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Research Article

A Critical Analysis of the Philippine Construction Industry: Current Trends, Forecast, and Business Focus for Engineering Design Firms

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ABSTRACT

The construction industry in the Philippines plays a vital role in the country's economic growth, infrastructure development, and job creation. The construction industry continues to be one of the predominant drivers of Philippines' economic progress. In 2022, an annual growth rate of 9.2% was obtained by the Philippine construction industry and continues to escalate brought by the flagship project of the former President Rodrigo Duterte, Build! Build! Build! Program (BBB). The current government plans to modernize the country's infrastructure backbone, increasing construction jobs to maintain rapid growth, captivate investments and expand economic opportunities for all Filipinos. It is globally known that the construction industry regularly consumes more raw materials, resulting in scarcity with our natural resources and produced environmental implications. Therefore, the current engineering and construction industry moves towards green construction and buildings. The Philippine government has been actively promoting infrastructure development as a key driver of economic growth. The country will be the fastest growing construction market with an estimated six percent growth per annum, over the next 15 years. This study provided information on the current trends in the Philippine construction industry, forecasts its trajectory over the next five years, and highlights the necessary business focus for engineering design firms. Information obtained from the literature, project documents, memos, reports, and other data available served as primary inputs for discussion and basis for conclusions and recommendations.

Keywords: *Construction trends, Philippine Construction, Sustainable construction*

Introduction

The construction industry continues to be one of the predominant drivers of Philippines' economic progress. In 2022, an annual growth rate of 9.2% was obtained by the Philippine construction industry and continues to escalate

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brought by the flagship of the former President Rodrigo Duterte, Build! Build! Build! Program (BBB). It is globally known that the construction industry regularly consumes more raw materials, resulting in scarcity with our natural resources and produced environmental implications (Kukah et al., 2022). About 40% of the total materials reserve is intended for construction industry resource usage (Kulatunga et al., 2006). And on average, greater than 85% of mined resources turn into waste, and in some scenarios, it exceeds more than 99% and that should be considered as alarming (Pacheco-Torgal et al., 2014). Moreover, most used materials are frequently wasted by the end of the building's life, resulting in an average of 100 billion tons of garbage, and 35% of the waste ends up in landfills (Chen et al., 2022).

The Philippines has generated an average of 21 million tons of solid waste annually (Department of Environment and Natural Resources, 2021). The continuous elevation in waste volume is related to increasing population size, rising living standards and urbanization all contribute to difficulties related to excessive waste. Considering the situation at hand, immediate action to address waste management related to construction is needed. The extensive solid waste brought by construction and the industry's increasing resource consumption hinders the goal towards attainment of sustainable construction (Coracero et al., 2021). In the study of El-Haggar (2008) it was mentioned that the government has seen the need to implement construction and demolition waste (CDW) management strategies and policies that should be imposed in all stages of construction since it is vital in attaining a more sustainable construction environment.

Brought by the trends of the construction industry, home and lifestyle have consistently adapted. The very famous do-it-yourself trend in doing tasks similar to redesigning your house, a whole kitchen renovation or even full house transformation have been a habit for some people to change their old home to a more aesthetic, warm, and cosy environment. Since the onset of the pandemic, construction shortage escalated due to strict regulations in the past months hence, the birth of new designs, ideas, and sustainable living. However, analysing the broader scope, the pandemic has greatly affected the constitution industry, infrastructure sector and many more. Construction projects by the government are constantly changing, new technology introduced has influenced project deals and profit margins are rising (Del Río Castro et al., 2021).

The Philippine construction sector has experienced its fair share of volatility even so, the recent years have been difficult for the engineering and construction industry. Majority were caused by COVID-19 pandemic, continued material shortages, massive supply chain disruption, and major talent gaps. Aside from that, the long-standing unresolved challenges in the engineering and construction industry such as poor productivity, boom-and-bust economic cycles, inability to attract graduates, continued lack of cost certainty for owners and low contractor margins continues to challenge the growth of the construction industry in the country (Mendoza & Cruz, 2020).

In the study of Abdulhafedh (2021), it is said that the construction industry is one of the challenged industries in developing and maintaining corporate sustainability. As the needs of the end users shift fast, buildings tend to be more intricate and motivate the construction industry to be more efficient, specialized, productive and integrated to its fullest extent. Though the construction industry contributes a large part in the Philippine economy through creating more job opportunities for the community, its methodology and extensive processes often induces an alarming volume of wastes and carbon footprints. Carbon footprint is defined as the amount of carbon dioxide emissions in relation to all activities of an individual or other entity.

Two major environmental milestones occurred in the year 2015; 1°C rise in annual average temperature and the carbon dioxide levels reaching 400 ppm. The Conference of the Parties 21 (COP21) generated two long term goals towards global efforts for 2025. The objective of COP21 first is to reduce the greenhouse gases by 2025 to 2030 and to decrease the vulnerable effects of climate change, both of which are significant in the construction sector. The building sector plays a crucial role in

achieving the targets for both developing and developed countries (Franco et al., 2020).

With the aforementioned challenges in the construction industry in the past and recent years. There is an increased demand for green construction in order to minimize carbon footprint. Reinforcing information systems for effective building management and the utilization of trimming technologies are just a few convergent trends that have an instant impact on the dynamics of the construction industry (Del Río Castro et al., 2021).

Nevertheless, engineering and construction firms aim to be at the frontline of conveying sustainable constructions. The engineering and construction industry in the Philippines has been adapting to changes in the construction industry. As the world gears towards a greener future, the engineering and construction industry in the Philippines has also started embracing and incorporating sustainable practices (Ali et al., 2019).

The construction industry in the Philippines plays a vital role in the country's economic growth, infrastructure development, and job creation. This study provides information on the current trends in the Philippine construction industry, forecasts its trajectory over the next five years, and highlights the necessary business focus for engineering design firms. To the knowledge of the authors, there is in particular a scarcity of information related to construction industry trends, forecasts and in the business focus for engineering design firms. Information obtained from the literature, project documents, memos, reports, and other data available served as primary inputs for discussion and basis for conclusions and recommendations.

Review of Literature

The Philippine Construction Industry

Enhancing public infrastructure is a major challenge in the Philippines. Primary impediments to securing private investment are inadequate infrastructure, weak investment rate, and some restrictions on foreign direct investment. From previous years, a low foundation revenue and fiscal consolidation prevented sufficient source allocation for public investment, while the frail implementation capacity led to a budget fund under execution. Amplifying investment, most importantly in construction and infrastructure, would make the Philippines reap the dividends of its growing population size. In order to address this particular issue, the administration under former President Duterte embarked on a construction and infrastructure push. During the administration of former President Duterte, immediate priorities were the implementation of the transport system in Manila and upgrading airports, seaports across the country and most especially road connectivity (Patinio, 2022).

The current administration under President Ferdinand Marcos Jr. promised to continue the Build, Build, Build, (BBB) program of the previous administration. It is notable that the construction sector and infrastructures of the previous administration were successful. And that new administration has always been advocating for Public-Private Partnerships (P3s) as a favourable financing source for future construction and infrastructure projects. Reconstructing public–private partnerships (PPP) can help address convergent issues of the digital divide and a weak competition environment, as well as increase the country’s campaign to attract more foreign investments (National Economic and Development Authority, 2023)

Alongside with this, the new administration of President Ferdinand Marcos Jr. has approved a total of 123 new construction projects that will form as part of a pipeline of infrastructure costing 9 trillion pesos with the aim for it to be started or completed in the coming years. To add up, aside from national construction projects, local government units are encouraged to associate P3s in improving the country's infrastructure development and other undertakings beneficial to Philippines' socioeconomic growth. The Philippines is considered as one of the most resilient countries with its fast-growing economy in Asia and is the second fastest-growing economy in ASEAN (OECD, 2021).

The difference between the administration of Duterte and Marcos Jr, is that in the Duterte administration funds were relied from foreign financing which include China; however, Marcos said that he prefers private capital to fund his infrastructure ambitions. The said 123

projects are mainly those improving connectivity, inclusive of long-distance railways around the capital of the Philippines and in central and southern Philippines. And this brings to the 194 priority construction and infrastructure projects of the current administration. And 45 of which are guaranteed to be funded by the private sector through the public-private partnerships. President Marcos is banking on improving construction and infrastructure to support his objective of growing the Philippine economy by as much as 8 percent before his term ends in 2028, and reduce the country's poverty rate to 9% (Gita-Carlos, 2023).

According to Oxford Economics (2022), the Philippines is anticipated to be among the fastest growing construction industry over the coming years globally. In a report of Oxford Economics, the increasing population size together with the rapid urbanization and low average wages per individual of population in these construction markets are expected to fuel construction growth. It was also reported that the Philippine construction industry will have strong fundamental support, both from the government and private sector as the P3s continue to attract investors. Oxford Economics also stated that the country will be the fastest growing construction market with an estimated six percent growth per annum, over the next 15 years. The country's economic growth is expected to be supported and funded by the working age population of the Philippines, which is predicted to escalate by 1.5 percent per annum over the next decade. The administration of President Marcos that brought Public-Private Partnerships (PPPs) for the country's construction and development of infrastructure is seen to be the driving force for the construction industry growth in the Philippines. This initiative of the government improved the long-term investor confidence. Therefore, this will support construction activities over the next 15 years.

Sustainable Construction

Construction industry plays a major role in addressing construction sustainability and is indisputably one of the industries that consumes half of non-renewable materials of the globe (Lundholm, 2006). The word sustainability can be defined as utilizing resources without compromising and can be described in three aspects: economic, social, and environmental. In order to manage protection of the current and future condition of our planet, the proposed 17 Sustainable Development Goals (SDGs) and 169 targets with 232 indicators can be considered (United Nations, 2015).

The construction industry has gone a long journey when it comes to improving its processes and implementations when it comes to community, society, economy and most especially to the environment. One of the best examples is the Philippine Green Building Code (P.D. 1096) of 2015. This Code strives to enhance the efficiency of Philippines' building performance by adhering to measures that promote resource management and construction sustainability while mitigating negative impact of the building itself on the environment. The Code advocates a set of standards which can be applied to systematic use of resources, site selection, planning, designing, construction, operation, occupancy, and maintenance (DPWH, 2015).

This environmental concern in the construction industry encouraged the creation of green building standards, rating systems, certifications that can minimize the impact of construction activities on the environment through promotion of sustainable design (Franco & Pawar, 2021).

The whole concept of green building is to minimize environmental damage due to construction (Geng et al., 2019). Moreover, its objective is to maximize energy savings, it also gives rise to new infrastructure that effectively uses space. Green construction gives benefits to nature the same way it preserves the environment, leads to less pollution, and prevents resource scarcity. The features of green building are human health, environmental improvement, efficiency of natural resources, building materials and energy and water efficiency (Yasinta et al., 2020). Green building is not new to the construction industry, it has attracted global attention since the early 1990s. And up to now, research on green building is continuously growing (Li, 2023).

Alongside with the green construction, construction and demolition waste management (CDWM) is also a trend now. In the study of Jalaei et al. (2021) CDWM is a growing field in the construction industry with the objective to minimize the negative environmental implications of construction activities which is considered as one of the significant factors in achieving successful sustainable development. It minimizes construction waste, such as scraps, debris and other construction waste through waste management strategies.

Philippine Construction Market

According to Global Data (2023) the Philippine construction industry was previously valued at $59.5 billion in 2022. The construction industry is projected to grow at an average annual growth rate of more than seven percent during the period of 2024-2027. With the support of gradual revival in tourism and leisure as well as in hospitality activities together with investments in the Build, Better, More (BBM) program of the current administration under President Marcos. Nevertheless, the escalating inflation and the subsequent rise in construction material prices and its interest rates may weigh on the construction industry's output. It was also mentioned that the aforementioned growth period of the Philippine construction industry would be anchored in the strong pipeline of the upcoming construction projects. The Philippine construction market has several sectors in it. And among the key sectors in the industry of construction as of 2023 are the following: commercial construction, infrastructure construction, industrial construction, institutional construction, energy and utilities construction and residential construction. It was recorded that the residential construction segment dominated the construction market in 2022 next to it was the infrastructure construction.

Purpose of the Study

The purpose of the study was to provide information on the current trends in the Philippine construction industry, forecast its trajectory over the next five years, and highlight the necessary business focus for engineering design firms. The study also aims to assess changes in the construction industry post pandemic in terms of green programs, infrastructure projects and budget contingencies. It specifically investigates the projectile growth of the Philippine construction industry. Specifically, it sought answers to the following questions:

1. What are the current trends in the Philippine construction industry in terms of: infrastructure development, residential and commercial construction, sustainable construction practices, technological adoption.
2. What is the business focus for engineering design firms in terms of: expertise in infrastructure projects, sustainable design, technological proficiency, collaboration and partnerships, talent development and retention, client relationship management and adaptability and innovation.

Scope of the Study

The study purely covers and limits the subject on the current trends in the Philippine construction industry, forecast its trajectory, and highlight the necessary business focus for engineering design firms. Various sources from reputable journals, literature and government reports. Majority of the publication journals and government reports dated from 2019-2023. All information was gathered from publication journals to provide a critical analysis of the Philippine construction industry.

Significance of the Study

The study will significantly contribute to the body of knowledge in various aspects of professional and academic perspective. In the aspect of academia, this study will give rise to considerable data in regard with the condition of the Philippine construction industry, which would open opportunities for investigators. To the professional sector, the study will provide a high potential of improvements within project delivery through creating and implementing enhanced policies as deemed fit, that allows them to operate under the circumstances of the current Philippine construction industry. A constant development in the construction industry and the findings obtained shall be beneficial for the following entities: Government Agencies such as Department of Public Ways

and Highways (DPWH) and Department of Transportations and Communications (DOTC), Contractors, Design Professionals, and Project Owners. This study can yield insights not just for the situation at hand but will also assist the construction industry to adapt in the advent of a dilemma that threatens the economic, social and environmental sustainability in the construction industry.

Methods

For the research design the study employed a meta-analysis. It is a method that analyzes and combines data from multiple studies to arrive at more defined conclusions. According to O'Rourke (2007), the origin of meta-analysis is in medical and health care fields where the research approach has been used for the purpose of integrating findings. In this study, meta-analysis was utilized to analyze various sources from reputable journal publications in order to answer the research questions. The researcher has done a preliminary search stage, where various articles and journals were filtered to select only relevant studies based on their titles and abstracts. After the final process of choosing which articles and journals to be included in the analysis, the researcher thoroughly read each article and the contents related to the Philippine construction industry. Majority of the publication journals and government reports dated from 2019-2023. All information was gathered from publication journals to provide a critical analysis of the Philippine construction industry.

Results and Discussion

1. Current Trends in the Philippine Construction Industry:

1.1. Infrastructure Development: The Philippine government has been actively promoting infrastructure development as a key driver of economic growth. Major projects such as road networks, bridges, railways, airports, and seaports are underway or planned. This trend is expected to continue in the coming years.

1.2. Residential and Commercial Construction: The demand for residential and commercial properties remains robust due to urbanization, population growth, and a strong economy. High-rise condominiums, shopping malls, office buildings, and mixed-use developments are prevalent in urban areas.

1.3. Sustainable Construction Practices: There is a growing emphasis on sustainable construction practices in the Philippines. Green building certifications, energy-efficient designs, and the use of environmentally friendly materials are gaining traction due to increasing environmental awareness and government regulations.

1.4. Technological Adoption: The Philippine construction industry is gradually embracing technology to enhance productivity and efficiency. Building Information Modeling (BIM), drones for surveying and inspections, project management software, and digital collaboration tools are becoming more prevalent.

2. Forecast for the Next 5 Years:

2.1. Growth Rate: The Philippine construction industry is projected to experience a compound annual growth rate (CAGR) of 7% over the next five years. This growth will be fuel by continued infrastructure development, rising urbanization, and a strong demand for residential and commercial properties.

2.2. Infrastructure Focus: Infrastructure development will remain a primary focus in the coming years. Government initiatives, such as the "Build, Better, More" program, will drive investments in transportation, energy, water, and social infrastructure projects, presenting significant opportunities for engineering design firms.

2.3. Urban Development and Housing: Urban areas will continue to witness rapid development, requiring engineering design firms to cater to the demand for high-rise buildings, mixed-use developments, and smart cities. The affordable housing segment will also offer growth potential.

2.4. Sustainability and Green Building: The adoption of sustainable construction practices will gain momentum, with an increased focus on energy efficiency, waste management, and renewable energy integration. Engineering design firms should align their expertise with green building standards and sustainable design principles.

2.5. Technological Integration: The integration of advanced technologies like Building Information Modeling, augmented reality, and cloud-based collaboration tools will become essential for engineering design firms to improve project delivery, coordination, and efficiency. Embracing digital transformation will give firms a competitive edge.

3. Business Focus for Engineering Design Firms:

3.1. Expertise in Infrastructure Projects: Given the projected growth in infrastructure development, engineering design firms should focus on building expertise in sectors such as transportation, energy, water, and social infrastructure. Developing a strong track record in these areas will position firms for lucrative government contracts and private projects.

3.2. Sustainable Design and Green Building Certifications: To address the increasing demand for sustainable construction, engineering design firms should develop capabilities in sustainable design practices and attain relevant green building certifications. This will enhance market competitiveness and attract clients with environmentally conscious projects.

3.3. Technological Proficiency: Investing in and leveraging advanced technologies such as Building Information Modeling, drone surveying, and project management software will streamline design processes, improve collaboration, and enhance project delivery. Engineering design firms should prioritize the adoption and integration of these technologies into their workflows.

3.4. Collaboration and Partnerships: To thrive in the dynamic construction industry, engineering design firms should actively seek collaborations and partnerships with other industry players. This can include partnering with construction companies, contractors, suppliers, and technology providers. Collaborative efforts can leverage complementary expertise, resources, and networks, allowing firms to take on larger projects and offer comprehensive solutions.

3.5. Talent Development and Retention: Attracting and retaining skilled professionals is crucial for engineering design firms to stay competitive. Investing in talent development programs, offering competitive compensation packages, and providing opportunities for career growth and advancement will help firms attract and retain top engineering talent.

3.6. Client Relationship Management: Maintaining strong relationships with clients is essential for sustained business growth. Engineering design firms should focus on understanding client needs, providing exceptional customer service, and delivering projects on time and within budget. Building long-term partnerships and generating positive word-of-mouth referrals can lead to a steady flow of new projects.

3.7. Adaptability and Innovation: The construction industry is constantly evolving, driven by changing market demands and emerging technologies. Engineering design firms need to stay adaptable and embrace innovation. This includes keeping up with industry trends, exploring new design methodologies, and proactively seeking innovative solutions to meet client requirements.

Conclusion

From the findings, the following conclusions are derived:

The Philippine construction industry is poised for significant growth in the coming years, driven by infrastructure development, urbanization, and sustainable construction practices. Addressing the increasing concern with environmental implications of construction. the majority of the new projects are gearing towards green building. Green building is said to be environmentally friendly and sustainable. This type of new way of constructing a building is said to have a high-performance rate. Moreover, these infrastructures are efficient in consuming resources, engineering designs, construction market, and even its maintenance. Engineering design firms should align their business focus to capitalize on these opportunities. By specializing in infrastructure projects, embracing sustainable design practices, leveraging technology, fostering collaborations, developing talent, and maintaining strong client relationships, engineering design firms can position themselves for success in the dynamic Philippine construction market.

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