

# Annual Report 2007-Oversea activity of Fudo Tetra Corporation

4 January, 2008  
International Department

## 1. Fudo's oversea 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 four projects (Deep Mixing) in Vietnam, the nine (Sand Compaction Pile=SCP) in U.S., and one (Offshore SCP) in South Korea have been already carried out until 2007. 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 also continues. Moreover, the infrastructure construction accompanying ODA increase is considered to continue steadily.

## 2. Oversea activity and market in each area

Southeast Asia area has many soft grounds, and therefore is an area for important business of 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 from Vietnam with the system maintenance after the affiliation to WTO. In these area, since clay particle is too small and it is necessary long time to finish the consolidation, we think that Deep Mixing method is rather effective than Drain method. In 2007, we received two projects of Deep Mixing in order to increase stability and reduce settlement for new container terminal construction. At present, we have Representative office in Hanoi and Ho Chi Minh city, Vietnam.

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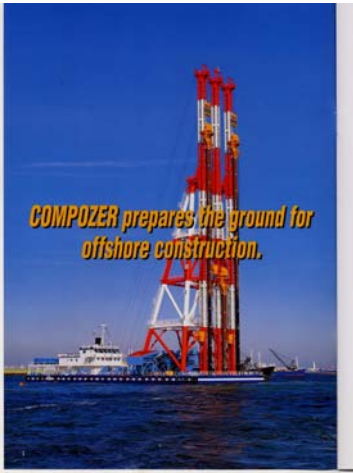
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### 3. Ground Improvement method for oversea project

Method	Features	Machine
Deep Mixing	Diameter 1,000-1,600mm, soil-cement mixing column is installed by mixing blade 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.	
Gravel Compaction Pile (GCP)	Diameter 700mm, string 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. Recently, no-vibration (static) sand compaction pile machine has been developed and used in Japan and U.S. for mitigation liquefaction in urban area.	
Off-shore Sand Compaction Pile	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 2,500m <sup>3</sup> material is required in one day. In South Korea, we have installed up to -70m depth from sea level in 2005.	
Sand Drain	Diameter 40cm sand pile for drainage and accelerate consolidation of clay ground	Same as GCP