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TOYO ENGINEERING

UP TOYO COMMUNICATIONS TO DATE

Toward Sustainable Growth of TOYO's Global Operation

—The Trajectories of TOYO Group Companies

Strengthening global operations and improving the capabilities of overseas companies are key management strategies that are critical for engineering companies to provide clients with high-quality services. TOYO has put great effort into developing and expanding its global network of subsidiaries throughout its long history. For this issue, we talked with Toyo Engineering Executive Vice President Makoto Fusayama about the steps being taken to promote further development of global operations and the growth trajectories of TOYO's group companies.

Group Companies Began with Organizing Local Staff Overseas

Would you please start by looking back on the history of TOYO's global operations?

We hear the phrase "global operations" a lot these days, but the history of globalization at TOYO started from around the 1970s. TOYO was working on many projects in India, Malaysia, Korea and other countries, and began to group the local engineers and staff into organizations which led to local subsidiaries. TOYO operated this way in individual markets early on, and entering the 1990s, full-scale overseas procurement operations for equipment and materials was carried out in response to the appreciation of the yen. As the next step, engineering work was also transferred overseas. Thus, even in those times, TOYO's group companies had both the aspect of a "cost center" to undertake a work order from Toyo-Japan and of an independent "profit center" to operate in their own country's market. Even though we technically say that the engineering work was shifted overseas, TOYO's group companies were always more than just cost centers. They

Makoto Fusayama
Executive Vice President,
Toyo Engineering Corporation

aspired to implement engineering with EPC* oriented thinking in order to improve productivity and competitiveness. This is a unique character of TOYO's overseas group companies.

*EPC: Engineering, Procurement and Construction

We first see the phrase "Global Toyo" used in the medium-term business plan started from 2006. What does the term represent?

As time went by and TOYO entered the new millennium, the number of cases where TOYO's clients dealt directly with group companies began to increase. Moreover, as clients globalize their operations, there have been cases where a client has asked to work with Toyo-India in setting up operations in India after being very satisfied with the similar work Toyo-China did for them in China. For our clients, TOYO is TOYO whatever the country. They expect the same highly trusted TOYO performance regardless of a different group company.

For that reason, it has become necessary for us to have a common base of operating procedures, called TOYO Global Standards, and enforce that all group companies fully comply with them. These standards also determine the overall EPC workflow as well as the project management methods and risk management procedures. This is a big change. Up to that time, our consolidated group management had been operated in the sense that each group company operates on its own accord, and the performance results were just combined. However, TOYO has started to operate as a group of companies sharing the same global business base. The phrase "Global Toyo" expresses the shared nature of this new type of group operations.

Group Companies Complement Each Other, Driving TOYO's Growth

What is the significance of the shift from "Global Toyo" to "TOYO?"

The volume of work in the EPC business is not always abundant. There is a high degree of volatility, as is natural with business based on orders, with constant peaks and valleys in work schedules. Under these circumstances, all of the companies that comprise TOYO really have to work together to serve clients worldwide, acting as one organization to achieve growth by complementing and supporting each other. As a business, we have to absorb the market fluctuations while enhancing work volume. The key point is effectively utilizing the group's engineering resources for that purpose. It has become clear that each group company needs not only to win large EPC projects in its own market, but also to do jobs in other markets.

In the end, this process will make each group company grow, and as a result they will become capable of executing EPC work with an international standard, which will allow

TOYO to have engineering resources with the same quality in various countries of the world. This, in turn, will enable TOYO to execute its projects in a well-coordinated and effective way globally. Those are the global operations that TOYO is aiming for, and the meaning of the slogan, "Global Toyo to TOYO."

How is that strategy progressing?

As group companies take on larger scale projects, they also expose themselves to greater risks. When operating overseas, clients change as do the business customs—and sometimes what worked in a company's local market creates problems in the overseas market. In this respect, at this point, our group companies are experiencing some hardships. On projects where multiple group companies are cooperating, sometimes their collaboration doesn't go smoothly. Unfortunately, this has resulted in lower profitability on some projects. This type of situation is a hurdle we have to overcome, but since TOYO has made real progress with establishing a common framework for operations, now, we just need to develop our ability to execute by putting it into practice on actual jobs. To achieve our vision of "Global Toyo to TOYO," we have to step up our efforts in the group as a whole.

As the unification of TOYO proceeds, will the role that Toyo-Japan must play change?

Not even ten years has passed since our group companies developed their capabilities as independent profit centers enough to have reciprocal synergies. In terms of experience gained internationally and capabilities to develop the engineering business, Toyo-Japan is still the leader of the group. For the time being, Toyo-Japan will concentrate on providing support for group companies on all EPC work. Toyo-Japan has to work on expanding and improving its function as group head office, but in terms of business development, it has already begun integrating its efforts with group companies. Toyo-Japan will also take the lead on developing human resources capable of working globally, creating and conducting training programs rather than having group companies do so individually. There is greater movement of personnel among group companies along with the unification of our global operations, so we are going to have to improve the global human resources system. This is the goal to realize "Worth Working Place," one of the basic policies of our medium-term business plan.

Enhancing the Global Network as a High-priority Management Issue

What are the strengths or advantages of each of TOYO's main group companies?

While some may feel that the positions and roles of each group company should be clarified, personally I think that pigeonholing them would instead be detrimental. My reasoning is that the demands of clients and the needs of the markets are constantly changing, and our group companies face new challenges on a daily basis—they need to be able to respond flexibly.

Having said that, let's move on to a brief look at TOYO's group companies. I'll start with Toyo-India, which, with its long history and more than 2,000 employees, is TOYO's core group company. TOYO does projects around the world, and most of the engineering work is done by Toyo-India.

Next we have Toyo-Korea, which operates in a highly competitive market with four or five international engineering contractors. Achieving growth relying solely on domestic business is difficult. Consequently, there is a need for Toyo-Korea to work together with Toyo-Japan to expand overseas business.

In China, TOYO has been very active for many years, but Toyo-China itself was only established in 2004, after when China opened up its market again. In that sense, this group company has a relatively short history, but it has built up its general capabilities through many projects for foreign capital investment by Japanese, Korean, European, and U.S. companies. Toyo-China is expected to continue to grow and assume a key role in TOYO's global strategies.

While Toyo-Malaysia is relatively small, it has a good relationship with Malaysia's national oil company, PETRONAS. At the same time, most of its work is domestic projects for foreign companies. However, work from PETRONAS has increased recently, and there is hope for further development in that area.

I'd like to mention one more group member—Toyo-Thai. This affiliate was established as a joint venture with a construction company in Thailand. While its roots are the same as our group companies—it has a long history with TOYO—this affiliate has operated with a strong sense of independence for a long time.

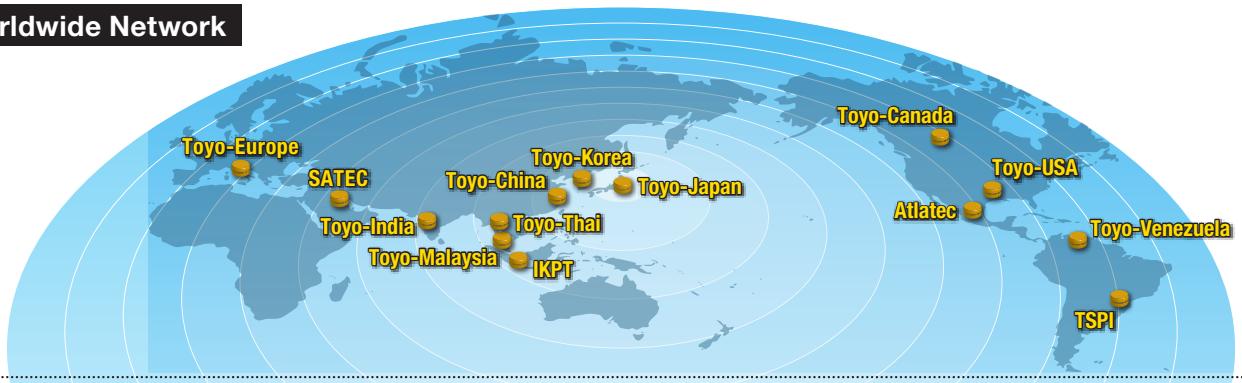
In fact, Toyo-Thai became a public company in 2009, listing its shares on the Stock Exchange of Thailand. Currently, TOYO holds a 22.3% stake in the company. Toyo-Thai does not apply TOYO's administrative systems, using its own business forms and system, and it is carrying out independent operations that are clearly distinct from our other EPC group companies.

In recent years, you have been expanding TOYO's global network. Please tell us about this.

Let me just introduce three of our recently joined group companies. First, we have PT. Inti Karya Persada Tehnik (IKPT), located in Indonesia. Two years have passed since TOYO took a stake in IKPT, during which time the affiliate has struggled with difficulties in some projects. However, it finally has established a structure enabling it to work well as a member of TOYO. Indonesia is a prospective market with a lot of growth potential and all eyes will be on IKPT's development in the future.

Toyo-Canada is an engineering company that TOYO acquired in 2010. Located in Canada's Province of Alberta, the company specialized mainly in engineering services, to which we later added an EPC function. In September 2013, Toyo-Canada was awarded an EPC contract for oil sands

Worldwide Network



【TOYO Group Companies】

Toyo-Japan : Toyo Engineering Corporation
Toyo-Korea : Toyo Engineering Korea Limited
Toyo-China : Toyo Engineering Corporation (China)
IKPT : PT. Inti Karya Persada Tehnik
Toyo-Malaysia : Toyo Engineering & Construction Sdn. Bhd.
Toyo-India : Toyo Engineering India Limited
SATEC : Saudi Toyo Engineering Company
Toyo-Europe : Toyo Engineering Europe, S.r.l.
Toyo-Canada : Toyo Engineering Canada Ltd.
Toyo-USA : Toyo U.S.A., Inc.
Toyo-Venezuela : Toyo Ingeniería de Venezuela, C.A.

【Other Affiliates】

TSPI : TS Participações e Investimentos S.A.
Toyo-Thai : Toyo-Thai Corporation Public Company Limited
Atlatec : Atlatec, S.A. de C.V.

related facilities, which will provide strong momentum for the company's future development.

In Brazil, we established TS Participações e Investimentos S.A. (TSPI) jointly with a major Brazilian engineering company in 2012. Its business comprises both onshore and offshore operations. TSPI made a good start, winning a contract to build topsides units for an FPSO* system in its offshore operations and a contract to build hydrogen production facilities for a refinery in its onshore operations.

*FPSO: Floating Production Storage and Offloading

Does TOYO plan to successively set up new group companies?

In developing our business, the extent to which local resources can be used is becoming increasingly important to being competitive in the country where plants will be established. For example, a substantial amount of the work for our current projects in Venezuela, Egypt, and Russia is being done jointly in cooperation with local contractors and design institutes.

Therefore, in countries where we continue to do a lot of work, establishing a new TOYO group company and expanding our global network is an important option that we will obviously consider. In the United States, many new projects are planned in the wake of the shale gas revolution. In the past, if the project was small or mid-sized, Toyo-USA was utilized as the local office to execute the project. However, as the work in its market increases further, we will have to consider whether to collaborate with a U.S. engineering company or create a group company with the necessary amount of resources.

Each Employee Is Responsible for Enhancing Brand Value

Are there any particular issues that TOYO must deal with as it pursues development of its global operations?

There are many issues to be dealt with to upgrade global operations, such as how do we strengthen governance and risk management throughout TOYO, including group companies, or how do we enhance the IT infrastructure that underpins our businesses? However, I believe that ensuring the smoothest execution of projects is even more important. Each group company is growing at a different pace. They have been part of TOYO for different amounts of time and also have slight differences in the way they are developing their businesses and their capacity for EPC projects.

How do we most effectively execute projects recognizing each one's unique characteristics while at the same time developing all our group companies? That is the challenge. In the end, our goal is to do good work and satisfy the client. If we all could share that result, I believe that group operations will naturally progress smoothly and global operations will also evolve.

Finally, what are your expectations for TOYO employees at group companies around the world?

I view TOYO employees as all being colleagues—people who have an interest in engineering and have chosen to work in this field. I believe they are people who have been attracted by our brand and chose to join TOYO out of the many other possibilities. Previously, the TOYO brand earned Toyo-Japan's reputation with its clients. But today, the reputation of each of our group companies contributes to and enhances our overall reputation. I hope that this process also results in a growing number of people joining us as new TOYO colleagues. On the other hand, we have gotten to the point that a small mistake made at one group company can have unexpected and adverse effects for the sales activities of other group companies. I want every TOYO member to be aware that each and every one of them is responsible for the TOYO brand, and bears our overall reputation.

Profile

Makoto Fusayama
Executive Vice President, Toyo Engineering Corporation

Joining Toyo Engineering Corporation in 1973, Makoto Fusayama has spent the greater part of his career in the Legal Division, handling contracts and legal affairs. In addition this career, he also has gained experience at the construction site of the VCM project in Egypt for three years and in the Procurement Division for four years.

In 2000, Mr. Fusayama transferred to the Corporate Planning Division. In 2004, he became the General Manager as well as a Director and Senior Executive Officer. Focusing his efforts on formulating/implementing corporate strategies and expanding/strengthening overseas group companies, Mr. Fusayama contributed significantly to laying the foundations of TOYO's present global operations system. He became a Representative Director and Executive Vice President of Toyo Engineering Corporation in 2012.

Currently, Mr. Fusayama is responsible for overall administration at Toyo Engineering Corporation as well as serving as Chairman of Toyo-India, Chairman of the Management Committee of IKPT, an external director of Toyo-Thai, and a corporate auditor for Toyo Business Engineering Corporation in Japan.

TOYO's EPC Companies

Toyo Engineering India Limited Toyo-India

During the 38 years since its establishment in 1976, Toyo-India has played a central role in TOYO's global operations, building an impressive record of completed projects in India and around the world. Its staff of over 2,000 engineers are currently involved with four major international projects. Utilizing its particularly strong experience with projects involving refineries, ethylene plants and fertilizer plants, its teams are working on a project to build a 4,000 ton per day granulated urea plant for Indorama Eleme Fertilizer and Chemicals Limited in Sub-Saharan Africa. Similarly, Toyo-India is providing basic and detailed engineering and procurement services for an ethylene plant project in Egypt.

In India itself, the company has recently executed refinery-related projects for Hindustan Petroleum Corporation Limited (HPCL) and Mangalore Refinery and Petrochemicals Limited (MRPL). In addition, in February 2014, Toyo-India completed construction of an LNG jetty for Petronet LNG Limited. Expanding its record in the LNG-related field, Toyo-India recently received an order from Petronet LNG Limited for an LNG regasification facility. The project involves expanding the production capacity from 10 million tons per year to 15 million tons per year and is scheduled for completion in 2017.

Going forward, Toyo-India plans to expand its efforts beyond EPC contracts to participating in projects right from the first stage and implementing proposal-based marketing.

Other major projects: ●U.S. petrochemical plant project (Detailed engineering) ●Egyptian ethylene plant expansion project (Detailed engineering, dispatch of construction management) ●In India: Synthetic rubber plant project (EPC) (Completed) **[Photo: 1]**

[Photo: 1] Synthetic rubber plant

[Photo: 2] Flare stack of gas processing plant under repair

Toyo Engineering & Construction Sdn. Bhd. Toyo-Malaysia

Established in 1986 as a joint venture, Toyo-Malaysia has amassed a long record of mainly projects in Malaysia while acting as one of the EPC bases in TOYO's global network. Currently, Toyo-Malaysia is working on a project to rejuvenate and revamp the 250 million cubic feet per day gas processing plant No. 4 **[Photo: 2]** of PETRONAS Gas Berhad (PGB), a subsidiary of Malaysia's national oil company, PETRONAS. Based on their joint FEED* efforts, Toyo-Japan and Toyo-Malaysia are cooperating as a consortium to rejuvenate and revamp the existing gas processing plant, gas processing equipment, and natural gas dew point control unit in order to extend the plant's life for another 20 years. Toyo-Malaysia has been handling execution of the project since the completion of the detailed engineering. It has also completed another project for the same client on an independent basis. The project was an EPC contract to recover gas that would otherwise be flared or vented to effectively utilize the gas and reduce greenhouse gas emissions.

In addition, there is a large flow of Japanese companies into the Malaysian market, where Toyo-Malaysia has an extensive record as an engineering company, having worked on more than 40 projects.

Other major projects: ●In Malaysia: Pipeline facilities project (EPC) ●In Malaysia: Gas processing plant related project (EPC) (Completed)

*FEED: Front End Engineering Design

Toyo Engineering Korea Limited

Toyo-Korea

Toyo-Korea has executed a wide range of projects in Korea and overseas since being established in 1987 as one of the EPC bases responsible for TOYO's global operations. Overall, Toyo-Korea has specialized in polymer projects, having signed an authorized contractor agreement*1 with the Dow Chemical Company, U.S.A., for Dow's polypropylene technology in 2007 and collaborated with Dow on four polyethylene and polypropylene projects in China by providing FEED services.

Domestically, Toyo-Korea has focused on independently implementing capital investment projects in Korea by both domestic and foreign companies **[Photo: 3]**, such as an EO/EG*2 plant for Korea Petrochemical Ind. Co., Ltd. (KPIC). Overseas, Toyo-Korea carries out projects with other bases by joint operation. For example, Toyo-Korea is providing FEED/Extended FEED and overseas procurement services on a joint project with ENPPI to build Africa's largest polyethylene plant for the Egyptian Ethylene and Derivatives Company (ETHYDCO), Egypt. In other projects, Toyo-Korea is providing detailed engineering services on the ongoing SAGD*3 project for Japan Canada Oil Sands Limited (JACOS) on which Toyo-Canada is taking the lead.

Other major projects: ●Indonesian fertilizer plant project (FEED, procurement) ●U.S. polyethylene plant project (FEED) (Completed) ●Indonesian butadiene plant project (EPC) (Completed)

*1. Authorized contractor agreement: An agreement between the licensor and a contractor that has been certified for a specific technology. In 2013, W.R. Grace & Co. acquired the Polypropylene Licensing & Catalysts business from The Dow Chemical Company.
*2. EO/EG: Ethylene Oxide/Ethylene Glycol *3. SAGD: Steam Assisted Gravity Drainage


[Photo: 3] Liquid crystal display (LCD) glass plant


[Photo: 4] Construction of fertilizer plant

PT. Inti Karya Persada Tehnik

IKPT

Founded in 1982, IKPT is a major engineering company in Indonesia. It has built a strong reputation in a wide range of areas such as oil and gas, petrochemical and chemical, and infrastructure. The company has also made some inroads into the LNG and geothermal power generation fields. In 2012, TOYO acquired a major stake in IKPT, making it a group company and its EPC base in Indonesia—a country which is experiencing steady economic growth.

In collaboration with Toyo-Japan and Toyo-Korea, IKPT is currently involved with the construction of a 3,500 ton per day fertilizer plant for PT Pupuk Kalimantan Timur (Kaltim) **[Photo: 4]**. Toyo-Japan is managing the project, while Toyo-Korea is responsible for basic engineering and overseas procurement. IKPT is handling detailed engineering, domestic procurement and construction. IKPT is also participating in the construction of a 2,750 ton per day fertilizer plant for PT Pupuk Sriwidjaja Palembang (PUSRI). The project is being executed by TOYO and the major Indonesian engineering company PT Rekayasa Industri (REKIND). This project will enhance fertilizer production through efficient use of natural gas by replacing steam boiler fuel with coal. REKIND is responsible for the construction of the ammonia plant and the utility facilities, while TOYO will provide the urea plant, for which IKPT is responsible for detailed engineering, domestic procurement and construction.

Other major projects: ●In Indonesia: Ethylene production expansion project (EPC) ●In Indonesia: Japanese company market entry project (EPC)

TOYO's EPC Companies

Toyo Engineering Corporation (China) Toyo-China

In 1972, the year that China-Japan relations were normalized, TOYO won its first order to build an export plant in China. Since then, TOYO has accumulated an impressive record of projects in China. After opening a branch office in Beijing in 1979 and in Shanghai in 1997, TOYO established Toyo-China in 2004 as its operating base in China. Over the years, Toyo-China has implemented many Chinese market entry projects, primarily for Japanese, European and U.S. companies. During that time, the company has expanded the scope of its services from its mainly administrative services to executing EPC lump-sum projects independently. Currently, Toyo-China is constructing a fluorochemicals plant **【Photo: 5】** for Daikin Fluorochemicals (China) Co., Ltd., independently on an EPC lump-sum basis. The plant is being built in Jiangsu Province and will have an annual production capacity of 6,000 tons per year. Toyo-China completed Phase III of the project in August 2013. The project has maintained an accident-free record, and its completion is planned for fall 2014.

In other recent news, in November 2013, Toyo-China completed a 200,000 ton per year caprolactam plant for DSM Nanjing Chemical Company, Ltd. (DNCC), a joint venture between Royal DSM N.V. (DSM), Netherlands, and China Petrochemical Corporation (Sinopec Group). Coupled with the existing plant, this project made the overall production facilities one of the largest caprolactam producers in the world. Toyo-China took the lead on the project, providing EPsCm* on a lump-sum turnkey basis.

Other major projects: ●In China: Specialty resin plant project (EPsCm) ●In China: Ethylene tank project (EPsCm) ●Chinese market entry by Japanese company project (EPC) (Completed)

*EPsCm: Engineering, Procurement services and Construction management

【Photo: 5】 Construction site of fluorochemical production plant

【Photo: 6】 Oil sands development facilities

Toyo Engineering Canada Ltd. Toyo-Canada

In 2010, Toyo-Canada was established through the acquisition and merger of Tri Ocean Engineering Ltd., which was originally established in 1976. Tri Ocean Engineering had a strong record in providing such services as upstream facilities and oil sands-related production facilities **【Photo: 6】** to major energy companies not only in Canada but also in Alaska, U.S.A., and on Russia's Sakhalin Island. Following the establishment of Toyo-Canada, the company has been focusing on locally oriented EPC contracts for such projects as heavy oil and unconventional gas development. Through that strategic focus, Toyo-Canada won a major EPC project in 2013, which is for an oil sands development project for Japan Canada Oil Sands Limited (JACOS) in the Hangingstone area of Alberta, Canada. Toyo-Canada is constructing a bitumen* processing facility using SAGD method with a capacity of 20,000 barrels per stream day. Toyo-Japan is providing support for project management and Toyo-Korea has been brought in as a member of the detailed engineering team.

As an engineering company based in a resource-rich country, Toyo-Canada offers its clients a full range of services to meet their needs, from engineering to EPC work.

Other major projects: ●In Canada: Oil and gas related facilities project (Engineering and procurement based on a comprehensive contract) ●In Canada: Heavy oil processing refinery project (Engineering)

*Bitumen: The extremely heavy oil recoverable from layers in the oil sands

Toyo U.S.A., Inc.

Toyo-USA

Toyo-USA was established in 1986 in Houston, Texas. This group company serves as TOYO's sales and procurement representative for U.S. clients, licensers and equipment manufacturers, and also provides support on domestic projects. Toyo-USA's business has expanded sharply along with the rapid increase in capital investment in the United States, driven by the low-cost natural gas made available by the shale gas revolution. Currently, TOYO is working on an EPC project to construct a 15,000 ton per year synthetic resin (EVOH*) production plant **[Photo: 7]** in La Porte, Houston, Texas, U.S.A., for The Nippon Synthetic Chemical Industry Co., Ltd. (NIPPON GOHSEI). The project will add a third production line to existing lines to respond to increasing worldwide demand for EVOH for food packaging applications. Looking ahead, there is expected to be a strong market for capital investment projects by both domestic and foreign companies in such fields as petrochemical and fertilizer plants in the United States. As TOYO's local base in that country, Toyo-USA will be contributing to both winning orders and executing projects.

Other major projects: ●In the United States: Polyethylene plant project (Basic engineering, procurement) ●In the United States: Petrochemical plant project (Detailed engineering, procurement)

*EVOH: Ethylene-vinyl alcohol copolymer

[Photo: 7] Groundbreaking ceremony for synthetic resin production plant

[Photo: 8] EBR yard construction site

TS Participações e Investimentos S.A.

TSPI

In 2012, TOYO and SOG – Óleo e Gás S/A (SOG), a leading Brazilian engineering company, established TSPI, which is jointly owned (50% each) by the two companies. The purpose of this joint venture was to mutually expand and strengthen their businesses in Brazil. To support that goal, two group affiliates were established under TSPI: TOYO-SETAL Empreendimentos Ltda. (TSE) for onshore EPC projects, and Estaleiros do Brasil Ltda. (EBR) for offshore EPC projects.

Currently, TSE is working on an EPC contract to construct 250,000 m^3 per hour hydrogen production facilities for the Brazilian national oil company, Petróleo Brasileiro S.A. (PETROBRAS). The facilities will be installed in the Complexo Petroquímico do Rio de Janeiro (COMPERJ), one of Brazil's largest petrochemical complexes, currently under construction in Itaboraí, Rio de Janeiro, Brazil. TOYO is presently constructing utility facilities (water treatment, electricity and steam generation facilities) for the complex.

On the other hand, EBR is executing an EPCI*1 contract for PETROBRAS to install FPSO topsides, called P-74, to be deployed off the coast of Rio de Janeiro in 2016. Currently, EBR is constructing yard facilities **[Photo: 8]** in the state of Rio Grande do Sul, in the southernmost part of Brazil, to be used to assemble and integrate the modules of the topsides on the hull. In December 2013, EBR was awarded by SINAVAL*2 for its environmental protection policies during the yard facilities construction.

Other major projects: ●In Brazil: Gas processing plant project (EPC) ●In Brazil: Hydroelectric power generation plant related project (Construction)

*1. EPCI: Engineering, Procurement, Construction and Integration *2. SINAVAL: the Brazilian Union of Ship Building, Ship Repair & Offshore Industries

Awarded Ethylene Plant Expansion Project in Indonesia

TOYO has been awarded a contract from PT. Chandra Asri Petrochemical Tbk. in Indonesia to expand the capacity of an existing naphtha cracking plant, which is located in Cilegon on the western part of Java. The existing plant was built by TOYO in the 1990s based on Lummus technology. The aim of the project is to expand ethylene production capacity from the current 600,000 tons per year to 860,000 tons per year. To that end, TOYO provided FEED services in 2012.

The client awarded TOYO an EPC contract based on its appreciation of TOYO's record in constructing the existing plant and the various proposals during FEED execution. The project is being executed in collaboration with TOYO's Indonesian group company IKPT, and is scheduled for completion at the end of 2015. Petrochemical manufacturers in Indonesia are planning various ethylene downstream facilities in view of strong demand for petrochemical products fueled by the country's rapid economic growth.

Signing ceremony

Awarded Canadian Oil Sands SAGD Facility Project


Signing ceremony

TOYO was recently awarded an EPC contract from Japan Canada Oil Sands Limited (JACOS), a subsidiary of Japan Petroleum Exploration Co., Ltd. (JAPEX), to construct a bitumen processing facility which will recover oil sands deposits by SAGD method in the Hangingstone area of Alberta, Canada. Jointly with major Canadian oil company Nexen Energy ULC, JACOS is already producing 6,000 to 7,000 barrels per stream day of bitumen in the area. However, this will be their first time to construct and operate a full commercial-scale bitumen processing facility using SAGD method with a capacity of 20,000 barrels per stream day (expandable to approximately 30,000 barrels per stream day). The processing facility will consist of a steam generator, water de-oiling, water-treatment and product storage facilities, and is scheduled for completion in 2016. In Alberta, oil sand development is in the process of shifting from surface mining to in situ* method projects that recover bitumen directly from oil sands deposits. Consequently, long-term growth is expected in projects for bitumen production facilities using SAGD method.

*In situ: Methods used to separate and recover bitumen found underground

TSE Wins Hydroelectric Power Station-Related Contract in Brazil

Norte Energia S.A., a private electricity company in Brazil, recently awarded a major contract to a consortium composed of TOYO-SETAL Empreendimentos Ltda. (TSE), TOYO's joint venture company in Brazil, and Engevix Engenharia S.A. as well as Engevix Construções Ltda., a leading Brazilian engineering firm. The contract covers installation and commissioning assistance for the Belo Monte hydroelectric power station being constructed in Pará state in northern Brazil located on the Xingu River, a tributary of the Amazon River. The project includes eighteen 611 MW turbines and eighteen penstocks 11.6 meters in diameter and 115 meters long along with substation equipment and other facilities. Completion is scheduled for the end of 2018.

A renewable energy source, hydroelectric power provides approximately 70% of Brazil's electric power generation. However, electric power supply shortages remain a major issue. Therefore, the Belo Monte hydroelectric power station represents an important national project for Brazil. Construction of the power station has been under way since 2011. When completed, the power station's approximately 11,000 MW of power generation capacity will be the third largest in the world.

Building on the experience gained from this project, TSE will strive to win more projects in the hydroelectric power field.


Signing ceremony

Completed India's First Large-Scale Synthetic Rubber Plant

In fall 2013, Toyo-India completed India's first large-scale SBR* plant, with a production capacity of 120,000 tons per year, under an EPC contract for Indian Synthetic Rubber Limited (ISRL). The client is a joint venture among Indian Oil Corporation Ltd. (IOCL), India's largest state-owned oil company, TSRC Corporation (TSRC), a large Taiwanese synthetic rubber supplier, and Marubeni Corporation of Japan. The completion ceremony was held in November at the Panipat plant site in the state of Haryana. There were many guests, including Mr. M. Veerappa Moily, India's Minister of Petroleum and Natural Gas, and the directors of ISRL.

The demand for automotive tires has risen sharply in India along with the growth in automobiles. The new plant will reduce the country's dependence on imports by enabling automobile tires and raw materials to be produced domestically. Utilizing TSRC's production technology, the plant manufactures synthetic rubber from butadiene supplied by an adjacent ethylene complex completed by TOYO in 2010. The project was the largest EPC turnkey contract ever to be executed independently by Toyo-India.

*SBR: Styrene-Butadiene Rubber

Completion ceremony

Handed Over Indonesia's First Butadiene Plant

Completed butadiene plant

In December 2013, Toyo-Korea handed over Indonesia's first butadiene plant to client PT Petrokimia Butadiene Indonesia (PBI), a subsidiary of PT. Chandra Asri Petrochemical Tbk., the country's largest petrochemical company. Located in Cilegon in West Java, the plant has a production capacity of 100,000 tons per year. Its butadiene will be utilized as raw material to produce synthetic rubber and automotive tires, products for which demand is expanding in Indonesia. The plant's feedstock is being supplied by Chandra Asri's adjacent ethylene plant, which was also constructed by TOYO. Toyo-Korea executed the project under an EPC turnkey contract covering engineering, construction, and commissioning based on Lummus/BASF technology. It represents the largest overseas EPC project ever to be executed independently by Toyo-Korea. Toyo-Korea utilizes the experience gained from this job on larger EPC projects.

Project for Seven Electric Power Plants in Thailand Reaches Conclusion

TOYO, jointly with Mitsui & Co., Ltd., has completed a project to build seven electric power plants for Gulf JP Co., Ltd., whose majority is owned by the Electric Power Development Co., Ltd., Japan. The final plant in this major project is an NK2 electric power plant with a 120 MW capacity. Located in Saraburi Province, Thailand, the plant began operations in October 2013.

The project involved the construction of seven gas-fired combined cycle electric power plants at sites located in the suburbs of Bangkok. Five of the plants have a capacity of 110 MW and the other two plants 120 MW for a combined power supply of 790 MW. The electric power plants were built in sequence starting in October 2010.

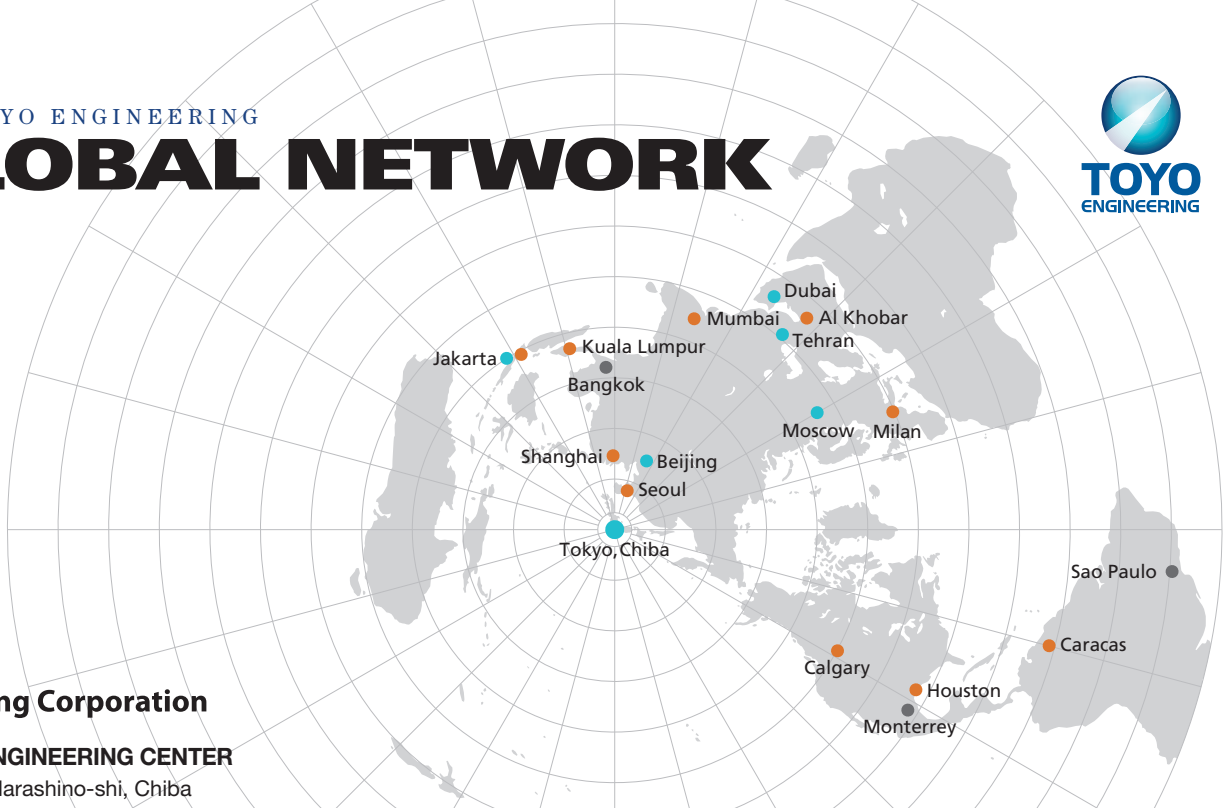
Each plant has committed to selling a portion of its electric power to the Electricity Generating Authority of Thailand (EGAT) on a wholesale basis for 25 years after coming on stream under Thailand's SPP Program.* The non-committed electric power, steam, and chilled water is also being sold directly to the companies in neighboring industrial parks.

NK2 electric power plant

Based on the valuable experience gained from constructing these seven electric power plants simultaneously and completing all of them on schedule, TOYO plans to continue its focus on the electric power field.

*SPP Program: Small Power Producers Program

TOYO ENGINEERING GLOBAL NETWORK



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