelterBox tents are crucial at present in providing privacy and restoring dignity to families.

➤ **Open Source: Finalists: Transitional Housing Competition**

<http://openarchitecturenetwork.org/node/373>

Architecture for Humanity hosted an open competition to design five-year transitional housing for the returning people of Kosovo. The competition's goal was to foster the development of housing methods that would relieve suffering and speed the transition back to a normal way of life. The article lists the ten finalists and provides links to their designs.

➤ **Open Source: Domes for the World Foundation**

http://architecture.about.com/gi/o.htm?zi=1/XJ&zTi=1&sdn=architecture&cdn=homegarden&tm=42&gps=252_160_1145_617&f=10&su=p284.13.342.ip_p504.6.342.ip_&tt=3&bt=1&bts=1&zu=http%3A/www.dftw.org/

DFTW Foundation is a nonprofit, 501©(3) tax status organization that provides the training, tools and methods for constructing superior shelters and complete community systems, both urban and rural, for the world's most needy.

DISCLAIMER

Lessons Learned Information Sharing (LLIS.gov) is the Department of Homeland Security/Federal Emergency Management Agency's national online network of lessons learned, best practices, and innovative ideas for the emergency management and homeland security communities. The Web site and its contents are provided for informational purposes only, without warranty or guarantee of any kind, and do not represent the official positions of the Department of Homeland Security. For more information on LLIS.gov, please email feedback@llis.dhs.gov or visit www.llis.gov.