

Annual Report 2010-Overseas activity of Fudo Tetra Corporation

7 June 2011
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 a Sub-contractor base. Ground improvement works of seven projects (Deep Soil Mixing) in Vietnam, ten (Sand Compaction Pile and Deep Soil Mixing) in U.S.A., and one (Offshore SCP) in South Korea have been already carried out so far until the end of 2010.

In Vietnam, it seems that the situation where the demand of new infrastructure, especially high grade road, railroad, harbor facilities, and airport will continue successively, and the needs of ground improvement are still expanding. Furthermore, the infrastructure construction accompanying ODA increase is considered to continue steadily.

Due to Great East Japan Earthquake on March 11, 2011, lots of structures had serious damages of liquefaction in Japan (see below). However, there were no damages at where we have performed our Sand Compaction Pile and Gravel Drain technologies to mitigate liquefaction.



2.Oversea 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. In this area, since clay particles of the ground are too small and it is necessary to have long time to finish the consolidation, we consider that Deep Mixing method without having consolidation times is rather effective than drain method.

(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. SCP and SAVE are both quite effective to mitigate liquefaction during the Great East Japan Earthquake 11 March, 2011.

Furthermore, in connection with the new infrastructure projects, we have completed the ground improvement by Deep Soil Mixing method to the levee improvement work in New Orleans, Louisiana (Please see next page in detail.).

(3) Other area

In South America, Oceania, and South Asia (Sri Lanka), we expect the increased demand of ground improvement for the new infrastructures. Moreover, liquefaction mitigation works at New Zealand and Chile are expected as well.

Press Release No.

FUDO CONSTRUCTION INC. AWARDED LARGE SCALE SOIL IMPROVEMENT WORKS IN NEW ORLEANS EAST BACK LEVEE (LPV111), USA.

United States subsidiary company 'Fudo Construction Incorporated' of 'Fudo Tetra Corporation' have received an order of "The soil improvement work of New Orleans East back Levee (LPV111) in which the owner is the United States Army Corps of Engineers (USACE)" from TEVIICOS South, Inc.

This project is a national, large-scale (8.4km in length), important project that in order to prevent severe disaster from huge scale of Hurricane the East back levee in New Orleans is raised up with the soft ground improvement by Deep Soil Mixing (DSM) method.

TEVIICOS South, Inc. is a subsidiary company of TREVI group, Italy, and they have performed lot of ground improvement and slurry wall projects widely in the world. In this time, we have proposed our cost and performance effective method 'CI-CMC' to TREVI group and it was evaluated as suitable method for DSM works.



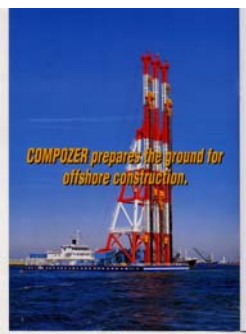
FUDO group has completed this important DSM works with high efficiency and excellent quality. Detail of the project is shown in following website (Vo.5, Issue 1).
<http://www.issmge.org/web/page.aspx?refid=430>

[Project Summary]

1. Project name: New Orleans East Back Levee Improvement Work (LPV111)
2. Location: 15200 Intracoastal Drive, New Orleans, Louisiana
3. Owner: US Army Corps Engineers
4. Client: TREVIICOS South, Inc.
5. Work: CI-CMC, Dia.1600mm, 3 Rigs, Improvement volume=682,000m³
- 6: Duration: 2009/10/26-2011/3/31



3. Ground Improvement method for oversea 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>Recently special design technique using ALiCC method has been developed so that we enable to propose more economical design.</p> <p>In Vietnam, container terminal construction projects, we have assembled the DM special barge with using local flat barge.</p> <p>It is rather convenient for increasing stability of river slope with the DM method.</p>	
Gravel Compaction Pile (GCP)	<p>Diameter 700mm, strong sand/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 / PVD	<p>Diameter 40cm sand pile for drainage and accelerate consolidation of clay ground</p>	Same as GCP

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