Private: The Predicament of Taiwan's Military Development

By: Jeremy Chen

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In recent years, Taiwan's military procurement and indigenous defense development have encountered multiple challenges that significantly impact their implementation and effectiveness. These challenges span across various dimensions: such as local community resistance to military construction projects, escalating material and labor costs in an inflationary environment, intense media scrutiny of procurement processes, and the complex dynamics of military modernization objectives. This analysis examines how these interconnected challenges affect Taiwan's defense capabilities, while also highlighting how democratic institutions both complicate and safeguard the procurement process.

The Intersection of Military Development and Local Interests: Balancing National Defense with Community Needs

Military construction is often a contentious issue for local communities, as it potentially disrupts local life and economic activity. Even when proposed military facilities have a minimal environmental impact, their establishment frequently triggers protests and petitions from residents. In Taiwan, several cases illustrate this dynamic. First, the Navy's decision to construct a missile base within the existing military bases at Jiupeng (九鵬) in southwestern Taiwan faced delays due to conflicts with the *Indigenous Peoples Basic Law*. Similarly, the planned Second Naval Harbor Project at Zouying (左營第二港口擴建工程) has encountered ongoing protests despite multiple public hearings, as local fishermen have worried about their livelihoods. In Taitung (台東), a proposed Air Force emergency runway project drew criticism from legislative representatives in local courts because it required the acquisition of productive farmland.

However, these conflicts typically find resolution through increased military compensation packages or alternative solutions. For instance, with the Executive Yuan's (行政院) support, the Jiupeng base in Pingtung (屏東) revised its "Neighboring Relations Work Guidelines for Military Training Fields Reimbursement Regulation" (國軍訓場睦鄰工作要點)

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and expanded its compensation coverage. Legislative representatives, who advocate for local interests and hold authority over military budgets, often successfully champion community concerns through this institutional framework.

While this system ensures local voices are heard, it also reflects a contemporary social reality: the Ministry of National Defense (國防部) must now allocate significantly higher budgets to implement military construction projects. This increased financial burden has become an inherent cost of military development in today's social environment.

Image: Fishermen protest the Navy's Second Harbor Plan. (Image source: PTS)

The Rising Costs of Delayed Defense Projects

Taiwan's indigenous military construction faces a challenging paradox: despite increased budgets, the return on investment has diminished compared to previous years. This situation stems from growing technological demands and rising raw material costs.

The impact of inflation is evident in several key areas:

- Civilian basic wages increased roughly 17 percent from 2020 to 2024. However, adjustments in the minimum wage do not reflect the demand and salary increases for senior technical personnel. According to the 2024 Cake Software and Technology Industry Salary Report published by the talent community platform Cake in September, the average annual salary for job openings in Taiwan's ICT industry has surpassed NTD $1.02 million (about USD $32,000), an increase of 54.6 percent. This forces companies to offer higher salaries in order to compete for talent.
- The growing demand for the development of new technologies in industry, the requirements for environmental protection, and infrastructure construction have driven the demand for metal minerals, with copper prices increasing by 50 percent compared to 2020. Steel prices, while 30 percent lower than during the pandemic period, remain 70 percent higher than 2016 levels. Additionally, Taiwan's shipbuilding scale is not as large as that of China, Japan, and South Korea. According to Clarksons Shipping Intelligence Network, the global shipbuilding industry is dominated by China, Japan, and South Korea, with the three countries collectively holding over 90 percent of global new orders since 2008. Due to the lack of economies of scale, Taiwan's shipbuilding costs remain relatively high: for instance, the *Tuo Chiang* (沱江) class corvette program has seen its construction budget surge from NTD $14.43 billion (USD $465.48 million) to NTD $16.14 billion (USD $520.6 million)—a substantial 13.63 percent increase, requiring an additional NTD $1.71 billion (USD $55.16 million).

The Control Yuan's 2021 corrective report (監察院糾正報告) revealed a critical issue in Taiwan's military budget management: escalating personnel costs and operational maintenance expenses are increasingly encroaching on planned military acquisitions. This budgetary squeeze creates a devastating ripple effect, where delayed projects inevitably face higher costs in subsequent years due to inflation and changing market conditions. Significant cases illustrate this financial predicament. For example, the Navy's initiative to procure seven new harbor tugboats faces potential cost overruns: the originally approved budget was insufficient, causing the entire project to be postponed until 2029.

These examples not only demonstrate immediate financial impacts but also underscore a broader systemic challenge in military procurement planning and budget allocation. The compounding effect of these delays and cost increases threatens to create a vicious cycle of project postponements and escalating expenses.

Military Procurement Under Media Scrutiny

Even with Taiwan's military personnel diligently performing their duties, financial disputes remain unavoidable. Taiwan's USD $2.8 billion purchase of 6 *Kang Ding* (康定) class multi-role stealth frigates from France in 1991 is responsible for the Taiwanese navy's current high-end surface combatants. These ships are derivative of the *Lafayette* class—which has been used as the base platform for several nations' frigate designs—but they also have critical weaknesses due to technologies being not transferred to Taiwan. The *Lafayette* frigate scandal stands as a stark example: naval officer Yin Ching-feng (尹清楓), responsible for naval procurement, was found dead off Yilan's (宜蘭) coast on December 9, 1993. This tragedy unveiled a series of

procurement scandals, leading to arms dealers Wang Chuan-pu (汪傳浦) fleeing overseas on December 20. Similarly, the naval minesweeper procurement case ended in court due to shipyard contract violations.

These incidents had far-reaching consequences: the Armaments Bureau was disbanded, and involved personnel suffered severe career impacts. While Taiwan's current military budget maintains high transparency with minimal classified allocations, past procurement scandals have turned military acquisitions into media spectacles, with projects like submarine procurement drawing constant media attention.

Pursuit of Modernized Military Objectives

Military weapon configurations ultimately depend on leadership decisions. For instance, the micro assault boat project, strongly advocated by former Chief of General Staff Admiral Lee Hsi-min (李喜明), was canceled after his departure. The "Maritime Thunder "(震海) project faced various external pressures during its development. As exemplified by the "Mini Aegis" project, which ultimately failed after ongoing internal debates over the project's configuration, legislative representatives often push for cutting-edge technology without fully considering practical limitations in technical capabilities, logistics, and supply chain sustainability. Still, while the principle of "better late than never" and internal competition for perfection may increase friction, it also demonstrates a commitment to excellence.

Pressure From China

Under pressure from China, Taiwan faces significant obstacles in both indigenous weapons development and foreign military procurement. Unlike Israel, which possesses strong capabilities for independent weapons development, Taiwan lacks the same level of technological autonomy. As a result, Taiwan is heavily reliant on the United States for its military acquisitions. This dependence, combined with the complexities of navigating international arms sales amid geopolitical tensions, complicates Taiwan's efforts to modernize its defense capabilities and maintain readiness. While Taiwan strives for greater self-sufficiency, external pressures and limitations in domestic defense industries make this a challenging goal.

Conclusion

In today's environment of global inflation, Taiwan faces unique challenges in military procurement and defense autonomy. Despite obstacles such as local resistance and contractor competition under intense media scrutiny, Taiwan's relatively transparent procurement process offers some advantages. The increased military budget allocated for community development has benefited local areas. While democracy ensures relative integrity in Taiwan's system, it also comes with additional challenges—such as requiring the government to allocate extra military funding to achieve desired defense capabilities.

The main point: Taiwan's military procurement and defense development faces four major challenges: local community resistance to military construction, rising costs due to inflation, intense media scrutiny of procurement processes, and complex military modernization objectives. While democratic institutions increase procurement costs and time, they also ensure transparency in the process.

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Educational Exchanges: Taiwan's Soft Power Opportunity

By: James Jennion

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China is courting the international elite. Through lucrative scholarship opportunities, Beijing annually draws in thousands of foreign students and graduates of prestigious schools to complete degrees and leadership programs at Chinese universities. The result is a regular cohort of future leaders in politics and business who are more likely to sympathize with Beijing's worldview. Meanwhile, Taiwan's efforts in this area have been comparatively limited. To better compete with China's knowledge diplomacy and soft power efforts, Taiwan should work to develop new scholarship opportunities to draw in more future leaders from abroad.

Taiwan's President Lai Ching-te (賴清德) is vocally committed to developing Taiwan's relationships with other democracies and people-to-people exchanges are essential in building such ties. Semiconductors and Taiwan's geostrategic importance are critical policy concerns, but they do not win hearts and minds. Increasing the number of influential people from abroad who are living and studying in Taiwan will be critical in building Taiwan's soft power, or "knowledge diplomacy." With its myriad strengths as an innovative and resilient democracy, Taiwan has many lessons to offer future leaders—however, it needs to package its educational programs better in order to more effectively employ them as instruments of Taiwan's soft power.

Comparing Taiwanese and Chinese Scholarship Programs

Taiwan's current scholarship programs can be inaccessible and clunky. The Huayu Enrichment Scholarship, one of the major language learning scholarships offered by the Taiwanese government, requires participants to pay for flights, accommodation, school fees, and living costs—all before scholarship payments finally begin disbursal some two months into study in Taiwan, depending on the school. The upfront costs are high, the administrative processes are long, and the scholarship does not provide a "full ride" covering all living and academic costs. Other programs consist of generalized funding for study at Taiwanese institutions—instead of being rounded developmental and experiential programs for which a degree is a priority, but not the only point.

Meanwhile, Beijing operates a series of streamlined education mobility programs focused on drawing current and future foreign decision makers to study in China. Seizing on the readily believed narrative that understanding China is integral to business and political success in the 21st century, programs such as the Yenching Scholarship and Schwarzman Scholarship offer enticing academic and leadership training opportunities, with Chinese language tuition and personalized mentorship, boasting a network of more than a thousand "young global leaders."

In such programs, all expenses are covered—including interview costs—and successful applicants receive a "full ride" covering tuition, living fees, travel, a personal stipend, and even a laptop. Schwarzman is funded by a mix of Chinese state-owned enterprises, philanthropic individuals and foundations, and foreign companies. The program sources candidates from high-ranking schools like Princeton, Oxford, and Yale—people likely to go on to hold influential roles in politics, business, and wider society. It has involved representatives from the Chinese Communist Party (CCP, 中國共產黨) since its earliest days, including the foreign influence-focused United Front Work Department.

A major goal of these programs—winning influential foreigners to adopt vocal approval of China—appears to be successful. Many graduates of Schwarzman and Yenching publicly campaign for greater cooperation and stronger ties between China and their own countries. One group of Schwarzman graduates wrote an article calling for American students to "get back to China," providing nostalgic anecdotes from their time in the country.

In extreme cases, graduates of such programs have been seen to quote Communist Party propaganda narratives almost to a tee. At a conference panel I attended in 2019, a Schwarzman graduate panelist, when asked a question about China's brutal human rights violations against the Uyghurs, firmly dismissed the matter as "China's business," which nobody else should be speaking about. Rather than simply saying that they did not know about the issue or did not feel qualified to comment, the panelist chose instead to parrot the Chinese government's firm line that the atrocities in Xinjiang are strictly a matter of China's internal affairs, upon which nobody else has the right to comment.

Certainly, not all participants will do this—generally coming from undergraduate study at well-regarded academic institutions, scholars will have well-developed critical thinking abilities, which a year of studying in China would not necessarily erode. Indeed, there are plenty of cases of Schwarzman scholars openly criticizing the CCP's human rights record while on the program. Likewise, it is entirely logical that somebody with an interest in China's culture, politics, and role in the world will have an interest in studying in the country, without necessarily buying into its government's propaganda. But if even a small number of people are happily repeating CCP-endorsed lines in high-level discussions, then the influence- building efforts of these study programs are bearing results. This is a problem for Taiwan, given that the CCP's claims to the island are one of its most dangerous narratives.

Leveraging Taiwan's Other Strengths through Leadership Programs

In response, Taiwan should redevelop its own leadership programs, aimed at drawing people with policy and business influence from other countries to study in Taiwan. Unlike other existing programs, new scholarships should be streamlined by offering set courses at specific schools, with immersion and learning opportunities that play to Taiwan's strengths of global tech leadership, traditional Chinese characters, and active civil society organizations, which are leading in critical fields such as countering disinformation. As with Beijing's initiatives, partnering with international donors and firms would help to deliver a high-quality and professionally-branded program that is global in character and appeal, as well as help bridge the resource differential between Taiwan and China. This should be a "named" scholarship—following the approach of Rhodes, Kennedy and Schwarzman—to aid with branding and name recognition.

Image: Thai recipients of a 2024 Huayu Enrichment Scholarship at an orientation session at the Taipei Economic and Cultural Office in Thailand, August 2024. (Image source: TECO Thailand)

One of the benefits of the Schwarzman Scholarship, as a group of alumni writes, is the chance to develop "cultural understanding, language skills and firsthand experiences" in China. Studying in Taiwan, of course, offers many of the same opportunities, in an environment that is more accessible to foreigners. The Taiwanese government is already working to promote the learning of Taiwanese Mandarin overseas. A more streamlined and fully-funded program to learn in Taiwan would be a natural progression of these activities, and would help Taiwan to capitalize on current trends such as the increase in US students looking to study in Taiwan as China continues to lose its appeal.

That said, there would be far wider benefits to a Taiwanese program, besides offering a place to study Mandarin without having to go to China. Taiwan stands on the frontline of the global disinformation war, and bears repeated attacks—largely from CCP-backed disinformation actors—that are intended to erode its democracy and divide its people. Taiwan has repelled these attacks with remarkable success, success which other democracies should be looking to learn from. By developing a leadership program that involves training future democratic leaders in tackling the modern challenges facing democracies, Taiwan could convert these attacks on its democracy into an asset, positioning itself as the place to learn how to fight back against new and emerging challenges to democratic governance.

Lessons such as these mean that other democracies should also be deepening their own exchange initiatives with Taiwan. There has historically been high perceived value in developing an understanding of China by sending students to China through programs such as the US-China Fulbright programs, or the British Council's Generation UK-China initiatives. Both are examples of outward mobility programs focusing on selecting "high-potential" students to gain a deeper understanding of Chinese culture and language. Much the same result can be achieved through studying in Taiwan, albeit without the first-hand experience of living and working within China's authoritarian system—which may either be a benefit or an issue, depending on one's interests and goals.

To compete with a challenger as large and deep-pocketed as China, Taiwan needs influential friends. A refreshed effort to bring potential allies to Taiwan—and to learn about its culture and means of governance—would go a long way toward building long-term international support.

The main point: To compete with China's scholarship programs, Taiwan should redevelop its own current scholarship and leadership programs through partnerships with international donors. Some positive changes would be: making the programs more cost-inclusive, streamlining them to consist of set courses at specific schools, and focusing them around Taiwan's strengths—such as Taiwan's experience in countering disinformation and its global tech leadership.

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Economic Partnership and Technological Synergy: The Evolving Taiwan-Saudi Arabia Partnership

By: Nadeem Ahmed Moonakal

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The bilateral relationship between Taiwan and Saudi Arabia has a long-standing history of converging interests that have endured political challenges. This relationship over time has been flexible and adaptive, and the unique partnership remains largely underexplored. From a steadfast alliance grounded in anti-communist solidarity to a relationship overshadowed by Saudi Arabia's shifting strategic priorities, the evolving ties between Taiwan and Saudi Arabia present an interesting case study in economic and technological diplomacy.

Early Recognition and Post-World War Engagement

The Kingdom of Saudi Arabia recognized the Republic of China (ROC) soon after World War II and maintained

close economic ties in the decades that followed. Saudi Arabia opened an embassy in Taiwan in 1968. Throughout the 1960s and 1970s, Saudi Arabia continued to enhance its economic diversification, which—significantly—required the transfer of industrial technology. Taipei had been responsive to the Kingdom's developmental agenda and extended agricultural, industrial, and scientific cooperation, and Saudi Arabia benefitted from Taiwan's technology-for-recognition exchange. [1] Also, Taiwan's industrial and rapid economic growth led to more domestic energy demands that prompted it to import more oil from Saudi Arabia. The wars and conflicts in the Middle East in the 1970s and 1980s that led to the oil crises gradually shifted Saudi Arabia's oil export focus from Europe to Asia as European countries started to diversify their energy sources. This eventually resulted in Taiwan as a key oil export partner, and Saudi oil consistently met about a third of Taiwan's energy requirements. [2] However, as the Chinese market grew exponentially and Chinese demand surged, China eventually became one of Saudi Arabia's largest oil importers, surpassing Taiwan.

During the Cold War, Saudi Arabia and Taiwan remained a part of an anti-communist alliance as Saudi Arabia was concerned about China's support for communist movements in Oman and South Yemen. This led the then-monarch of Saudi Arabia, King Faisal, to perceive Beijing as a regional threat to stability. By the early 1970s, Taiwan and Saudi Arabia deepened their ties, demonstrated by King Faisal's historic visit to Taipei in 1971. During the meeting between King Faisal and Chiang Kai-Shek (蔣介石), both leaders agreed to increase bilateral cooperation, and in October 1971 Saudi Arabia was the only Arab country to vote against the UNGA Resolution 2758 that recognized the People's Republic of China (PRC) as "the only legitimate representative of China to the United Nations."

After the 1979 Iranian revolution that paved the way for protracted wars and conflicts, security concerns eclipsed Saudi foreign policy—which then allowed China to leverage its military support, including missile transfers, to gradually strengthen ties with Riyadh. This led ultimately to Saudi Arabia formalizing relations with China in 1990. Also, China's strategic use of Islamic religious activities to engage effectively with the Arab and Islamic world changed Saudi Arabia's perception that Islam and Communism are inherently incompatible. [3]

However, Saudi-Taiwan ties were maintained through informal relations, especially as Saudi Arabia's domestic developments created opportunities for industrial cooperation with Taipei. During these years the ROC and the PRC both adhered to a strict "One-China Policy." Initially, Taiwan had an advantage, but over time several Arab countries started to recognize the PRC—a process that continued till the 1990s, when Saudi Arabia was the last Arab country to formally recognize the PRC.

Expanding Economic and Technological Partnerships Under Vision 2030

Saudi Arabia is now represented in Taipei by the Saudi Arabian Trade Office, while Taiwan operates its Taipei Economic and Cultural Representative Office in Riyadh, consolidating its services there after closing its Jeddah office in 2017. Although Taiwan faces significant trade deficits with Saudi Arabia, Taiwan continues to find lucrative economic opportunities in the region. Taiwanese firms like Taiwan Fertilizer Co. (台灣肥料公司), CTCI Corporation (中鼎工程股份有限公司), and TECO Electric and Machinery Co. (東元電機) have established a foothold in the kingdom, and the Taiwanese government continues to support small and medium enterprises in partnering with Saudi businesses.

In recent years Taiwan and Saudi Arabia have deepened their ties on the economic and technological fronts. The Taiwan International Cooperation and Development Fund (Taiwan ICDF, 財團法人國際合作發展基金會) has worked with Saudi enterprises in various domains including agriculture, fisheries, transportation, and trade. Saudi Arabia's *Vision 2030* program has paved the way for converging interests between Taiwan and Saudi Arabia, especially as the vision focuses on emerging technologies in which Taiwan has maintained a competitive advantage.

Saudi Arabia is Taiwan's largest trading partner in the Middle East with an annual trade volume of over USD $12 billion. In 2020, Taiwan and Saudi Arabia signed a tax treaty that prevents double taxation. Effective in 2022, this agreement aims to streamline bilateral trade and reduce tax burdens for businesses operating in both countries. The Taiwan External Trade Development Council (中華民國對外貿易發展協會), with the support of the Bureau of Foreign Trade (經濟部國際貿易署), and the Ministry of Economic Affairs (經濟部), established the Taiwan Trade Center in Riyadh in 2023. The center aims to increase economic opportunities between Taiwan and Saudi Arabia and foster public-private partnerships between Saudi and Taiwanese enterprises, primarily leveraging the opportunities arising from Saudi Arabia's economic reforms. Taiwan's strengths in key sectors—like advanced technology,

renewable energy, and healthcare—align closely with the goals of Saudi Arabia's *Vision 2030*, which has increased the prospects for collaboration between both. Saudi National Bank's entry by issuing USD $500 million bond in Taiwan's Formosa bond market, where foreign entities issue bonds in currencies other than the New Taiwan Dollar, reflects growing Saudi-Taiwan economic ties.

Image: Taiwanese and Saudi officials at the opening ceremony of the Taipei Trade Center Riyadh, May 2023. (Image source: mih-ev.org)

In 2021, Taiwan's Master Transportation (成運汽車製造股份有限公司) signed a cooperation agreement with the Saudi International Industrial Village Company (SIIVC) to export electric buses to Saudi Arabia. In 2022, Saudi Arabia's Public Investment Fund (PIF) announced the establishment of the kingdom's first electric vehicle company, Ceer Motors—which is a joint venture between the PIF and the Taiwanese multinational company Hon Hai Precision Industry Co. Ltd. (Foxconn, 富士康精密工業股份有限公司). Ceer is aiming for its debut in 2025, and is an example of *Vision 2030*'s continuous focus on clean technology. In October 2024, Foxconn Interconnect Technology Limited announced a USD $100 million joint venture with Saleh Suleiman Alrajhi & Sons Co. to establish Smart Mobility in Saudi Arabia. Foxconn is also in talks with Saudi Arabia regarding the establishment of a large-scale manufacturing facility in the kingdom. These projects and deals enable Taiwan to deepen its technological footprint in Saudi Arabia, and highlight the potential for long-term cooperation in high-tech manufacturing and green energy sectors. Moreover, such partnerships also signal Taiwan's broader interest in actively participating in the transformation of Saudi Arabia's industrial sector in tandem with its *Vision 2030* agenda.

Prospects in the Semiconductor Industry

Saudi Arabia and Taiwan in recent years have taken steps to accentuate their cooperation in the advanced technology sector, leveraging Taiwan's expertise in renewable energy, smart cities, electronics, and the semiconductor industry. As US-China competition intensifies, the ripple effects can be particularly seen in the semiconductor industry. Amid the US restrictions on supplying semiconductor technology to China—primarily aimed at addressing national security concerns and preserving its competitive advantage—it has pushed countries like Saudi Arabia to enhance domestic capabilities and attract foreign investments to develop its local semiconductor manufacturing capabilities aligning with *Vision 2030.* In recent years, Saudi Arabia has been heavily investing in the semiconductor sector to reduce dependency on foreign supply that remains volatile due to the US-China rivalry. For example, the USD $100 billion Alat project in Saudi Arabia, in collaboration with King Abdulaziz City for Science and Technology, aims to develop local talent and infrastructure that could establish at least 50 semiconductor design companies by 2030 in the kingdom, with the help of a deep tech venture capital fund exceeding USD $266 million. Saudi Arabia has also strengthened its collaboration with China in semiconductor development; however, the head of Saudi Arabia's Alat has said that it would consider withdrawing its investments in China if US-China tensions escalate and Washington requests it to do so.

Taiwan holds a dominant position in the semiconductor industry, accounting for nearly 46 percent of global chips foundry capacity. In this context, Taiwan's expertise in the semiconductor industry presents opportunities for future cooperation with Saudi Arabia despite the geopolitical limitations posed by possible Chinese pressure. As both countries intend to bolster their position in the global semiconductor market, Taiwanese companies could use their advanced manufacturing capabilities to partner with Saudi projects. This is particularly significant as very few countries have the technological ability to produce chips—and the relations between Saudi Arabia and Taiwan have continued to grow, despite Riyadh's close engagement with Beijing.

China remains the largest market for Taiwan's semiconductors, and Taiwan is keen to diversify its prospects. Recent trends have shown Taiwan's interest in deepening its ties with Gulf countries. Saudi Arabia faces certain challenges regarding its workforce and technological expertise that could influence Taiwan's investment strategies in the country. However, historically supply chain diversification has been influenced by US foreign policy—which has often required American support to be effective, and places Riyadh in a favorable position in Taiwan's investment and partnership radar. While Saudi Arabia-Taiwan collaboration in semiconductor

manufacturing is still in its early stages, there are significant prospects for collaboration in talent development, industrial partnerships, and joint research.

Conclusion

The historical ties between Saudi Arabia and Taiwan have adapted to both regional and global geopolitical realities, marked by initial economic and industrial collaboration as well as a shared stance against communism. Although Saudi Arabia formally recognized the People's Republic of China in 1990, Riyadh and Taipei maintained informal relations, particularly in industrial cooperation and technological transfer. This evolving partnership has been further deepened by converging agendas and shared interests identified through Saudi Arabia's national developmental agenda, which aims to achieve holistic domestic socio-economic reforms and to attract foreign investments, especially in the technological sector.

The main point: Despite Saudi Arabia's deepening relations with China, Riyadh has continued to maintain its strong ties with Taiwan, a long-standing partner in Saudi Arabia's industrial development. The continued engagement between Riyadh and Taipei illustrates their mutual interests in enhancing economic ties while navigating complex geopolitical landscapes. This shift reflects Riyadh's foreign policy priorities that focus on mitigating risks associated with global geopolitical rivalries and technological competition, and Taiwan features prominently in this context.

[1] Makio Yamada, "Islam, Energy, and Development: Taiwan and China in Saudi Arabia, 1949-2013," *American Journal of Chinese Studies* 22, No.1 (2015): 84.

[2] Ibid, 90.

[3] T.Y. Wang, "Competing for Friendship: The Two Chinas and Saudi Arabia," *Arab Studies Quarterly* 25, No.3 (1993): 75.

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Beyond the Strait: Taiwan's Role in India's Semiconductor Rise

By: Albin Thomas

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The Indian government founded its first state-owned semiconductor enterprise, Semiconductor Complex Ltd. (SCL), in Mohali in 1984. Despite this, India has not yet achieved a prominent position in the global semiconductor landscape, and no major Indian manufacturers or market leaders compete in the international market. Technological developments and the current geo-political tensions in the Taiwan Strait have further increased the need for India to become a manufacturing hub, and to pursue self-sufficiency in the semiconductor sector. As a result, the government of India has launched the India Semiconductor Mission (ISM), which is aimed at building a vibrant semiconductor and display ecosystem in order to make India a hub for electronic manufacturing and design. The ISM encourages setting up semiconductor fabs in India and provides fiscal support to a maximum of 50 percent of project costs for approved applicants.

Taiwan manufactures around 63.8 percent of the world's semiconductors, and its 2nm process technology is the most available advanced technology in the world. Consequently, Taiwan remains the global leader in terms of both technology and productivity in the semiconductor industry. India and Taiwan are increasingly pursuing cooperative initiatives in this field—and India's technical and skill development cooperation with Taiwanese companies and the Taiwanese government is creating a new face for India's semiconductor sector.

Notable Partnerships with Taiwan in India's Semiconductor Industry

The national government of India, as well as different state governments, provide help to private entities to establish semiconductor fabs in India. In this environment, the Taiwanese government and Taiwanese companies have become front runners in helping both Indian firms and the government. In February 2024, Powerchip Semiconductor Manufacturing Corporation (PSMC, 力晶積成電子製造股份有限公司) and the Indian Company Tata Electronics announced plans to invest USD $11 billion to build India's first 12-inch wafer fab in Dholera, Gujarat. This joint venture between an Indian and Taiwanese company has provided the foundation for India-Taiwan joint manufacturing of chips in India. The new venture is directed towards the manufacture of power management integrated circuits (IC), display driver IC, microcontrollers, and high-performance computing logic components. This project is expected to create more than 20,000 job opportunities.

The Taiwanese company Hon Hai Precision Industry Co. Ltd. (Foxconn, 鴻海精密工業股份有限公司) also has a considerable presence in India, with plants in Bengaluru, Chennai, and Hyderabad. Foxconn and India's Hindustan Computers Limited (HCL) Group are planning a joint venture to set up a semiconductor outsourced assembly and testing unit. Foxconn is investing USD $37.2 million in the project, and will hold an equity stake of 40 percent. Foxconn's decision to hold equity will ensure the supply chain resilience for the needs of India's domestic industry even after the completion of the project.

These partnerships and collaborations between India and Taiwan also encourage more cooperation and dialogue between Indian and Taiwanese companies. In May, the India Taipei Association (ITA), ISM, and India's Ministry of Electronics and Information Technology jointly organized India-Taiwan Semiconductor Forum. The forum discussed current market conditions for Taiwanese companies and technology providers aiming to strengthen industrial cooperation between Taiwan and India. During the forum, the All-India Council for Technical Education (AICTE) signed multiple memoranda of understanding (MOUs) between India and Taiwanese academic institutions. These MOUs are directed towards building cooperation on skill development, student exchange programs, and research and development efforts. Some initial successes in the semiconductor sector can already be observed: more than 128 colleges have adopted the curriculum developed by AICTE, and around 8,000 highly skilled individuals are expected to join India's semiconductor workforce in the coming years through these programs.

The Challenges of Greater Cooperation

Taiwanese companies and private enterprises have experienced multiple challenges in terms of greater cooperation with India, including: cumbersome administrative structures, a lack of experienced engineers, high tariffs on electronics component imports, and inadequate infrastructure. Taiwanese companies are hesitant to invest in India due to complex labor laws, environmental regulations, and import/export restrictions. For semiconductor fabs to succeed, they require numerous suppliers for raw materials and components, as well as an unlimited power supply. Establishing a new semiconductor industry and its operations depends on the quality suppliers of raw materials. Although building a reliable supply chain network within India is crucial, it will also take time and investment.

Image: The display booth of Holtek (a Taiwan-based semiconductor manufacturer) at the Electronic India Technology Expo in Bangalore, India (September 2016). Taiwanese and Indian firms are increasingly pursuing cooperative efforts in the semiconductor industry. (Image source: Wikimedia Commons)

Despite efforts from both the Indian and Taiwanese governments, India has only managed to attract PSMC, a smaller Taiwanese company specializing in memory chips, to establish a full-fledged semiconductor industry. The failure of Foxconn's attempt to start a semiconductor and display production plant in India with Vedanta shows the difficulties faced by new players entering the Indian semiconductor manufacturing and supply chain. The industry poses significant challenges for new entrants, primarily due to its high capital requirements and the difficulty in obtaining valuable intellectual property.

Opportunities for Taiwan in India's Semiconductor Industry

The government of India's "Make in India" and "Design in India" initiatives encourage investors and manufacturers to start their operations in India with government support. Additionally, the Indian government's "India Semiconductor Mission" provides up to 50 percent of the project cost, necessary fiscal supports and encouragements for setting up semiconductor fabs and display fabs. Moreover, the 2024 budget allocated ₹69.03 billion Indian rupees (INR) (USD $825 million) to the semiconductor sector and established a USD $12 billion innovation corpus for research and development.

India's large market and ample workforce provides a growing opportunity for Taiwan and Taiwanese companies. It is estimated that India has 20 percent of the world's semiconductor design workforce, and its semiconductor market is expected to grow at a compound

annual growth rate (CAGR) of 26.3 percent, to USD $271.9 billion by 2032. Taipei's New Southbound Policy (NSP, 新南向政策) positions countries like India as strategic partners and encourages Taiwanese companies to invest in India. Along with the Indian government's initiatives, initiatives from the Taiwanese government also provide Taiwanese companies with opportunities to benefit from India's growing semiconductor market and growing workforce.

Geopolitical Implications for India-Taiwan Semiconductor Cooperation

India's cooperation with Taiwan in the semiconductor sector carries significant geopolitical implications, particularly in the context of escalating tensions in the Indo-Pacific region. China has been assertive in its claims over Taiwan and has sought to dominate global semiconductor supply chains. By strengthening ties with Taiwan, India can position itself as a viable alternative within the "China Plus One" strategy, which aims to diversify supply chains away from a reliance on Chinese manufacturing.

Collaboration in semiconductor industries aligns with broader strategic partnerships involving the United States and other allies concerned about China's ambitions. The United States, through initiatives like the *CHIPS and Science Act*, is keen on reshoring semiconductor manufacturing and reducing dependence on foreign sources, particularly from China. Moreover, strengthening semiconductor ties between India and Taiwan contributes to regional stability by promoting economic interdependence that can act as a deterrent against conflict. A collaborative approach in this high-tech sector could lead to increased dialogue and cooperation among countries sharing similar concerns about China's expansionist policies.

Conclusion

The increasing collaboration between Taiwan and India in the semiconductor sector holds the promise of transforming India into a key player in the global chip manufacturing ecosystem. While challenges persist regarding infrastructure, human capital, and supply chain problems, the mutual benefits of this partnership make it an essential part of India's semiconductor ambitions. The failure to attract Taiwan's semiconductor giants—such as Taiwan Semiconductor Manufacturing Company (TSMC, 台灣積體電路製造股份有限公司)—to India's semiconductor manufacturing sector is also a challenge that needs to be overcome. With Taiwan's advanced expertise and India's determination to build a robust semiconductor industry, the partnership between these two nations could shape the future of global technology and manufacturing.

The main point: It is essential for India to attract Taiwanese companies in order for India to become a semiconductor manufacturing hub. Cooperation with Taiwanese companies provides invaluable technological support to India's semiconductor industries, and the joint venture between PSMC and Tata Electronics is a promising beginning for further cooperation between India and Taiwan in upcoming years. However, the lack of reliable supply chain networks, a cumbersome administrative structure, and inadequate infrastructure all remain key hurdles to broader cooperation between India and Taiwan in the semiconductor industry.