

### Guiding Principles for Reconstruction Approaches


- Households begin reconstruction the day of the disaster and government—guided by its reconstruction policy—may have to play catch-up in order that households and builders conform to, or participate in, any proposed reconstruction approach.
- Communities and households must have a strong voice in determining the post-disaster reconstruction approaches and a central role in the reconstruction process.
- The reconstruction policy must address the needs of households in all categories of tenancy: owners, tenants, and those without legal status. More than one reconstruction approach will probably be employed.
- The building approaches adopted after disasters should be as similar as possible to those used in normal times for similar households and should be based on their capacities and aspirations.
- Building codes and standards for reconstruction should reflect local housing culture, climatic conditions, affordability, and building and maintenance capacities, and improve housing safety.
- Reconstruction should contribute to economic recovery and the restoration of local livelihoods.
- Good planning principles and environmental practices should be incorporated, whatever the reconstruction approach.

### This Chapter Is Especially Useful For:

- Policy makers
- Lead disaster agency
- Agencies involved in reconstruction
- Affected communities

### Introduction

Post-disaster housing reconstruction can be undertaken through different approaches, which vary principally in terms of a household's degree of control over the reconstruction process. The choice of the best reconstruction approach—or approaches—to be employed is context-specific and should take into consideration (1) reconstruction costs; (2) improvement in housing and community safety; (3) restoration of livelihoods; (4) political milieu; (5) cultural context; and (6) people's own goals for well-being, empowerment, and capacity. Consultation with the community and evaluation of requirements and capacities is critical before deciding on any reconstruction approach.

For analytical purposes, this chapter makes a distinction among five reconstruction approaches that may be pursued after a disaster. These approaches are not mutually exclusive and should be understood as fluid categories that are often found in combination. In addition to the construction of permanent houses, these approaches apply to projects of substantial repair and retrofitting and to transitional shelter. Considerations in deciding whether to formally incorporate support for transitional shelter in the reconstruction approach are discussed in  Chapter 1, Early Recovery: The Context for Housing and Community Reconstruction.

- **Cash Approach:** Unconditional financial assistance is given without technical support.
- **Owner-Driven Reconstruction:** Conditional financial assistance is given, accompanied by regulations and technical support aimed at ensuring that houses are built back better.
- **Community-Driven Reconstruction:** Financial and/or material assistance is channeled through community organizations that are actively involved in decision making and in managing reconstruction.
- **Agency-Driven Reconstruction *in-Situ*:** Refers to an approach in which a governmental or nongovernmental agency hires a construction company to replace damaged houses in their predisaster location.
- **Agency-Driven Reconstruction in Relocated Site:** Refers to an approach in which a governmental or nongovernmental agency hires a construction company to build new houses in a new site.

The authors of this handbook advocate for what the World Bank and several other agencies have defined as owner-driven reconstruction, which has proven to be the most empowering, dignified, sustainable, and cost-effective reconstruction approach in many types of post-disaster situations. As one reconstruction expert aptly stated: “It is better to have 100,000 people each concerned

1. George Soraya, Lead Urban Specialist, World Bank, Jakarta, 2009, personal communication.

about one house than to have 100 people concerned about 100,000 houses.”<sup>1</sup> Experience shows that empowering people to manage their own recovery and reconstruction, both individually and as a community, will be faster and more efficient, and will encourage people to use their creativity and to mobilize their own resources. If they are waiting for others to take care of them, they can become disempowered and may be more apt to complain and less likely to contribute. Of course, not all reconstruction situations will lend themselves to this approach, as explained in this chapter.

## Key Decisions

1. **Government** should decide on the policy for housing and community reconstruction, based on the results of the damage and loss assessment, and in consultation with **the affected community** and the **lead disaster agency**. Important decisions include: the reconstruction approach or approaches to be employed; the financial contributions to be made by various parties, including households; mechanisms for coordination; and the administrative and project management procedures that all agencies will follow.
2. The **lead disaster agency** should determine, in consultation with **government** financial officials, the level of assistance that will be provided for transitional sheltering, repairing, retrofitting, and reconstruction, and on the system for delivering funds. **Government** may want to impose a maximum assistance level for nongovernmental agency projects to reduce competition among agencies. See 🏠 Chapter 15, Mobilizing Financial Resources and Other Reconstruction Assistance.
3. **Agencies involved in reconstruction** should agree with **government** on performance benchmarks for all reconstruction approaches and on reporting procedures, and collaborate on establishing the baseline and the monitoring system.
4. **Affected communities** should decide which reconstruction approach or approaches are most suitable for them and collaborate with government in the selection process. They should also decide how they prefer to organize themselves during reconstruction and should have the right to select which agencies will assist them and to agree on the form of assistance. Depending on the community’s political, social, and economic characteristics, organization of the community and collective decision making may require outside facilitation and support.
5. Whatever the approach, **local governments** must direct those aspects of reconstruction related to land use and physical planning and the regulation of construction. See 🏠 Chapter 7, Land Use and Physical Planning.

*“In reconstruction, it is better to have 100,000 people each concerned about one house than to have 100 people concerned about 100,000 houses.”*

George Soraya, Lead Urban Specialist, World Bank

## Public Policies Related to Reconstruction Approaches

Unless government has a disaster management plan, there are unlikely to be public policies at either the national or local level that specifically address post-disaster reconstruction approaches. Yet there may be national or local housing sector programs that provide new housing to low-income people or subsidies for upgrading that can serve as a starting point for defining the post-disaster housing reconstruction approach.

Government should take an active role in setting the rules for and overseeing the activities of all agencies involved in reconstruction. It should provide the appropriate regulations and guidelines so that agencies conform to the following good planning and construction principles.

- Consistently apply good planning principles and conform to local development plans.
- Conform with local building codes and standards.
- Minimize environmental impacts in construction, site planning, and building design.
- Ensure community participation in all aspects of development, including those managed by outside agencies and private contractors.
- Maintain or improve the tenure status of households during the reconstruction process.

Public policies in other sectors may influence decisions on the reconstruction approach as well. Refer to 🏠 Chapter 7, Land Use and Physical Planning; 🌳 Chapter 9, Environmental Planning; and 🏛 Chapter 11, Cultural Heritage Conservation, among others.

## Technical Issues

The following are descriptions of five reconstruction approaches frequently used in post-disaster reconstruction, including a discussion of the advantages and disadvantages of each.

## The Cash Approach (CA)

With this reconstruction approach, support for repair and reconstruction of damaged houses is provided exclusively by unconditional financial assistance. Any category of tenants, including squatters, may be entitled to and benefit from cash assistance, depending on the policy.

CA is appropriate for disasters that have a relatively limited impact and where housing damage was not caused by shortcomings in local construction practices. Emphasis with CA is on the distribution of financial assistance with minimal attention given to enabling measures. This approach may give affected people the choice to use the assistance based on their own priorities, which may not necessarily be housing. Some people may use the cash to migrate out of the disaster zone, for instance, if that is what they judge to be their best alternative.

### Experiences with the Cash Approach

- After the 2004 floods in Santa Fe, Argentina, the World Bank supported a government CA program for housing repair and reconstruction.

Advantages	Disadvantages and risks	Recommendations
Most cost-effective, rapid delivery of aid to households.	May reproduce pre-disaster vulnerabilities.	Use CA only when damage is not severe and is not attributed to poor construction or poor building code enforcement.
Does not require complex delivery mechanisms.	No improvement of building skills.	Ensure that housing labor and materials markets are functioning properly.
Assistance can be adjusted to household's income, family size, livelihoods, socio-cultural requirements, etc.	No opportunity to introduce new building technologies.	
Does not discourage repair of houses or use of salvaged and local building materials.	Vulnerable people may be unable to handle repair and reconstruction without assistance.	
Best when local building capacity and financial support are adequate.	Financial assistance may be used to meet other requirements while houses remain unrepaired.	
Families can employ cash according to their priorities.	Risks of negative publicity if households use funds for questionable purposes.	
	May increase risk of corruption.	

## Owner-Driven Reconstruction (ODR)

In an ODR program, people who lost their shelter are given some combination of cash, vouchers, and in-kind and technical assistance (TA) to repair or rebuild their houses. They may undertake the construction or repair work by themselves, by employing family labor, by employing a local contractor or local laborers, or by using some combination of these options. ODR is similar to the “aided self-help approach” that has been used extensively to provide housing assistance to the urban poor, particularly in Latin America.<sup>2</sup>

ODR is the most empowering and dignified approach for households, and it should be used whenever the conditions are right for it. The approach is viable for both house and apartment owners (in the latter case, the condominium association or cooperative society would manage construction), as well as for informal settlers, once their tenure is secured. In fact, the term “owner” in ODR refers as much to the ownership of the building process as to the ownership of the house. A common misunderstanding about ODR is that the owners will build their houses by themselves. Recent examples show that this is rarely the case because people tend to hire local contractors or laborers for at least part of the work. Thus, the key difference between this approach and agency-driven approaches is that contractors and paid laborers are accountable to the homeowner rather than to an external agency that may not be able to provide the intensive supervision and control that homeowners often can.

However, the risks of ODR need to be understood and addressed. ODR requires good oversight and governance, that is, a government capable of establishing and enforcing standards, and some agency (governmental or nongovernmental) to ensure the quality of construction. Where engineered building technologies are being used, or multifamily housing is being rebuilt, using ODR is more challenging, but not impossible. The oversight from supporting agencies or government will need to

2. Sultan Barakat, 2003, *Housing Reconstruction after Conflict and Disaster*, Humanitarian Policy Network Paper 43 (London: Overseas Development Institute), <http://www.odihpn.org/report.asp?id=2577>.

be more technical, and experienced contractors must be hired. Success lies in establishing a support system for homeowners appropriate to the local context, which may include:

- Training of tradespeople and homeowners
- Technical assistance and construction supervision and inspection
- Updating and enforcement of building codes and construction guidelines
- Mechanisms to regulate prices and facilitate access to building materials
- A system for providing financial assistance in installments as construction progresses

### Experiences with ODR

- Formally adopted by the state government of Gujarat as its official reconstruction policy following the 2001 earthquake in Gujarat, India. Independent evaluations proved it produced high levels of satisfaction.<sup>3</sup>
- Used by the World Bank after the 2004 Indian Ocean tsunami in Thailand and Sri Lanka and after the 2005 North Pakistan earthquake. The Bank funded reconstruction and therefore was in a position to influence government reconstruction policy. In these cases, both official Bank documents and evaluations carried out by other agencies that pursued this approach confirm that this was the most successful housing assistance strategy.<sup>4</sup> Also see the; 🏠 case study on ODR in the North Pakistan earthquake reconstruction, below, and others in the case studies section of this chapter.

Advantages	Disadvantages and risks	Recommendations
Mobilizes households to take an active role in rebuilding, which speeds recovery from psychological trauma.	Without good standards and oversight, quality of construction may be poor, and pre-disaster vulnerabilities can be reproduced.	Establish a support system for homeowners that is responsive to local requirements.
Assistance can be adjusted to the needs of the household related to income, family size, livelihoods, socio-cultural requirements, etc.	Conversely, if building codes are too rigid and biased toward alien housing technologies, people can have trouble complying with requirements, even with oversight.	Ensure that assistance is equitable and sufficient to satisfy minimum housing standards.
Consistent with normal incremental housing construction practices.	May be more difficult to implement in relocated communities and poor communities with no building experience (for example, urban squatters).	Establish a delivery mechanism for financial assistance that is easy to understand and access.
Encourages repair of houses and use of salvaged and local building materials.	Suitable for contractor-built multifamily and high-rise building reconstruction; however, skilled technical oversight is required.	Ensure building codes are based on local building technologies and materials.
Tends to involve local building industry, thereby contributing to restoration of local economy and livelihoods.	Households of elderly and vulnerable groups will face difficulties managing reconstruction alone and may not reach milestones, making it impossible to receive second and subsequent disbursements.	Ensure adequate training for trades people and construction supervisors.
Helps preserve community's cultural identity by ensuring continuity in local building tradition and architectural style.		Acknowledge housing rights and accommodate special needs of tenants, squatters, and the homeless.
Allows people to "top up" housing assistance with their own savings and build a house reflecting their specific needs and aspirations.		Adjust the approach to reach geographically distant regions and socioeconomically disadvantaged people.
Is less subject to disruptions caused by unstable political situation (for example, eastern provinces of Sri Lanka).		Provide special attention and support to vulnerable groups (orphans, widows, the elderly, and the very poor).
Is viable for dispersed and remote settlements (for example, Pakistan, Gujarat).		Adopt measures to prevent inflation and ensure access to quality construction materials.
		Consider involving nongovernmental organizations (NGOs) as part of the enabling system.

### Case Study: 2005 North Pakistan Earthquake, Pakistan

#### Flexibility in ODR Housing Reconstruction and Retrofitting

Following the North Pakistan Earthquake of 2005, the Pakistani government promoted ODR to rebuild some 400,000 houses. Under the lead of the Earthquake Reconstruction and Rehabilitation Authority (ERRA), a multitude of international NGOs joined this program. Homeowners were responsible for the reconstruction of their own houses, with technical assistance and financial support disbursed in tranches. Insufficient capacity in the field can slow down the pace of construction and increase the likelihood of substandard construction work. To prevent this, ERRA facilitated the mobilization of decentralized teams who could provide technical updates and on-site training to the scattered beneficiaries. ERRA also used field observations and field testing to decide whether to allow different construction techniques and developed retrofitting methods to

3. Jennifer Duyne Barenstein, 2006, "Housing Reconstruction in Post-Earthquake Gujarat: A Comparative Analysis," Humanitarian Practice Network Paper 54, Overseas Development Institute, <http://www.odihpn.org/report.asp?ID=2782>; and Abhiyan, 2005, *Coming Together: A Document on the Post-Earthquake Rehabilitation Efforts by Various Organisations Working in Kutch* (Bhuj: United Nations Development Programme/Abhiyan), [http://openlibrary.org/b/OL3338629M/Coming\\_together](http://openlibrary.org/b/OL3338629M/Coming_together).

4. See, for example, World Bank, 2009, "Implementation Completion and Results Report, Grants to the Democratic Socialist Republic of Sri Lanka for a Tsunami Emergency Recovery Program" and Yasemin Aysan, 2008, "External Evaluation of the Swiss Consortium's Cash for Repair and Reconstruction Project in Sri Lanka 2205-2008," study contracted by the Swiss Consortium of Swiss Solidarity, HEKS, Swiss Red Cross, and SDC, [http://www.deza.admin.ch/ressources/resource\\_admin\\_173148.pdf](http://www.deza.admin.ch/ressources/resource_admin_173148.pdf).



increase or maintain the seismic resistance of diverse housing styles. The approval of the local timber-frame construction style *Dhajji* was vital for the success of the reconstruction effort; statistical analysis indicates that, as compared to concrete block masonry, *Dhajji* houses are less costly and can be made acceptably seismic-resistant. Also, *Dhajji* construction techniques are easier for homeowners to understand, utilize, and adapt to local contexts, preferences, and resources. Three years after the earthquake, almost 300,000 seismic-resistant houses were nearing completion. An overarching factor in this success was the constructive way in which homeowners and those managing the implementation of the program were able to interact as the program was carried out.

*Source:* A. van Leersum, 2009, "Implementing Seismic Resistant Construction in Post-Disaster Settings: Insights from Owner-Driven Reconstruction in Pakistan" (MSc thesis, Eindhoven University of Technology). The opinions expressed are those of the author and do not necessarily reflect those of the involved organizations.



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## Community-Driven Reconstruction (CDR)

CDR entails varying degrees of organized community involvement in the project cycle, generally complemented by the assistance of an agency. The degree of control over reconstruction by the community in CDR projects varies between agencies and from project to project. The agency may take the lead, suggesting housing designs, technologies, and/or materials, and delivering construction inputs and training. The agency may also employ skilled and unskilled laborers from the community or facilitate the formation of construction committees. At the other extreme, the community may manage most of the reconstruction process and receive only the support of facilitators ("collective ODR"). In summary, CDR may involve one or more of the following roles for the community:

- Organization and planning of the entire reconstruction process, including housing and infrastructure
- Decisions regarding housing design and building materials
- Production of building materials such as bricks
- Distribution of building materials or other forms of housing assistance (e.g., cash and vouchers)
- Hands-on reconstruction
- Oversight of builders

### Experiences with CDR

- Adopted by several national NGOs following the 2001 Gujarat, India, earthquake. The level of satisfaction was relatively high, but lower than for ODR houses.
- Used successfully as collective ODR following the 2006 Java earthquake in Indonesia. See the case study entitled *Organizing Community-Based Resettlement and Reconstruction*, in 🏠 Chapter 12, *Community Organizing and Participation*.
- Adopted by the United Nations Centre for Human Settlements (UN-HABITAT), KfW, and Urban Poor Linkage Indonesia (UPLINK) in Aceh, Indonesia, following the 2004 Indian Ocean tsunami. Each of these agencies used a somewhat different interpretation of the approach. UPLINK gave people more choice in house designs, but community-based construction committees were given control over the purchase and distribution of building materials and over the mobilization of reconstruction labor. (In some cases, local contractors gained control of these committees.) KfW gave building materials and financial assistance directly to owners, but provided little choice over materials and designs.
- Used by the city of Ocotol, Nicaragua, to relocate and rehouse residents of displaced neighborhoods and highly vulnerable sites following Hurricane Mitch in 1998. Housing designs and building materials were proposed by a local architect, but receipt of a house was contingent on participation in construction of at least one family member. (See 🏠 case study, below.)

Advantages	Disadvantages and risks	Recommendations
<p>Useful where:</p> <ul style="list-style-type: none"> <li>■ new building technologies, materials, or housing designs are being introduced;</li> <li>■ agencies must bring in building materials; or</li> <li>■ housing reconstruction is linked to community development activities.</li> </ul> <p>Can foster social cohesion when people from different communities work together to organize relocation and reconstruction.</p> <p>Has high levels of flexibility and accountability and provides control for owners over reconstruction.</p> <p>Access to construction materials more assured.</p> <p>Scale of project may contribute more strongly to reactivation of local economy.</p>	<p>Overheads may be high because of agency involvement.</p> <p>Agencies may leave little room for individual preferences by imposing standard designs and materials.</p> <p>Local contractors capture community construction committees that manage large amounts of resources.</p> <p>Real participation may be limited if:</p> <ul style="list-style-type: none"> <li>■ consultation is only with community leaders whose views don't reflect those of the community;</li> <li>■ processes are captured by local elites;</li> <li>■ participation is perceived as excessively time-consuming; or</li> <li>■ women's perspectives are not incorporated.</li> </ul>	<p>Require upfront community agreement on level and type of agency involvement.</p> <p>Ensure project staff is qualified to lead a participatory reconstruction process.</p> <p>Ensure community participation throughout the project cycle, site selection, settlement planning, and housing design.</p> <p>Avoid overruling community preferences and recognize the different needs and capacities of community members.</p> <p>Introduce governance mechanisms to prevent project resources from being diverted by local elites.</p>

## Case Study: 1998 Hurricane Mitch, Nicaragua

### Successful CDR Project Built Social Capital

After Hurricane Mitch struck the town of Ocotal, Nicaragua, damaging 1,164 houses and destroying 328, the mayor initiated a CDR project for resettling the affected population as well as for households located in high-risk areas. The guiding principle was to prevent future disasters by protecting the people, while improving the social cohesion of the community. The social dynamics of the community were carefully analyzed and community participation was promoted. The reconstruction process was explained to the citizens in community meetings, and the damage and loss assessment was conducted to reflect the community's own priorities. Further, the new building site underwent an extensive planning process during which the proximity of the site to the future residents' income sources was analyzed, as were possibilities for the future growth of the community, an important consideration when rapid population growth is expected.

Culturally and environmentally appropriate house designs, including improved traditional building materials and techniques, were proposed by a local architect and presented to the community. Future residents discussed the design and could request modifications, which were incorporated when technically feasible. Access to a house was contingent on full participation in the construction by at least one family member. Because Ocotal constructed its own adobe factory, it created much-needed employment in an effort to reduce out-migration from the town. Beneficiaries were trained in hazard-resistant construction, including the modification of traditional adobe building practices. Participation in the joint construction work on the building site made it possible for residents-to-be to establish initial contacts with their new neighbors. People's pride and self-esteem increased as the project progressed, social cohesion was fostered, and a positive neighborhood identity was created. The Ocotal reconstruction project successfully incorporated prevention and built social capital, which has contributed to the sustainability of the project. In all, approximately 300 new homes have been built to date.

*Sources:* Esther Leemann, 2010, "Housing Reconstruction in Post-Mitch Nicaragua: Two Case Studies from the Communities of San Dionisio and Ocotal," eds. DeMond S. Miller and Jason David Rivera, *Community Disaster Recovery and Resiliency: Exploring Global Opportunities and Challenges* (Auerbach Publications, forthcoming); and José Luis Rocha, 1999, "Ocotal: Urban Planning for People," *Envio digital* 218, <http://www.envio.org.ni/articulo/2299>.

## Agency-Driven Reconstruction in-Situ (ADRIIS)

In ADRIIS, a governmental or nongovernmental agency hires one or more contractors to design and build the houses. Design, materials, and expertise are likely to be imported from outside the community. The community may or may not be consulted on certain aspects of the project, such as house designs. House owners may be asked to take over some building tasks, such as curing concrete. Whereas house owners may also hire contractors within the framework of ODR, the principal contractor is accountable to the agency and may be contracted through formal tendering procedures. A special case of ADRIIS is when a public agency reconstructs government-owned housing, on public property.

Because ADRIS takes place on the owners' own land, it gives the homeowner some degree of control over quality, and sometimes the opportunity to participate in specific tasks. During construction, owners may be able to make suggestions to or modify the design. ADRIS eliminates the hurdle of land acquisition and generally allows the household to know where its house will be located. However, if housing designs are standardized or different from local designs, it may be difficult to fit the houses into pre-disaster settlement layouts or to modify them later. ADRIS, therefore, often results in similar or even worse outcomes than those of ADRRS, especially in the case of large-scale single-family reconstruction.

### Experiences with ADRIS


- Many international NGOs and private companies "adopted" villages and used ADRIS to build houses after the 2001 Gujarat, India, earthquake, even though government adopted an ODR policy. These projects often became a mix of ADRIS and ADRRS in adjacent sites where the housing designs did not fit existing sites and individual households, humanitarian agencies, or local governments bought additional land for new construction. In some cases, contractors did not respect the heritage sites and spatial organization, and caused irreversible damage to historical villages.
- Many private voluntary organizations adopted ADRIS in Tamil Nadu, India, following the 2004 Indian Ocean tsunami. However, they required that the land be cleared of houses and vegetation before starting construction. As a result, hundreds of pre-tsunami houses that were culturally and climatically appropriate and easily repairable were demolished, and thousands of trees were felled, which negatively affected people's livelihoods and well-being.<sup>5</sup>

Advantages	Disadvantages and risks	Recommendations
Communities are not displaced.	A contractor's construction modes, designs, and settlement layouts are often not compatible with existing sites.	Avoid ADRIS if local building capacity is available.
People can be effectively involved in construction and monitoring.	Remaining built and natural environments may be considered an obstacle to reconstruction, leading to unnecessary house demolition and tree removal, causing high social and environmental impacts and conflicts.	If ADRIS is unavoidable, ensure community participation in choices regarding housing design, site layout, building materials, and construction.
New building technologies can be introduced.	Exogenous building technologies may be used that have negative environmental impacts and do not meet local requirements.	Ensure equitable distribution of project benefits with transparent allocation criteria based on social assessments, and monitor their application.
No land acquisition is required.	Community participation may be more difficult to incorporate or may be limited to community leaders, resulting in disproportionate benefits for elites.	Protect the heritage value of pre-disaster environment, both built and natural, including buildings and trees that survived the disaster.
	Construction quality is often poor due to inexperience of agency with oversight offhousing construction, among other reasons.	Require contractors to use local building materials and designs.
	Contractors may encourage communities to demand additional benefits from government.	Hire a professional project manager or "clerk of the works" from the construction industry to supervise construction.
	Corruption and exploitation by contractors.	Establish social audit mechanisms to ensure local accountability. See 📖 Chapter 18, Monitoring and Evaluation, Annex 2, for a social audit methodology.
		Ensure quality control through an independent third-party audit. See 📖 Chapter 19, Mitigating the Risk of Corruption, Annex 2, for instructions on conducting a construction audit.

### Agency-Driven Reconstruction in Relocated Site (ADRRS)


When using ADRRS, a governmental or nongovernmental agency contracts the construction of houses on a new site, generally with little or no involvement by the community or homeowners. The community, government, or agency supporting the reconstruction may purchase the land for the new settlement. Upon completion, the houses may be allotted through a lottery or using criteria defined by the community or the agency, or both. ADRRS, often justified as a risk-mitigation measure, may

5. Jennifer Duyn Barenstein, 2006, *Housing Reconstruction in Post-Earthquake Gujarat: A Comparative Analysis*, Humanitarian Policy Network Paper 54 (London: Overseas Development Institute), <http://www.odihpn.org/report.asp?ID=2782>.

be advisable when communities are being relocated. And agencies may favor ADRRS for the ease of constructing on a clear site without tenancy issues or other complications. ADRRS is used by public agencies to reconstruct government-owned housing in a relocated site, generally public land. However, for single-family homes, ADRRS can be problematic. It can lead to the construction of costly, inappropriate housing of poor quality and settlement arrangements that do not meet the socio-cultural and livelihood requirements of the people, causing severe economic consequences and low occupancy rates. The argument that ADRRS results in higher construction quality is rarely valid, because of poor supervision or the lack of qualified contractors. Moreover, finding an appropriate site can be a major challenge; failing to do so is, in fact, one of the principal reasons for dissatisfaction with this approach. The complexities of a decision to relocate are discussed in  Chapter 5, To Relocate or Not to Relocate.

### Experiences with ADRRS

- International NGOs and national private companies opted for ADRRS after the 2001 Gujarat, India, earthquake because of perceived organizational advantages and higher visibility, including naming rights to new settlements. Local elites were sometimes given incentives to sell this approach to local officials. By accepting these offers, people lost their access to government financial assistance. When they later found the designs, layouts, and construction quality to be subpar and refused to occupy these villages, they ended up having to liquidate their assets, such as land and livestock, so they could rebuild elsewhere. An independent study found that in villages that opted for ODR, housing conditions were considered better than before the earthquake and economic conditions unchanged, while in villages reconstructed with the ADRRS approach, a significant percentage of households reported high levels of indebtedness and worse economic conditions.<sup>6</sup>
- ADRRS has had positive results in urban contexts. Two examples are the city of Nagapattinam in Tamil Nadu, India, and Banda Aceh, Indonesia, after the 2004 Indian Ocean tsunami. In Banda Aceh, a Korean voluntary organization acquired land in a middle-class neighborhood for an urban housing project. Although the houses were small, high occupant satisfaction was attributed to housing design, good location, access to public services, and the fact that livelihoods were not site-dependent. See the case studies later in this chapter.

Advantages	Disadvantages and risks	Recommendations
Appropriate where pre-disaster settlements are located on hazardous sites.	Difficulties and delays in finding appropriate land.	Only adopt ADRRS if ODR is not possible on safety grounds.
May be faster and more cost-effective.	Negative socioeconomic impacts and disruption of livelihoods from relocation may cause occupancy rates to remain low.	Avoid this approach in rural areas, anywhere people can manage house construction on their own, and where livelihoods are very site-specific.
May allow pre-disaster housing problems to be addressed (for example, shortages, vulnerability, and poor housing conditions).	Poor site selection may cause negative environmental impacts or re-create vulnerability of original location.	Carefully assess relocation effects on livelihoods and provide mitigation measures.
More appropriate for dense urban settlements, rental housing, and complex building technologies (multistory construction).	Construction quality is often poor.	Identify beneficiaries and allot houses during the planning stage.
Can contribute to heritage conservation by relocating from sensitive sites.	Loss of local building culture and capacity.	Ensure community participation throughout the project cycle, site selection, settlement planning, and housing design.
Can address housing needs of various categories of the population simultaneously, depending on design of the settlement.	Disruption of access to common property and to natural and cultural heritage sites.	Establish social audit mechanisms to ensure local accountability. See  Chapter 18, Monitoring and Evaluation, Annex 2, for a social audit methodology.
	Settlement layout, housing designs, and building technologies can be alien to local communities and culturally inappropriate, particularly in rural areas.	Ensure quality control through an independent third-party audit. See  Chapter 19, Mitigating the Risk of Corruption, Annex 2, for instructions on conducting a construction audit.
	Repairs and extensions to houses built with exogenous building technologies may be unaffordable.	Take into consideration socioeconomic and gender-specific requirements
	Contractors may encourage communities to demand additional benefits from government.	
	Lack of community participation or oversight may result in poor targeting, unequal distribution of houses, and elite capture.	

6. Jennifer Duyne Barenstein, 2006, *Housing Reconstruction in Post-Earthquake Gujarat: A Comparative Analysis*, Humanitarian Policy Network Paper 54 (London: Overseas Development Institute), <http://www.odihpn.org/report.asp?ID=2782>.



## Case Study: 2003 Bam Earthquake, Iran

### Shift from ADRRS to ODR during Bam Earthquake Reconstruction

When the Housing Foundation of the Islamic Revolution (HF)-United Nations Development Programme (UNDP) joint housing reconstruction project started following the 2003 Bam earthquake, the government of Iran and the HF (the executing agency for the reconstruction) had not fully defined the reconstruction approach. For the first year of the project, the HF hired contractors to build housing units for the program's beneficiaries (129 female-headed households [FHHs]). But the poor performance and slow delivery by the contractors and their numerous claims for cost increases led the HF to shift after the first year to ODR with technical assistance.

The ODR approach followed several organized steps, namely, (1) submission of ownership documents or other verifiable proof of ownership in 1 of the 14 regional offices of the HF; (2) request for rubble removal from the property; (3) request for a demolition or leveling permit from the Bam Municipality; (4) delivery of a letter to the landowner by the HF office that introduced the landowner to the licensed consultancy firms that had established branches in the HF offices; (5) selection of a housing model from among those demonstrated by the private developers, contractors, UNDP, and international NGOs at the HF Technical and Engineering Site; (6) review and revision of the selected design with the consultancy firm until agreement on a final design; (7) receipt from the municipality of guidelines for engaging a contractor; (8) preparation of documentation for loans and grants from banks; (9) selection, negotiation, and contracting of a licensed contractor; and (10) commencement of construction. The beneficiaries received their first loan installment after the house foundation was complete. The shift to ODR resulted in more rapid reconstruction and higher satisfaction for the FHHs with the quality of the work.


Source: Victoria Kianpour, UNDP Iran, 2009, personal communication, <http://www.undp.org.ir/>.

### Comparison of Reconstruction Approaches

Reconstruction approaches can be compared according to the degree of household control, the form of assistance, the role of the actors, and where the reconstruction takes place. The factors can be combined in many ways. The following table compares the five approaches discussed in this chapter.

Reconstruction approach	Degree of household control	Form of assistance		Role of actors			Location	
		Financial	Technical	Community	Agency	Contractor	In-situ	New site
Cash Approach	Very high	Cash only	None	None	None	Household may hire	Yes	No
Owner-Driven Reconstruction	High	Conditional cash transfer to household	TA/Training of household	None	Project oversight and training	Household may hire	Yes	No
Community-Driven Reconstruction	Medium to high	Transfer to household or community	TA/Training of community and household	Project organization and oversight	Project oversight and training	Community may hire	Yes	No
Agency-Driven Reconstruction <i>in-Situ</i>	Low to medium	Funds handled by agency	Limited or none	Limited	Management of project	Agency hires	Yes	No
Agency-Driven Reconstruction in Relocated Site	Low	Funds handled by agency	Limited or none	Limited	Management of project	Agency hires	No	Yes

Determining which reconstruction approach is preferable for an affected population—or even a subset of the population—is not a straightforward process. The disaster situation, and the conditions and preferences of households make each situation unique. This determination is also affected by the tenancy status of the household before the disaster and the desired tenancy status after reconstruction.

However, some approaches may be more suitable to certain groups than others. The following table shows what may be the most suitable solutions for specific groups. It points out the importance of addressing the reconstruction requirements of owners who are landlords, since renters—a large proportion of the population in some countries, especially in urban areas—will be dependent on reconstruction by landlords. It is unlikely that a group of apartment dwellers (even if they were condominium or cooperative owners) would band together to reconstruct their units, particularly if reconstruction entailed relocation. However, this option is included here. More likely, they would liquidate their holdings and relocate elsewhere. The  case study on the Gujarat earthquake, below, compares satisfaction levels of owner-occupiers with different reconstruction methods.

Tenancy categories of affected population	Suitable reconstruction approaches
1. House owner-occupant or house landlord	Any approach.
2. House tenant	If tenant can become a house owner-occupant during reconstruction, see #1. If tenant becomes an apartment owner-occupant, see #3. Otherwise house tenants are dependent on landlords to rebuild.
3. Apartment owner-occupant or apartment building landlord	Cash or ODR. CDR if owners as a group can function as a “community.” Reconstruction of multi-family, engineered buildings will always involve contractors, but owners may not require help of agency.
4. Apartment tenant	If tenant can become a house owner-occupant during reconstruction, see #1. If tenant becomes apartment owner-occupant, see #3. Otherwise, apartment tenants are dependent on landlords to rebuild.
5. Land tenant (house owner)	With secure tenure, same as #1, house owner-occupant. Without secure tenure, same as squatter.
6. Occupant with no legal status (squatter)	If squatter can become a house owner-occupant during reconstruction, see #1. If squatter becomes an apartment owner-occupant, see #3. Otherwise, squatters are dependent on landlords to rebuild, or they remain without legal status.

## Risks and Challenges

- Underestimating an affected community’s capacity to rebuild its houses and, hence, opting for reconstruction by contractors.
- Allowing those who can provide reconstruction funding to impose the reconstruction scheme.
- Building houses that people refuse to occupy for reasons of location, materials, design, or loss of livelihood.
- Not providing households participating in ODR projects with adequate assistance, facilitation, and supervision, resulting in poor construction quality, price inflation for materials, and other problems.
- Failing to take advantage of reconstruction as an opportunity to reduce risk and to strengthen local building practices and construction capacities.
- Inadequate oversight of private construction companies, which results in higher costs or inferior quality of construction.
- Designing and building houses that do not meet the communities’ cultural and individual requirements because of a lack of community participation in reconstruction planning.
- Local elites who hijack the project benefits because eligibility criteria and assistance schemes were poorly designed or not monitored during implementation.
- Pressure to overinvest in housing that leaves little or no funding for on-site investments such as infrastructure and restoration of natural habitat.
- Failing to provide sufficient technical assistance and facilitation to ensure that poorer households participating in ODR schemes reach construction milestones and obtain access to subsequent funding disbursements.
- In urban areas, adopting ODR without strengthening institutional capacity for land use planning, regulation, and building inspection, which can result in increased vulnerability.
- Neglecting the needs of tenant categories other than homeowners, e.g. owners of multiple family housing, tenants, landlords, and squatters.

## Recommendations

1. When reconstruction is simple and mainly entails repair of damaged housing that is otherwise adequate, adopt CA; otherwise, whenever possible, adopt ODR.
2. Use CDR when community life and the local economy is disrupted by the disaster or relocation is required, or both.
3. Avoid ADRIS in rural areas and in places where the built environment and natural habitat are significantly intact.
4. If ADRRS is absolutely necessary, government should require community participation and establish simultaneous audit and oversight mechanisms.
5. Help communities rebuild their houses with facilitation and other appropriate enabling mechanisms identified through a social assessment that focuses on vulnerable households.
6. Ensure that reconstruction agencies take into consideration people's different housing needs, vulnerabilities, livelihoods, and family size in selecting reconstruction approaches and that socioeconomic factors and gender-related requirements are addressed.
7. Under every approach, ensure that construction methods embody good planning, risk reduction, and environmental principles.
8. Require community participation in all aspects of the process, even when outside agencies or the private sector are in the lead.

## Case Studies

### 1999 Eje Cafetero Earthquake, Armenia, Colombia

#### Decentralization of the Rural Reconstruction Process using ODR

When an earthquake struck the coffee-growing region of Colombia in 1999, national authorities worried about the repercussions of the disaster on the coffee exports-based regional economy. The President of Colombia created FOREC, a national fund that was put in charge of managing the overall reconstruction program. FOREC, in turn, decentralized the reconstruction process by distributing responsibility among 32 NGOs, putting each one in charge of a small town or a sector of an affected city. Rural reconstruction was assigned to the Coffee Growers' Organizations (CGOs), a network of local, regional, and national committees represented internationally by the Coffee Growers' Federation. However, the mission of a CGO was promoting coffee production and exports, not building houses or infrastructure. Lacking the means to implement a housing program, the CGOs opted for a user- or owner-driven approach in which beneficiaries were given responsibility for designing, planning, procuring, and building their own projects. FORECAFE, a rural reconstruction fund created by the CGOs, was charged with controlling the quality of construction on individual projects and managing progress payments, which were disbursed based on approval of the use of the prior payments. More than 14,000 individual housing, infrastructure, income-generation, and community services projects were completed in less than 18 months, thanks to an effective system of coordination of information, financial control, and quality management. This post-disaster, user-driven reconstruction experience (one of the first in Latin America) demonstrated the benefits of transferring responsibility over design, planning, and management of reconstruction directly to the individual beneficiaries of that reconstruction.

Source: G. Lizarralde, C. Johnson, and C. Davidson, eds., 2009, *Rebuilding after Disasters: From Emergency to Sustainability* (London: Taylor and Francis), <http://www.preventionweb.net/english/professional/publications/v.php?id=11329>.

### 2005 Jammu and Kashmir Earthquake, India

#### Quality Transitional Shelter Built by ODR Gets Affected Population through the Winter

In October 2005, a massive earthquake hit the Jammu and Kashmir region of India, killing more than 1,000 people and injuring 6,300. The impact on housing in some communities was catastrophic. In Tangdhar region, for example, 5,393 of 6,300 houses collapsed and 266 were partially damaged. In addition, winter was fast approaching, threatening to block access roads to the affected area. In contrast to many post-disaster situations where temporary shelters are a makeshift solution for a few months, sometimes built with inappropriate materials, the Jammu and Kashmir government decided to provide robust interim shelters. A reconstruction policy was needed that reflected local needs, priorities, and climatic conditions, including a proposal for the interim shelter construction approach. The Jammu and Kashmir government analyzed such options as (1) government construction of houses, (2) contracting NGOs to construct housing, and (3) facilitating construction by households, as was done in Bhuj, India, after an earthquake hit that city. The option chosen was ODR, and enabling mechanisms were established, including providing cash assistance of Rs 30,000 (US\$677) for those

whose houses had fully collapsed (enough for a 200 sq. ft. shelter) and sending engineers to survey villages and to help communities with technical issues. The transitional shelter design chosen could be built in two days. Although access to construction material was facilitated, people were encouraged to use lumber from their old houses to prevent shortages in the spring when permanent reconstruction work would begin. To ensure completion of shelter construction before winter hit, an incentive of Rs 5,000 (US\$112) was given to the families that finished their sheds before the end of November while respecting safety norms. The reconstruction policy and technical advice were communicated to communities using flyers in Urdu and English with easy-to-understand drawings. In the end, 15,000 shelters—90 percent of the total—were completed by the end of November. A crisis was averted, thanks to a combination of a practical transitional shelter strategy, a clear message, good incentives, and strong support by the state for ODR.

Sources: Kutch Nav Nirman Abhiyan, 2005, *An Owner Driven Interim Shelter Initiative in J & K. Report on Tangdhar Region*, [http://www.kutchabhiyan.org/PDF/InterimShelter\\_Initiative\\_in\\_J&K.pdf](http://www.kutchabhiyan.org/PDF/InterimShelter_Initiative_in_J&K.pdf).

## 2001 Gujarat Earthquake, India

### Citizens' Satisfaction with Different Reconstruction Approaches

In 2004, an independent household survey compared citizens' satisfaction with different reconstruction approaches following the 2001 Gujarat, India, earthquake. The highest satisfaction was achieved with ODR with financial assistance and technical assistance from government, complemented by additional material assistance from local NGOs. All families whose houses were built using this model reported that their housing situation was better than before the earthquake. A second approach, government-supported ODR without NGO assistance, was almost as popular, with 93.3 percent of households reporting being fully satisfied. Relatively high levels of overall satisfaction (90.8 percent) were also reported under a third approach: local NGOs using CDR. Satisfaction decreased when houses were built by contractors. Only 71.8 percent of the people reported being satisfied with contractor-built houses built in-situ (equivalent to ADRIS). Contractors' profit imperative was held responsible for low construction quality. Only 22.8 percent of the people who received contractor-built houses in relocated sites (equivalent to ADRRS) reported being satisfied and only 3.5 percent considered the quality adequate. People complained about lack of participation, discrimination in favor of local elites, and disruption of family networks. Many people refused to move to new villages, and houses remained unoccupied. The study also showed that reconstruction by contractors was more costly and required more time than ODR.

Source: Jennifer Duyne Barenstein, 2006, "Housing Reconstruction in Post-Earthquake Gujarat: A Comparative Analysis," *Humanitarian Policy Network Paper 54* (London: Overseas Development Institute), <http://www.odihpn.org/report.asp?id=2782>.



*Contractor-built houses in Gujarat*



*Owner-built houses in Gujarat*



ALL PHOTOS: WHRC



## Resources

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