

Report 2008-Overseas activity of Fudo Tetra Corporation

8 January 2009
International Department
Fudo Tetra Corporation

1. Our overseas activity and future forecast of construction market

We specialize in the soft ground improvement work such as Deep Mixing, Gravel Compaction Pile and Sand Drain method, which is our best field of construction, and we intend to receive both public works and private sector issue as Sub-contractor base. Ground improvement works of six projects (Deep Soil Mixing) in Vietnam, the nine (Sand Compaction Pile; SCP) in U.S.A., and one (Offshore SCP) in South Korea have been already carried out so far until the end of 2008. In Vietnam, it seems that the situation where new construction of infrastructure, especially road, railroad and harbor facilities, and the demand of a standard rise of airport will continue successively, and the needs of ground improvement are still expanding, nevertheless of economic recession in the world. Furthermore, the infrastructure construction accompanying ODA increase is considered to continue steadily.

2. Overseas activity and market in each area

(1) South-East Asia

Southeast Asia area has many soft grounds, and therefore it is one of the important business areas for Fudo Tetra Corporation. The economic growth according to a foreign investment continuously including an ODA enterprise is progressing, and a risk fall is expected especially in Vietnam with the system maintenance after the affiliation to WTO. In this area, since clay particles are too small and it is necessary long time to finish the consolidation, we consider that Deep Mixing method without consolidation times is rather effective than Drain method. Since 2007, we have received four projects of Deep Mixing in order to increase stability and reduce settlement for new container terminal constructions. At present, we have Representative offices in Hanoi and Ho Chi Minh city in Vietnam.

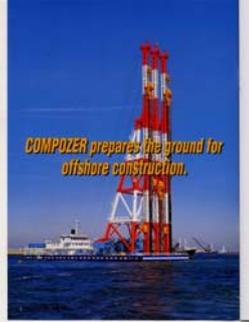
(2) U.S.A.

Fudo Tetra Corporation has established the subsidiary company "Fudo Construction Inc." (URL:<http://www.fudo-const.com>) at San Mateo, California in 2005, and has been performed liquefaction countermeasure using the Sand Compaction Pile (SCP) method for urban-facilities foundations. The market of the non-vibratory sand compaction pile method (called as SAVE-Compozer) in urban areas is also expected. Furthermore, in connection with the new infrastructure projects, the demand of the ground improvement by Deep Soil Mixing method is expected also in the South of U.S..

(3) Other area

In East European countries, Oceania, and South Asia (Sri Lanka), we expect the increased demand of ground improvement for the new infrastructures.

3. Ground Improvement method for overseas project

Method	Features	Machine
Deep Mixing	<p>Diameter 1,000-1,600mm soil-cement mixing column is installed by mixing blades, which has been developed since 1970's in Japan. Laboratory mixing test and check boring are both required to keep its quality. It is not necessary to wait long time to make hard ground as drain method.</p> <p>In Vietnam, container terminal construction projects, we have manufactured the DM special barge with using local flat barge. It is rather convenient for increasing stability of river slope with the DM method.</p>	
Gravel Compaction Pile (GCP)	<p>Diameter 700mm, strong gravel pile is installed in both clayey and sandy ground. It is effective for increase stability of clayey ground and mitigate liquefaction of loose sandy ground.</p> <p>Recently, no-vibration (static) sand compaction pile machine has been developed and used in U.S. for mitigation liquefaction in urban area.</p>	
Off-shore Sand Compaction Pile	<p>Diameter 1600-2000mm, large scale sand pile is installed by special barge. It is useful for many harbor structures such as breakwater and many type of quay-wall. Construction speed is much faster than other method. Gravel and sand is available for used material, however around 2,500m³ material is required in one day.</p>	
Sand Drain	<p>Diameter 40cm sand pile for drainage and accelerate consolidation of clay ground</p>	<p>Same as GCP</p>

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