

參與菲律賓工業區開發 實務與經驗

楊宗翰

2024年9月27日

楊宗翰 dryang1108@gmail.com, line: dryang123

- 菲律賓Grand Pillar開發公司董事長
- Le Charme 飯店品牌董事長

學經歷

- 美國賓州州立大學工程博士, 台灣大學EMBA(90級)
- 土木技師, 美國專業工程師(PE)及亞太工程師
- 亞太公私合夥建設協會(APPPA)理事
- 世華開發副總經理(南港軟體園區)

東南亞工程經驗

- 菲律賓蘇比克灣工業區開發
- 菲律賓商場開發興建
- 菲律賓廢轉能案場開發興建

我理解的菲律賓

1. 人口很多（1.19億）還會繼續更多（人口成長率1.51%）。
2. 8千多個島，交通、電力、網路基礎建設需求大。
3. 中央管政策，地方管執行，地方諸侯(政商兩棲)才是頭人。
4. 講英文，美系法規規範。西方制度，東方「彈性」。
4. 財團（集團）很大，但沒有大工程及營造公司。
5. 教育在東南亞屬中上，初階人才足，溫馴可訓練為中階，海外回流也可用。
6. 亞洲開發銀行總部及亞洲管理學院（東南亞文官養成）所在地。



菲律賓工業區經驗

- 蘇比克工業區為G2G級的PPP 開發案，為當時台灣對外開發工業區的練兵場域，經驗及人力延伸至東歐馬其頓工業區。
- 我目前參與巴丹海港城計劃:工業區、港口碼頭及住宅商業區。
(BATAAN HARBOUR CITY PILAR, BATAAN – PHILIPPINES)
- 菲律賓以報編為PEZA之加工園區及BPO(Business Process Outsourcing)園區需求最旺，在地業者具土地取得及土建優勢，但仍需要具產業定位招商、建材採購及機電整合能力之合作夥伴。

蘇比克工業區

- 300 公頃，分三期開發，定位自由港區之來料加工產業。
- 台灣主體規劃，新加坡參與規劃。
- 沼澤填土地質改良，園區變電輸配電。

困難點

- 大型機具缺乏。
- 先進國家等級法規難以全部遵守。
- 工程人員素質及經驗不足。
- 建材缺少及昂貴。

PHASE I (1994~1996)



PHASE I (1994~1996)

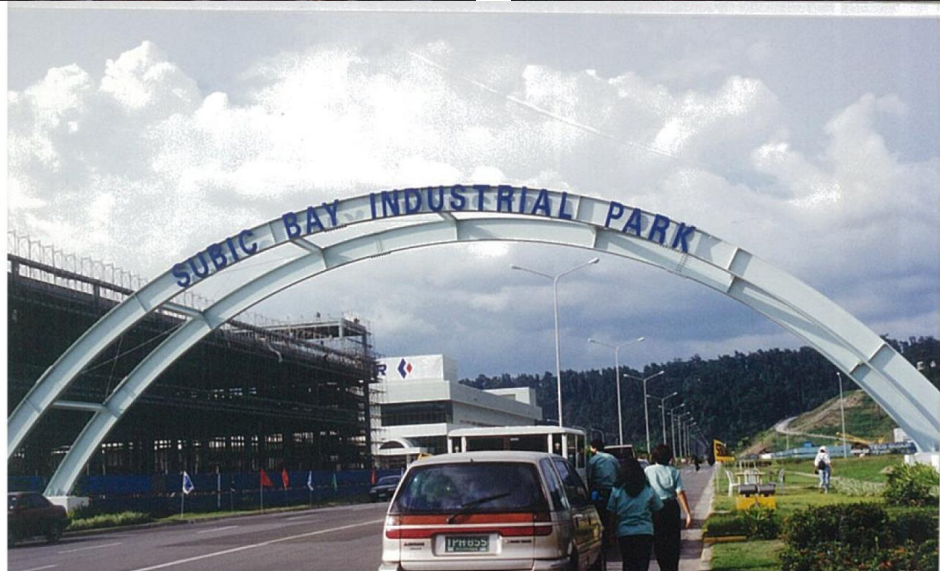


SECTION I

PHASE I (1994~1996)



PHASE I (1994~1996)



Construction
of SBGP Arc

LEASING STATUS

	2023		2024	
	Phase 1	Phase 2	Phase 1	Phase 2
Leasable Area (in hectares)	97.52	37.67	97.52	37.67
Leased Area	96.36.	32.03	96.36.	32.03
Available Area for Leasing	1.16	5.60	1.16	5.60
No. of Locators	224		194	
Direct Lease	75		77	
Sub Lease	149		117	
No. of Employees	16,200		16,200	

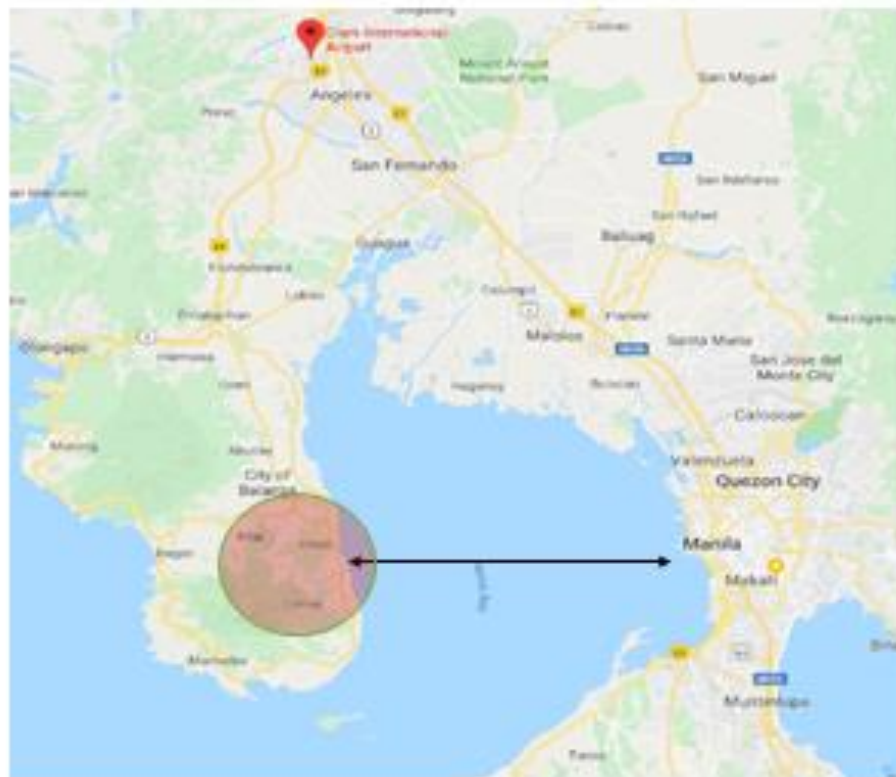
巴丹海港城計劃

- 私人開發，業者為現任都計及動遷部長。
- 含工業區、港口碼頭、住宅商業之造鎮計劃，可取得分區開發權。
- 搭配跨灣大橋及濱海公路計劃連結大馬尼拉區。
- 正填海造陸及整地工程中。
- 有大量工程項目可爭取，尤以鋼構、地工及機電工程。

LOCATION

Bataan HARBOUR City is situated in **Pilar, Bataan**, a coastal town along Manila bay and accessible via land, air and water. Adjacent to Balanga (Capital).

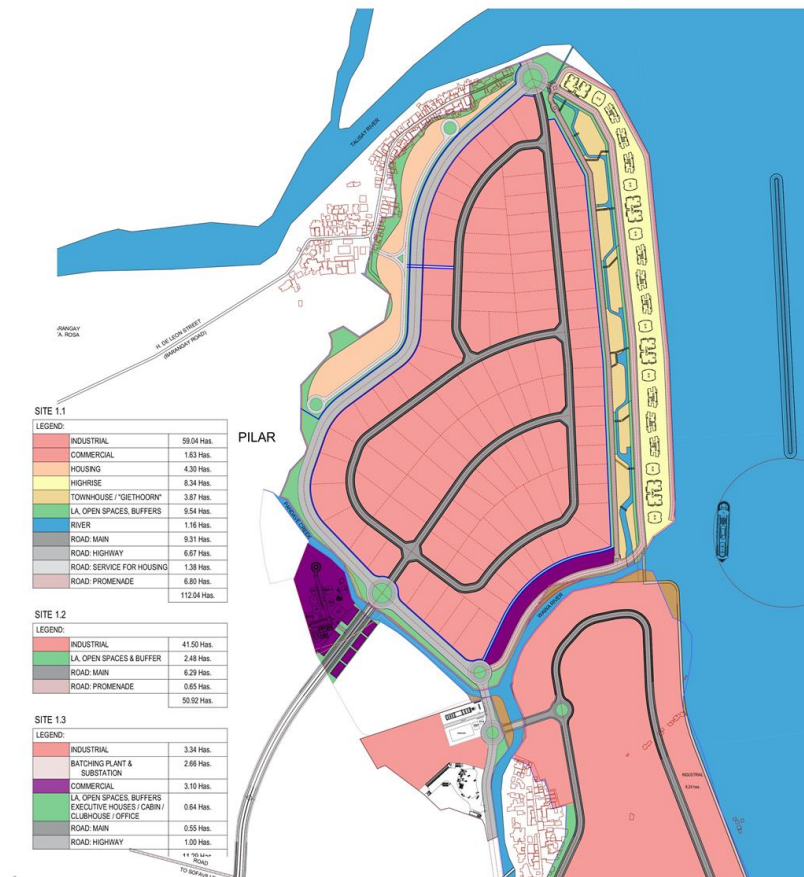
Distance from	Distance	Travel Time
Clark Int'l Airport	87 km	1 hr. 15 mins.
Subic	62 km	1 hr. 10 mins.
Port of Manila	138 km	2hrs. 30 min.
Makati	144 km	2hrs. 30 mins
Manila to Orion port (by ferry)		50 mins.
New Bulacan Airport	100 km	1hr 45mins



工業區

因應外資對菲律賓設廠需求，擬開發150公頃以上工業區，採取滾動式開發售地一次性獲利，並有工業區管理費收入。

先期投入4000萬美金，五年內開發完成，七年內完成銷售去化，七年總投資投資報酬率可達210%，年化報酬率為30%。年管理費峰值約為168萬美元。



港口與貨櫃場

因應馬尼拉灣長期性塞港，菲律賓急需開發替代港口，擬投入3000萬美元開發650公頃之貨櫃港(1,100,000 TEU)及倉儲，股東年分潤可達10%以上。另我方至少取得一貨櫃碼頭及倉儲物流經營權，年收入可達美金200~300萬。



Current Status of Industrial Parks

- **400+ industrial parks**, with **415 fully operational** zones.
- **297 IT parks** reflect strong growth in BPO and technology sectors.
- **PEZA**(Philippines Economical Zone Authority) manages a significant portion, offering incentives to attract foreign investors.
- Private developers like **Science Park of the Philippines** and **Aboitiz InfraCapital** manage key parks.

菲律賓工程現況及商機

1. 人口多且持續成長，基礎建設需求大。
2. 工程技術還未到位，尤以鋼構、地工及機電。
3. 中日韓攻城掠地(優勢減弱)，台灣踟躕徘徊(有切入機會)。
4. 純工程承攬競爭衆，PPP大有可為（帶資參與）。
5. 近年轉向美國隊，美國（及盟友）In，中國Out_{ing}.
6. 亞銀加大對菲律賓的基建及PPP貸款。
7. 能源（電及水）、電網及網路、智慧城市及工業區。

菲律賓正進行之大型工程

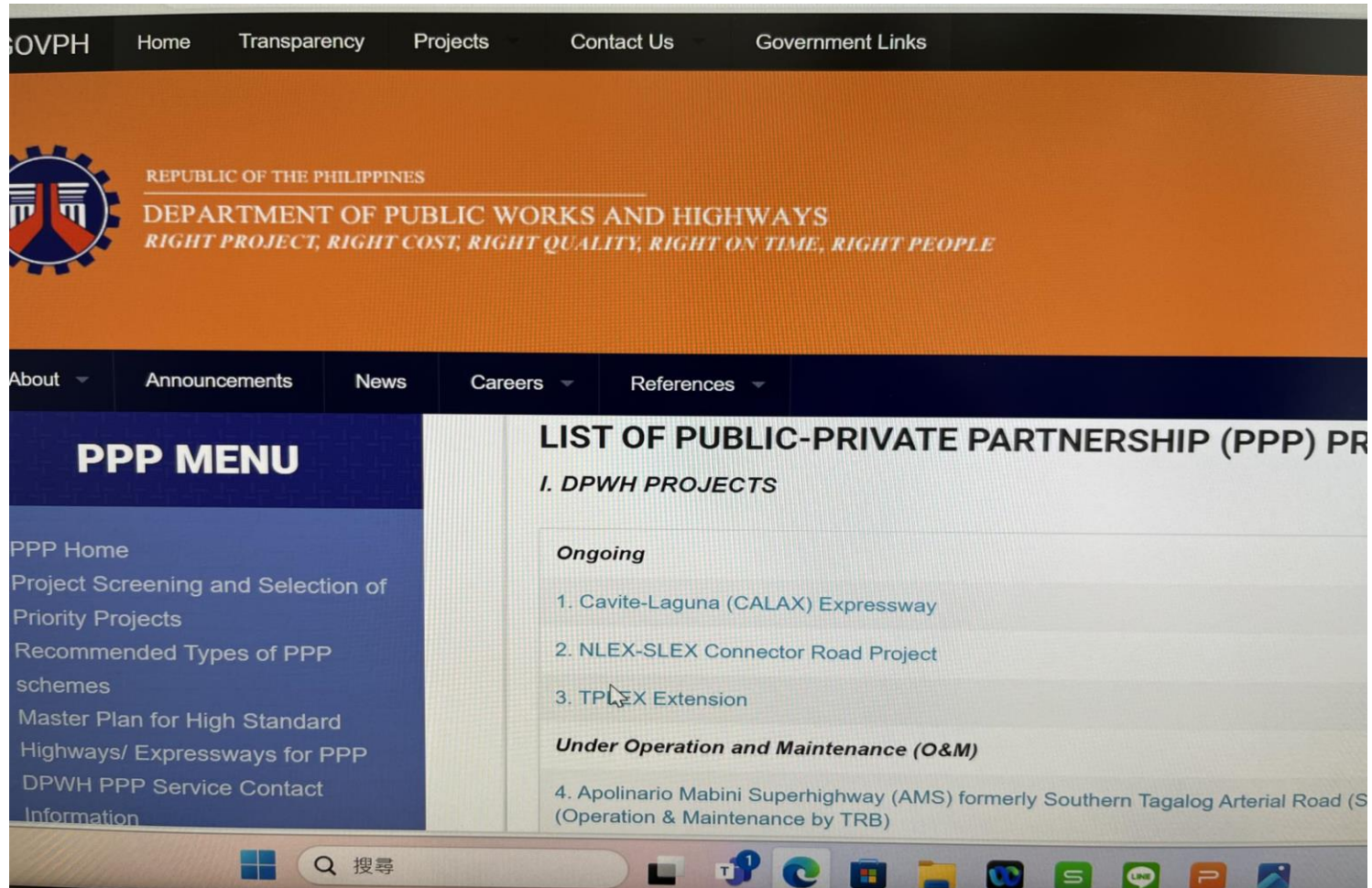
As of 2024, the **Build, Build, Build (BBB)** program has **102 ongoing airport projects, 117 seaport projects, 1,090 kilometers of railway, 2,515 kilometers of road, and 1,020 bridges** under construction.

Examples of Key Build, Build, Build Projects with Key Implementers:

1. Metro Manila Subway

- *. **Budget:** ₱357 billion
- *. **Impact:** Reduces travel time, eases congestion in Metro Manila.
- *. **Status:** Under construction, partial operation by 2025.
- *. **Key Players:** Department of Transportation (DOTr), Japan International Cooperation Agency (JICA).

Department of Public Works and Highways



SOVPH Home Transparency Projects Contact Us Government Links

 REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
RIGHT PROJECT, RIGHT COST, RIGHT QUALITY, RIGHT ON TIME, RIGHT PEOPLE

About Announcements News Careers References

PPP MENU

- PPP Home
- Project Screening and Selection of Priority Projects
- Recommended Types of PPP schemes
- Master Plan for High Standard Highways/ Expressways for PPP
- DPWH PPP Service Contact Information

LIST OF PUBLIC-PRIVATE PARTNERSHIP (PPP) PROJECTS

I. DPWH PROJECTS

Ongoing

1. Cavite-Laguna (CALAX) Expressway
2. NLEX-SLEX Connector Road Project
3. TPLEX Extension

Under Operation and Maintenance (O&M)

4. Apolinario Mabini Superhighway (AMS) formerly Southern Tagalog Arterial Road (S)

(Operation & Maintenance by TRB)

2. North-South Commuter Railway (NSCR)

- *. **Budget:** ₱777.55 billion
- *. **Impact:** Connects provinces to Metro Manila, improves daily commute.
- *. **Status:** Under construction, partial operation by 2024.
- *. **Key Players:** DOTr, Asian Development Bank (ADB), Japan International Cooperation Agency (JICA).

3. New Manila International Airport (Bulacan Airport)

- *. **Budget:** ₱735.6 billion
- *. **Impact:** Decongests NAIA, boosts air travel and tourism.
- *. **Status:** Under construction, land development ongoing.
- *. **Key Players:** San Miguel Corporation (SMC), DOTr.

4. Mindanao Railway (Phase 1)

- *. **Budget:** ₱81.69 billion
- *. **Impact:** Enhances connectivity across Mindanao.
- *. **Status:** Pre-construction.
- *. **Key Players:** DOTr, Chinese contractors.

5. Bataan-Cavite Interlink Bridge

- *. **Budget:** ₱175.7 billion
- *. **Impact:** Cuts travel time between Bataan and Cavite.
- *. **Status:** Pre-construction.
- *. **Key Players:** Department of Public Works and Highways (DPWH), Asian Development Bank (ADB).

台灣可行的策略行動

1. 站隊美國隊（政府策略作為及資金）與日本聯手（JV 或技援）。
2. 設立亞銀專項基金，鎖定台灣專擅領域由亞銀推案，上下游台灣廠商可優先得標。
3. 以案培訓菲律賓中階工程師以作為征戰東南亞工程的人力庫。

今宣布 台美簽署MOU 合搶新南向基建

2020/09/30 10:38 文 | 中時新聞網



▲ (圖 / 設計畫面)

f 分享

LINE 分享

分享

複製連結

為強化台美在印太戰略合作，據了解，美國財政部與我國財政部日前已簽署一份合作備忘錄，成立「台美基礎建設融資及市場建立合作架構」平台，由雙方政府、民間企

「四方」合作，到新南向、中南美洲我友邦

TOP

深耕新南向 菲學者籲聚焦4領域

農業、再生能源、智慧城市及基礎建設 台菲可互補



〔記者廖家寧／台北報導〕菲律賓經濟學家維列加斯 (Bernard Villegas，見圖，記者廖家寧攝) 本月訪台出席台灣菲律賓商業團研討會時指出，菲律賓須擴展與台灣的經濟合作關係，透過結合彼此所長，深化成具互補

性的合作關係，特別是在農業、再生能源、智慧城市及基礎建設等領域。維列加斯說明，亞太地區面臨的最大挑戰之一就是糧食安全，菲律賓擁有豐富的土地資源和充足人力，能補強台灣地小人稠的不足；而台灣有菲律賓缺乏的資本、技術及機械、工具機製造能力，結合彼此優勢，台菲可形成互補互惠的合作關係，例如現在菲律賓最大的外資之一就是來自台灣的農友種苗 (KNOWN-YOU SEED)，在菲律賓推廣瓜果、蔬菜類種苗與農業技術。

維列加斯也表示，菲律賓的能源價格是東南亞最貴，不利吸引外國的製造業落地投資，因此希望發展太陽能、陸域及離岸風電等再生能源，而台灣有能量幫忙建設；此外，菲律賓擁有豐富的火山資源，也是值得台菲合作的潛力項目。

斯表示，菲律賓在城市開發上有導入數位化的需求，台灣的強項是資訊產業，能協助菲律賓升級基礎設施的能量，包括鐵路、捷運、機場等，加上菲律賓群島有超過七千座島，要連結這些島嶼，就須提升船舶、港口等基礎設施。



APPPPA Forum Japan-Taiwan Exchange

August 28, 2024

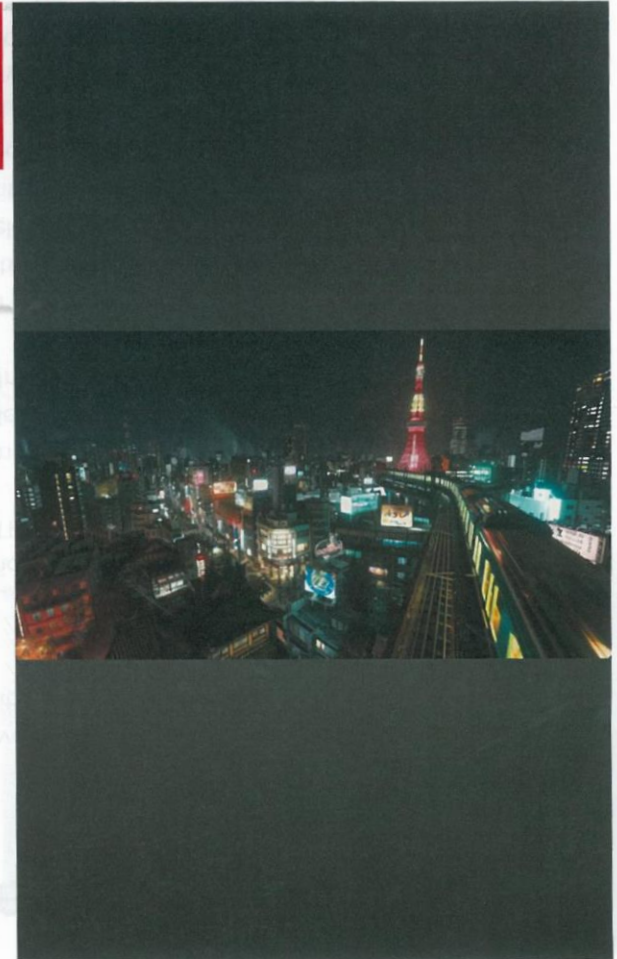


Sam Tabuchi

Professor Emeritus (PPP & Global Innovation), Toyo University
Past Chair, UN PPP Working Party, Resilience/Sustainability Com
Chapter Chair, Asia/Pacific of WAPPP

Advisor:

APPP; CHODAI Co. Ltd.; CEA, Tampa, FL; ISRC, New Orleans, LA



Public-Private Partnership (PPP)

PPP is a development approach leveraging the strengths of both public and private sectors.

Key Concepts

- Public vs. Private Projects: Not suitable for PPP if feasible independently.
- PPP Fundamentals: Balances investment, income, and expenses.
- Purpose: Facilitate public projects using private sector efficiency.

Hard PPP :

Strict adherence to PPP/PFI regulations; common in Europe, Japan. Take too much time and effort

Soft PPP :

Flexible use of public assets and real estate principles; quick implementation without rigid PPP/PFI regulations.



Global PPP Updates

Europe

Hard PPP faces challenges in time and cost; PPP principles integrated into public budgeting.

Japan

Preference for Soft PPP, especially in repurposing old schools and public facilities.

China

Absence of national PPP regulations; ministries handle projects independently.

Asia Post-Pandemic

Recovery and growth, with ASEAN's 600 million population and 4.5% growth rate.

Collaboration Potential

Japan, Korea, Taiwan are well-positioned to support Asian countries with development and PPP experience.



案例：菲律賓廢轉能(WtE)

1. 政治正確、商模直接的初生商機。
2. 與日本合資或技援模組化焚化爐。
3. 以省為合作單元，由省級頭人去運作各鄉市ppp案。
4. 由亞銀融資增加財務槓桿。
5. 後續可考慮整合所有SPV上市或洽私募基金等財務操作。

Summary Typical Waste Treatment & Power Production

Processing Scale

$$\begin{array}{r}
 500 \text{ METRIC TONS} \\
 * 330 \text{ DAYS OF OPERATION} \\
 \hline
 165,000 \text{ (ANNUAL) METRIC TONS}
 \end{array}$$

Power Generation

$$= 92 \text{ MILLION KWH (ANNUAL)}$$

Waste Treatment Capacity

@ .7kgs / person

500 – TON WtE Plant Typically

600,000 to 700,000 People.

Production & Supply

@ 76 Million kWh

For 300 kWh usage / month / household

21,000 Households for a YEAR.

Key Contractual Agreements

Build Own Operate (BOO) Module

BOO (build, own, operate)

A project delivery mechanism in which a government entity sells to a private sector party the right to construct a project according to agreed upon design specifications & **concessions** to operate the project for a specified time.

In order to ensure that the **BOO** project company can achieve the expected investment return & also to consolidate the stability of the waste treatment service, a **concession** & operation period of **20 years** is generally required per facility.

Concession & Operation period:

Construction 3 years.

Operation 20 years.

TOTAL = 23 years.

Key Government Concessions.

Guaranteed Garbage Delivery
 $500 \times 85\% = 425$

Metric Ton

Required Daily
Solid Waste

Metric Ton

Entrusted Disposal Fees

To cover construction
depreciation, operation &
maintenance cost.

$1 \text{ Metric Ton} = \text{USD } \84.00
 (Php 4,611.39)

案例：蘇比克作為智慧園區、智慧建築及智慧 城市之示範場域

1. 蘇比克工業區正計劃升級至智慧園區，另外蘇比克特區政府對智慧城市有興趣。
2. 由政府倡議由台廠組一個聯盟對蘇比克特區政府提案PPP。
3. 以此示範場域推廣至全菲律賓及東南亞。

案例：億鴻科技結合日商與Bohol省合作

5:27



系統整合輸出再現成效 億鴻系統科技與...



 數位發展部 數位產業署
Administration for Digital Industries, MODA

EN 

系統整合輸出再現成效 億鴻系統科技與菲律賓Bohol省 簽訂智慧能源合作協議



數位部產業署22日於臺北見證億鴻系統科技與菲律賓Bohol省智慧能源系統整合輸出合作協議簽署儀式，本項合作案為產業署促成我國系統整合輸出之重要里程碑，合作協議由菲律賓Bohol省省長Aristotle Aumentado親自來台與億鴻系統科技張家豪董事長共同簽署，並在產業署林俊秀副署長及臺菲雙方與會貴賓的參與下完成本次簽署活動。

林俊秀副署長在致詞中表示：推動數位系統整合國際合作是產業署的主要任務之一，在過去幾年內，臺灣藉由系統整合國際合作，過去已與菲律賓建立成功的合作模式。本次合作由億鴻系統科技公司結合了臺灣友達、台達電、創奕能源、台灣氫能與燃料電池夥伴聯盟及日商CHODAI、JFE等公司共同合作，協助Bohol省建立再生能源、微電網、能源管理等全面性的智慧能源解決方案，這對以觀光旅遊著名的Bohol來說，更具特別的意義。



林俊秀說：這次合作不僅將為能源領域帶來了創新的變革，亦象徵著臺菲雙方未來的合作將更為密切。Bohol省省長Aristotle Aumentado於致詞時亦

Q&A

THANKS

Top Industrial Parks in the Philippines (2024)

•First Philippine Industrial Park (FPIP) – Batangas

- **USD 3.5 billion** in annual export sales.
- Over **150 locators**, including **Collins Aerospace** and **Brother Industries**.
- Provides **70,000 jobs**.

•Science Park of the Philippines (SPPI) – Laguna, Batangas, and Bataan

- Hosts major companies like **Unilever**, **Pepsi**, and **NEC**.
- Known for sustainable, high-tech infrastructure across **multiple parks** (Light Industry & Science Park I-IV).

•Aboitiz Infra Capital

- Operates **LIMA Estate (Batangas)** and **Mactan Economic Zone 2 (Cebu)**.
- Serves **200+ global companies**, with a focus on sustainability.

PEZA-registered industrial park offers several key **attractions and benefits**:

1. Tax Incentives:

- *. **Income Tax Holiday (ITH):** Up to **4-6 years** of exemption from corporate income taxes.
- *. After the ITH period, companies can opt for a **5% gross income tax** in lieu of all national and local taxes.
- *. **Duty-free importation** of capital equipment, raw materials, and other essential supplies.

2. Simplified Export-Import Procedures:

- *. PEZA streamlines the import-export process for businesses, ensuring faster customs processing, reduced paperwork, and enhanced efficiency.

3. Zero VAT on Local Purchases:

- *. PEZA-registered companies are exempt from **value-added tax (VAT)** on local purchases of goods & services.

4. Infrastructure & Services:

- *. PEZA parks offer world-class infrastructure such as reliable power, water, and wastewater treatment facilities, ensuring smooth business operations.
- *. Advanced logistics and telecommunications services.

5. Strategic Locations:

- *. Many PEZA parks are located near key ports, airports, and highways, which reduces logistical costs and enhances access to international markets.

6. Labor and Skills:

- *. PEZA parks provide access to a skilled and cost-competitive workforce, especially for industries like manufacturing, IT, and business process outsourcing (BPO).

7. Special Visa Privileges:

- *. PEZA-registered companies can benefit from extended visa privileges for foreign employees and their families, making it easier to bring in foreign expertise.

These incentives and benefits make PEZA parks highly attractive for local and international companies seeking a business-friendly environment in the Philippines.

