

# Reconstruction: Is Chile Really Delayed in Relation to the Earthquake of February 27<sup>th</sup>?

**The government's commitment is to deliver subsidies in 2 years and to rebuild all the damaged homes in a 3-years term. At the same time, the aim is that reconstructed homes are suitable and safe. This schedule may seem rather long for the people concerned, but if we compare it with other natural disasters and take into account the catastrophe's magnitude, we may consider it a short time.**

Certain Members of Parliament have questioned the management of the Ministry of Housing and Urbanism (MINVU) in relation to the reconstruction, revealing a supposed delay in the housing solutions.

We shall analyze below the government's management with regard to the evidence of national and international catastrophes, so as to determine if the solutions have taken too much time, as the Members of Parliament have criticized.

### **Earthquake's Magnitude**

On February 27<sup>th</sup>, 2010, the country suffered an earthquake of 8.8 degrees on the Richter scale and a subsequent tsunami. It is the third most intense earthquake registered historically and it caused considerable damage, since there were 521 fatal victims and 220 thousand houses were destroyed. The Ministry of Finance determined that the earthquake's total damage amounts to US\$29,663 millions.

Eight months after the catastrophe, we observe that the emergency stage has been overcome.<sup>1</sup> Eighty thousand emergency houses were built, all of them equipped with stoves, blankets, beds and isolation, among other things. Additionally, the victims of the tsunami were relocated in "Aldeas" (small villages) where they received psychosocial assistance, among other things.

The most damaged regions were O'Higgins (VI), del Maule (VII) and Bío Bío (VIII). However, the regions of Valparaíso (V), Araucanía (9) and Metropolitana (RM) were also affected by a lesser damage level.

There were 3 types of subsidies delivered, depending on the house's damage level: Repair, Purchase and Building Subsidies. Until October, 70,753 subsidies had been delivered, which accounts for UF 15,555,708. The expectations are to deliver 100 thousand subsidies in 2010, with a value of UF 28,507,951, which represents a progress of 55% for the same year. The reconstruction program considers building 220 thousand houses by December 2011, which represents a cost of UF 61,756,323. The goal is to allocate all subsidies by December 2011.

In the first months following the emergency, the government delivered mainly Repair subsidies. Nevertheless, starting October, the allocation of Building subsidies has been privileged. Since it is expected to maintain this change of trend, the estimations are that the monthly allocation amount will increase. Moreover, if the subsidies' allocation average of the last 4 months is maintained, that is, 16,744 units, the goal for 2010 would be surpassed. Table 1 shows the progress of the subsidies' allocation by regions.

Table 1

### NUMBER OF ALLOCATED SUBSIDIES VS GOALS 2010

Region	Repair Subsidies		Purchase Subsidies		Building Subsidies		Total Subsidies		
	Delivered by Sept.	Goal 2010	Delivered by Sept.	Goal 2010	Delivered by Sept.	Goal 2010	Delivered by Sept.	Goal 2010	Progress %
Valparaíso	5,903	5,613	340	311	742	1,274	6,985	7,198	97%
O'Higgins	1,223	4,521	2,697	2,496	3,568	4,779	7,488	11,796	63%
Maule	4,897	11,087	3,454	3,350	3,536	7,768	11,887	22,205	54%
Bío Bío	12,796	19,140	3,357	3,082	8,477	12,718	24,630	34,940	70%
Araucanía	841	1,147	208	192	124	625	1,173	1,964	60%
Metropolitana	17,165	18,569	1,195	1,275	230	2,052	18,590	21,896	86%
<b>Total</b>	<b>42,825</b>	<b>60,077</b>	<b>11,251</b>	<b>10,706</b>	<b>16,677</b>	<b>29,217</b>	<b>70,753</b>	<b>100,000</b>	<b>71%</b>

Source: Ministry of Housing and Urbanism

With regard to the program, regions V and RM show a greater progress level if compared with the Center South area (VI, VII, VIII

and IX), since the earthquake's intensity was lower and it was easier to manage the reconstruction projects. Likewise, these regions needed mostly Repair subsidies which take less time. Instead, the Center South area of the country has a high rural character and geographic dispersion. Additionally, certain patrimony recovery projects were determined (regions VI and VII) and a high percentage of adobe brick houses must be considered; in the El Maule region (VII), 13.5% of the population lives in adobe brick houses, and in the O'Higgins regions (VI), 10.4%.

One of the questioned issues was the Ministry's transparency in the subsidies allocation and the fact that figures did not coincide with the publication in the Diario Oficial (Official Newspaper). The law establishes that the MINVU has the obligation to publish in the Diario Oficial the call for applications and the list of selected applicants. Nevertheless, the effective allocation of the subsidy may be notified directly to the beneficiary. However, in the Ministry's web page you can find the information with the list of the people who were benefited by October 31<sup>st</sup>, 2010, which corresponds to 70,553 houses.

The goal of the reconstruction plan of the Ministry of Housing and Urbanism, "Chile United Rebuilds Better", is to respect the residence at the own site, regulate the new reality of the seashore, preserve patrimonial housing, respect the minimum quality standards, and ensure competition and the right to choose.

The government's commitment is to deliver subsidies in 2 years and to rebuild all the damaged homes in a 3-years term. At the same time, the aim is that reconstructed homes are suitable and safe. This schedule may seem rather long for the people concerned, but if we compare it with other natural disasters and take into account the catastrophe's magnitude, we may consider it a short time.

### **National Evidence**

In Chile, the damaged population amounts to 2 millions; this corresponds approximately to 11.8% of the national population. The damage caused by the earthquake was 100 times greater than the one produced by the Chaitén disaster (2008) and the Tocopilla earthquake (2007). In this last catastrophe, the magnitude was 7.7 degrees on the Richter scale and there were 15,000 victims, which correspond to 0.001% of the Chilean population.

Below, Table 2 shows the main differences between the Tocopilla earthquake and the earthquake of February 27<sup>th</sup> considering the government's reaction. We observe that, 7 months after the catastrophe, the response of the current government regarding the subsidies allocation has been far better. It is a matter of concern that in Tocopilla there are still 1,309 subsidies to be allocated, that is, 19.2% of the subsidies needed to finish the reconstruction plan.

Table 2

### NUMBER OF ALLOCATED SUBSIDIES VS GOALS 2010

	Tocopilla Earthquake			Earthquake February 27 <sup>th</sup>		
	Broken down	Recoverable (to be repaired)	Total	Broken down	Recoverable (to be repaired)	Total
Number of houses	2,967	3,841	6,808	103,543	105,039	208,582
Progress after 7 months	1,106	323	1,429	18,214	35,051	53,265
Progress 2010 <sup>(1)</sup>	1,751	3,748	5,499	27,340	43,413	70,753
Progress % after 7 months	37%	8%	21%	18%	33%	26%
Progress % 2010 <sup>(1)</sup>	59%	98%	81%	26%	41%	34%

(1) In the case of Tocopilla, the progress for 2010 considers until April, and for the earthquake of February 27<sup>th</sup> it is an estimate until October 2010.

Source: Ministry of Housing and Urbanism

Furthermore, we have to bear in mind that in the case of Tocopilla we are dealing with a limited reconstruction of 6,808 houses, while in the earthquake of February there are almost 220 thousand damaged houses, so, we are talking about 30.6 times more houses in this case.

On the other hand, if we compare the celerity of the subsidies' delivery between these two catastrophes, we observe that the response capacity of the current government has been highly superior. In the case of Tocopilla, 7 months after the tragedy, 21% of the housing requirements were fulfilled, that is, at a 3% rate per month. Then, if we compare these figures with the houses delivered by April 2010, that is, 29 months after the earthquake, the subsidies delivery rate descends to 2.8% average per month. This delivery rate would imply that only after 3 years all subsidies will have been

delivered. Then, if compared with the earthquake of February 27<sup>th</sup>, 34% of the required subsidies have been allocated 8 months after the tragedy; that is, an average monthly rate of 4.25%. If we extrapolate this figure, it implies that all subsidies shall have been delivered within 2 years.

For the people who lost everything, there is a great difference if we require 2 and not 3 years to complete the subsidies' allocation.

### **International Evidence**

Chart 1 shows the number of damaged houses and the time taken to rebuild them. In the case of Kobe, Japan suffered an earthquake of magnitude 7.2 on the Richter scale; there were 1,533,034 damaged people, which represent 1.2% of the population. The reconstruction program lasted 3 years and 394,440 houses were built, that is, approximately 131,480 houses per year.

Colombia suffered an earthquake magnitude 6.2 degree on the Richter scale. There were 1,546,211 damaged people, which represent 3.9% of the national population. In this catastrophe, the reconstruction program lasted 3 years and six months; 129,610 houses were built, that is, around 37,031 houses per year.

In relation to Indonesia, this region suffered an earthquake followed by a tsunami, just like in Chile. The earthquake had a magnitude of 9.1 degrees on the Richter scale. There were 1,300,000 damaged people, which correspond to 0.07% of the population. In this case, the reconstruction plan took 5 years; 213,503 houses were built, that is, nearly 42,701 houses per year.

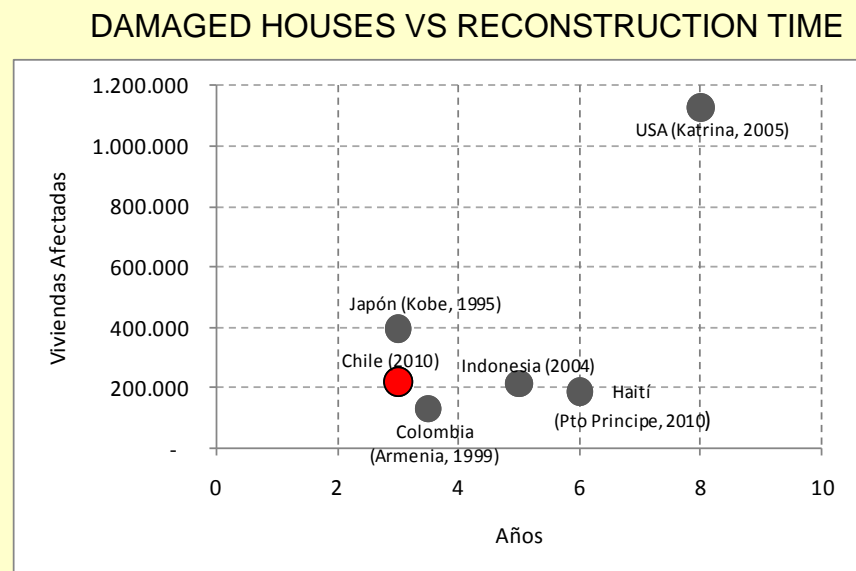
On the other hand, the United States faced a Category 5 hurricane (the highest rate on the hurricane scale). There were 15 million damaged people, which correspond to 4.8% of the national population. The reconstruction program will probably take between 8 and 11 years; 1,125,791 houses are being built, that is, approximately 140,742 houses per year.

In 2010, Haiti suffered an earthquake magnitude 7.0 on the Richter scale. This catastrophe left 5.6 million damaged people, which correspond to 60.5% of the country's population. The reconstruction plan should take between 6 and 10 years; it is necessary to build 188,385 houses, that is, nearly 31,397 houses per year.

As we may observe in Chart 1, each point represents how many houses were damaged by the catastrophe and the number of years it took or will take to rebuild them. In the case of the Chilean earthquake, the reconstruction time is less in 4 of the 6 cases displayed. It is necessary to build 220 thousand houses, that is, approximately 73,333 houses per year. It is important to highlight that Chile was the country presenting the most intense catastrophe on the Richter scale.

Since the available economic resources of these countries are quite different, and to illustrate the idea that a 3-year program means a great effort to Chile, Chart 2 compares the effort needed to build a house in relation to the size of economy. For this calculation, the GDP per capita in dollars of year 2010 were considered. As can be observed in this Chart, the Chilean reconstruction plan requires a greater effort if compared with countries like Japan and the United States. It can also be observed that Haiti does not have own resources to overcome this catastrophe. However, this calculation does not include all the international help received by this country.

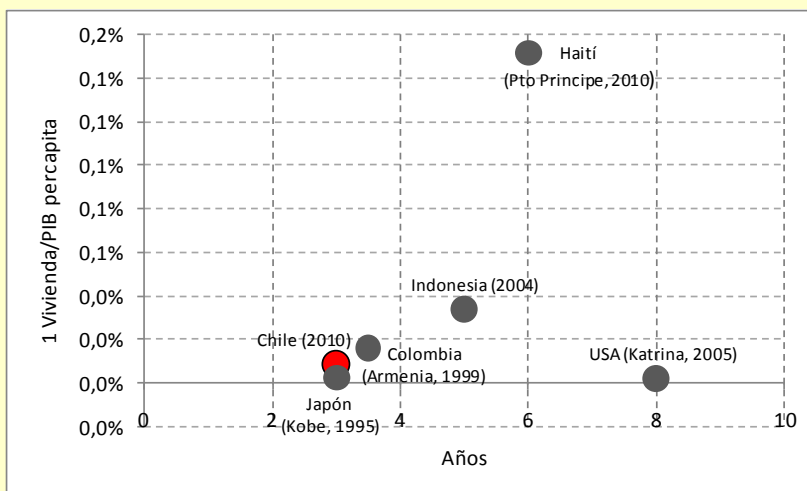
Chart 1



Source: Self-preparation based on presentation of the Ministry of Housing and Urbanism

Chart 2

## DAMAGED HOUSES CORRECTED BY GDP PER CAPITA VS RECONSTRUCTION TIME



Source: Self-preparation based on presentation of the Ministry of Housing and Urbanism

### Conclusion

Last earthquake caused the greatest infrastructure loss in the history of our country. In spite of this, the reconstruction initiatives revealed that the emergency needs have been solved.

Reconstruction is going pretty fast, the progress rate of government authorities and the private sector exceeds that of recent catastrophes, such as the Tocopilla earthquake 3 years ago.<sup>ii</sup> The established schedule has been far superior to those observed in other natural catastrophes, both in the national and international cases.

The government has already developed an important task by reporting clear information concerning the subsidies allocation and the proceedings of the reconstruction program. More progress has to be made regarding definite housing. And there is still a challenge in relation to the planning of destroyed places, especially in the seashore, and the demolition plans of damaged buildings.

<sup>i</sup> Both the immediate and the winter emergency

<sup>ii</sup> Three years after the earthquake in the north of Chile, 7,500 subsidies have been allocated for this account, according to the Ministry of Housing, a quarter of those already allocated for the earthquake of last February.