Regional development solution utilizing IT technology and Japanese management techniques through cooperation between Japanese and Asian companies
History of Chodai Group

- Incorporated in 1968, This is 50th anniversary
- Involved Long span Bridge Projects all over the world
- Business Expansion to the field of consulting for Road, Environment, ITS (Intelligent transport system), PPP, Railway etc.
- Set-up Rep. Offices in Seoul, Beijing, Viet-Nam, Papua New Guinea and Turkey

- Development of Business Promotion Strategy in 2009
- Involved in Hydropower Business in Philippines in 2011
- Involved in Hydropower Business in Indonesia in 2013
- Incorporated AMCO, SPC for Asset Management in 2016
- Listed in the 1st Section of Tokyo Stock Exchange in 2017
- 1,450 employees and 26B JPY sales in 2017
Implementation system of this project

**Business scheme**

- **Proposed company**: CHODAI CO., LTD.
- **Validation Project Theme**
  1. Advanced acquisition and analysis of operational data
  2. Advancement of design and construction data management
  3. Introduction of remote monitoring system

**Cooperation with the Japanese-Indonesian enterprises**

- IPP operator: N. Sumatra
  - PT. Bumi Investco Energi
  - PT. TirtaDaya Nusantara

- IPP operator: Lombok Island
  - PT. AMCO Hydro Indonesia

- Outsourcing
- Site adjustments, etc.

**Subcontract**

- Provide demonstration site

**JETRO**
Theme A: Advanced acquisition and analysis of operational data
Theme B: Advancement of design and construction data management

■ Optimum power generation layout plan assumed F/S stage

✓ 3D CAD topographic map creation (hereafter referred to as "3D model")
✓ Review of optimal power generation layout plan (intake facility, head pound, power station)
✓ Selection of headrace normal/optimum plan by 3D model (comparison of 3 route plans)

■ Detailed design by 3D model

✓ Creation of 3D detailed design drawing based on optimal power generation layout plan
✓ Target is head pound, power plant

■ Results of validation project

Confirmed speed and efficiency optimum power generation arrangement plan by 3D model and template creation/use based on drone survey topographic map. We conducted a detailed design by 3D model and confirmed the rationalization of design, modification etc.
Theme C: Introduction of remote monitoring system

Review the concept of remote monitoring system and introduce demonstration system to 2 sites

We confirmed that the demonstration system operates as specified.

Install remote monitoring equipment at existing power plant

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Consultancy Services in Hydro Power Business

Maximize Clients’ Profits with Social Development

Overall Consultancy Services

Financing & Investment
Japanese Government Funds (JBIC, JICA, METI) and Private Funds/Investors

Engineering Consultancy Services
Life-cycle Engineering Services From Planning to O&M

Asset Management
Data Collecting, Analysis and Providing Solutions with ICT (Information and Communication Technology)

CHODAI Group
Engineering & Capital Resources

PT. AMCO Hydro Indonesia
Creating cycle of “Visualize” => “Analyse” => “Improve” is important

- Up-grade hydro power plant in Indonesia in terms of reliability and efficiency by using information technology and Japanese management way
AMCO’s formation and intention

- **Alamport Inc.**
  - Financial Advisory

- **Chodai Inc.**
  - Engineering capacity

- **Indonesian IPP Owner**
  - IPP owner

PT. AMCO Hydro Indonesia

- **Bank**
- **Investors**
- **IPP owner**
- **Insurance**

✓ AMCO provides solutions for various stakeholders to make Indonesian hydro projects moving forward
Ongoing PPP Projects in Caraga Region, Mindanao, Phil
[UNECE* choose this as one of the 10 Best PPP Practices in the world]

* UNECE : United Nations Economic Commision for Europe

** Equity investment /implemented
Consultancy/planning
(light-colored marks indicate “under consideration/negotiation”)

【As of Feb 2018】

- **Rice Farming Project**
  - F/S funded by JICA.
  - Revitalization of abandoned ponds by using soil/water improvement product provided by Japanese company.
  - Farming of high-valued Japonica Rice

- **Biomass Energy Project**
  - F/S funded by METI (2015, 2017)
  - Developing a model of sustainable supply system of rice husks and power generation (2MW).
  - Supported as JCM Project by MOE

- **Wind Power Generation Project**
  - F/S funded by METI (2016, 2017)

- **Solar Power Generation Project**
  - Initial Study (200MW)

- **Development of a Low Carbon Industrial Park Project (141 ha)**
  - A milling factory was built on May 2015
  - To be produced 20,000 ton/year in the rice mill
  - 140 ha
  - PEZA accredited
  - F/S funded by METI (FY2016)

- **Asiga River Hydro Power Project**
  - 8MW
  - To be operated in FY2016
  - Installed power generation equipment by Voith Fuji Hydro.
  - Two-step loan by JBIC provided.

- **[JCM] Taguibo River Hydro Power Project**
  - 4MW (To be operated in FY2019)
  - F/S funded by JBIC (2015)
  - Supported as JCM Project by MOE (FY2017)

- **Wawa River Hydro Power Project**
  - 10MW (Under review)
  - To be operated around FY2020
  - F/S funded by METI (2012)
  - F/S funded by JICA (2014～2016)

- **Bulk Water (Water Supply) Project**
  - 30,000㎥/day (80,000㎥/day in future)
  - Term: FY2015～2040 (+ 25 years)
  - Two-step loan by JICA provided.
  - Pipes manufactured by Kurimoto.

- **Infrastructure Basic Survey**
  - Pre-F/S funded by OCAJI (2015)
  - Proposing for expansion of logistics infrastructure
Thank you for your attention!!

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