

Chapter 9

Damage to Industrial Facilities

9.1 Cement Plant

Aceh Province is one of the major oil and natural gas producing region in Indonesia. These facilities are on the east coast of province. None of these facilities were damaged either by ground shaking or induced tsunami. However, the cement plant at Lhonga was heavily damaged by tsunami waves. A French company originally built the plant and the subsidiary in Indonesian now operates it. The steel structure, kiln and fuel storage tanks were heavily damaged by tsunami while RC silos remained intact (Photo 9.1). It seems that tsunami waves reached a height of 15-20m in some sections and the steel beams and columns were either bended or buckled by the impact of tsunami waves and dragged objects. There were three cylindrical fuel tanks in the plant. Two of them were completely destroyed while the other one was buckled. All of them were offset from its original location.



Photo 9.1 An aerial view of the cement plant

9.2 Oil Terminal Facility

Storage tanks from an oil tank farm in the eastern part of Banda Aceh city (Krueng Raya, about 22km east of Banda Aceh) were displaced by the tsunami waves for a considerable distance from their original position as seen in Figure 9.2. The tanks were not fixed to the ground and some damage to piping did occur. Figure 9.3 shows a buckled tank along the seashore in Meulaboh. The tank was hit by tsunami waves and that side of the tank was buckled. Furthermore, some settlement of the tank occurred probably due to the liquefaction of foundation ground.



Photo 9.2 Displaced oil tanks by the tsunami



Photo 9.3 Buckled and settled tank at Meulaboh

(Author of this chapter: N. Furukawa)