Report to the Resilience Observatory: Chautara Municipality

prepared by the Housner Fellows Group

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1. Introduction

Following the EERI Learning from Earthquakes (LFE) mission to Nepal in June 2015, the EERI Housner Fellows Group (HFG) visited the Municipality of Chautara in the Sindopalchowk District on February 9, 2016. The purpose of this visit was to observe the current status recovery of the various infrastructure subsystems. The HFG took notes, geotagged photos, and interviewed and discussed resiliency concepts with various stakeholders.

2. Field Observations

2.1 Reconstruction and Retrofitting

Following the earthquake, the National Society for Earthquake Technology-Nepal (NSET) was retained by the government to conduct detailed building damage assessments in 14 municipalities including Chautara. The study found that 80% of the buildings should be demolished. Many heavily damaged buildings have already been demolished or are currently under demolition. The debris cleanup was conducted by the home owners and when heavy equipment was required, by the International Organization for Migration (IOM).

Currently, Japan International Cooperation Agency (JICA) is performing most of the reconstruction work in the Sindopalchowk and Gorkha Districts. Accordingly, JICA is currently conducting mason training in Chautara. These seven-day courses include hands-on training, as well as classroom training. The curriculum includes masonry with both mud and cement mortar (but cement mortar is strongly recommended).

At the time of the HFG visit, the demolition of heavily damaged upper stories were observed. Many such demolitions had already taken place.

HFG observed reconstruction on several buildings:

- The main municipal service offices were reconstructed with lightweight construction pre-engineered buildings (Figure 1).
- A new municipal government building consisting of 4-story reinforced concrete with brick infill walls, was under construction. The columns were observed to be 14” x 14” in size and well reinforced. The masons constructing this building reported that they had received training on constructing earthquake-resistant buildings (Figure 2).

Figure 1 Pre-engineered buildings used for municipal service offices.

Figure 2 Photos from construction site for new municipal office building.

- A reinforced concrete with brick infill for UNDP was being constructed on top of foundations of previously demolished building (Figure 3).

Figure 3 Photos of UNDP building under construction.

During the field visit, two building retrofit types were observed:

- One residential building was retrofitted by repairing and strengthening damaged exterior columns with fiberglass reinforced plastic (FRP), additional steel rebar, and concrete (Figure 4). The retrofit began in June 2015 and was recently completed. This retrofit was funded by the homeowner.
- A typical retrofit scheme observed at several multi-story apartment buildings was column jacketing (Figure 5). According to interviews with homeowners, the retrofit scheme was used because it was "the popular method in Kathmandu" as told to them by the contractor. The method involves removal of a vertical line of bricks in order to add more steel and concrete around the existing column. Note that only the first floor column is being strengthened in this method. One occupant (hotel owner) interviewed was a new tenant. He noted that he insistent on the retrofit before moving his business into the building.

Figure 4 Photos of apartment building retrofitted with fiber-wrapped columns.

Figure 5 Photos of apartment building retrofitted with column jacketing on lower floors.

2.2 Housing

At the time of the LFE visit, most of the population of Chautara were living in tents that were erected in an open field. It was observed during the HFG visit in February that tents were no longer in use and citizens were now back in their homes (Figure 6).

Figure 6 Empty open field where tents had been placed following the earthquake.

2.3 Hospital Services

HFG visited the Hospital of Chautara to learn about the recovery process, as well as the existing level of preparedness and the response capacity that has been deployed.

From a functional point of view, the hospital remains unoccupied because it was heavily damaged during the earthquake (Figure 7). The building requires detailed evaluation in order to determine if the building should be repaired and retrofitted or demolished and reconstructed.

Figure 7 Main hospital building with heavy earthquake damage.

Normally, the hospital carries twenty beds. Currently, fifteen beds are functional in tents erected next to the hospital building.

It was reported that around eighty health-focused non-governmental organizations (NGO) arrived in Chautara. At the time of the HFG visit, Handicap International was still working in the area. They provided temporary tents to relocate the hospital basic services, including an internal medicine ward, a ward of obstetrics and gynecology, and a ward for minor surgery (Figure 8). In addition, specialized psychiatric services are offered once-a- week. All major emergencies are referred to Kathmandu main hospital or to the closest one in Dulikheil. It is noted that the Hospital of Chautara already lacked emergency services before the earthquake.

Figure 8 Location of temporary wards.

Equipment loss was reported, but no health care providers were injured in the earthquake. The current staff includes five general practitioners, four nurses, and five paramedics providing health care.

The staff was highly prepared to make people aware of the potential post-earthquake epidemics outbreaks that could ensue. Some cases of Salmonella Thyphi (Typhoid) were registered but there was no case of Cholera in this hospital.

According to an interview with a generalist doctor on site, the hospital staff lacked preparedness. There was no contingency plan in place to face any disaster or even a surge capacity.

The hospital currently faces the following challenges:

- Lack of healthcare providers, mainly specialists
- Lack of privacy for the patients as well as lack of basic medical services (wards)
- Disruption of utilities mainly, electricity and water supply
- Lack of capacity building [Medical and Hospital Incident Command System (HICS) training], as well as capabilities to adequately provide the required services
- Lack of adequate sanitation to avoid nosocomial infections (hospital-acquired infections)
- Lack of volunteerism due to the swift and high rise of the salaries by the NGOs

A new eye clinic building is currently being constructed down the street from the hospital building. The foundations were under construction at the time of the HFG visit. The masons had not yet received training from JICA, but will do before the construction of the superstructure (Figure 9).

Figure 9 New eye clinic under construction.

2.4 Municipal Services

The damaged municipal services building was demolished and replaced with temporary pre-engineered buildings (Figure 10).

Figure 10 Temporary buildings erected for municipal services and information bulletin boards regarding debris removal services.

2.5 Other Observations

It was observed during the HFG visit that many of the shops were open and business was being conducted "as usual" (Figure 11). It was clear that shops were well stocked and the HFG did not hear of any shortages in any particular supplies. It was noted in several instances that business was being carried out of buildings that had been marked by red tags denoting the building was not safe for occupation.

Figure 11 Photos of open businesses on the streets of Chautara.

2.6 International Agencies

During the LFE mission in June the main sports field in Chautara had become a hub for international NGOs, charities and donors. The UN Cluster system had Chautara as a regional hub and the area was totally full of tents including UNOCHA, Red Cross, Oxfam, UNICEF and many other agencies. At the time of the HFG visit, there was little sign of any international relief agencies, however, donors such as JICA still had a prominent presence.