Implant Structure Changes Global Construction
Highly Systematic Work Changes Construction
Case Studies of Implant Structure

New Orleans Hit by Hurricane Katrina

New Orleans Area Map

- Floodwall Along Mississippi River
- 23 FT
- 18 FT Project Flowline
- Avg Annual Highwater 14 FT
- Gentilly Ridge
- Altitude 0m
- UNO
- UNO Side of Wainright Dr
- St. Anthony at Wildair Dr
- Wainright Dr at L.C. Simon
- Dillard Univ. Campus
- Gentilly Blvd at Allen
- Derbigny at I-10
- Esplanade at St. Claude
- Canal St at River
- St. Louis Cathedral
- Hurricane Protection Levee & Floodwall
- SPH Design Elevation 11.5 FT
- Normal Lake 1.0 FT Level
Case Studies of Implant Structure
Situation of New Orleans Hit by Hurricane Katrina
Case Studies of Implant Structure
Reinforced Embankment by Implant Structure
Implant Structure
Resilient Structure
Integrated with the Earth
Implant Structure

Unharmed Double Sheet Pile Wall

Confined Ground Seismic Damper

To Prevent Lateral Flow
To Prevent Base Sinking
To Shut Down Excessive Pore Water Pressure

Sheet Pile
Implant Structure vs Gravity Foundations
Technologies for Disaster Reduction

Implant Levee against Earthquake and Tsunami

Kochi, Japan
Topic① Resilient IMPLANT Structure

Kochi Coast Reinforcement of Sea Walls with IMPLANT
Technologies for Disaster Reduction

Collapse of Bank

Declination of Tank

Outflow of Flammable Liquid

Expansion of Fire
Technologies for Disaster Reduction

Storage Tank
Building
Fill-up Ground
Filter Plant
Embedded Structure
Implant Ground Encapsulation Method

Eliminate risks of liquefaction by encapsulating the base ground with sheet piles

Effects of liquefiable ground encapsulating
1) Shutting out of dissipation of excess pore water pressure
2) Prevention of ground deformation
Non-staging Method

GRB System

Conventional Method
Advantages of Press-in Method

Non-Staging Method = Entire Work on Piles

GRB System (Giken Reaction Based System)
Topic② Resilient IMPLANT Structure
GRB System + GYRO Press (Kitakyushu)
Case Studies of Implant Structure

Without Disturbing Traffic, Renovate Levee

Reinforce Levee, While Keeping It

Cross Section

- Land Side
- Sea Side

Road

Tubular Pile \( \varnothing 1000 \)

\[ L = 13.5 \sim 20.5 \text{m} \]
Bangladesh Case Study

Project Location

The Study Area Map

Capital: Dhaka

To: Chittagong

Dhaka and Chittagong Highway (NH 1)

Kanchpur Bridge

Meghna Bridge

Gumti Bridge
Bangladesh Case Study

Meghna Bridge

Length: approx. 930m
Number of Piers: 11 (9 for STPCF)
765no. Tubular Piles $\phi$ 1000mm x t14mm
PP Interlock L=45.5~56.0m (1-14 splices)

Existing Bridge

Completion Image
Bangladesh Case Study

Method Selection Point 1:
No Interruption of Normal Activities

Conventional Method: **Unfeasible** (Traffic Diversion)
Bangladesh Case Study

Method Selection Point 1:
No Interruption on Normal Activities

Press-in Method: **Feasible** without Interruption
Bangladesh Case Study
THANK YOU

Construction Revolution

GIKEN