

Evaluation after Three Years from the Earthquake: Notable Progress

Although the earthquake of February 27th, 2010 was one of the most devastating ever, the reconstruction process is remarkable when compared with other international cases. In spite of the great progress, after three years from the tragedy it is important to ask ourselves if we are better prepared for a possible catastrophe.

When 3 years have elapsed from the earthquake and subsequent tsunami occurred on February 27th, 2010 (27F), it is important to highlight how the authority has dealt with giving solutions through the reconstruction program, which has been considered very positive not only at the domestic level but also abroad.¹ The success lies in the quick response in the emergency stage, the early gathering of information, the ministerial coordination and the civil society, among other measures. Moreover, the freedom to choose the way of delivering these solutions –mainly in housing matters- has been a factor highly appreciated by the victims.

However, there are still some pending works, whose closing dates are before March 2014.

There is no doubt that the greatest challenge is the necessary improvement of the procedures tending to warn, prevent and face future catastrophes, which means to change the institutional framework. It is important to recall that the lack of tsunami alert caused the death of hundreds of people, whose lives could have been saved if the necessary information, a more efficient and effective procedure for disasters, and institutions with the necessary powers to adequately react before this type of phenomena had been available.

Reconstruction in Different Areas

Among the earthquake's most considerable material damages are 1,250,000 children who were prevented from attending classes due to the 4,654 schools with severe damage. Nevertheless, only 45 days after the earthquake, all the children were able to take up classes again, thus preventing them from losing the schooling year. We should also mention

that from the total of damaged schools, 84% have already received some type of support.

In the health area, 4,249 hospital beds were lost, 171 surgery rooms were destroyed, 40 hospitals suffered severe damage and 17 were left useless. In turn, 141 emergency hospitals and 66 primary health care facilities suffered some damage degree. However, six months after the earthquake, 90% of the damaged beds and industrial-medical equipment had been recovered. As for definite solutions, there is currently 77% progress in the renovation and construction of the 5 missing hospitals.

With regard to public infrastructure, the damage's estimated cost accounted for US\$10 billions. Among the main losses were 2,500 damaged connectivity points; 298 destroyed bridges; 1,600km of deteriorated roads; one useless airport and 7 aerodromes; and 53 damaged port facilities. Six months after the earthquake, all damaged connectivity points were operative. On the other hand, the definite repair of bridges and roads is expected to be completely finished in 2014. In relation to the airport and railway networks, it has been wholly restored and the port works are expected to end in 2013.

Housing Solution Progress

The earthquake destroyed 370 thousand housing units, from which 220 thousand were qualified for reconstruction subsidies. By February 2013, 144,565 housing units had already been delivered. Then, if we consider the works that have already started, the repair progress percentage is 92% and for new houses, 94%. Furthermore, Table 1 shows that the regions of El Maule (VII) and La Araucanía (IX) present the highest progress degree, both in repair works and new houses, while the O'Higgins Region shows the highest degree of delay, especially concerning housing repair, probably explained by the complexity and potential dispersion of the solutions.

Additionally, through the action of the earthquake, 11 buildings collapsed and several others with heritage value were damaged. Consequently, repair works for 768 heritage buildings were given priority. At the same time, waterfronts were recovered and 110 Urban Regeneration Projects (PRES, in Spanish) and 27 Urban Reconstruction Master Plans (PRU, in Spanish) were developed, which has allowed improving the sites in order to be better in the future.

Table 1

PROGRESS OF THE RECONSTRUCTION BY REGION, BY FEBRUARY 2013

Region	Repair Works			New Housing			Total	
	Delivered works	Works being built	Works to be started	Delivered works	Works being built	Works to be started	Repair progress %	New housing progress %
Valparaiso	9,401	127	299	2,006	2,181	206	97.0%	95.3%
Metropolitan	24,064	2,681	746	2,249	3,227	476	97.3%	92.0%
O'Higgins	4,934	907	1,778	9,324	8,318	1,851	76.7%	90.5%
Maule	16,401	639	283	15,966	16,535	138	98.4%	99.6%
Bio-Bío	32,383	5,075	5,708	23,630	21,938	4,285	86.8%	91.4%
Araucanía	2,250	6	38	1,957	411	-	98.3%	100.0%
Total	89,433	9,435	8,852	55,132	52,610	6,956	92%	94%

Source: Prepared by L&D based on the MINVU Progress Report for the Housing Solutions Delivery.

International Reconstruction Evidence

In order to evaluate how well we are doing it is important to compare our reconstruction process with those of other recent earthquakes.

Chart 1 shows the number of damaged housing units and the time taken to rebuild them. In 2011, in Tohoku, Japan, an earthquake magnitude 9.0 in the Richter scale was registered followed by a tsunami. This catastrophe affected more than 12.5 million people, that is, approximately 9% of the population. In the reconstruction program, most of the facilities were estimated to be recovered by 2016, thus considering a 5-year term. Currently, the victims are living in provisional housing units and approximately 300 thousand housing units are required.ⁱⁱ

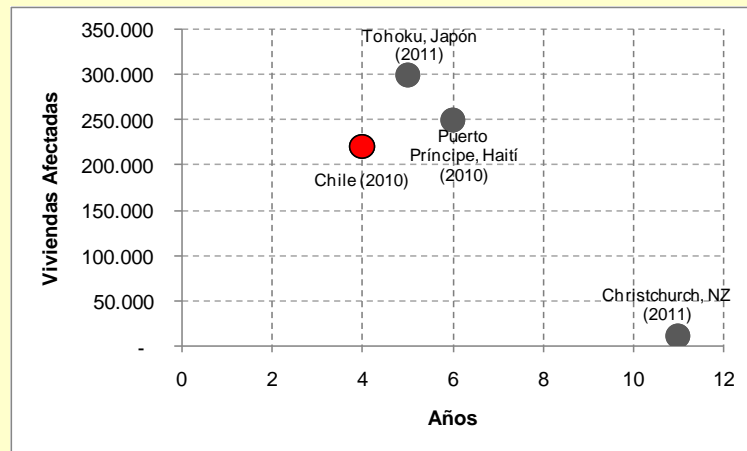
Another case is Haiti, which was struck in 2010 by an earthquake magnitude 7.0 in the Richter scale, affecting 3,500,000 people (37% of the national population). For this catastrophe, the reconstruction program estimated a 6 to 10-year period and the construction of 250 thousand housing units.

On the other hand, in 2011 Christchurch, New Zealand, suffered a 6.3 degree earthquake, accounting for 460 thousand victims. The reconstruction program was divided in three stages: during the first year, the emergency phase was carried out, then the 11-year term reconstruction began, and the complete infrastructure renewal was estimated in 21 years. The biggest damage struck the infrastructure and there are 11 thousand damaged housing units.ⁱⁱⁱ

As we observe in the chart, each point represents how many housing units were affected by the disaster and the number of years it took or will take to rebuild them. For Chile, the time scheduled for reconstruction is lesser even though 220 thousand housing units have to be built, that is, approximately 55 thousand units per year, and the earthquake affected 75% of the national population.

Chart 1

DAMAGED HOUSING UNITS VS. RECONSTRUCTION TIME



Source: Prepared by L&D.

Consequently, the international acknowledgement regarding our country's performance in the reconstruction process should not be surprising; the Minister of Housing and Urban Development, Rodrigo Pérez Mackenna, was appointed President of the Council on Catastrophic Risks of the World Economic Forum for the period 2012-2014.

Protection and Prevention of Future Catastrophes

The focal point of reconstruction was to prevent damages in future catastrophes. This plan envisaged the creation of a new institutional framework and the implementation of a new Emergency Telecommunications Network; the improvement of the emergency alert system; the renewal and purchase of new seismic monitoring and tide measurement equipments; and preparing the population through simulation exercises. Increasing the requirements of seismic standards was also considered.

Concerning the substantial modifications to the institutional framework, the bill which provides for a National Emergency and Civil Protection System (Bulletin 7550-06) was introduced for its proceeding at the Congress in March 2011. This bill establishes a complete regulation of the organisms

that must take over to inform and prevent catastrophic situations and the roles and powers that they shall exercise in either case. The outcome is a regulating body which creates a National Emergency and Civil Protection System, composed by two public agencies and funding aimed at preventing big natural catastrophes that may occur in the country, and at the same time, having the capacity to give a timely and efficient response once a catastrophe has taken place.

One of these agencies is the National Civil Protection Agency –replacing today’s National Emergency Office, ONEMI- , created as a decentralized public service, with legal status and own assets, related to the president of the Republic through the Ministry of the Interior and Public Security. The other agency is the National Civil Protection Council, presided by the Undersecretary of Interior and composed by 17 members coming from both the public and private sector, and other people or bodies appointed by the Ministry of the Interior and Public Security, but with a maximum of 21 members. Given the nature of its role, it has an advisory character.

This institutional change gives it a more permanent character and details the responsibilities of the institutions; this seems adequate, since we observe a real and serious attempt to coordinate efforts under the direction of government authorities, with the purpose of properly informing about the danger of a catastrophe and to be able to overcome it in case it happens. Nevertheless, considering the great number of bodies and authorities involved, there is the fear that the project may generate red tape conditions, where urgent decisions are not made with the needed swiftness. Thus, it is difficult to balance the responsibility of higher organisms, who tend to centralize decisions, with the timely action of hierarchically lower entities, but who are usually on site.

It is a key issue that this bill succeeds to have a technical proceeding at the Congress; unfortunately, this has not been possible to date, since clearly political issues have always been under discussion. If the newly purchased instruments and the improved procedures are added, the reception, processing and delivery of information could be considerably optimized when catastrophes occur, as well as all the subsequent coordination efforts.

Conclusion

Although the earthquake of February 27th, 2010 was one of the most devastating ever, the reconstruction process is remarkable when compared with the experience of other international catastrophes, even if there are still pending works.

It is important to ask ourselves, three years after the tragedy, if we are better prepared to face a possible catastrophe. As evidence shows, significant investments have been made in new instruments to improve the delivery of information, and we also hope that if the institutional changes are applied, the response of citizens and authorities improves in the following catastrophe, which, according to the experience and statistical data, is not foreign to our territory. However, this will be achieved only if technical and not political considerations are put forward during the proceeding of this new institutional framework, and it is also important to reflect on the need to create a complicated system that may derive in excessive bureaucracy. If it is not possible to deal with the matter in a more simple way, the aim should be to simplify the system with the purpose of achieving quicker and more effective responses that may prevent events such as the unfortunate consequences of the 27F, part of which were clearly avoidable.

In brief...

- Reconstruction has been a successful process in all covered areas. In relation to housing, 144,565 units have been delivered, and if we consider the works that have already started, the home repair progress percentage is 92% and for new housing, 94%.
- Then, reconstruction in Chile compared with the last earthquakes occurred in the world, shows lesser reconstruction times.
- Finally, as for the protection and prevention of catastrophes, the reconstruction plan envisages renewing and purchasing new instruments to improve the delivery of information to the citizens. However, the improvement of the institutional framework and the responsibilities for these cases are still pending.

ⁱ The study of Mary Comerio of the University of California, Berkeley called "Housing Recovery in Chile: A Qualitative Midprogram Review", shows the good reconstruction performance compared with other catastrophes.

ⁱⁱ Information from the Reconstruction Agency Japan and the Red Cross, http://www.reconstruction.go.jp/english/topics/20121228_FAINAL_CHUKAN.pdf
http://www.redcross.org/images/MEDIA_CustomProductCatalog/m6340390_JapanEarthquakeTsunami_OneYear.pdf

ⁱⁱⁱ "Christchurch Central Recovery Plan", Canterbury Earthquake Recovery Authority <http://ccdu.govt.nz/sites/ccdu.govt.nz/files/documents/christchurch-central-recovery-plan.pdf>