

October 7, 2021

**CHODAI**

Online Business Seminar on Transportation and Energy



# Potential Renewable Energy Collaboration Opportunities in Mindanao

- Between Japanese and Filipino Firms -

Assistant Manager, Chodai Philippines Corporation  
Global Business Promotion Division, Chodai Co., Ltd.

**Engr. Jett Tommy P. Tolentino**

# Today's Agenda

1. Overview of CHODAI Group
2. CHODAI's Renewable Energy Projects in Mindanao, Caraga Region
3. CHODAI's Role in the Development of Renewable Energies Projects
4. Intentions of the Japanese Government and Japanese Investors in Renewable Energy Projects
5. Conclusion (5 min Video Presentation)

# 1. Overview of CHODAI Group

- Under the slogan of “People, Dreams and Technology”, CHODAI contributes to creating an environment where people can live with dreams
- Founded in 1968, listed construction consultant on Tokyo Stock Exchange in 2017 (1,500 group employees)
- Established six local subsidiaries in Asia, contributing high-quality infrastructure technology to Asian infrastructure demand



CHODAI	
Corporate Name:	<b>CHODAI CO., LTD.</b> Listed in Tokyo Stock Exchange
Headquarters:	Chuo-Ku, Tokyo, Japan,
Capital Amount:	JPY 3,107,500,000
Foundation:	21 February 1968
No. Employees:	836 (As of 30 June 2021)
Website	<a href="http://www.chodai.co.jp/en/">http://www.chodai.co.jp/en/</a>

## Kiso Jiban (100% owned by CHODAI)



Corporate Name:	<b>Kiso-Jiban Consultants Co., Ltd.</b>
Headquarters:	Koto-ku, Tokyo, Japan
Capital Amount:	JPY 100,000,000
Foundation:	28 August 1953
No. Employees:	590 (As of 1 April 2020)
Website	<a href="https://www.kisojiban.com/">https://www.kisojiban.com/</a>

## Overseas Subsidiary of CHODAI Group



**[CHODAI Korea Co., Ltd.] Korea**  
-Dispatches Korean engineers as construction supervisors staff all over the world  
-Collects world news from the Korean market



**[CHODAI & Kiso-Jiban Vietnam Co., Ltd.] Vietnam**  
-Combines the strengths of CHODAI and Kiso-Jiban  
-Center for ODA projects in Southeast Asia \*ODA= Official Development Assistance



**[CHODAI & Buro Engineering Pte. Ltd.] Singapore**  
-CHODAI and Kiso-Jiban have invested 50% and 10% respectively in Buro Engineering  
-Specializes in structure design, mainly active in Southeast Asia



**[PT Wiratman CHODAI Indonesia] Indonesia**  
-Founded by CHODAI and PT Wiratman, a comprehensive engineering company in Indonesia  
-Focuses on civil and structural engineering

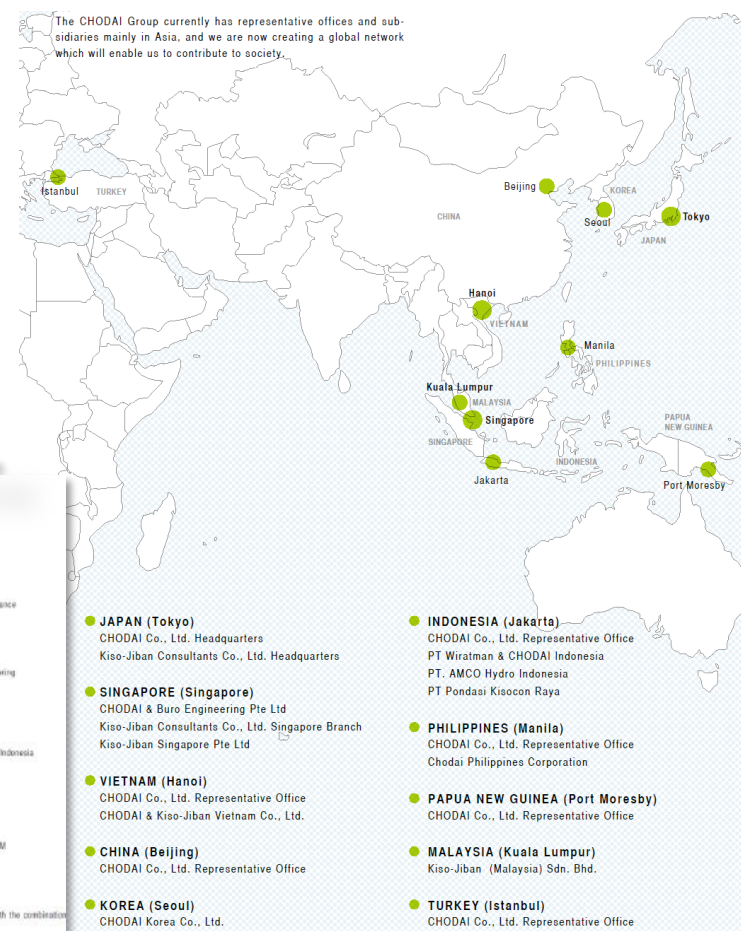


**[Chodai Philippines Corporation] Philippines**  
-Currently focuses on regional development around Cagaya region in Mindanao  
-Long-term commitment to the whole project phases including investment and O&M



**[PT AMCO Hydro Indonesia] Indonesia**  
-Provides solutions to small hydropower plants to assist their O&M activities, with the combination of the knowledge base of its hydro experts and information technology

## CHODAI Group Global Network



# 1. Overview of CHODAI Group



Hyogo - Akashi Kaikyo Bridge Type :  
Suspension bridge



Tokyo - Rainbow Bridge Type :  
Suspension bridge



Egypt - Suez Canal Bridge Type :  
Suspension bridge



Korea - Incheon Bridge Type :  
Suspension bridge



Viet Nam - Nhat Tan Bridge Type : 6  
span continuous cable-  
stayed bridge



Denmark - Great Belt East Bridge  
Type: Suspension bridge



Cambodia - Tsubasa Bridge  
Type: Cable stayed bridge



Turkish - Third Bosphorus Bridge  
Type: Hybrid cable-stayed,  
Suspension bridge

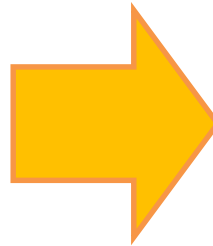


## 2. CHODAI's Renewable Energy Projects in Mindanao, Caraga Region



# Energy Capacity and Generation Mix | 2020

**Installed Generating Capacity  
TOTAL: 26,250 MW**



**10,944 MW | 42%**  
Coal



**7,617 MW | 29%**  
Renewable Energy



**4,237 MW | 16%**  
Oil Based



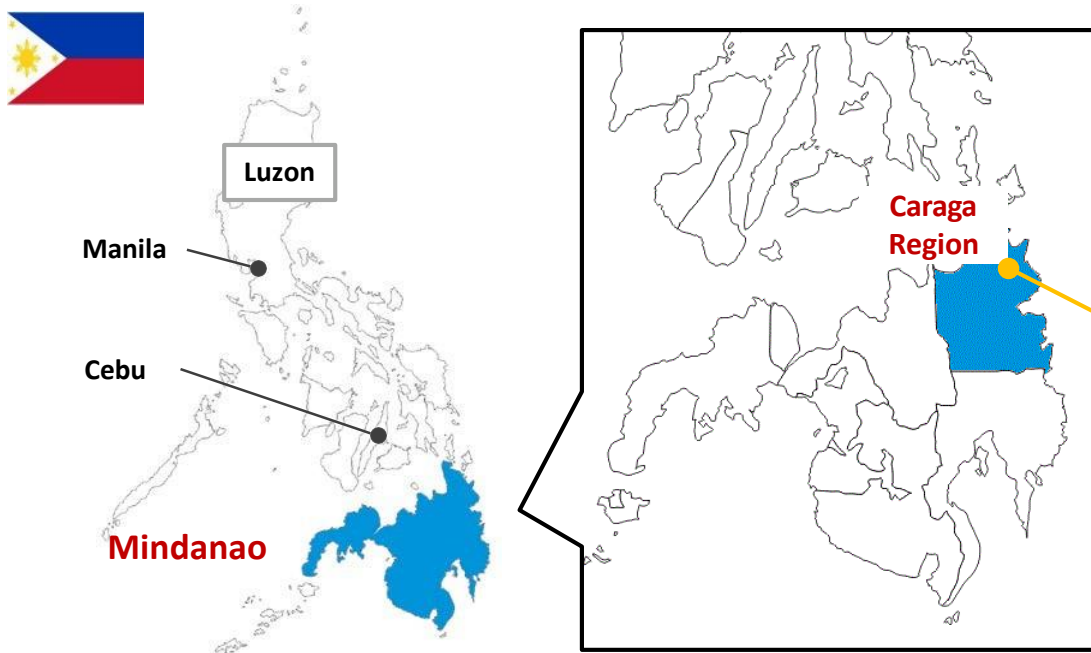
**3,453 MW | 13%**  
Natural Gas

Source: Department of Energy (DOE)

# Regional Development through Comprehensive Alliance

## Signed Multiple MOUs for the Development of Various RE Projects such as Hydro, Wind, and Biomass

Several MOUs were entered to jointly develop and implement various Renewable Energy projects in Mindanao, the Philippines, such as hydro, biomass, and wind. The aim of the understanding is to develop a master plan of renewable energy utilization in Caraga region, and to establish mutual understandings and cooperative relationships among the Parties in connection with the development of regional economy under a “Private-sector-driven PPP model” for the development of the whole region of Mindanao.



**Mindanao  
Business**

ミンダナオ島カラガ地域総合経済開発計画

**Caraga Region Comprehensive Economic  
Development Plan**

Project Duration : Oct 2011～



# CHODAI's Ongoing Renewable Energy Projects in Mindanao

Red text indicates the involvement of Japanese government agencies and/or Japanese private enterprise.



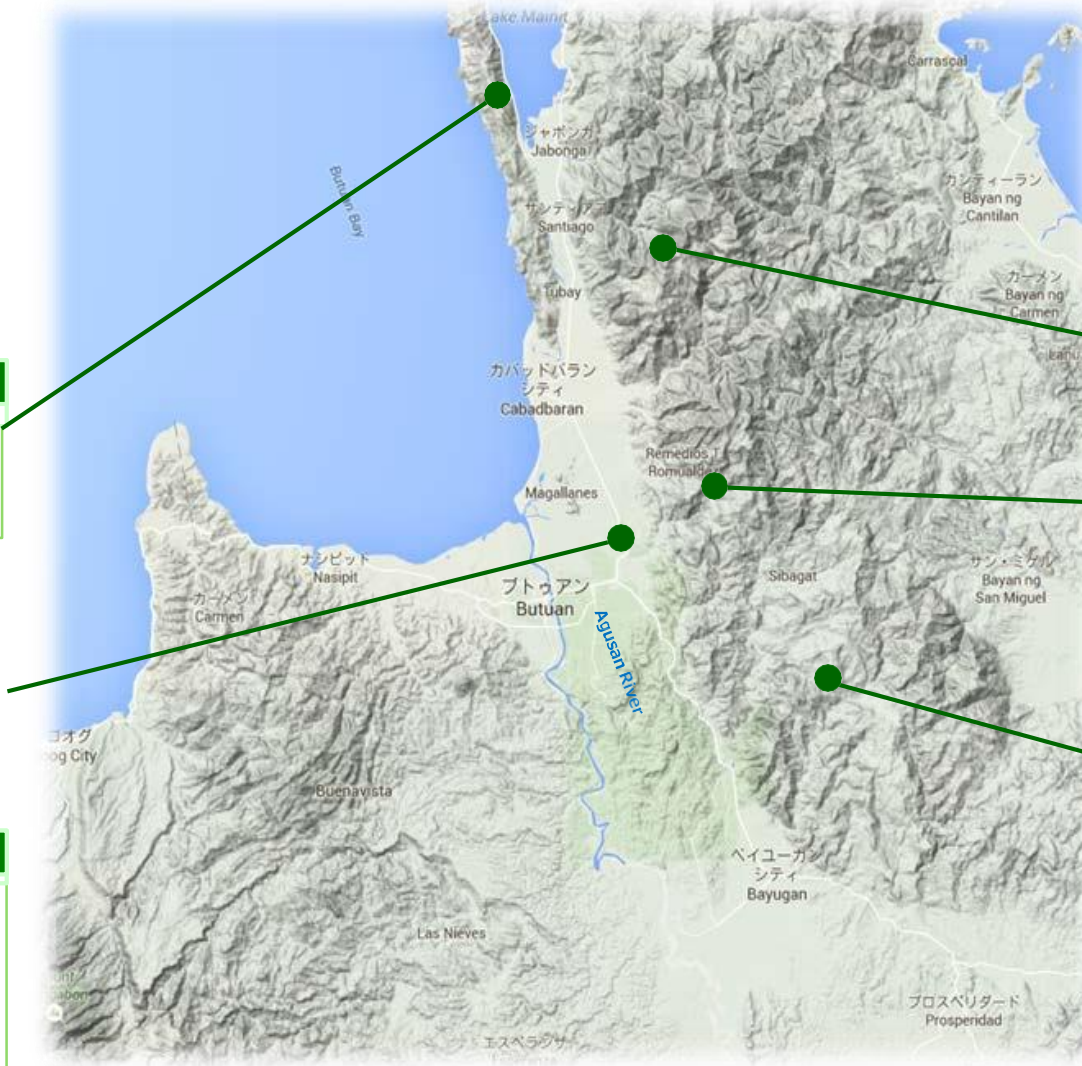
## Wind Power

- F/S funded by METI (2016, 2017)
- JCM equipment assistance project adopted in 2019 (33MW)



## Biomass Power

- Stable supply of rice husk + 2.5 MW power generation + Pilot plant of by-product sales.
- F/S funded by METI (2015, 2017)
- JCM equipment assistance project adopted in 2018



## Asiga River Hydro Power

- 8MW Operation already started
- Installed power generation equipment by Voith Fuji Hydro.
- Two-step loan by JBIC provided
- Plan to introduce remote monitoring system

## Taguibo River Hydro

- 4MW (To be operated around 2023)
- F/S funded by JBIC (2015)
- Selected as JCM equipment assistance in 2017

## Wawa River Hydro

- 10MW (Under review)
- To be operated around 2023
- F/S funded by METI (2012)
- F/S funded by JICA (2014)

As of September 2021



# Our Operational 8MW Hydropower (Asiga MHPP)



Project:	8MW Asiga HPP
Status:	Operational (since 2019)
Capacity:	8MW (2 Francis Turbine 4MW each)
Funding:	Two-step loan to JBIC
Future Plan:	Introduce Remote Monitoring System



# 3. CHODAI's Role in the Development of Renewable Energy Projects

## Overall Consultancy Services

### Financing & Investment



Japanese Government Funds  
(METI, JICA, JBIC)  
And Private Funds/Investors

### Engineering Consultancy Services



Life-cycle Engineering Services  
From Planning to O&M  
(Operation & Maintenance)

### Critical equipment procurement



E&M, Procurement, Supply of  
Japanese Critical equipment

## 1. Planning/Design & Financing

### Planning/Design

- Field Survey
- Business plan/Financial plan
- Design (Outline/Basic/Detail)
- Support for license acquisition

### Environment

- Environmental Assessment

### Partnership

- Building relationships with stakeholders

### Financing

- Acquire public support
- Investment / Financing arrangements

## 2. EPC Phase

### Engineering (E)

- Design Review / Factory Inspection (E&M)

### Procurement Support (E)

- Bidding Documents
- Various equipment, construction
- Bidding Evaluation & Contract

### Construction support (E)

- Supervision for Construction & Commissioning

### Equipment supply (P)

- E&M, Procurement, Supply

## 3. O&M Phase

### Operation Management

- Plant Operation
- Plant Monitoring

### Maintenance Management

- Maintenance support plan
- Help desk

### Asset Management

- Asset book
- Various contract management
- Assets management related support



## 4. The Intentions of the Japanese Government and Japanese Investors in Renewable Energy Projects

January 2017



▲ "Philippines-Japan Business Forum" held at Waterfront Hotel in Davao on 13 Jan 2017

# The Intentions of the Japanese Government and Japanese Investors in Renewable Energy Projects

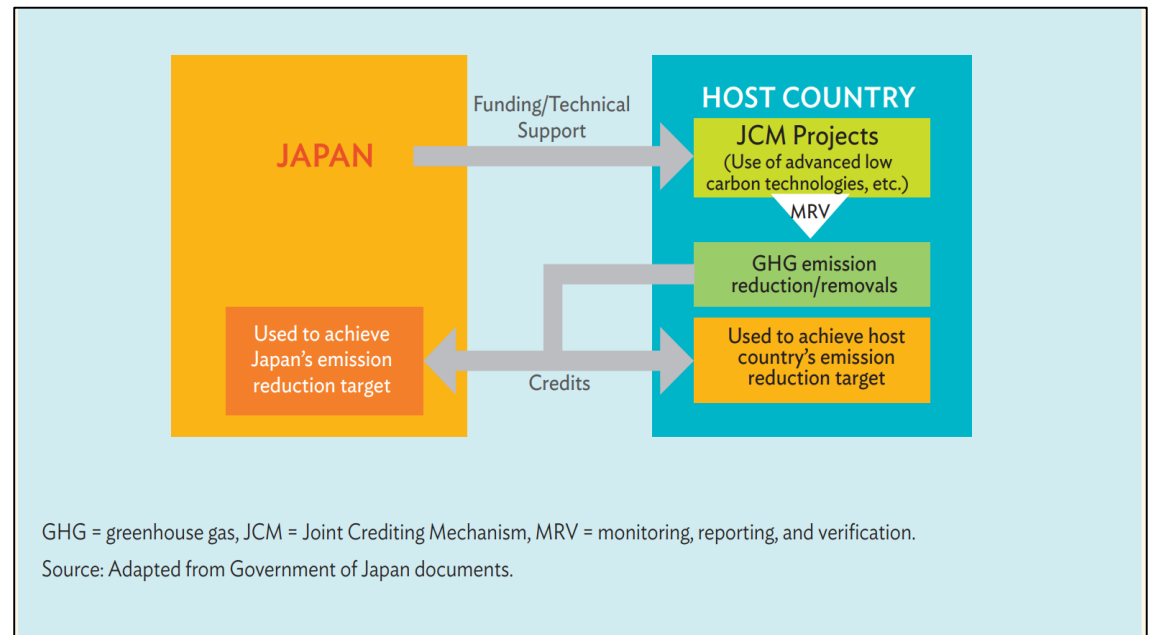
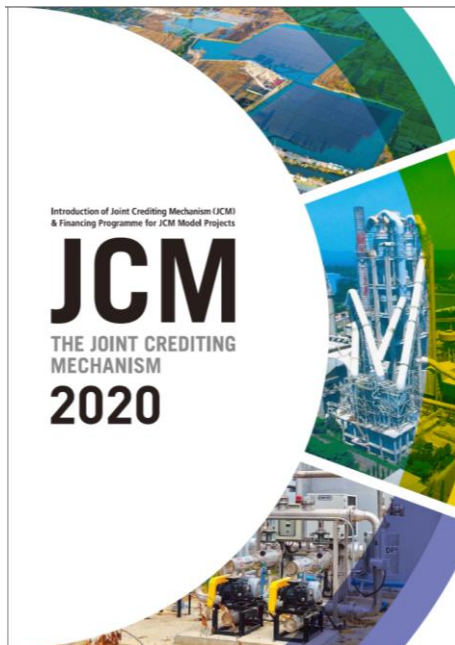
- **Japanese Government**

- Contribute to Global Decarbonization
- Committed to be Carbon-Neutral by 2050
- Contribute and Support in the Development of Mindanao Island

- **Japanese Investors**



- To Partner with Local Filipino Firms
- Export Japanese Technology
- Contribute and Support in the Development of Mindanao Island

## Subsidy Program of Japan for Projects that Contribute to Carbon Reduction





# Other PPP Projects of CHODAI in Mindanao

 Funded / decided  
 Consultation service provided / planned  
 (※ light color is under discussion)  
 【As of September, 2021】

The business development with partners of local construction companies from 2011, in the Caraga region of Butuan city, northern part of Mindanao Island. It aims at **regional economic development through industry and job creation** by basic infrastructure maintenance such as electricity (renewal energy), water supply and industrial estate development.

## ⑦ Rice Farming and Milling Project

- Achieved 7-8 t/ha (average regional yield of about 3.7 t/ha)
- Cultivation of short grain rice registered in Phil Rice
- Japanese high-performance rice milling machine introduced



## ⑧ [JCM] Biomass Power Project

- PFS with METI support in 2015, additional survey in 2017
- Stable supply of rice husk + 2.5 MW power generation + Pilot plant of by-product sales. Will deployed in the Caraga region.
- JCM equipment assistance project adopted in 2018

## ⑨ [JCM] Wind Power Project

- PFS with METI support in 2016, additional survey in 2017
- JCM equipment assistance project adopted in 2019 (33MW)

## ⑩ Solar Power Project

- Private own survey began (Scheduled for 200MW)

## ⑪ Low-carbon Industrial Park Development Projects

- Low carbon industrial park in 141ha (SPC established), PEZA certified
- FS of water supply infrastructure introduced in 2016 by METI support

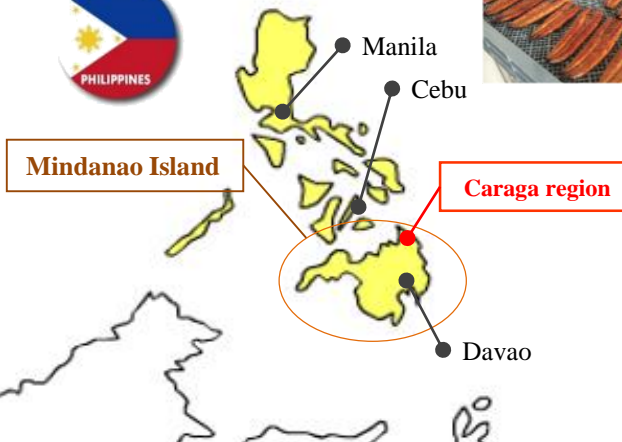


## ⑤ Pilot Project of Shrimp Farming

- Application of soil and water quality improvement materials from Japanese SMEs in 2014, JICA Project Survey, to recover abandoned ponds

## ⑥ Eel Farming Project

- Acquired aquaculture and production information publication JAS standard by Japanese feed
- Introduced Japanese broiled processing line, processing technology transfer



## ⑫ Infrastructure Basic Survey, (OCAJI) and IDI Survey

- Logistics infrastructure expansion proposal, OCAJI survey
- Agusan River Crossing Bridge Survey in 2017, IDI survey
- Port Expansion Survey in the 2018, OCAJI Survey

## ① Asiga River Small Hydropower Project

- 8MW / Operation started
- Introduce Japanese Water turbine generator (2 units)
- Use JBIC's two-step loan
- Planned to introduce remote monitoring system



## ② [JCM] Taguibo River Small Hydropower Project

- 4MW / Planned operation in fiscal 2023
- JBIC FS conducted in 2015
- Selected for JCM equipment assistance project in 2017

## ③ Wawa River Small Hydropower Project

- 10 MW (under review) / scheduled to operate around 2023
- Conducted FS survey with METI support in 2012
- 2014~2016.5 JICA Preparatory Survey
- Building a stable system with a tunnel headrace channel that is resistant to climate change and other disasters

## ④ [JCM] Water Supply Project

- 30,000 m<sup>3</sup>/d (80,000 m<sup>3</sup>/d in future)
- 2015~40 (+ 25 years)
- Japanese manufacturers' equipment (Pipe, Purification plant)
- 2017 METI (Additional FS)
- [JCM] introduce micro-hydro facilities (JCM adopted 2018)



## Thank you very much for your attention!



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